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Pressure Measurement

valve manifolds on transmitters



	Pomoto coale for transmitters and						
2/2	Product overview		Remote seals for transmitters and				
2/2 2/5 2/11 2/16 2/22 2/27 2/32 2/40	Transmitters for basic requirements SITRANS P200 for gauge and absolute pressure SITRANS P210 for gauge pressure SITRANS P220 for gauge pressure SITRANS P250 for differential pressure SITRANS P MPS (submersible sensor) Transmitter for hydrostatic level SITRANS P Compact for gauge and absolute pressure Transmitters with WirelessHART SITRANS P280 for gauge and absolute pressure	2/191 2/199 2/202 2/206 2/209 2/212 2/215 2/219 2/221	pressure gauges Technical description Diaphragm seals of sandwich design - with flexible capillary Diaphragm seals of flange design - with flexible capillary - directly fitted on transmitter - fixed connection and with capillary Diaphragm seal, screwed design - directly mounted or/and with capillary Quick-release diaphragm seals Miniature diaphragm seals Flushing rings for diaphragm seals				
2/45 2/65 2/66	Transmitters for food, pharmaceuticals and biotechnology SITRANS P300 for gauge and absolute pressure SITRANS P300 Spare parts/Accessories SITRANS P300 - Factory-mounting of valve manifolds on transmitters	2/223 2/226 2/229 2/230 2/232 2/234	Inline seals for flange-mounting Quick-release inline seals Measuring setups - with remote seals - without remote seals Questionnaire				
2/68 2/73 2/79	Transmitters for the paper industry SITRANS P300 and DS III for gauge pressure with PMC connection Technical description Technical specifications, ordering data, dimensional drawings - SITRANS P DS III with PMC connection - SITRANS P300 with PMC connection	2/237 2/238 2/240 2/242	Fittings Technical description Selection aid Shut-off valves for gauge and absolute pressure transmitters - Shut-off valves to DIN 16270, DIN 16271 and DIN 16272 - Angle adapter				
2/85 2/92 2/100 2/111 2/119 2/128 2/141 2/151 2/153 2/159	Transmitters for general requirements SITRANS P DS III Technical description Technical specifications, ordering data, dimensional drawings - for gauge pressure - for gauge and absolute pressure with front-flush diaphragm - for absolute pressure (from gauge pressure series) - for absolute pressure (from differential pressure series) - for differential pressure and flow - for level SITRANS P DS III Supplementary electronics for 4-wire connection SITRANS P DS III - Factory-mounting of valve manifolds on transmitters	2/243 2/244 2/248 2/250 2/253 2/256 2/258 2/260 2/264 2/267 2/269 2/270	- Double shut-off valves - Accessories for shut-off valves/double shut-off valves Shut-off valves for differential pressure transmitters - 2-, 3- and 5-spindle valve manifolds DN 5 - Multiway cocks PN 100 - 3-way and 5-way valve manifolds DN 5 - 3-way valve manifold DN 8 - Valve manifold combination DN 5/DN 8 - Valve manifold combination DN 8 - 2-, 3- and 5-spindle valve manifolds for installing in protective boxes - 3- and 5-spindle valve manifolds for vertical angular diff. pressure lines - Low-pressure multiway cock Accessories - Oval flange - Adapters				
2/162 2/167 2/174 2/183 2/185 2/188	Transmitters for High Performance requirements SITRANS P500 Technical description Technical specifications, ordering data, dimensional drawings - for differential pressure and flow - for level SITRANS P500 - Supplementary electronics for 4-wire connection SITRANS P 500 Accessories/Spare parts SITRANS P500 - Factory-mounting of	2/271 2/272 2/273 2/274 2/275 2/277 2/278	 Connection glands Connection parts G½ Water traps, Sealing rings to EN 837-1 Pressure surge reducers Primary shut-off valves Compensation vessels Connection parts You can download all instructions, catalogs and certificates for SITRANS P free of charge at the following Internet address: www.siemens.com/sitransp 				

Siemens FI01 · 2012

Pressure Measurement Product overview

Overview

	Application	Description		Software for parameterization
SITRANS P · Transmitters for ba	sic requirements			
NEW	Two or three-wire transmitters for measuring gauge and absolute pressure	SITRANS P200 Single-range transmitters for gauge and absolute pressure Ceramic measuring cell For general applications	2/5	-
<u>n</u>		SITRANS P210 • Single-range transmitters for gauge pressure • Stainless steal measuring cell • For low-pressure applications	2/11	-
		SITRANS P220 Single-range transmitters for gauge pressure Stainless steel measuring cell, fully welded For high-pressure applications and refrigeration technology	2/16	-
12 to 12	Two or three-wire transmitter for measuring differential pressure	SITRANS P250 • Compact single-range transmitters • Analog electronics • Available ex stock	2/22	-
	Two-wire transmitter for measuring hydrostatic levels	SITRANS P MPS (submersible sensor) • For measuring liquid levels in wells, tanks, channels, dams etc.	2/27	-
	Transmitters for gauge and absolute pressure for food, pharmaceuticals and biotechnology	SITRANS P Compact Single-range transmitters in two-wire system Hygiene-based design with various aseptic connections according to EHEDG, FDA and GMP recommendations.	2/32	-
SITRANS P · Transmitters with V	WirelessHART communication			
	Wireless transmitter with Wireless HART for measuring gauge and absolute pressure	SITRANS P280 Wireless communication with WirelessHART Battery operation Parameterization using 3 buttons and SIMATIC PDM with HART modem or wireless with WirelessHART	2/40	SIMATIC PDM
SITRANS P · Transmitters for fo	od, pharmaceuticals and bioted	chnology		
	Two-wire transmitters for measuring gauge and absolute pressure	SITRANS P300 Hygiene-based design according to EHEDG, 3A, FDA and GMP Parameterization using 3 buttons and communication over HART, PROFIBUS PA or FOUNDATION Fieldbus Standard process connection G½", ½-NPT and front-flush process connections available Range adjustment 100: 1	2/45	SIMATIC PDM
		Factory-mounting of valve manifolds on SITRANS P300 transmitters • Simplified assembly • With pressure test • Stainless steel valve manifolds	2/66	-

Pressure Measurement Product overview

	Application	Description		Software for parameterization
SITRANS P · Transmitter for gau	ige pressure for the paper indu	stry		
	Two-wire transmitters for measuring gauge pressure	SITRANS P DS III and SITRANS P300 with PMC connection • Range adjustment 100 : 1 • Process connections for the paper industry • Parameterization using 3 buttons and HART, PROFIBUS PA or FOUNDATION Fieldbus	2/68	SIMATIC PDM
SITRANS P · Transmitter for gen	eral requirements			
3953	Two-wire transmitters for measuring: • Gauge pressure, • Absolute pressure, • Differential pressure and • Flow or • Level	SITRANS P DS III Range adjustment: 100 : 1 Parameterization using: • 3 buttons and HART for SITRANS P DS III HART • 3 buttons and PROFIBUS PA for SITRANS P DS III PA series • 3 buttons and FOUNDATION Fieldbus for SITRANS P DS III FF series • Available ex stock	2/85	SIMATIC PDM SIMATIC PDM
	Supplementary electronics for adaptation of two-wire transmitters for four-wire connections	Output: 0/4 20 mA Power supply: 24 V AC/DC, 230 V AC	2/151	-
		Factory mounting of valve manifolds on gauge, absolute or differential pressure transmitters SITRANS P DS III • Simplified assembly • With pressure test • Stainless steel valve manifolds	2/159	-
SITRANS P - Transmitters for Hi	gh Performance requirements			
NEW ST.	Two-wire transmitters for measuring: • Differential pressure • Volume flow • Mass flow • Level • Volume • Mass	SITRANS P500 Range adjustment: 200 :1 High measuring accuracy Very fast response time Extremely good long-term stability Parameterization: 3 buttons or HART	2/162	SIMATIC PDM
	Supplementary electronics for adaptation of two-wire transmitters for four-wire connections	Output: 0/4 20 mA Power supply: 24 V AC/DC, 230 V AC	2/183	
		Factory-mounting of manifolds on differential pressure transmitters SITRANS P500 • Simplified assembly • With pressure test • Stainless steel valve manifolds	2/188	

Pressure Measurement Product overview

	Application	Description		Software for parameterization
Remote seals for transmitters ar	nd pressure gauges			
	Remote seals for measuring viscous, corrosive or fibrous media (as well as media at extreme temperatures)	Remote seals in sandwich and flange designs Quick-release remote seals for the food industry Wide range of diaphragm materials and fill fluid available	2/191	-
Fittings				
	Shutting off the lines for the medium and differential pres- sure Mounting of transmitter on valve manifold or shut-off fitting	Shut-off fittings and valve manifolds available in steel, brass or stainless steel Valve manifolds available for the various process connections of the SITRANS P transmitters	2/237	-

Transmitters for basic requirements

SITRANS P200 for gauge and absolute pressure

Overview



The SITRANS P200 pressure transmitter measures the gauge and absolute pressure of liquids, gases and vapors.

- · Ceramic measuring cell
- Gauge and absolute measuring ranges 1 to 60 bar (15 to 1000 psi)
- · For general applications

Benefits

- · High measuring accuracy
- Rugged stainless steel enclosure
- High overload withstand capability
- For aggressive and non-aggressive media
- For measuring the pressure of liquids, gases and vapors
- Compact design

Application

The SITRANS P200 pressure transmitter for gauge and absolute pressure is used in the following industrial areas:

- · Mechanical engineering
- Shipbuilding
- · Power engineering
- Chemical industry
- Water supply

Design

Device structure without explosion protection

The pressure transmitter consists of a piezoresistive measuring cell with a diaphragm installed in a stainless steel enclosure. It can be used with a connector per EN 175301-803-A (IP65), a round plug M12 (IP67), a cable (IP67) or a cable quick screw connection (IP67) connected electrically. The output signal is between 4 and 20 mA or 0 and 10 V.

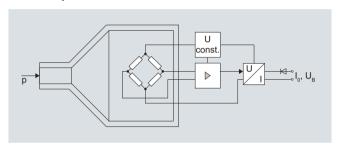
Device structure with explosion protection

The pressure transmitter consists of a piezoresistive measuring cell with a diaphragm installed in a stainless steel enclosure. It can be used with a connector per EN 175301-803-A (IP65) or a round plug M12 (IP67) connected electrically. The output signal is between 4 and 20 mA.

Function

The pressure transmitter measures the gauge and absolute pressure of liquids and gases as well as the level of liquids.

Mode of operation



SITRANS P200 pressure transmitters (7MF1565-...), functional diagram

The ceramic measuring cell has a thin-film resistance bridge to which the operating pressure p is transmitted through a ceramic diaphragm.

The voltage output from the measuring cell is converted by an amplifier into an output current of 4 to 20 mA or an output voltage of 0 to 10 V DC.

The output current and voltage are linearly proportional to the input pressure.

Pressure Measurement Transmitters for basic requirements

SITRANS P200 for gauge and absolute pressure

Technical specifications			
Application		Design	
Gauge and absolute pressure measurement	Liquids, gases and vapors	Weight Process connections	Approx. 0.090 kg (0.198 lb) See dimension drawings
Mode of operation		Electrical connections	Connector per
Measuring principle	Piezo-resistive measuring cell (ceramic diaphragm)	Electrical confrections	EN 175301-803-A Form A with cable inlet M16x1.5 or ½-14 NPT or Pg 11
Measured variable	Gauge and absolute pressure		• M12 connector
Inputs Measuring range			• 2 or 3-wire (0.5 mm²) cable (∅ ± 5.4 mm)
Gauge pressure			 Cable quick screw connection
MetricUS measuring range	1 60 bar (15 870 psi) 15 1000 psi	Wetted parts materials	
Absolute pressure	·	Measuring cell	Al ₂ O ₃ - 96 %
- Metric - US measuring range	0.6 16 bar a (10 232 psia) 10 300 psia	Process connection	Stainless steel, mat. No. 1.4404 (SST 316 L)
Output		Gasket	• FPM (Standard)
Current signal	4 20 mA		Neoprene
• Load	(U _B - 10 V) / 0.02 A		PerbunanEPDM
 Auxiliary power U_B 	DC 7 33 V (10 30 V for Ex)	Non watted parts materials	• EPDIVI
Voltage signal	0 10 V DC	Non-wetted parts materials • Enclosure	Chairless shall must ble 1 4404
• Load	≥ 10 kΩ	• Ericiosure	Stainless steel, mat. No. 1.4404 (SST 316 L)
 Auxiliary power U_B 	12 33 V DC	• Rack	Plastic
 Power consumption 	$<$ 7 mA at 10 k Ω	• Cables	PVC
Characteristic curve	Linear rising	Certificates and approvals	
Measuring accuracy Error in measurement at limit setting incl. hysteresis and reproducibility	Typical: 0.25 % of full-scale value Maximum: 0.5 % of full-scale value	Classification according to pressure equipment directive (PED 97/23/EC)	For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 3, paragraph 3 (sound engineering practice)
Step response time T ₉₉	< 5 ms	Lloyds Register of Shipping (LR)	Applied
Long-term stability		Germanischer Lloyds Register of	Applied
Lower range value and measuring span	0.25 % of full-scale value/year	Shipping (GL) American Bureau of Shipping (ABS)	Applied
Influence of ambient temperature		Bureau Veritas (BV)	Applied
Lower range value and measuring span	0.25 %/10 K of full-scale value	Det Norske Veritas (DNV) Drinking water approval (ACS)	Applied Applied
Influence of power supply	0.005 %/V	GOST	Applied
Conditions of use		Explosion protection	
Process temperature with gasket made of:		Intrinsic safety "i" (only with current output)	Ex II 1/2 G Ex ia IIC T4 Ga/Gb Ex II 1/2 D Ex ia IIIC T125 °C
 FPM (Standard) 	-15 +125 °C (+5 +257 °F)		Da/Db
Neoprene	-35 +100 °C (-31 +212 °F)	EC type-examination certificate	SEV 10 ATEX 0146
Perbunan	-20 +100 °C (-4 +212 °F)	Connection to certified intrinsically- safe resistive circuits with maxi-	$U_i \le 30 \text{ V DC}; I_i \le 100 \text{ mA};$ $P_i \le 0.75 \text{ W}$
• EPDM	-40 +145 °C (-40 +293 °F), usable for drinking water	mum values: Effective internal inductance and	$L_i = 0 \text{ nH}; C_i = 0 \text{ nF}$
Ambient temperature	-25 +85 °C (-13 +185 °F)	capacity for versions with plugs per	2, - 0 111 1, 0, - 0 111
Storage temperature	-50 +100 °C (-58 +212 °F)	EN 175301-803-A and M12	
Degree of protection (to EN 60529)	 IP 65 with connector per EN 175301-803-A IP 67 with M12 connector IP 67 with cable IP 67 with cable quick screw connection 		
Electromagnetic compatibility	 acc. EN 61326-1/-2/-3 acc. NAMUR NE21, only for ATEX versions and with a max. measuring deviation ≤ 1 % 		

Pressure Measurement
Transmitters for basic requirements
SITRANS P200
for gauge and absolute pressure

Selection an	nd ordering data								Order No.	Order cod
	200 pressure tran		pressure	and abso	lute pressure	for general	applications	D)	7MF1565-	-
	ic curve deviation									
	materials: Cerami		ess sieel +	sealing ma	ateriai					
<u>'</u>	parts materials: sta									
Measuring ra	ange	Overload I	limit			Burst press	sure			
		Min.		Max.						
For gauge p	ressure			ų.		'				
0 1 bar	(0 14.5 psi)	-0.4 bar (-	-5.8 psi)	2.5 bar	(36.26 psi)	> 2,5 bar	(> 36.3 psi)	•	3 B A	
0 1.6 bar	(0 23.2 psi)	-0.4 bar (-	-5.8 psi)	4 bar	(58.02 psi)	> 4 bar	(> 58.0 psi)	•	3 B B	
0 2.5 bar	(0 36.3 psi)	-0.8 bar (-	-11.6 psi)	6.25 bar	(90.65 psi)	> 6,25 bar	(> 90.7 psi)	\blacktriangleright	3 B D	
0 4 bar	(0 58.0 psi)	,	-11.6 psi)	10 bar	(145 psi)	> 10 bar	(> 145 psi)	•	3 B E	
0 6 bar	(0 87.0 psi)	-1 bar (-	-14.5 psi)	15 bar	(217 psi)	> 15 bar	(> 217 psi)	•	3 B G	
0 10 bar	(0 145 psi)	-1 bar (-	-14.5 psi)	25 bar	(362 psi)	> 25 bar	(> 362 psi)	\blacktriangleright	3 C A	
0 16 bar	(0 232 psi)	,	-14.5 psi)	40 bar	(580 psi)	> 40 bar	(> 580 psi)	▶	3 C B	
0 25 bar	(0 363 psi)		-14.5 psi)	62.5 bar	(906 psi)	> 62,5 bar	(> 906 psi)	>	3 C D	
0 40 bar	(0 580 psi)		-14.5 psi)	100 bar	(1450 psi)	> 100 bar	(> 1450 psi)		3 C E	
0 60 bar	(0 870 psi)		-14.5 psi)	150 bar	(2175 psi)	> 150 bar	(> 2175 psi)		3 C G	
Other versior	n, add order code	and plain tex	kt: Measurii	ng range:	up to bar	(psi)			9 A A	H 1
For absolute	•						,			
	(0 8.7 psia)	,	0 psia)	3 bar a	(43.51 psia)	> 2,5 bar a	(> 36.3 psia)		5 A G	
0 1 bar a 0 1.6 bar a	(0 14.5 psia)	,	0 psia) 0 psia)	2.5 bar a 4 bar a	(36.26 psia) (58.02 psia)	> 2,5 bar a > 4 bar a	(> 36.3 psia)		5 B A 5 B B	
0 1.6 bar a	· ' '	,	o psia) O psia)		(36.02 psia) a (90.65 psia)		(> 58.0 psia) (> 90.7 psia)	•	5 B D	
	, , ,	,	. ,		, , ,					
0 4 bar a 0 6 bar a	(0 58.0 psia) (0 87.0 psia)	,	0 psia)		(145 psia) (217 psia)	> 10 bar a > 15 bar a	(> 145 psia) (> 217 psia)		5 B E 5 B G	
0 0 bar a	(0 67.0 psia) (0 145 psi)	`	0 psia) 0 psia)		(362 psia)	> 15 bar a	(> 362 psia)	•	5 C A	
0 16 bar a	(0 232 psi)	`	o psia) O psia)		(580 psia)	> 40 bar a	(> 580 psia)		5 C B	
	n, add order code	1	' '				()		9 A A	H 1
	anges for gauge				up to me	- a (pola)			• AA	
weasuring i	(0 15 psi)		-5.8 psi)	iliaikei) ∣	(35 psi)	1	(> 35 psi)		4 B B	
	(3 15 psi)		-5.8 psi)		(35 psi)		(> 35 psi)		4 B C	
	(0 20 psi)		-5.8 psi)		(50 psi)		(> 50 psi)		4 B D	
	(0 30 psi)		-5.8 psi)		(80 psi)		(> 80 psi)		4 B E	
	(0 60 psi)	(-	-11.5 psi)		(140 psi)		(> 140 psi)		4 B F	
	(0 100 psi)	,	-14.5 psi)		(200 psi)		(> 200 psi)		4 B G	
	(0 150 psi)	(-	-14.5 psi)		(350 psi)		(> 350 psi)		4 C A	
	(0 200 psi)	(-	-14.5 psi)		(550 psi)		(> 550 psi)		4 C B	
	(0 300 psi)	(-	-14.5 psi)		(800 psi)		(> 800 psi)		4 C D	
	(0 500 psi)	(-	-14.5 psi)		(1400 psi)		(> 1400 psi)		4 C E	
	(0 750 psi)	(-	-14.5 psi)		(2000 psi)		(> 2000 psi)		4 C F	
	(0 1000 psi)	(-	-14.5 psi)		(2000 psi)		(> 2000 psi)		4 C G	
Other versior	n, add order code	and plain tex	kt: Measurii	ng range:	up to psi				9 A A	H 1
Measuring ra	anges for absolut	te pressure	(only for U	JS market)					
	(0 10 psia)		0 psia)		(35 psia)		(> 35 psia)		6 A G	
	(0 15 psia)	,	0 psia)		(35 psia)		(> 35 psia)		6 B A	
	(0 20 psia)	,	0 psia)		(50 psia)		(> 50 psia)		6 B B	
	(0 30 psia)		0 psia)		(80 psia)		(> 80 psia)		6 B D	
	(0 60 psia)		0 psia)		(140 psia)		(> 140 psia)		6 B E	
	(0 100 psia)		Opsia)		(200 psia)		(> 200 psia)		6 B G	
	(0 150 psia)		0 psia)		(350 psia)		(> 350 psia)		6 C A	
	(0 200 psia) (0 300 psia)		0 psia) 0 psia)		(550 psia) (800 psia)		(> 550 psia) (> 800 psia)		6 C B 6 C C	
					, , ,	1	(> 000 psia)			
Other version	n, add order code	and plain tex	kt: Measurii	ng range:	up to psi	a			9 A A	H 1

Available ex stock

Pressure Measurement Transmitters for basic requirements

SITRANS P200 for gauge and absolute pressure

Selection and ordering data		Order No.	Orde	er code
SITRANS P 200 pressure transmitters for pressure and absolute pressure for general applications	D)	7MF1565-		
Accuracy typ. 0.25 % Wetted parts materials: Ceramic and stainless steel + sealing material				
Non-wetted parts materials: stainless steel				
Output signal				
4 20 mA; two-wire system; power supply 7 33 V DC (10 30 V DC for ATEX versions)	•	0		
0 10 V; three-wire system; power supply 12 33 V DC	•	1 0		
Explosion protection (only 4 20 mA)				
None	>	0		
With explosion protection EEx ia IIC T4	>	1		
Electrical connection				
Connector per DIN EN 175301-803-A, stuffing box thread M16 (with coupling) Round connector M12 per DIN EN 60139-9 (not for gauge pressure ranges ≤ 16 bar) Connection via fixed mounted cable, 2m (not for type of protection "Intrinsic safety i") Cable quick screw connection PG9 (not for type of protection "Intrinsic safety i") Connector per DIN EN 175301-803-A, stuffing box thread 1/2"-14 NPT (with coupling) Connector per DIN EN 175301-803-A, stuffing box thread PG11 (with coupling) Special version	•	0	1 2 3 4 5 6	N1Y
Process connection		_		
G½" male per EN 837-1 (½" BSP male) (standard for metric pressure ranges mbar, bar) G½" male thread and G1/8" female thread G¼" male per EN 837-1 (¼" BSP male) 7/16"-20 UNF male	•		A B C D	
1/4"-18 NPT male (standard for pressure ranges inH ₂ O and psi) 1/4"-18 NPT female 1/2"-14 NPT male 1/2"-14 NPT female 1/2"-10 UNF female M20x1.5 male			E F G H J	
Special version			z	P1Y
Sealing material between sensor and enclosure				
Viton (FPM, standard) Neoprene (CR) Perbunan (NBR) EPDM Special version	•		A B C D	Q1Y
Version Standard version	•			
Further designs	-			
Supplement the order no. with "-Z" and add order code.				
Manufacturer's test certificate M per DIN 55340, Part 18 and ISO 8402 (calibration certificate) supplied		C11		
Oxygen application, oil and grease-free cleaning (only in conjunction with the sealing material Viton between sensor and enclosure)		E10		
Available overteels				

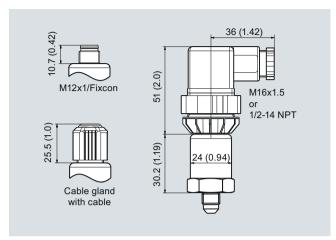
Available ex stock

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

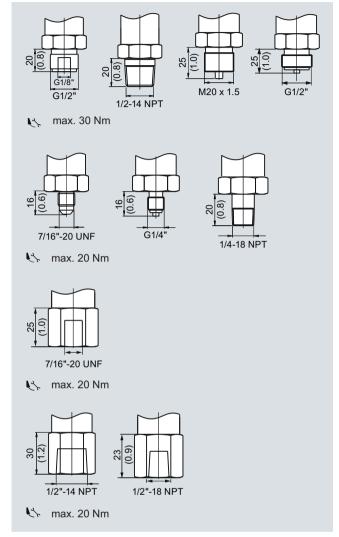
Transmitters for basic requirements

SITRANS P200 for gauge and absolute pressure

Dimensional drawings



SITRANS P200, electrical connections, dimensions in mm (inch)

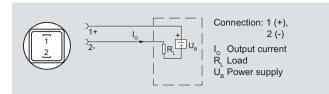


SITRANS P200, process connections, dimensions in mm (inch)

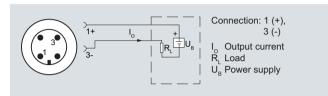
Transmitters for basic requirements

SITRANS P200 for gauge and absolute pressure

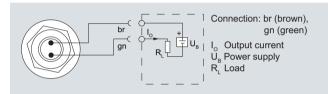
Schematics



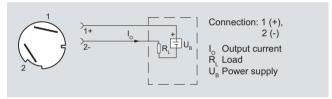
Connection with current output and connector per EN 175301



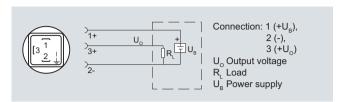
Connection with current output and connector M12x1



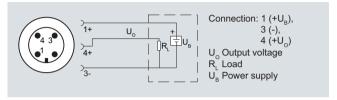
Connection with current output and cable



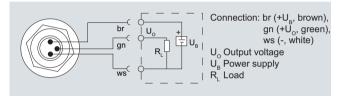
Connection with current output and cable quick screw connection



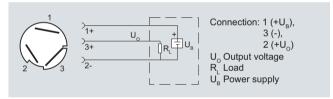
Connection with voltage output and connector per EN 175301



Connection with voltage output and connector M12x1



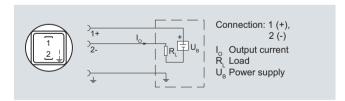
Connection with voltage output and cable



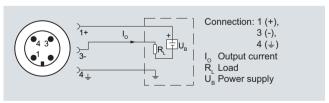
Connection with voltage output and cable quick screw connection

Version with explosion protection: 4 ... 20 mA

The grounding connection is conductively bonded to the transmitter enclosure



Connection with current output and connector per EN 175301 (Ex)



Connection with current output and connector M12x1 (Ex)

Transmitters for basic requirements

SITRANS P210 for gauge pressure

Overview



The pressure transmitter SITRANS P210 measures the gauge pressure of liquids, gases and vapors.

- Stainless steal measuring cell
- Measuring ranges 100 to 600 mbar (1.45 to 8.7 psi) relative
- For low-pressure applications

Benefits

- · High measuring accuracy
- Rugged stainless steel enclosure
- High overload withstand capability
- For aggressive and non-aggressive media
- For measuring the pressure of liquids, gases and vapors
- Compact design

Application

The pressure transmitter SITRANS P210 for gauge pressure is used in the following industrial areas:

- Mechanical engineering
- Shipbuilding
- · Power engineering
- Chemical industry
- Water supply

Design

Device structure without explosion protection

The pressure transmitter consists of a piezoresistive measuring cell with a diaphragm installed in a stainless steel enclosure. It can be used with a connector per EN 175301-803-A (IP65), a round plug M12 (IP67), a cable (IP67) or a cable quick screw connection (IP67) connected electrically. The output signal is between 4 and 20 mA or 0 and 10 V.

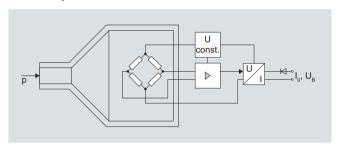
Device structure with explosion protection

The pressure transmitter consists of a piezoresistive measuring cell with a diaphragm installed in a stainless steel enclosure. It can be used with a connector per EN 175301-803-A (IP65) or a round plug M12 (IP67) connected electrically. The output signal is between 4 and 20 mA.

Function

The pressure transmitter measures the gauge pressure of liquids and gases as well as the level of liquids.

Mode of operation



SITRANS P210 pressure transmitters (7MF1566-...), functional diagram

The stainless steel measuring cell has a thin-film resistance bridge to which the operating pressure p is transmitted through a stainless steel diaphragm.

The voltage output from the measuring cell is converted by an amplifier into an output current of 4 to 20 mA or an output voltage of 0 to 10 V DC.

The output current and voltage are linearly proportional to the input pressure.

Pressure Measurement Transmitters for basic requirements

SITRANS P210 for gauge pressure

<u> </u>			
Technical specifications			
Application		Design	
Gauge measurement	Liquids, gases and vapors	Weight	Approx. 0.090 kg (0.198 lb)
Mode of operation		Process connections	See dimension drawings
Measuring principle	Piezoresistive measuring cell (stainless steel diaphragm)	Electrical connections	 Connector per EN 175301-803-A Form A with cable inlet M16x1.5 or ½-14 NPT
Measured variable	Gauge pressure		or Pg 11
Inputs			M12 connector
Measuring range			 2 or 3-wire (0.5 mm²) cable (Ø ± 5.4 mm)
Gauge pressure	100 600 mbar (1.5 8.7 psi)		Cable quick screw connection
Output		Wetted parts materials	
Current signal	4 20 mA	 Measuring cell 	Stainless steel, matNo. 1.4435
• Load	(U _B - 10 V) / 0.02 A	 Process connection 	Stainless steel, mat. No. 1.4404
 Auxiliary power U_B 	DC 7 33 V (10 30 V for Ex)	- Olist	(SST 316 L)
Voltage signal	0 10 V DC	Gasket	FPM (Standard)Neoprene
• Load	\geq 10 k Ω		Perbunan
 Auxiliary power U_B 	12 33 V DC		• EPDM
Power consumption	$<$ 7 mA at 10 k Ω	Non-wetted parts materials	
Characteristic curve	Linear rising	• Enclosure	Stainless steel, mat. No. 1.4404 (SST 316 L)
Measuring accuracy		• Rack	Plastic
Error in measurement at limit setting incl. hysteresis and reproducibility	 Typical: 0.25 % of full-scale value 	• cables	PVC
,	Maximum: 0.5 % of full-scale value		1 00
Step response time T ₉₉	< 5 ms	Classification according to pressure equipment directive	For gases of fluid group 1 and liquids of fluid group 1;
Long-term stability		(PED 97/23/EC)	meets requirements as per article
Lower range value and measuring span	0.25 % of full-scale value/year		3, paragraph 3 (good engineering practice)
Influence of ambient temperature		Lloyds Register of Shipping (LR)	Applied
• Lower range value and measuring span	0.25 %/10 K of full-scale value0.5 %/10K of full-scale value	Germanischer Lloyds Register of Shipping (GL)	Applied
	for a measuring range	American Bureau of Shipping (ABS)	Applied
	100 400 mbar	Bureau Veritas (BV)	Applied
• Influence of power supply	0.005 %/V	Det Norske Veritas (DNV)	Applied
Conditions of use		Drinking water approval (ACS)	Applied
Process temperature with gasket made of:		GOST	Applied
 FPM (Standard) 	-15 +125 °C (+5 +257 °F)	Explosion protection	
Neoprene	-35 +100 °C (-31 +212 °F)	Intrinsic safety "i" (only with current output)	Ex II 1/2 G Ex ia IIC T4 Ga/Gb
Perbunan	-20 +100 °C (-4 +212 °F)	output)	Ex II 1/2 D Ex ia IIIC T125 °C Da/Db
• EPDM	-40 +145 °C (-40 +293 °F), usable for drinking water	EC type-examination certificate	SEV 10 ATEX 0146
Ambient temperature	-25 +85 °C (-13 +185 °F)	Connection to certified intrinsically- safe resistive circuits with maxi-	$\begin{array}{l} U_{j} \leq 30 \text{ V DC}; I_{j} \leq 100 \text{ mA}; \\ P_{j} \leq 0.75 \text{ W} \end{array} \label{eq:equation:equation:equation}$
Storage temperature	-50 +100 °C (-58 +212 °F)	mum values:	
Degree of protection (to EN 60529)	P 65 with connector per EN 175301-803-A IP 67 with M12 connector IP 67 with cable IP 67 with cable quick screw	Effective internal inductance and capacity for versions with plugs per EN 175301-803-A and M12	L _i = 0 nH; C _i = 0 nF
Electromagnetic compatibility	• acc. EN 61326-1/-2/-3		
	 acc. NAMUR NE21, only for ATEX versions and with a max. measuring deviation ≤ 1 % 		
Mounting position	upright		

Pressure Measurement Transmitters for basic requirements SITRANS P210 for gauge pressure

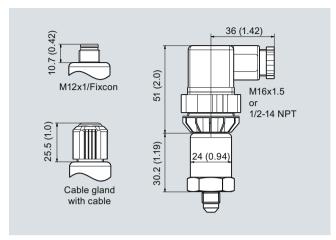
SITRANS P 210 pressu	data							Order No.		Orc	ler coc
Accuracy typ. 0.25 %	e transmitters f	or gauge press	sure for low p	ressure app	lications		D)	7MF1566			
Wetted parts materials: S	tainless steel + s	sealing material									
Non-wetted parts materia		· ·									
Measuring range	Overloa				Burst n	ressure					
mododinig rango	min.		max.		Duiot p						
For going proceirs	111111-		max.								
For gauge pressure	40 mb ar	(0 E0 mai)	QEO mbox	(2.62 ==:)	lo E box	(7.05 noi)			2 4 4		
0 100 mbar (0.58 ps 0 160 mbar (2.32 ps		' ' '	250 mbar 400 mbar	(3.63 psi) (5.8 psi)	0.5 bar 0.5 bar	(7.25 psi) (7.25 psi)	•		3 A A 3 A B		
0 250 mbar (3.63 ps		(/	625 mbar	(9.06 psi)	1 bar	(14.5 psi)	•		3 A C		
0 400 mbar (5.8 psi)	-80 mbar	' ' '	1000 mbar	(14.5 psi)	1 bar	(14.5 psi)	•		3 A D		
0 600 mbar (8.7 psi)	-100 mba	ar (-1.45 psi)	1500 mbar	(21.76 psi)	2.5 bar	(36.26 psi)	▶		3 A G		
Other version, add order Measuring range: up t		ext:	ı		I				9 A A		H 1
Output signal	. ,										
4 20 mA; two-wire sys	em: power suppl	v 7 33 V DC	(10 30 V DC	for ATFX ve	rsions)		•		0		
0 10 V; three-wire syst					. 5.5110)		•		10		
Explosion protection (c	nly 4 20 mA)										
None							•		0		
With explosion protection	EEx ia IIC T4						•		1		
Electrical connection											
Connector per DIN EN 1	5301 803 A etu	ffing boy throa	d M16 (with co	unling)						1	
Round connector M12 p		•	,	. 0,	r)					2	
Connection via fixed mo		, ,	•	•	•				0		
Cable quick screw conn					,				0		
Connector per DIN EN 1	,				a)					5	
Connector per DIN EN 1		•	,	, ,	57					6	
Special version	,	9		37						9	N 1
Process connection											
G½" male per EN 837-1	/₂" BSP male) (st	andard for met	ric pressure ra	nges mbar b	nar)		•			Α	
G½" male thread and G1	, ,		no procedio ra	90054., 2	, a.,					В	
										C	
	1/4" BSP male)										
G¼" male per EN 837-1	1/4" BSP male)									D	
G1/4" male per EN 837-1 7/16"-20 UNF male	,	nges inH ₂ O an	d psi)							D E	
G1/4" male per EN 837-1 7/16"-20 UNF male 1/4"-18 NPT male (standa 1/4"-18 NPT female	,	nges inH ₂ O an	d psi)							_	
G¼" male per EN 837-1 7/16"-20 UNF male ¼"-18 NPT male (standa	,	nges inH ₂ O an	d psi)							E	
G1/4" male per EN 837-1 7/16"-20 UNF male 1/4"-18 NPT male (standa 1/4"-18 NPT female	,	nges inH ₂ O an	d psi)							E F	
G¼" male per EN 837-1 7/16"-20 UNF male ¼"-18 NPT male (standa ¼"-18 NPT female ½"-14 NPT male	,	nges inH ₂ O an	d psi)							E F G	
G¼" male per EN 837-1 7/16"-20 UNF male ¼"-18 NPT male (standa ¼"-18 NPT female ½"-14 NPT male ½"-14 NPT female	,	nges inH ₂ O an	d psi)							E F G H	
G1/4" male per EN 837-1 7/16"-20 UNF male 1/4"-18 NPT male (standa 1/4"-18 NPT female 1/2"-14 NPT male 1/2"-14 NPT female 7/16"-20 UNF female M20x1.5 male	,	nges inH ₂ O an	d psi)							E F G H J	P 1
G1/4" male per EN 837-1 7/16"-20 UNF male 1/4"-18 NPT male (standa 1/4"-18 NPT female 1/2"-14 NPT male 1/2"-14 NPT female 7/16"-20 UNF female M20x1.5 male Special version	d for pressure ra	5 2	d psi)							E F G H J	P 1
G1/4" male per EN 837-1 7/16"-20 UNF male 1/4"-18 NPT male (standa 1/4"-18 NPT female 1/2"-14 NPT male 1/2"-14 NPT female 7/16"-20 UNF female M20x1.5 male Special version Sealing material betwee Viton (FPM, standard)	d for pressure ra	5 2	d psi)				•			E F G H J	P 1
G1/4" male per EN 837-1 7/16"-20 UNF male 1/4"-18 NPT male (standa 1/4"-18 NPT female 1/2"-14 NPT male 1/2"-14 NPT female 1/16"-20 UNF female 1/20x1.5 male	d for pressure ra	5 2	d psi)				•			E F G H J P	P 1
G1/4" male per EN 837-1 7/16"-20 UNF male 1/4"-18 NPT male (standa 1/4"-18 NPT female 1/2"-14 NPT male 1/2"-14 NPT female 7/16"-20 UNF female M20x1.5 male Special version Sealing material betwee Viton (FPM, standard) Neoprene (CR) Perbunan (NBR)	d for pressure ra	5 2	d psi)				•			E F G H J P Z	P 1
G1/4" male per EN 837-1 7/16"-20 UNF male 1/4"-18 NPT male (standa 1/4"-18 NPT male (standa 1/4"-18 NPT male 1/2"-14 NPT male 1/2"-14 NPT female 1/16"-20 UNF female 1	d for pressure ra	5 2	d psi)				•			E F G H J P Z	
G1/4" male per EN 837-1 7/16"-20 UNF male 1/4"-18 NPT male (standa 1/4"-18 NPT male (standa 1/4"-18 NPT male 1/2"-14 NPT male 1/2"-14 NPT female 1/16"-20 UNF female 1	d for pressure ra	5 2	d psi)				•			E F G H J P Z	
G1/4" male per EN 837-1 7/16"-20 UNF male 1/4"-18 NPT male (standa 1/4"-18 NPT male (standa 1/4"-18 NPT female 1/2"-14 NPT male 1/2"-14 NPT female 1/16"-20 UNF female 1/20x1.5 male 1/2	d for pressure ra	5 2	d psi)							E F G H J P Z	Q1
G1/4" male per EN 837-1 7/16"-20 UNF male 1/4"-18 NPT male (standa 1/4"-18 NPT male (standa 1/4"-18 NPT female 1/2"-14 NPT male 1/2"-14 NPT female 1/2"-14 NPT female 1/2"-15 male 1/2"-15 male 1/2"-16"-20 UNF female 1/2"-10"-10"-10" 1/2"-10"-10"-10" 1/2"-10"-10"-10" 1/2"-10"-10"-10" 1/2"-10"-10"-10" 1/2"-10"-10"-10" 1/2"-10"-10" 1/2"-10"-10" 1/2"-10"-10" 1/2"-10"-10" 1/2"-10"-10" 1/2"-10"-10" 1/2"-10"-10" 1/2" 1/2" 1/2" 1/2" 1/2" 1/2" 1/2" 1/2	d for pressure ra	5 2	d psi)				•			E F G H J P Z	
G1/4" male per EN 837-1 7/16"-20 UNF male 1/4"-18 NPT male (standa 1/4"-18 NPT female 1/2"-14 NPT male 2"-14 NPT female 7/16"-20 UNF female M20x1.5 male Special version Sealing material between Viton (FPM, standard) Neoprene (CR) Perbunan (NBR)	d for pressure ra	5 2	d psi)							E F G H J P Z	Q 1
G1/4" male per EN 837-1 7/16"-20 UNF male 1/4"-18 NPT male (standa 1/4"-18 NPT male (standa 1/4"-18 NPT female 1/2"-14 NPT male 1/2"-14 NPT female 1/2"-14 NPT female 1/16"-20 UNF female 1/20x1.5 male 1/20x1.5 mal	d for pressure ra	nclosure	d psi)							E F G H J P Z	Q1
G1/4" male per EN 837-1 7/16"-20 UNF male /4"-18 NPT male (standa /4"-18 NPT female /2"-14 NPT male /2"-14 NPT female 7/16"-20 UNF female M20x1.5 male Special version Sealing material betwee Vition (FPM, standard) Neoprene (CR) Perbunan (NBR) EPDM Special version Version Standard version Further designs	n sensor and el	nclosure		(calibration c	ertificate)	supplied		C11		E F G H J P Z	Q1

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

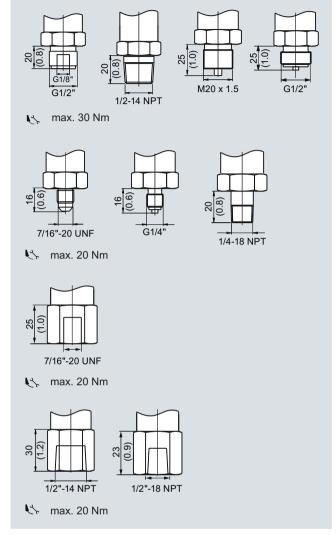
Transmitters for basic requirements

SITRANS P210 for gauge pressure

Dimensional drawings



SITRANS P210, electrical connections, dimensions in mm (inch)

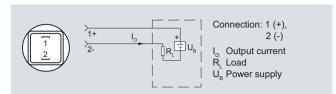


SITRANS P210, process connections, dimensions in mm (inch)

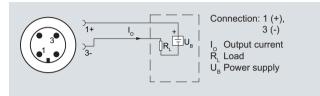
Transmitters for basic requirements

SITRANS P210 for gauge pressure

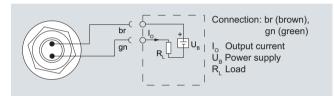
Schematics



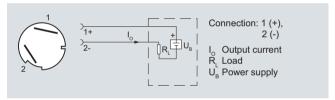
Connection with current output and connector per EN 175301



Connection with current output and connector M12x1

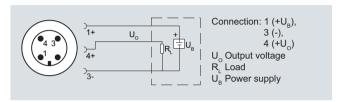


Connection with current output and cable

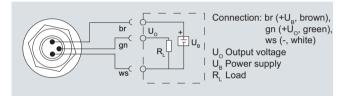


Connection with current output and cable quick screw connection

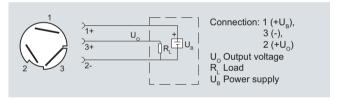
Connection with voltage output and connector per EN 175301



Connection with voltage output and connector M12x1



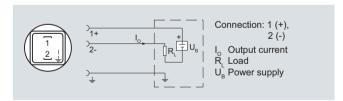
Connection with voltage output and cable



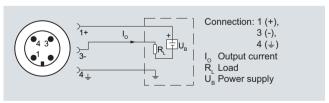
Connection with voltage output and cable quick screw connection

Version with explosion protection: 4 ... 20 mA

The grounding connection is conductively bonded to the transmitter enclosure



Connection with current output and connector per EN 175301 (Ex)



Connection with current output and connector M12x1 (Ex)

Transmitters for basic requirements

SITRANS P220 for gauge pressure

Overview



The pressure transmitter SITRANS P220 measures the gauge pressure of liquids, gases and vapors.

- · Stainless steel measuring cell, fully welded
- Measuring ranges 2.5 to 600 bar (36.3 to 8702 psi) relative
- For high-pressure applications and refrigeration technology division

Benefits

- · High measuring accuracy
- · Rugged stainless steel enclosure
- · High overload withstand capability
- · For aggressive and non-aggressive media
- For measuring the pressure of liquids, gases and vapors
- Compact design
- Gasket-less

Application

The pressure transmitter SITRANS P220 for gauge pressure is used in the following industrial areas:

- · Mechanical engineering
- Shipbuilding
- · Power engineering
- Chemical industry
- Water supply

Design

Device structure without explosion protection

The pressure transmitter consists of a piezoresistive measuring cell with a diaphragm installed in a stainless steel enclosure. It can be used with a connector per EN 175301-803-A (IP65), a round plug M12 (IP67), a cable (IP67) or a cable quick screw connection (IP67) connected electrically. The output signal is between 4 and 20 mA or 0 and 10 V.

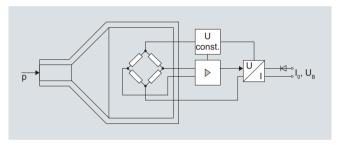
Device structure with explosion protection

The pressure transmitter consists of a piezoresistive measuring cell with a diaphragm installed in a stainless steel enclosure. It can be used with a connector per EN 175301-803-A (IP65) or a round plug M12 (IP67) connected electrically. The output signal is between 4 and 20 mA.

Function

The pressure transmitter measures the gauge pressure of liquids and gases as well as the level of liquids.

Mode of operation



SITRANS P220 pressure transmitters (7MF1567-...), functional diagram

The stainless steel measuring cell has a thick-film resistance bridge to which the operating pressure p is transmitted through a stainless steel diaphragm.

The voltage output from the measuring cell is converted by an amplifier into an output current of 4 to 20 mA or an output voltage of 0 to 10 V DC.

The output current and voltage are linearly proportional to the input pressure.

Pressure Measurement Transmitters for basic requirements

SITRANS P220 for gauge pressure

Technical specifications			
Application		Design	
Gauge pressure measurement	Liquids, gases and vapors	Weight	Approx. 0.090 kg (0.198 lb)
Mode of operation		Process connections	See dimension drawings
Measuring principle	Piezoresistive measuring cell (stainless steel diaphragm)	Electrical connections	Connector per EN 175301-803-A Form A with cable inlet M16x1.5 or ½-14 NPT
Measured variable	Gauge pressure		or Pg 11
Inputs			• M12 connector
Measuring range • Gauge pressure			 2 or 3-wire (0.5 mm²) cable (Ø ± 5.4 mm)
- Metric	2.5 600 bar		 Cable quick screw connection
	(36 8700 psi)	Wetted parts materials	
- US measuring range	30 8700 psi	 Measuring cell 	Stainless steel, matNo. 1.4016
Output		 Process connection 	Stainless steel, mat. No. 1.4404
Current signal	4 20 mA		(SST 316 L)
• Load	(U _B - 10 V) / 0.02 A	Non-wetted parts materials	
Auxiliary power U _B Voltage signal	DC 7 33 V (10 30 V for Ex) 0 10 V DC	• Enclosure	Stainless steel, mat. No. 1.4404 (SST 316 L)
Voltage signal		• Rack	Plastic
• Load	≥ 10 kΩ	• cables	PVC
Auxiliary power U _B Dever consumption	12 33 V DC	Certificates and approvals	
Power consumption	< 7 mA at 10 k Ω	Classification according to pressure	For gases of fluid group 1 and
Characteristic curve	Linear rising	equipment directive (PED 97/23/EC)	liquids of fluid group 1; complies with requirements of article 3,
Measuring accuracy Error in measurement at limit setting	• Typical: 0.25 % of full-scale	(1 25 37/20/20)	paragraph 3 (sound engineering practice)
incl. hysteresis and reproducibility	value • Maximum: 0.5 % of full-scale va-	Lloyds Register of Shipping (LR)	Applied
Ohan wasan and times T	lue	Germanischer Lloyds Register of Shipping (GL)	Applied
Step response time T ₉₉	< 5 ms	American Bureau of Shipping (ABS)	Applied
Long-term stability	0.05.04.44.114.4	Bureau Veritas (BV)	Applied
 Lower range value and measuring span 	0.25 % of full-scale value/year	Det Norske Veritas (DNV)	Applied
Influence of ambient temperature		Drinking water approval (ACS)	Applied
• Lower range value and measuring span	0.25 %/10 K of full-scale value	GOST Explosion protection	Applied
Influence of power supply	0.005 %/V	Intrinsic safety "i" (only with current	Ex II 1/2 G Ex ia IIC T4 Ga/Gb
Conditions of use		output)	Ex II 1/2 D Ex ia IIIC T125 °C Da/Db
Process temperature	-30 +120 °C (-22 +248 °F)	EC type-examination certificate	SEV 10 ATEX 0146
Ambient temperature	-25 +85 °C (-13 +185 °F)	Connection to certified intrinsically-	$U_{i} \le 30 \text{ V DC}; I_{i} \le 100 \text{ mA};$
Storage temperature	-50 +100 °C (-58 +212 °F)	safe resistive circuits with maxi-	$P_i \le 0.75 \text{ W}$
Degree of protection (to EN 60529)	 IP 65 with connector per EN 175301-803-A 	mum values: Effective internal inductance and	$L_i = 0 \text{ nH}; C_i = 0 \text{ nF}$
	IP 67 with M12 connectorIP 67 with cable	capacity for versions with plugs per EN 175301-803-A and M12	,,
	IP 67 with cable quick screw connection		

Electromagnetic compatibility

• acc. EN 61326-1/-2/-3

• acc. NAMUR NE21, only for ATEX versions and with a max. measuring deviation ≤ 1 %

Pressure Measurement Transmitters for basic requirements

SITRANS P220 for gauge pressure

Selection and	d ordering data								Order No.		er code
	220 pressure transı , fully-welded versi		r gauge pres	ssure, high	n-pressure an	d refrigera	tion	D)	7MF1567-	A	
ccuracy typ		- 11									
Vetted parts	materials: stainless	steel									
Non-wetted p	arts materials: stain	less steel									
Measuring ra	ange	Overloa	d limit			Burst pre	essure				
3	-	Mini-		Max.							
		mum									
or gauge pr	ressure	+		+		+					
) 2.5 bar	(0 36.3 psi)	-0.8 bar	(-11.6 psi)	6.25 bar	(90.7 psi)	25 bar	(363 psi)	•	3 B D		
) 4 bar	(0 58 psi)	-0.8 bar	(-11.6 psi)	10 bar	(145 psi)	40 bar	(870 psi)	•	3 B E		
) 6 bar	(0 87 psi)	-1 bar	(-14.5 psi)	15 bar	(217 psi)	60 bar	(522 psi)		3 B G		
) 10 bar	(0 145 psi)	-1 bar	(-14.5 psi)	25 bar	(362 psi)	60 bar	(870 psi)	>	3 C A		
) 16 bar	(0 232 psi)	-1 bar	(-14.5 psi)	40 bar	(580 psi)	96 bar	(1392 psi)	•	3 C B		
) 25 bar	(0 363 psi)	-1 bar	(-14.5 psi)	62.5 bar	(906 psi)	150 bar	(2176 psi)	•	3 C D		
) 40 bar	(0 580 psi)	-1 bar	(-14.5 psi)	100 bar	(1450 psi)	240 bar	(3481 psi)		3 C E		
) 60 bar	(0 870 psi)	-1 bar	(-14.5 psi)	150 bar	(2175 psi)	360 bar	(5221 psi)	•	3 C G		
) 100 bar	(0 1450 psi)	-1 bar	(-14.5 psi)	250 bar	(3625 psi)	600 bar	(8702 psi)		3 D A		
160 bar	(0 2320 psi)	-1 bar	(-14.5 psi)	400 bar	(5801 psi)	960 bar	(13924 psi)		3 D B		
) 250 bar	(0 3625 psi)	-1 bar	(-14.5 psi)	625 bar	(9064 psi)	1500 bar	(21756 psi)		3 D D		
) 400 bar	(0 5801 psi)	-1 bar	(-14.5 psi)	1000 bar	(14503 psi)	2400 bar	(34809 psi)		3 D E		
600 bar	(0 8702 psi)	-1 bar	(-14.5 psi)	1500 bar	(21755 psi)	2500 bar	(36260 psi)		3 D G		
	, add order code ar				(= 20 po.)		(,)				H11
	i, add order code ar nge: up to bar (XI:						9 A A		HII
0	<u> </u>	. ,									
neasuring ra	anges for gauge pr	essure (o	•	iarket)	(75 pc:\	İ	(260 pai)		4.0.5		
	(0 30 psi)		(-5.8 psi)		(75 psi)		(360 psi)		4 B E		
	(0 60 psi)		(-11.5 psi)		(150 psi)		(580 psi)		4 B F		
	(0 100 psi)		(-14.5 psi)		(250 psi)		(580 psi)		4 B G		
	(0 150 psi)		(-14.5 psi)		(375 psi)		(870 psi)		4 C A		
	(0 200 psi)		(-14.5 psi)		(500 psi)		(1390 psi)		4 C B		
	(0 300 psi)		(-14.5 psi)		(750 psi)		(2170 psi)		4 C D		
	(0 500 psi)		(-14.5 psi)		(1250 psi)		(3480 psi)		4 C E		
	(0 750 psi)		(-14.5 psi)		(1875 psi)		(5220 psi)		4 C F		
	(0 1000 psi)		(-14.5 psi)		(2500 psi)		(5220 psi)		4 C G		
	(0 1500 psi)		(-14.5 psi)		(3750 psi)		(8700 psi)		4 D A		
	(0 2000 psi)		(-14.5 psi)		(5000 psi)		(13920 psi)		4 D B		
	(0 3000 psi)		(-14.5 psi)		(7500 psi)		(21750 psi)		4 D D		
	(0 5000 psi)		(-14.5 psi)		(12500 psi)		(34800 psi)		4 D E		
	(0 6000 psi		(-14.5 psi)		(15000 psi)		(34800 psi)		4 D F		
	(0 8700 psi)		(-14.5 psi)		(21000 psi)		(52200 psi)		4 D G		
Other version	` ' '	l d plain to		rango:		1	()		9 A A		H11
	, add order code ar	iu piaifi le	λι. ivieasurin(y range:	up ισ psi				9 A A		пі
Output signa	al .										
	wo-wire system; pow				V DC for ATEX	(versions)		•	0		
) 10 V; thre	ee-wire system; pow	er supply	12 33 V D	С				•	1 0		
Explosion pr	otection (only 4	20 mA)									
lone	` •	,						•	0		
	n protection EEx ia	IC T4							1		
Electrical co											
	er DIN EN 175301-80		•	•	. 0,			•		1	
Round conne	ctor M12 per DIN E	N 60139-9	not for gau	ge pressur	e ranges ≤ 16	bar)				2	
Connection vi	ia fixed mounted ca	ble, 2 m (1	not for type o	of protection	n "Intrinsic safe	ety i")			0	3	
	screw connection PO	•							0	4	
	er DIN EN 175301-80					oling)				5	
	er DIN EN 175301-80	03-A, stuff	ing box threa	ad PG11 (w	rith coupling)					6	
pecial version	on									9	N 1 '
	x stock										

Available ex stock

Pressure Measurement Transmitters for basic requirements SITRANS P220

for gauge pressure

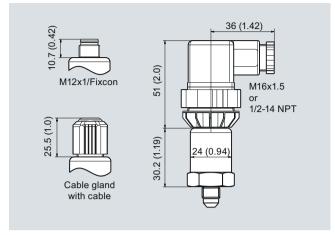
Selection and ordering data		Order No.	Orc	der code
SITRANS P 220 pressure transmitters for gauge pressure, high-pressure and refrigeration applications, fully-welded version Accuracy typ. 0.25 %	D)	7MF1567-	A	-
Wetted parts materials: stainless steel				
Non-wetted parts materials: stainless steel				
Process connection				
G½" male per EN 837-1 (½" BSP male) (standard for metric pressure ranges mbar, bar) G½" male thread and G1/8" female thread G¼" male per EN 837-1 (¼" BSP male) 7/16"-20 UNF male	•		A B C D	
1/4"-18 NPT male (standard for pressure ranges inH ₂ O and psi) 1/4"-18 NPT female (Only for measuring ranges ≤ 60 bar (870 psi)) 1/2"-14 NPT male 1/2"-14 NPT female (Only for measuring ranges ≤ 60 bar (870 psi)) 1/16"-20 UNF female 1/2"-15 male			E F G H J P	
Special version			Z	P 1 Y
Version Standard version	>			1
Further designs				
Supplement the order no. with "-Z" and add order code.				
Manufacturer's test certificate M per DIN 55340, Part 18 and ISO 8402 (calibration certificate) supplied	i	C11		
Oxygen application, oil and grease-free cleaning		E10		
Available ex stock				

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

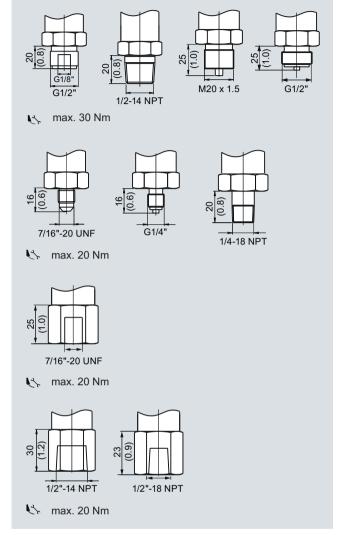
Transmitters for basic requirements

SITRANS P220 for gauge pressure

Dimensional drawings



SITRANS P220, electrical connections, dimensions in mm (inch)

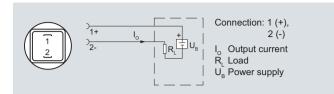


SITRANS P220, process connections, dimensions in mm (inch)

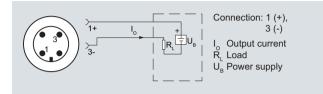
Transmitters for basic requirements

SITRANS P220 for gauge pressure

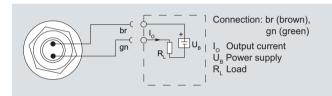
Schematics



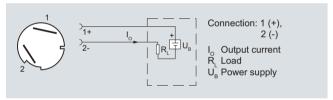
Connection with current output and connector per EN 175301



Connection with current output and connector M12x1

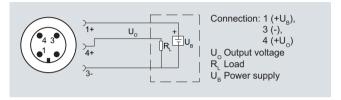


Connection with current output and cable

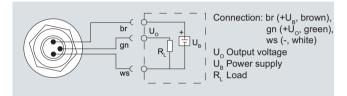


Connection with current output and cable quick screw connection

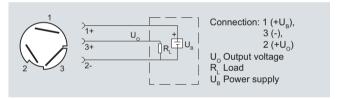
Connection with voltage output and connector per EN 175301



Connection with voltage output and connector M12x1



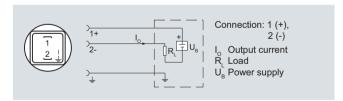
Connection with voltage output and cable



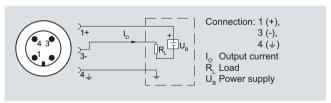
Connection with voltage output and cable quick screw connection

Version with explosion protection: 4 ... 20 mA

The grounding connection is conductively bonded to the transmitter enclosure



Connection with current output and connector per EN 175301 (Ex)



Connection with current output and connector M12x1 (Ex)

Transmitters for basic requirements

SITRANS P250 for differential pressure

Overview



The SITRANS P250 transmitter measures the differential pressure of liquids and gases.

Benefits

- · High measuring accuracy
- Sturdy stainless steel enclosure
- For aggressive and non-aggressive media
- For the measurement of the differential pressure of liquids and gases
- · Temperature-compensated measuring cell
- · Compact design

Application

The SITRANS P250 transmitter for differential pressure is primarily used in the following industries:

- Chemical industry
- · Heating, ventilation and air conditioning technology
- Food industry
- · Mechanical engineering
- Shipbuilding
- · Water supply

Design

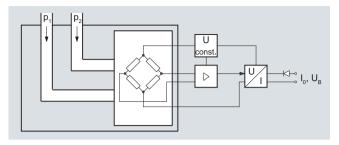
Main components:

- Stainless steel enclosure with piezo-resistive ceramic measuring cell (temperature-compensated) and electronics module
- Process connection made of stainless steel in diverse designs (see Selection and Ordering data)
- Electrical connection through connectors acc. to EN 175301-803-A and round connectors M12, as well as with permanently fixed cable

Function

The pressure transmitter measures the differential pressure of liquids and gases.

Mode of operation



SITRANS P250 pressure transmitter, function diagram

The piezo-resistive measuring cell (ceramic membrane) has a Wheatstone bridge circuit, on which the operating pressure P1 and P2 of the media acts at both ends.

The voltage output from the measuring cell is converted by an amplifier into an output current of 4 to 20 mA or an output voltage of 0 to 5 or 10 V DC.

The output current and voltage are linearly proportional to the input pressure.

Technical specifications

SITRANS P250 differential pressure transmitter					
	ie transmitter				
Application					
Differential pressure transmitter	Liquids and neutral gases				
Mode of operation					
Measuring principle	Piezo-resistive measuring cell (ceramic diaphragm)				
Input					
Measured variable	Differential pressure				
Measuring range	0 0.1 to 0 25 bar (0 1.45 to 0 363 psi)				
Operating pressure	≤ 25 bar at a differential pressure range > 6 bar ≤ 50 bar at a differential pressure range > 10 bar				
Burst pressure	1.5 x operating pressure				
Output					
Output signal					
Current output signal	4 20 mA				
Voltage output signal	0 5 V DC and 0 10 V DC				
Load					
• 3-wire	> 10 kΩ				
• 2-wire	≤ (U _H - 11 V) / 0.02 A				
Measuring accuracy					
Error in measurement at limit setting incl. hysteresis and reproducibility	≤ 1 % of typical full-scale value, see "Measuring range" table"				
Long-term stability acc. to IEC 60770	≤ 0.5 % of full-scale value/year				
Influence of ambient temperature					
• Start of scale	≤ 0.6 % / 10 K of full-scale value (≤ 1.2 % / 10K for measuring cell 0 0.1 bar (1.45 psi))				
• Full-scale value	≤ 0.22 % /10 K of full-scale value (≤ 0.37 % / 10K for measuring cell 0 0.1 bar (1.45 psi))				
Dynamic behavior	Suitable for static and dynamic measurements				
Step response time T ₉₉	< 5 ms				
Load variation	< 50 Hz				

Transmitters for basic requirements

SITRANS P250 for differential pressure

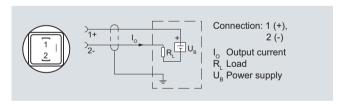
Rated conditions	
Ambient conditions	
Temperature of medium	- 15+ 85 °C (5 185 °F)
 Ambient temperature 	- 15+ 85 °C (5 185 °F)
Storage temperature	- 40+ 85 °C (-40 +185 °F)
Degree of protection acc. to EN 60529	IP65
Mounting position	Any
Mounting	Mounting bracket, included in delivery
Design	
Weight	Approx. 430 g (approx. 0.95 lb)
Enclosure material	Stainless steel 1.4305/AISI 303
Electrical connection	Plug EN 175301-803-ACircular plug EN 60130-9Cable 1.5 m
Process connection	 Hose sleeve Ø 4 mm/6 mm Pipe union Ø 6 mm/8 mm Male thread 7/16-20 UNF, G1/8" Female thread 1/8-27 NPT (Standard), G1/8"
Wetted parts materials	
Process connection	Stainless steel 1.4305/AISI 303, CuZn nickel-plated
Diaphragm	Ceramic Al ₂ O ₃ (96 %)
Sealing material	FPM (standard), EPDM, NBR, MVQ, CR
Power supply U _H	
Terminal voltage on pressure transmitter	
• 2-wire, 4 20 mA	11 33 V DC
• 3-wire, 0 5 V DC	11 33 V DC/
	24 V AC ±15 %
• 3-wire, 0 10 V DC	18 33 V DC/ 24 V AC ±15 %
Current consumption at nominal pressure	
• 2-wire	< 20 mA
• 3-wire	< 5 mA
Protection against polarity reversal	Protected against short-circuit and polarity reversal. Each connection against the other with max. supply voltage.
Certificates and approvals	

CE conformity

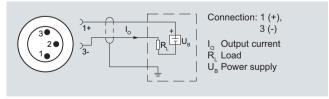
Approval

Measuring range		perm. ope- press rating pres- sure (on either side)		Max. ure perm. opera- ting pres- sure (on one side)	
[bar]	[inH ₂ O]				
0 0.1	0 40.18	25 bar (363 psi)	37.5 bar (544 psi)	0,6 bar (241 inH ₂ O)	≤ 1,0 %
0 0.2	0 80.37	25 bar (363 psi)	37.5 bar (544 psi)	0,6 bar (241 inH ₂ O)	≤ 0,8 %
0 0.25	0 100.46	25 bar (363 psi)	37.5 bar (544 psi)	0,6 bar (241 inH ₂ O)	≤ 0,5 %
0 0.3	0 120.56	25 bar (363 psi)	37.5 bar (544 psi)	0,6 bar (241 inH ₂ O)	≤ 0,5 %
0 0.4	0 160.74	25 bar (363 psi)	37.5 bar (544 psi)	1,2 bar (482 inH ₂ O)	≤ 0,8 %
0 0.5	0 200.9	25 bar (363 psi)	37.5 bar (544 psi)	1,2 bar (482 inH ₂ O)	≤ 0,5 %
0 0.6	0 241.0	25 bar (363 psi)	37.5 bar (544 psi)	1,2 bar (482 inH ₂ O)	≤ 0,5 %
0 1.0	0 402.0	25 bar (363 psi)	37.5 bar (544 psi)	2 bar (804 inH ₂ O)	≤ 0,5 %
0 1.6	0 643.0	25 bar (363 psi)	37.5 bar (544 psi)	3,2 bar (1286 inH ₂ O)	≤ 0,5 %
0 2.5	0 1005	25 bar (363 psi)	37.5 bar (544 psi)	5 bar (2009 H ₂ O)	≤ 0,5 %
0 4	0 1607	25 bar (363 psi)	37.5 bar (544 psi)	8 bar (3215 inH ₂ O)	≤ 0,5 %
0 6	0 2411	25 bar (363 psi)	37.5 bar (544 psi)	12 bar (4822 inH ₂ O)	≤ 0,5 %
0 10	0 4019	50 bar (725 psi)	75 bar (1088 psi)	20 bar (8037 inH ₂ O)	≤ 0,5 %
0 16	0 6430	50 bar (725 psi)	75 bar (1088 psi)	32 bar (464 psi)	≤ 0,5 %
0 25	0 10046	50 bar (725 psi)	75 bar (1088 psi)	50 bar (725 psi)	≤ 0,5 %

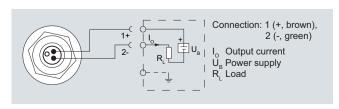
Schematics



Connection with current output 4 ... 20 mA and plug to EN 175301-803-A



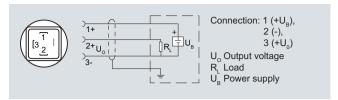
Connection with current output 4 ... 20 mA and round connector



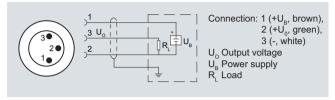
Connection with current output 4 ... 20 mA and permanently fixed cable

Transmitters for basic requirements

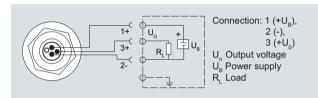
SITRANS P250 for differential pressure



Connection with voltage output 0 \dots 5 V DC (0 \dots 10 V DC) and plug to EN 175301-803-A

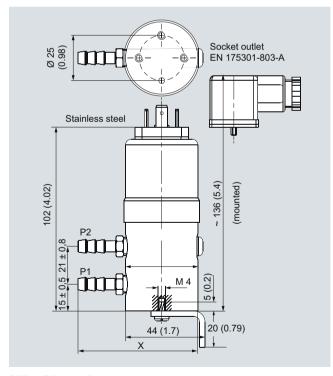


Connection with voltage output 0 ... 5 V DC (0 ... 10 V DC) and round connector

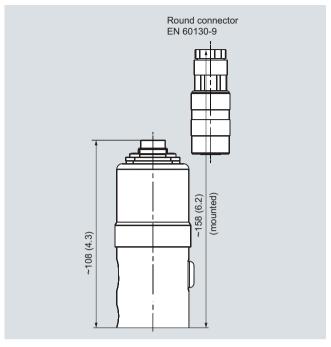


Connection with voltage output 0 \dots 5 V DC (0 \dots 10 V DC) and permanently fixed cable

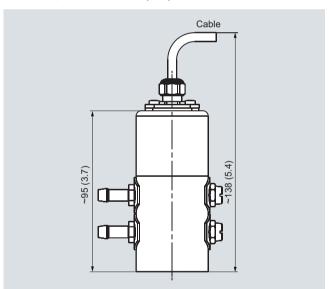
Dimensional drawings



SITRANS P250 differential pressure transmitter with socket outlet to EN 175301-803-A, dimensions in mm (inch)



SITRANS P250 differential pressure transmitter with round connector to EN 60130-9, dimensions in mm (inch)



SITRANS P250 differential pressure transmitter with cable, dimensions in mm (inch)

Pressure Measurement Transmitters for basic requirements SITRANS P250 for differential pressure

Process connections		Ø		Width across flats	L		Х	
		[mm]	[inch]		[mm]	[inch]	[mm]	[inch]
L L	Hose connection for hose (CuZn nickel-plated)	4 6	0.16 0.24	a = 10 a = 10	20 25	0.79 0.99	61 66	2.40 2.60
a LZ-8/L								
L →	Pipe union with screw-in nipple for outer pipe (CuZn nickel-plated)	6	0.24	a = 10 b = 12	24	0.95	65	2.56
La L		8	0.32	a = 12 b = 14	25	0.99	66	2.60
<u> </u>	Pipe union with screw-in nipple for outer pipe (stainless steel 1.4305/AISI 303)	6	0.24	a = 10 b = 12	24	0.95	65	2.56
N 27 N P T		8	0.32	a = 12 b = 14	26	1	67	2.64
t _a t _b								
7/16-20 UNF	Male thread G1/8 7/16-20 UNF (CuZn nickel-plated)	-	-	a = 14	18	0.71	59	2.32
G1/8 LdN L2-8/1	Female thread G1/8 (stainless steel 1.4305/AISI 303)	-	-	a = 14	12	0.47	53	2
T 1/8-27 NPT	Male thread G1/8 (CuZn nickel-plated)	F		a = 10 b = 12	20	0.79	61	2.40

Pressure Measurement Transmitters for basic requirements

SITRANS P250 for differential pressure

Selection and Ordering data		Order No.	Orde	er cod
SITRANS P 250 pressure transmitter for differential pressure		7MF1641-	0 - 0	
Accuracy ≤ 1 %, wetted parts ceramic/stainless steel 1.4301,				
scope of delivery: transmitter, mounting bracket and instruction manual, without explosion protection				
Measuring range				
0 0.1 bar (0 40.19 inH ₂ O)	>	3 A A		
0 0.2 bar (0 80.37 inH ₂ O)	>	3 A C		
0 0.25 bar (0 100.46 inH ₂ O)	>	3 A D		
0 0.3 bar (0 120.56 inH ₂ O)	>	3 A E		
0 0.4 bar (0 160.74 inH ₂ O)	>	3 A F		
0 0.5 bar (0 201.0 inH ₂ O)		3 A G		
0 0.6 bar (0 241.0 inH ₂ O)	>	3 A H		
0 1.0 bar (0 402.0 inH ₂ O)	>	3 B A		
0 1.6 bar (0 643.0 inH ₂ O)	>	3 B B		
0 2.5 bar (0 1005.0 inH ₂ O)	>	3 B D		
0 4.0 bar (0 1607.0 inH ₂ O)	>	3 B E		
0 6.0 bar (0 2411.0 inH ₂ O)		3 B G		
0 10.0 bar (0 4019.0 inH ₂ O)		3 C A		
0 16.0 bar (0 6430.0 inH ₂ O)	>	3 C B		
0 25.0 bar (0 10046 inH ₂ O)	>	3 C D		
Other version, add Order Code and plain text (Note: smallest possible span 100 mbar (40.19 inH ₂ O)				
Output signal				
4 20 mA	>		0	
0 5 V DC			1	
0 10 V DC			2	
Electrical connection				
Plug acc. to EN 175 301-803-A (suitable coupling included in scope of delivery)	>		1	
Round connector acc. to EN 60139-9			2	
Cable 1.5 m with cable gland			3	
Process connection				
Without connections, female thread 1/8-27 NPT			A	
Hose connection				
 CuZn nickel-plated, for hose Ø 4 mm 			В	
 CuZn nickel-plated, for hose Ø 6 mm 			C	
 PVDF, for hose Ø 6 mm 			D	
Pipe union				
 CuZn nickel-plated, for pipe Ø 6 mm 			E	
 Stainless steel 1.4304, for pipe Ø 6 mm 			F	
 CuZn nickel-plated, for pipe Ø 8 mm 			G	
• Stainless steel 1.4304, for pipe Ø 8 mm			Н	
Male thread, 7/16-20 UNF (CuZn nickel-plated)			L	
Adapter				
• Inner, G1/8 (stainless steel), for pipe Ø 6 mm			M	
• Outer, G1/8 (stainless steel), with union nut, for pipe \varnothing 6 mm			N	
Gealing material				
Fluoro rubber (Viton/FPM)			A	
Ethylene propylene diene monomer rubber (EPDM)			В	
Nitrile butadiene rubber (NBR)			C	
Silicone rubber (MVQ)			D	
Neoprene (CR)			E	
Further designs		Order Code		
Please add "-Z" to Order No. and specify Order code(s).				
Quality inspection certificate (factory calibration) to IEC 60770-2		C11		

Available ex stock

Transmitters for basic requirements

SITRANS P MPS (submersible sensor)
Transmitter for hydrostatic level

Overview



SITRANS P MPS pressure transmitters are submersible sensors for hydrostatic level measurements.

The SITRANS P MPS pressure transmitters are available for various measuring ranges and with explosion protection as an option

A junction box and a cable hanger are available as accessories for simple installation.

Benefits

- · Compact design
- Simple installation
- Small error in measurement (0,3 %)
- Degree of protection IP68

Application

SITRANS P MPS pressure transmitters are used in the following branches for example:

- · Oil and gas industries
- Shipbuilding
- Water supply
- For use in pressureless/open tanks and wells

Design

SITRANS P MPS pressure transmitters have a front-flush piezoresistive sensor with stainless steel diaphragm.

These pressure transmitters are equipped with an electronic circuit fitted together with the sensor in a stainless steel housing. The cable also contains a strength cord and vent pipe.

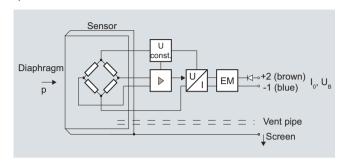
The diaphragm is protected against external influences by a protective cap.

The sensor, electronic circuit and cable are sealed in a common housing of small dimensions.

The pressure transmitter is temperature-compensated for a wide temperature range.

Function

SITRANS P MPS pressure transmitters are for measuring the liquid levels in wells, tanks, channels and dams.



SITRANS P MPS pressure transmitter, mode of operation and wiring diagram

On one side of the sensor, the diaphragm is exposed to the hydrostatic pressure which is proportional to the submersion depth. This pressure is compared with atmospheric pressure. Pressure compensation is carried out using the vent pipe in the connection cable.

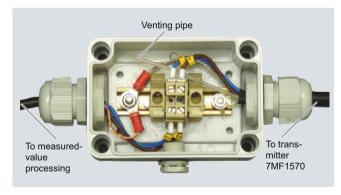
The hydrostatic pressure of the liquid column acts on the sensor diaphragm, and transmits the pressure to the piezo-resistive bridge in the sensor.

The output voltage of the sensor is applied to the electronic circuit where it is converted into an output current of 4 to 20 mA.

The cable of the 7MF1570 transmitter must always be connected in the supplied junction box. The junction box has to be installed near the measuring point.

If the medium is anything other than water, it is also necessary to check compatibility with the specified materials of the transmitter.

Integration



Junction box 7MF1570-8AA, opened

Pressure Measurement
Transmitters for basic requirements
SITRANS P MPS (submersible sensor)
Transmitter for hydrostatic level



Measuring point setup, in principle

Technical specifications

recimical specifications	
SITRANS P MPS pressure measur (submersible sensor)	ement transmitter
Mode of operation	
Measuring principle	piezo-resistive
Input	
Measured variable	Hydrostatic level
Measuring range	Maximum operating pressure
• 0 2 mH ₂ O (0 6 ftH ₂ O)	 1,4 bar (20.3 psi) (corresponds to 14 mH₂O (42 ftH₂O))
• 0 4 mH ₂ O (0 12 ftH ₂ O)	 1,4 bar (20.3 psi) (corresponds to 14 mH₂O (42 ftH₂O))
• 0 5 mH ₂ O (0 15 ftH ₂ O)	 1,4 bar (20.3 psi) (corresponds to 14 mH₂O (42 ftH₂O))
• 0 6 mH ₂ O (0 18 ftH ₂ O)	 3,0 bar (43.5 psi) (corresponds to 30 mH₂O (90 ftH₂O))
• 0 10 mH ₂ O (0 30 ftH ₂ O)	 3,0 bar (43.5 psi) (corresponds to 30 mH₂O (90 ftH₂O))
• 0 20 mH ₂ O (0 60 ftH ₂ O)	 5,0 bar (72.5 psi) (corresponds to 50 mH₂O (150 ftH₂O))
Output	
Output signal	4 20 mA
Measuring accuracy	Acc. to IEC 60770-1
Error in measurement at limit setting incl. hysteresis and reproducibility	0.3 % of full-scale value (typical)
Influence of ambient temperature	
Zero and span	
• 1 6 mH ₂ O (3 18 ftH ₂ O)	0.45 %/10 K of full-scale value

0.3 %/10 K of full-scale value

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Long-term stability	
Zero and span	
• 1 6 mH ₂ O (318 ftH ₂ O)	0.25 % of full-scale value/year
• \geq 6 mH ₂ O (\geq 18 ftH ₂ O)	0.2 % of full-scale value/year
Rated conditions	
Ambient conditions	
Process temperature	-10 +80 °C (14 176 °F)
Storage temperature	-40 +100 °C (-40 +212 °F)
Degree of protection to DIN EN 60529	IP68
Design	
Weight	
Pressure transmitter	≈ 0.4 kg (≈ 0.88 lb)
Cable	0.08 kg/m (≈ 0.054 lb/ft)
Electrical connection	Cable with 2 conductors with screen and vent pipe, strength cord (max. 300 N (67.44 lbf)
Material	
• Seal diaphragm	Stainless steel, mat. no. 316L/ 316 Ti
• Enclosure	Stainless steel, mat. no. 316L/ 316 Ti
Gasket	Viton
Connecting cable	Either PE/HFFR sheath (non-halogen) c FEP sheath
Power supply	
Terminal voltage on pressure transmitter $U_{\rm B}$	10 33 V DC
mitter $U_{\rm B}$	10 33 V DC
	10 33 V DC
mitter U _B Certificates and approvals The transmitter is not subject to the pressure equipment directive (PED 97/23/EC)	10 33 V DC
mitter U _B Certificates and approvals The transmitter is not subject to the pressure equipment directive (PED 97/23/EC)	10 33 V DC TÜV 03 ATEX 2004X
mitter U _B Certificates and approvals The transmitter is not subject to the pressure equipment directive (PED 97/23/EC) Explosion protection	
mitter U _B Certificates and approvals The transmitter is not subject to the pressure equipment directive (PED 97/23/EC) Explosion protection Intrinsic safety "i"	TÜV 03 ATEX 2004X
mitter U _B Certificates and approvals The transmitter is not subject to the pressure equipment directive (PED 97/23/EC) Explosion protection Intrinsic safety "i" - Marking	TÜV 03 ATEX 2004X
mitter U _B Certificates and approvals The transmitter is not subject to the pressure equipment directive (PED 97/23/EC) Explosion protection Intrinsic safety "i" - Marking Junction box	TÜV 03 ATEX 2004X Ex II 1 G EEx ia IIC T4 for connecting the transmitter
mitter U _B Certificates and approvals The transmitter is not subject to the pressure equipment directive (PED 97/23/EC) Explosion protection Intrinsic safety "i" - Marking Junction box Application	TÜV 03 ATEX 2004X Ex II 1 G EEx ia IIC T4 for connecting the transmitter
mitter U _B Certificates and approvals The transmitter is not subject to the pressure equipment directive (PED 97/23/EC) Explosion protection Intrinsic safety "i" - Marking Junction box Application Design	TÜV 03 ATEX 2004X Ex II 1 G EEx ia IIC T4 for connecting the transmitter cable
mitter U _B Certificates and approvals The transmitter is not subject to the pressure equipment directive (PED 97/23/EC) Explosion protection Intrinsic safety "i" - Marking Junction box Application Design Weight	TÜV 03 ATEX 2004X Ex II 1 G EEx ia IIC T4 for connecting the transmitter cable 0.2 kg (0.44 lb)
mitter U _B Certificates and approvals The transmitter is not subject to the pressure equipment directive (PED 97/23/EC) Explosion protection Intrinsic safety "i" - Marking Junction box Application Design Weight Electrical connection	TÜV 03 ATEX 2004X Ex II 1 G EEx ia IIC T4 for connecting the transmitter cable 0.2 kg (0.44 lb) 2 x 3-way (28 to 18 AWG)
mitter U _B Certificates and approvals The transmitter is not subject to the pressure equipment directive (PED 97/23/EC) Explosion protection Intrinsic safety "i" - Marking Junction box Application Design Weight Electrical connection Cable entry	TÜV 03 ATEX 2004X Ex II 1 G EEx ia IIC T4 for connecting the transmitter cable 0.2 kg (0.44 lb) 2 x 3-way (28 to 18 AWG) 2 x M20 x 1.5
mitter U _B Certificates and approvals The transmitter is not subject to the pressure equipment directive (PED 97/23/EC) Explosion protection Intrinsic safety "i" - Marking Junction box Application Design Weight Electrical connection Cable entry Enclosure material	TÜV 03 ATEX 2004X Ex II 1 G EEx ia IIC T4 for connecting the transmitter cable 0.2 kg (0.44 lb) 2 x 3-way (28 to 18 AWG) 2 x M20 x 1.5
mitter U _B Certificates and approvals The transmitter is not subject to the pressure equipment directive (PED 97/23/EC) Explosion protection Intrinsic safety "i" - Marking Junction box Application Design Weight Electrical connection Cable entry Enclosure material Vent pipe for atmospheric pressure	TÜV 03 ATEX 2004X Ex II 1 G EEx ia IIC T4 for connecting the transmitter cable 0.2 kg (0.44 lb) 2 x 3-way (28 to 18 AWG) 2 x M20 x 1.5
mitter U _B Certificates and approvals The transmitter is not subject to the pressure equipment directive (PED 97/23/EC) Explosion protection Intrinsic safety "i" - Marking Junction box Application Design Weight Electrical connection Cable entry Enclosure material Vent pipe for atmospheric pressure Screw for cable strength cord	TÜV 03 ATEX 2004X Ex II 1 G EEx ia IIC T4 for connecting the transmitter cable 0.2 kg (0.44 lb) 2 x 3-way (28 to 18 AWG) 2 x M20 x 1.5
mitter U _B Certificates and approvals The transmitter is not subject to the pressure equipment directive (PED 97/23/EC) Explosion protection Intrinsic safety "i" - Marking Junction box Application Design Weight Electrical connection Cable entry Enclosure material Vent pipe for atmospheric pressure Screw for cable strength cord Rated conditions Degree of protection to	TÜV 03 ATEX 2004X Ex II 1 G EEx ia IIC T4 for connecting the transmitter cable 0.2 kg (0.44 lb) 2 x 3-way (28 to 18 AWG) 2 x M20 x 1.5 polycarbonate
mitter U _B Certificates and approvals The transmitter is not subject to the pressure equipment directive (PED 97/23/EC) Explosion protection Intrinsic safety "i" - Marking Junction box Application Design Weight Electrical connection Cable entry Enclosure material Vent pipe for atmospheric pressure Screw for cable strength cord Rated conditions Degree of protection to DIN EN 60529	TÜV 03 ATEX 2004X Ex II 1 G EEx ia IIC T4 for connecting the transmitter cable 0.2 kg (0.44 lb) 2 x 3-way (28 to 18 AWG) 2 x M20 x 1.5 polycarbonate
mitter U _B Certificates and approvals The transmitter is not subject to the pressure equipment directive (PED 97/23/EC) Explosion protection Intrinsic safety "i" - Marking Junction box Application Design Weight Electrical connection Cable entry Enclosure material Vent pipe for atmospheric pressure Screw for cable strength cord Rated conditions Degree of protection to DIN EN 60529 Cable hanger	TÜV 03 ATEX 2004X Ex II 1 G EEx ia IIC T4 for connecting the transmitter cable 0.2 kg (0.44 lb) 2 x 3-way (28 to 18 AWG) 2 x M20 x 1.5 polycarbonate
mitter U _B Certificates and approvals The transmitter is not subject to the pressure equipment directive (PED 97/23/EC) Explosion protection Intrinsic safety "i" Marking Junction box Application Design Weight Electrical connection Cable entry Enclosure material Vent pipe for atmospheric pressure Screw for cable strength cord Rated conditions Degree of protection to DIN EN 60529 Cable hanger Application	TÜV 03 ATEX 2004X Ex II 1 G EEx ia IIC T4 for connecting the transmitter cable 0.2 kg (0.44 lb) 2 x 3-way (28 to 18 AWG) 2 x M20 x 1.5 polycarbonate

• \geq 6 mH₂O (\geq 18 ftH₂O)

Pressure Measurement
Transmitters for basic requirements
SITRANS P MPS (submersible sensor)
Transmitter for hydrostatic level

Selection and Ord			order code	Selection and Ord		Order No.	Orde	
	oressure transmit- sure (submersible	C) 7 M F 1 5 7 0 - ■■ A	.0		oressure transmit- ssure (submersible	C) 7MF1570·	A 0	
2-wire system				2-wire system				
Note: Junction box ncluded in delivery	and cable hanger			Note: Junction box included in deliver	and cable hanger			
With PE cable				With FEP cable				
Measuring range	Cable length L			Measuring range	Cable length L			
0 2 mH ₂ O		1 C		0 2 mH ₂ O		-	5 C	
) 4 mH ₂ O	10 m	1 D		0 4 mH ₂ O	10 m	-	5 D	
) 5 mH ₂ O	25 m	1 B		0 5 mH ₂ O	25 m	-	5 B	
0 6 mH ₂ O	25 m	1 E		0 6 mH ₂ O	25 m	-	5 E	
) 10 mH ₂ O		1 F		0 10 mH ₂ O		•	5 F	
) 20 mH ₂ O	25 m	1 G		0 20 mH ₂ O	25 m		5 G	
0 6 ftH ₂ O	32 ft	1 K		0 6 ftH ₂ O	32 ft		5 K	
) 12 ftH ₂ O	32 ft	1 L		0 12 ftH ₂ O	32 ft		5 L	
0 18 ftH ₂ O	82 ft	1 M		0 18 ftH ₂ O	82 ft		5 M	
0 30 ftH ₂ O	82 ft	1 N		0 30 ftH ₂ O	82 ft		5 N	
0 60 ftH ₂ O	82 ft	1 P		0 60 ftH ₂ O	82 ft		5 P	
	ht/Special measuring	9 A	Н		ht/Special measuring		9 A	Н
Order code and pla	measuring range Y0		Y 0 1	Order code and pl	measuring range Y0			Y
3 m	,		H 1 A	3 m	,			н
5 m			H1B	5 m				Н
7 m			H1C	7 m				н
10 m			H 1 D	10 m				Н
15 m			H1E	15 m				Н
20 m			H1F	20 m				н
25 m			H 1 G	25 m				Н
30 m			H1H	30 m				Н
40 m			H1J	40 m				Н
50 m			H1K	50 m				H
60 m			H1L	60 m				Н
70 m			H 1 M	70 m				Н
30 m			H 1 N	80 m				Н
90 m			H 1 P	90 m				Н
100 m			H1Q	100 m				Н
125 m			H1R	125 m				Н
150 m			H 1 S	150 m				Н
75 m			H 1 T	175 m				Н
200 m			H 1 U	200 m				Н
225 m			H 1 V	225 m				Н
250 m			H 1 W	250 m				Н
275 m			H 1 X	275 m				Н
800 m			H 2 A	300 m				H
350 m 100 m			H 2 B H 2 C	350 m 400 m				H
150 m 500 m			H 2 D H 2 E	450 m 500 m				H
550 m			H 2 F	550 m				Н
600 m			H 2 G	600 m				Н
650 m			H 2 H	650 m				Н
700 m			H 2 J	700 m				Н
750 m			H 2 K	750 m				Н
300 m			H 2 L	800 m				Н
350 m			H 2 M	850 m				Н
900 m			H 2 N	900 m				Н
950 m			H 2 P	950 m				н
1000 m			H 2 Q	1000 m				Н.

Transmitters for basic requirements

SITRANS P MPS (submersible sensor)
Transmitter for hydrostatic level

Selection and Ordering data		Order No.	Order cod	de
SITRANS P MPS pressure transmit- ter for gauge pressure (submersible sensor)		7MF1570-	A 0	
2-wire system				
Note: Junction box and cable hanger included in delivery				
Explosion protection				Ī
• None			1	
 with type of protection "intrinsic safety" (Ex II 1 G EEx ia IIC T4) 	•		2	
Approvals				
 with drinking water approval to WRAS and ACS 			6	
Further designs		Order code		
Quality inspection certificate (factory calibration) to IEC 60770-2, add "- Z " to order no. and add order code.)	C11		
Indication of measuring range (only at special cable lengths) in " to $\mathrm{mH}_2\mathrm{O}$ " or " to $\mathrm{ftH}_2\mathrm{O}$ "		Y01		
Accessories (as spare part)		Order No.		
Junction box		7MF1570-8AA		
for connecting the transmitter cable				
Cable hanger for attachment of transmitter		7MF1570-8AB		

Available ex stock

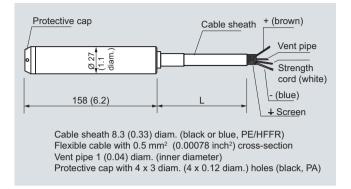
Power supply units see Chap. 8 "Supplementary Components".

 $^{1)}$ Special measuring ranges of between 0 ... 1 mH $_2\mathrm{O}$ (0 ... 3 ftH $_2\mathrm{O}$) and 0 ... 200 mH $_2\mathrm{O}$ (0 ... 656 ftH $_2\mathrm{O}$) and special cable lengths of up to 1000 m (3281 ft) are possible. With Ex versions the max. custom cable length is 50 m (150 ft). The length of free hanging cable should not exceed 375 m (1230 ft).

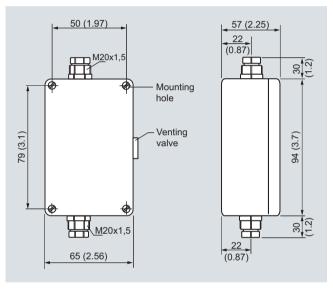
Note: Due to mounting reasons it has to be considered that the cable always must be longer than the height of the liquid column to be measured.

C) Subject to export regulations AL: N, ECCN: EAR99.

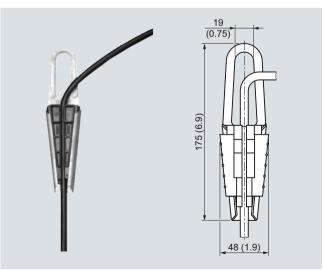
Dimensional drawings



SITRANS P MPS pressure transmitters, dimensions in mm (inch)



Junction box, dimensions in mm (inch)



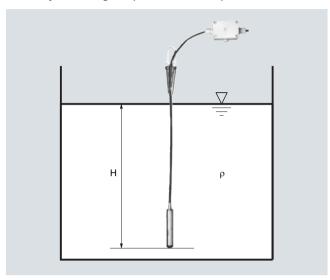
Cable hanger, dimensions in mm (inch)

Transmitters for basic requirements

SITRANS P MPS (submersible sensor)
Transmitter for hydrostatic level

More information

Determination of the measuring range in case of media with a density \neq 1000 kg/m3 (medium \neq water)



Calculation of the measuring range:

$p = \rho x g x H$

with:

 ρ = density of medium

g = local acceleration due to gravity

H = maximum level

Example:

Medium: Diesel fuel, $\rho = 850 \text{ kg/m}^3$ Acceleration due to gravity: 9.81 m/s²

Start-of-scale: 0 m Maximum level: 6.2 m Cable length: 7 m, FEP cable

Calculation:

 $p = 850 \text{ kg/m}^3 \times 9.81 \text{ m/s}^2 \times 6.2 \text{ m}$

 $p = 51698.7 \text{ N/m}^2$

p = 517 mbar

Transmitter to be ordered:

7MF1570-9AA02-Z, H5C + Y01

Y01: 0 ... 517 mbar

Transmitters for basic requirements

SITRANS P Compact for gauge and absolute pressure

Overview



The SITRANS P Compact pressure transmitter is designed for the special requirements of the food, pharmaceutical and biotechnology industries.

The use of high-grade materials guarantees compliance with hygiene regulations.

Particular value has been placed on a high surface quality. It is therefore possible, for example, to guarantee roughness values down to $R_a=0.4~\mu m~(1.57\cdot 10^{-5}~\text{inch})$ in the wetted area (welded seam area $R_a<0.8~\mu m~(3.15\cdot 10^{-5}~\text{inch})$). The system can be electropolished in addition.

A further important feature is the hygiene-based design of the process connection by means of various aseptic connections.

The completely welded stainless steel housing can be designed up to degree of protection IP67.

Using appropriate thermal decouplers, the SITRANS P Compact pressure transmitter can be used for process temperatures up to 200 $^{\circ}$ C (392 $^{\circ}$ F).

Benefits

- Measuring ranges from 0 to 160 mbar (0 to 2.32 psi) to 0 to 40 bar (0 to 580 psi)
- Linearity error including hysteresis < +0.2 % of full-scale value
- Piezo-resistive measurement system, vacuum-proof and overload-proof
- Hygiene-based design according to EHEDG, FDA and GMP recommendations
- Material and surface quality according to hygiene requirements
- Wetted parts made of stainless steel; completely welded
- Signal output 4 to 20 mA (0 to 20 mA as option)
- Stainless steel housing with degree of protection IP65 (IP67 as option)
- Process temperature up to 200 °C (392 °F)
- Explosion protection II 2G EEx [ib] IIC T6 to ATEX
- · Easy and safe to clean

Application

The SITRANS P Compact pressure transmitter is designed for the special requirements of the food, pharmaceutical and biotechnology industries.

The use of high-grade materials guarantees compliance with hygiene regulations.

The SITRANS P Compact pressure transmitter is available in many versions. Exact adaptation of the pressure transmitter to conditions at the place of use is thus possible

Design

The electronics is potted to protect it against moisture, corrosive atmospheres and vibration.

Notes on operating the pressure transmitter

Compensation of internal atmospheric pressure

Compensation of the internal atmospheric pressure of the SITRANS P Compact pressure transmitters is performed as follows:

- in the plug versions by means of the screwed gland (IP65)
- in the field housings by means of an integral sintered filter (IP65) or a vented cable (IP67)
- in versions with cable outlet by means of a vented cable (IP67)

In the absolute pressure range there is no need for compensation with respect to atmospheric pressure.

Note: These degrees of protection are only achieved under the following conditions:

- if the pressure transmitter is installed correctly
- if the screwed glands are securely tightened
- if the cable diameters agree with the nominal diameters of the gaskets in the housing

Note: The integral EMC measures are only effective if the earth connection is made correctly.

CE marking

The CE marking of the pressure transmitter certifies compliance with the guidelines of the European Council (9/336/EC), the EMC law (13.11.1992), as well as the applicable generic standards.

Interference-free operation in systems and plants is achieved only if the specifications for shielding, earthing, cable routing and electrical isolation are observed during installation and assembly.

Hazardous areas

Note: Electrical equipment in hazardous areas must only be installed and operated by trained personnel.

Modifications to units and connections result in cancellation of the explosion protection and guarantee.

With intrinsically-safe circuits, make sure that equipotential bonding exists throughout the complete cabling inside and outside of the hazardous area. The limits specified in the ATEX approval must be observed.

Pressure Measurement

Transmitters for basic requirements

SITRANS P Compact for gauge and absolute pressure

Function

The process pressure acts on a piezo-resistive semiconductor measuring bridge through a remote seal and a transmission liquid. The pressure transmitter converts the pressure values into a load-independent current.

A compensation network makes the output signal largely independent of the ambient temperature. As a result of a specially adapted remote seal connection with minimized volume, the influence of the process temperature on the output signal is greatly reduced compared to a conventional screw connection.

The pressure transmitters can be powered with a non-regulated DC voltage of 10 to 30 V. Output signals common to measuring technology are available.

Technical specifications

Pressure transmitters for food, ph	armaceuticals and biotechnology
Mode of operation	
Measuring principle	piezo-resistive
Input	
Measured variable	gauge or absolute pressure
Measuring range	0 160 mbar (0 2.32 psi)
	 0 40 bar (0 580 psi)
Output	
Output signal	
• 2-wire system	4 20 mA
• Three-wire system	0 20 mA
Measuring accuracy	Acc. to IEC 60770-1
Error in measurement at limit setting incl. hysteresis and reproducibility	≤ 0,2 % of full-scale value
Adjustment accuracy	\leq ± 0,2 % of full-scale value
Step response time	< 20 ms
Influence of ambient temperature	
On the enclosure	
• Zero point	< 0,2 %/10 K of full-scale value
Measuring span	< 0,2 %/10 K of full-scale value
On the process connection (remote seals)	Zero error (depends on design)
Flange remote seal	
- DN 25 / 1"	4.8 mbar/10 K (0.069 psi/10 K)
- DN 32 / 11/4"	2.3 mbar/10 K (0.92 psi/10 K)
- DN 40 / 1½"	1.6 mbar/10 K (0.64 psi/10 K)
- DN 50 / 2"	0.6 mbar/10 K (0.24 psi/10 K)
Clamp-on seal	
- DN 25 / 1"	9.5 mbar/10 K (0.14 psi/10 K)
- DN 32 / 11/4"	4.1 mbar/10 K (0.06 psi/10 K)
- DN 40 / 1½"	3.9 mbar/10 K (0.05 psi/10 K)
- DN 50 / 2"	3.9 mbar/10 K (0.05 psi/10 K)

The zero error specified for the process connection should be considered as a guideline for a standard design. We will produce a detailed system calculation on request. Systems with reduced remote seal errors are available on request.

Rated conditions	
Installation conditions	
Mounting position	Any, vertical as standard
Ambient conditions	
Ambient temperature	-10 +70 °C (14 158 °F)
Storage temperature	-10 +90 °C (14 194 °F)
Process temperature	Max. 200 °C (392 °F), depending on design
• Degree of protection (to EN 60529)	IP65, optional IP67
Electromagnetic Compatibility	
- Emitted interference	To EN 50081 Part 1, issue 1993 (residential and industrial areas). The unit has no own emissions.
- Noise immunity to	EN 50082 Part 2, issue March 1995 (industrial areas)
Design	
Weight (without remote seal)	
• Field enclosure	≈ 460 G (≈ 1.01 (lb)
Enclosure with plug	≈ 200 g (≈ 0.44 lb)
Enclosure	
• Designs	 Field housing IP65 or IP67, with screwed gland
	Angled plug DIN 43650, IP65
	Cable connection, IP67 Payed plug connector M12
	 Round plug connector M12, IP65
Material	Stainless steel, mat. no. 1.4404/316L/1.4305
Material of union nut	Polyamide (with electrical connection using plug or cable)
	Electronics unit potted with sili- cone
	Internal ventilation for measuring ranges < 16 bar (< 232 psi), through housing thread or con- nection cable depending on design
Process connection	
• Versions	See ordering data
Material of coupling	Stainless steel, mat. no. 1.4404/316L
Power supply	
Terminal voltage on transmitter	10 30 V DC
Rated voltage	24 V DC
Certificates and approvals	
01 10 11 11	

Po

Ce

Classification according to pressure equipment directive (PED 97/23/EC)

For gases of fluid group 1 and liquids of fluid group 1; complies with the requirements of article 3, paragraph 1 (appendix 1); assigned to category III, conformity evaluation module H by the TÜV

Explosion protection

· Intrinsic safety "i"

- Marking

TÜV 03 ATEX 2099 X Ex II 2G EEx ib IIC T6

Pressure Measurement Transmitters for basic requirements

SITRANS P Compact for gauge and absolute pressure

Selection and Ordering data	Order No.	Ord. code	Selection and Ordering data	Order No.	Ord. cod	
SITRANS P Compact pressure transmitters for pressure and absolute pressure with diaphragm flush at front	7MF8010-		SITRANS P Compact pressure trans- mitters for pressure and absolute pressure with diaphragm flush at front	7MF8010-		
-2-wire system Process temperature up to 140 °C (284 °F) Accuracy: 0.2 % of full-scale value Output 4 20 mA	1		2-wire system Process temperature up to 140 °C (284 °F) Accuracy: 0.2 % of full-scale value Output 4 20 mA	10000-0000 00		
Diaphragm seal			Diaphragm seal			
with quick-release clamp Milk pipe union to DIN 11851 with			with aseptic connection Aseptic screwed gland to DIN 11864-1,			
slotted union nut • DN 25	A D		form A, with slotted union nut 1 inch	DM		
	A D A E		• 1 Inch • 1½ inch	PM PN		
• DN 32 • DN 40	AF		• 2 inch	PP		
• DN 50	ĀĢ		• 2½ inch	PQ		
• DN 65	AH		Aseptic screwed gland to			
Milk pipe union to DIN 11851 with threaded socket			DIN 11864-1, form A with threaded socket			
• DN 25	BD		• 1 inch	QM		
• DN 32	BE		• 1½ inch	QN		
• DN 40	BF		• 2 inch	QP		
• DN 50	B G		• 2½ inch	QQ		
• DN 65	ВН		Aseptic screwed NEUMO with slotted union nut ¹⁾			
Clamp connection to DIN 32676			• DN 25	RD		
• DN 25	CD		• DN 32	RE		
• DN 40	CF		• DN 40	RF		
 DN 50 Clamp connection to ISO 2852 	CG		• DN 50	RG		
• 1 inch	DM		Aseptic screwed NEUMO			
• 1½ inch	DN		with threaded socket ¹⁾			
• 2 inch	DP		• DN 25	SD		
• 2½ inch	DQ		• DN 32	SE		
DF standard with slotted union nut			• DN 40	SF		
1 inch	ЕМ		DN 50 Aseptic screwed NEUMO	SG		
• 1½ inch	EN		with clamp connection, form R ¹⁾			
• 2 inch	EP		• DN 25	TD		
IDF standard with threaded socket			• DN 32	TE		
• 1 inch	FM		• DN 40	TF		
• 1½ inch	FN		• DN 50	TG		
 2 inch SMS standard with slotted union nut 	FP		Aseptic screwed NEUMO			
• 1 inch	GM		with clamp connection, form V ¹⁾			
• 1½ inch	GN		DN 25DN 32	UD		
• 2 inch	GP		• DN 40	UF		
SMS standard with threaded socket			• DN 50	UG		
1 inch	нм		Male thread DIN 3852 Form A	Ju		
• 1½ inch	HN		• G½", min. meas. span 1.6 bar (23.2 psi)	XA		
• 2 inch	HP		• G¾", min. meas. span 1 bar (14.5 psi)	ХВ		
DRD flange, without welding-type flange			• G1", min. meas. span 0.4 bar (5.8 psi)	хc		
• DN 50, PN 40	JH		• G1½", min. meas. span 0.25 bar	X D		
Varivent connection (Tuchenhagen) • D = 50, for Varivent housing DN 25 and	KF		(3.63 psi) • G2", min. meas. span 0.16 bar	ΧE		
1 inch • D = 68, for Varivent housing DN 40 DN 125 and 1½ 6 inch	KL		(2.32 psi) Special version (add Order code and plain text)	ZA	J 1 Y	
Special version (add Order code and plain text)	Z A	J 1 Y	Filling liquid Vegetable oil	1		
Filling liquid			Medicinal white oil	2		
Vegetable oil	1		Food oil, FDA-listed	3		
Medicinal white oil	2		Special version	9	L 1 Y	
Food oil, FDA-listed	3		· · · · · · · · · · · · · · · · · · ·			
Special version	9	L 1 Y	Output signal 4 20 mA	1		
Output signal 4 20 mA	1		Special version (add Order code and plain text)	9	M 1 Y	
Special version	9	M 1 Y				
(add Order code and plain text)			 Please specify as well: Connections for pipes: R01, R02 or R03, se 	e table "Further d	esigns" on n	

page

Pressure Measurement Transmitters for basic requirements SITRANS P Compact for gauge and absolute pressure

Selection and Ord	ering data	Order No.	Ord. code	Selection and Order	ing data	Order No.		Ord.	code
SITRANS P Compact pressure trans- mitters for pressure and absolute pressure with diaphragm flush at front		7 M F 8 0 1 0 -		SITRANS P Compact pressure trans- mitters for pressure and absolute pressure with diaphragm flush at front		7MF8010-			
2-wire system Process temperature up to 140 °C (284 °F) Accuracy: 0.2 % of full-scale value Output 4 20 mA		1		2-wire system Process temperature u Accuracy: 0.2 % of fu Output 4 20 mA		1	Т	Ī	
Housing design (stainless steel mat. No. 1.4404/316L) / electr. connection Housing with angled plug to DIN 43650, IP65		1		Measured range (continued)	Overload pres- sure				
Housing with round plug M12, IP65, union nut made of polyamide		2		-1 +9 bar (-14.5 +130.5 psi) -1 +15 bar	30 bar (435 psi) 50 bar		GA GB		
Housing with round plug M12, IP65, union nut made of stainless steel		3		(-14.5 +217.6 psi) 0 1 bar a	(725 psi) 10 bar a F		НА		
Stainless steel field housing (small) with cable gland, IP65		4		(0 14.5 psia) 0 1.6 bar a	(145 psia) 10 bar a F		нв		
Stainless steel field housing (small) with cable gland, IP67 Internal ventilation for measuring ranges < 10 bar (< 145 psi)		5		(0 23.2 psia) 0 2.5 bar a (0 36.3 psia) 0 4 bar a	(145 psia) 16 bar a F (232 psia) 16 bar a F		H C		
Measured range 0 160 mbar	Overload pressure	ВВ		(0 58 psia) 0 6 bar a (0 87 psia)	(232 psia) 30 bar a F (435 psia)		ΗE		
(0 2.32 psi) 0 250 mbar (0 3.63 psi)	(29 psi) 2 bar (29 psi)	вс		0 10 bar a (0 145 psia)	30 bar a F (435 psia)		J A		
0 400 mbar (0 5.8 psi)	6 bar (87 psi)	B D		Special version (add Order code and	plain text)		ZA	P 1	Y
0 600 mbar (0 8.7 psi)	6 bar (87 psi)	BE		Explosion protection without			1		
0 1 bar (0 14.5 psi)	10 bar (145 psi)	CA		with, to ATEX 100a, II Further designs	2 G, EEX ID IIC 16	Order code	2		
0 1.6 bar (0 23.2 psi) 0 2.5 bar	10 bar (145 psi) 16 bar	СВ		Please add "-Z" to Order No. and specify Order code					
(0 36.3 psi) 0 4 bar	(232 psi) 16 bar	CD		Hygiene version		P01			
(0 58 psi) 0 6 bar (0 87 psi)	(232 psi) 30 bar (435 psi)	CE		Roughness of process connection: Foil $R_a < 0.8 \mu m$ (3.15·10 ⁻⁸ inch); Welded seams $R_a < 1.5 \mu m$ (5.9·10 ⁻⁸ inch)					
0 10 bar (0 145 psi)	30 bar (435 psi)	DA		Integral cooling element Process temperature max. 200 °C		K01			
0 16 bar (0 232 psi)	50 bar (725 psi)	DB		(392 °F) instead of 14	0 °C (284 °F)				
0 25 bar (0 363 psi) 0 40 bar (0 580 psi)	50 bar (725 psi) 70 bar (1015 psi)	D C		Connections for pipe Pipes to DIN 11850 ISO pipes to DIN 2463 Pipes to O. D. Tubing "BS 4825 Part 1"		R01 R02 R03			
-160 0 mbar (-2.32 0 psi)	2 bar (29 psi)	ЕВ		Certificates Quality inspection cer	rtificate	C11			
-250 0 bar (-3.73 0 psi)	2 bar (29 psi)	EC		(Factory calibration) t	o IEC 60770-2	C12			
-400 0 bar (-5.8 0 psi) -600 0 bar	6 bar (87 psi) 6 bar	E D E E		Inspection certificate to EN 10204-3.1 Use of FDA-listed remote seal filling liquids certified by test report to EN 10204-2.2 C17					
(-8.7 0 psi) -1 0 bar (-14.5 0 psi)	(87 psi) 10 bar (145 psi)	FA		Roughness depth me certified by test repor		C18			
-1 0.6 bar (-14.5 8.7 psi) -1 1.5 bar	10 bar (145 psi) 16 bar	FB FC		Certification to EHEDG for clamp-on seals with aseptic screwed gland to DIN 11864					
(-14.5 21.8 psi) -1 3 bar (-14.5 43.5 psi)	(232 psi) 16 bar (232 psi)	FD		F) Subject to export re	gulations AL: 91999, E0	CCN: N.			
-1 5 bar (-14.5 72.5 psi)	30 bar (435 psi)	FE							

Pressure Measurement
Transmitters for basic requirements
SITRANS P Compact
for gauge and absolute pressure

Selection and Ordering data	Order No.	Ord. code
SITRANS P Compact pressure trans- mitters for pressure and absolute pressure with clamp-on remote seal	7MF8010-	
2-wire system Process temperature up to 140 °C (284 °F) Accuracy: 0.2 % of full-scale value Output 4 20 mA	2	
Clamp-on remote seal (screwed gland at both ends) with quick-release clamps Milk pipe union to DIN 11851 with threaded socket DN 25 DN 32 DN 40 DN 50 DN 65 Clamp connection to DIN 32676 DN 25 DN 32 DN 40 DN 50 DN 65 Clamp connection to DIN 32676 This inch Inch 1½ inch 2 inch Special version	AD AE AF AG AH CD CE CF CG CH DM DN DP DQ ZA	J 1 Y
(add Order code and plain text) Filling liquid Vegetable oil Medicinal white oil Food oil, FDA-listed	1 2 3	
Special version (add Order code and plain text)	9	L 1 Y
Output signal 4 20 mA	1	
Special version (add Order code and plain text)	9	M 1 Y

¹⁾ Please note the internal diameter of the pipe. Please specify pipe classes (see "Further designs")

Selection and Ordering data	Order No.	Ord. code
SITRANS P Compact pressure trans- mitters for pressure and absolute pressure with clamp-on remote seal	7MF8010-	
2-wire system Process temperature up to 140 °C (284 °F) Accuracy: 0.2 % of full-scale value Output 4 20 mA	2	
Clamp-on seal with aseptic connection		
Aseptic screwed gland to DIN 11864-1, form A with threaded socket		
• 1 inch	QM	
• 1½ inch	QN	
• 2 inch	QP	
Aseptic screwed NEUMO with threaded socket 1)		
• DN 25	SD	
• DN 32	SE	
• DN 40	SF	
• DN 50	SG	
• DN 65	SH	
Aseptic screwed NEUMO		
with clamp connection, form R ¹⁾ • DN 25	TD	
• DN 32	TE	
• DN 40	TE	
• DN 50	TG	
Aseptic screwed gland SÜDMO with threaded socket W 501		
• 1 inch	VM	
• 1½ inch	VN	
• 2 inch	VP	
Aseptic screwed gland SUDMO with clamp connection W 601		
• 1 inch • 1½ inch	WM WN	
• 2 inch	WP	
Special version (add Order code and plain text)	ZA	J 1 Y
Filling liquid		
Vegetable oil	1	
Medicinal white oil	2	
Food oil, FDA-listed	3	
Special version (add Order code and plain text)	9	L1Y
Output signal		
4 20 mA	1	
Special version (add Order code and plain text)	9	M 1 Y

Please specify as well: Connections for pipes: R01, R02 or R03, see table "Further designs" on next

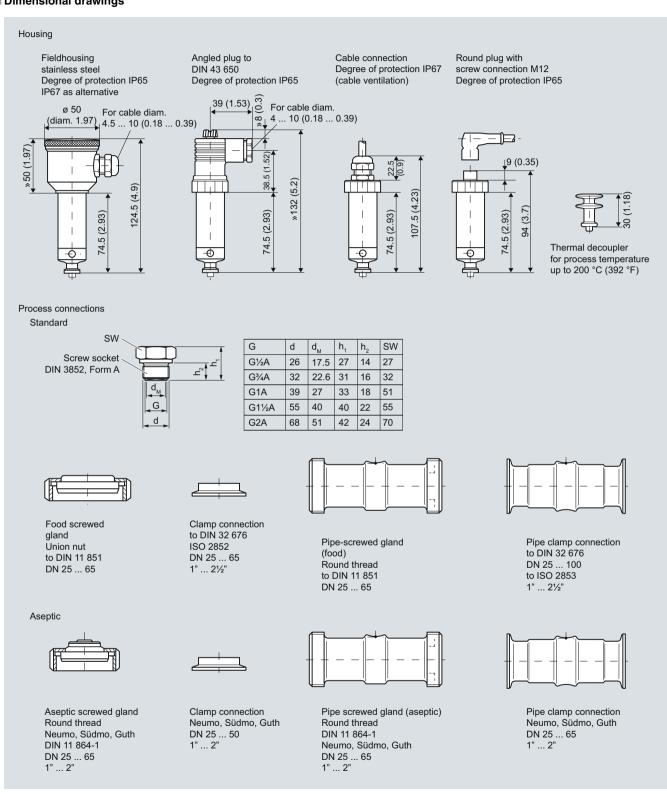
Pressure Measurement Transmitters for basic requirements SITRANS P Compact for gauge and absolute pressure

Selection and Ord	lering data	Order No.	Ord. code	Selection and Ordering data		Order No.	Ord. code
SITRANS P Compact pressure trans- mitters for pressure and absolute pressure with clamp-on remote seal		7MF8010-		SITRANS P Compact pressure trans- mitters for pressure and absolute pressure with clamp-on remote seal		7 M F 8 0 1 0 -	
2-wire system Process temperature up to 140 °C (284 °F) Accuracy: 0.2 % of full-scale value Output 4 20 mA		2		2-wire system Process temperature up to 140 °C (284 °F) Accuracy: 0.2 % of full-scale value Output 4 20 mA		2	
	stainless steel mat.			Measured range (continued)	Overload pressure		
Housing with angled plug to DIN 43650, IP65, union nut made of polyamide		1		-1 9 bar	30 bar	G A	
Housing with round	d plug M12, IP65,	2		(-14.5 130.5 psi) -1 15 bar	(435 psi) 50 bar	GB	
union nut made of Housing with round	' '	3		(-14.5 217.6 psi)			
union nut made of				0 1 bar a (0 14.5 psia)	10 bar a F (145 psia)) HA	
Stainless steel field cable gland, IP65	I housing (small) with	4		0 1.6 bar a (0 23.2 psia)	10 bar a F (145 psia)) НВ	
	I housing (small) with	5		0 2.5 bar a	16 bar a F	нс	
	for measuring ranges			(0 36.3 psia) 0 4 bar a	(232 psia) 16 bar a F) H D	
< 10 bar (< 145 ps Measured range	Overload pressure	_		(0 58 psia) 0 6 bar a	(232 psia) 30 bar a F) HE	
0 160 mbar	2 bar	ВВ		(0 87 psia)	(435 psia)		
(0 2.32 psi) 0 250 mbar	(29 psi) 2 bar	вс		0 10 bar a (0 145 psia)	30 bar a F (435 psia)) J A	
(0 3.63 psi) 0 400 mbar	(29 psi) 6 bar	вр		Special version	F	Z A	P 1 Y
(0 5.8 psi) 0 600 mbar	(87 psi) 6 bar	ВЕ		(add Order code an	· · · · · · · · · · · · · · · · · · ·		
(0 8.7 psi)	(87 psi)			without			1
0 1 bar (0 14.5 psi)	10 bar (145 psi)	CA		Further designs	II 2 G, EEx ib IIC T6	Order code	2
0 1.6 bar (0 23.2 psi)	10 bar (145 psi)	СВ		Please add "-Z" to C	order No. and specify	01401 0040	
0 2.5 bar (0 36.3 psi)	16 bar (232 psi)	cc		Order code Hygiene version		P01	
0 4 bar	16 bar	CD		Roughness of proce Foil R _a < 0.8 µm (3.1	ess connection:	101	
(0 58 psi) 0 6 bar	(232 psi) 30 bar	CE		Welded seams R _a < (5.9·10 ⁻⁸ inch)	: 1.5 µm		
(0 87 psi) 0 10 bar	(435 psi) 30 bar	DA		Integral cooling ele	ement	K01	
(0 145 psi)	(435 psi)			Process temperature (392 °F) instead of 1	e max. 200 °C		
0 16 bar (0 232 psi)	50 bar (725 psi)	DB		Connections for pi	, ,		
0 25 bar (0 363 psi)	50 bar (725 psi)	DC		Pipes to DIN 11850		R01	
0 40 bar (0 580 psi)	70 bar (1015 psi)	DD		ISO pipes to ISO 24 Pipes to O. D. Tubin		R02 R03	
-160 0 mbar	2 bar	EB		Certificates			
(-2.32 0 psi) -250 0 bar (-3.73 0 psi)	(29 psi) 2 bar (29 psi)	EC		Quality inspection (Five-step factory of IEC 60770-2		C11	
-400 0 bar	6 bar	E D		Inspection certificat		C12	
(-5.8 0 psi) -600 0 bar (-8.7 0 psi)	(87 psi) 6 bar (87 psi)	EE		Use of FDA-listed re liquids certified by t to EN 10204-2.2		C17	
-1 0 bar (-14.5 0 psi) -1 0.6 bar	10 bar (145 psi) 10 bar	FA FB		Roughness depth m		C18	
(-14.5 8.7 psi)	(145 psi)			to EN 10204-3.1 Certification to EHE	DG for clamp-on	C19	
-1 1.5 bar (-14.5 21.8 psi)	16 bar (232 psi)	FC		seals with aseptic so			
-1 3 bar (-14.5 43.5 psi)	16 bar (232 psi)	F D		F) Subject to export regulations AL: 91999, EC		CN: N.	
-1 5 bar (-14.5 72.5 psi)	30 bar (435 psi)	FE		, , , , , ,	,		
(-14.0 12.0 psi)	(100 poi)						

Transmitters for basic requirements

SITRANS P Compact for gauge and absolute pressure

Dimensional drawings

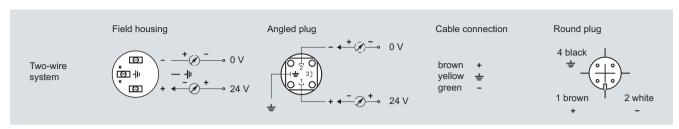


SITRANS P, dimensions in mm (inch)

Transmitters for basic requirements

SITRANS P Compact for gauge and absolute pressure

Schematics



SITRANS P Compact, connection diagram

Transmitters with WirelessHART

SITRANS P280 for gauge and absolute pressure

Overview



SITRANS P280 for flexible and cost-effective applications in pressure monitoring

- Supports the WirelessHART standard (HART V 7.1)
- Very high security level for wireless data transmission
- Built-in local user interface (LUI) with 3-button operation
- Optimum display and readability using graphical display (104 x 80 pixels) with integrated backlight
- Stand-by (deep sleep phase) can be activated and deactivated device with push of a button
- · Battery power supply
- Battery service live up to 5 years
- Extend battery service life with HART modem interface which can be shut off
- Optimized power consumption through new design, and increase in battery service life.
- Simple configuration thanks to SIMATIC PDM
- Device meets IP65 degree of protection
- Can be used for absolute and gauge pressure measurements

Benefits

The SITRANS P280 is a pressure transmitter that features Wireless HART as the standard communication interface.

Also available is a wired interface to connect a HART modem:

- Flexible pressure measurements
- Save costs on writing for difficult installation conditions. Wireless technology offers cost advantages in cases where extensive wiring cost would normally apply.
- It enables additional hitherto unfeasible measuring points, particularly for monitoring purposes.
- · Easy installation on moveable equipment
- Enables cost-effective temporary measurements, for example for process optimizations.
- Optimum solution in addition to wired communication and new possibilities for system solutions in process automation

Application

The SITRANS P280 is a WirelessHART field device for measuring absolute and gauge pressure.

The measuring ranges for absolute and gauge pressure measurements are 0 to 2, 10, 50, 200 and 400 bar (0 to 29, 145, 725, 2900 and 5800 psi).

The sensor is integrated into the transmitter housing.

On the wireless communication side, the transmitter supports the WirelessHART standard. A HART modem can be connected to the transmitter particularly for initial comissioning, alternatively the device can be commissioned comfortably by means of the local pushbuttons w/o any additional handset devices.

It can be used in all industries and applications in non-explosive areas.

Design

The SITRANS P280 has a robust aluminum enclosure and is suitable for outside use. It conforms with the IP65 safety class.

The operating temperature range is -40 to +80 °C (-40 to +176 °F). Power supply is provided through an integrated battery, which is available as an accessory. The device is only approved for operation with this battery.

The aerial features a rotatable joint which can be used for directional alignment. Wireless signals can thus be optimally received and transmitted.

A special highlight is the option for direct operation on the device. The operating strategy used in this case seamlessly integrates into the strategy of all new Siemens field devices.

Using the device's control buttons, it is easy to turn the HART modem interface of the device on and off. The device can be put to passive status and reactivated at any time. This helps to extend the service life of the battery.

The SITRANS P280 transmitter features a ceramic measuring cell for gauge and absolute pressure measurements.

Function

The SITRANS P280 can join to a WirelessHART network. It can be parameterized and operated through this network. Measured process values are transported via the network to the SIEMENS IE/WSN-PA link.

Field device data received by the IE/WSN-PA LINK is transmitted to the connected systems, for example the process control system SIMATIC PCS 7. For an introduction of WirelessHART, please see the FI 01 catalogue, section 9 or http://www.siemens.com/wirelesshart.

Detailed information on IE/WSN-PA can be found in the FI 01 catalogue, section 9 or http://www.siemens.com/wirelesshart.

Transmitters with WirelessHART

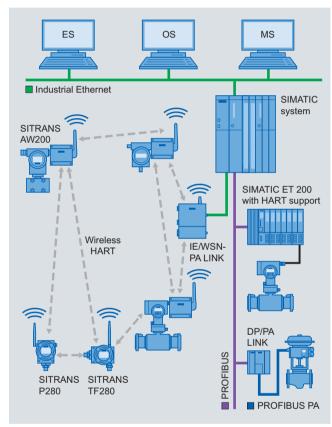
SITRANS P280 for gauge and absolute pressure

Integration

Connecting to SIMATIC PCS 7

The integration of field devices in SIMATIC PCS 7 and other process control systems can now be done seamlessly and cost-effectively with wireless technology, especially in situations where high wiring costs may be expected. Of particular interest are measuring points which are to be added and for which no MSR wiring is available.

Where larger distances between the IW/WSN-PA LINK and control systems need to be overcome, this connection can also be implemented on a wireless and cost-effective basis using the products of the SCALANCE W family.



Integration of a meshed network in SIMATIC PCS7

Configuration

Configuration of the SITRANS P280 may be carried out as follows:

- Initial comissioning for the SITRANS P280 with SIMATIC PDM is generally carried out via a HART modem or the integrated local user interface, since the network ID and join key must be set up on the device before it can be accepted and integrated into the WirelessHART network.
- Once it is integrated into the network, the device can be conveniently operated with the WirelessHART network, the onsite HART modem or via the local user interface.
- Siemens WirelessHART devices operate with optimum coexistence to SCALANCE W family products.

Technical specifications			
SITRANS P280 WirelessHART pres	ssure transmitter		
Mode of operation			
Measuring principle	piezo-resistive		
Measured variable	Gauge and absolute pressure		
Gauge pressure input			
Measuring range	Overload limit/Bursting pressure		
0 2 bar (0 29 psi) 0 10 bar (0 145 psi) 0 50 bar (0 725 psi) 0 200 bar (0 2900 psi) 0 400 bar (0 5800 psi)	5 bar (72.5 psi) 50 bar (363 psi) 250 bar (1740 psi) 650 bar (7250 psi) 650 bar (7250 psi)		
Units	mbar, bar, mm ${\rm H_2O}$, in ${\rm H_2O}$, atm, Torr, gcm 2 , kgcm 2 , mPa, KPa, Pa, psi, mmHG, mm ${\rm H_2O}$, ft ${\rm H_2O}$, in ${\rm H_2O}$		
Absolute pressure input			
Measuring range 0 2 bar a (0 29 psia) 0 10 bar a (0 145 psia) 0 50 bar a (0 725 psia) 0 200 bar a (0 2900 psia) 0 400 bar a (0 5800 psia)	Overload limit/Bursting pressure 5 bar a (72.5 psia) 50 bar a (363 psia) 250 bar a (1740 psia) 650 bar a (7250 psia) 650 bar a (7250 psia)		
Units	mbar, bar, mm ${\rm H_2O}$, in ${\rm H_2O}$, atm, Torr, gcm 2 , kgcm 2 , mPa, KPa, Pa, psi, mmHG, mm ${\rm H_2O}$, ft ${\rm H_2O}$, in ${\rm H_2O}$		
Output			
Output signal	2.4 GHz Wireless signal with TSMP (Time Synchronized Mesh Protocol)		
Measuring accuracy	as per IEC 60770-1		
Error in measurement at limit setting incl. hysteresis and reproducibility	typ. 0.17 % of sensor's span max. 0.25 % of sensor's span		
Long-term stability	max. \pm 0.25 % of sensor/year span		
Influence of ambient temperature	typ. 0.07 %/10K, max. 0.2 %/10 K of sensor's span		
Rated conditions			
Ambient conditions			
 Ambient temperature 	-40 +80 °C (-40 +176 °F)		
	(in ambient temperatures below - 20 °C (-4 °F) and above +70 °C (158 °F), readability of the display is limited.)		
Storage temperature	-40 +85 °C (-40 +185 °F)		
 Relative humidity 	< 95 %		
Climatic class	4K4H in accordance with EN 60721-3-4(stationary use at locations not protected against weather)		

ther)

IP65/NEMA 4

-40 ... 85 °C (-40 ... +185 °F)

Degree of protection

Allowable media temperature

Pressure Measurement Transmitters with WirelessHART

SITRANS P280 for gauge and absolute pressure

Design	
Enclosure material	low-copper die-cast aluminum, GD-AISi12
Shock resistance	in accordance with DIN EN 60068-2-29 / 03.95
Resistance to vibration	in accordance with DIN EN 60068-2-6/ 12.07 $20 \le f \le 2000 \text{ Hz}$ 0.01 α^2/Hz
Weight	3,
without battery	1.5 kg (3.31 lb)
With battery	1.6 kg (3.53 lb)
Dimensions (W x H x D)	See Dimensional drawing
Process connection	G½B male thread as per EN837-1
	• ½-14 NPT
Sensor break	Is recognized
Displays and controls	
Display (with illumination)	
Size of display	104 x 80 pixels
 Number of digits 	adjustable
Number of spaces after comma	adjustable
Setting options	on site with 3 buttonswith SIMATIC PDM or HART- Communicator
Power supply	
Battery	3.6 V DC
Communication	
Radio	WirelessHART V7.1 conforming
Transmission frequency band	2.4 GHz (ISM-Band)
Transmission range under reference conditions	Up to 250 m (line of sight) in outside areas
	Up to 50 m (greatly dependent on obstacles) in inside areas
Communication interfaces	HART communication with HART modem
	WirelessHART
Certificates and approvals	
Wireless communication approvals	R&TTE FCC
Classification according to pressure equipment directive (PED 97/23/EC)	Gases: Fluid group 1 Liquids: Fluid group 1; meets requirements as per Sec- tion 3, Subsection 3 (sound engi- neering practice)

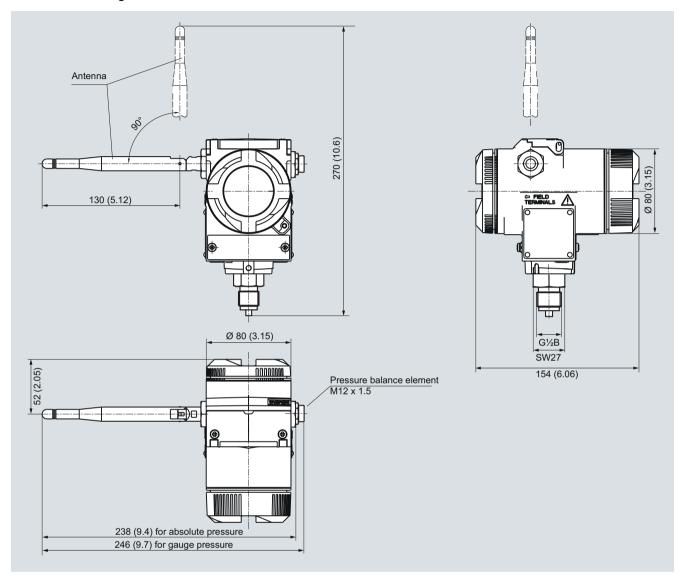
Selection and Ordering data		Order No.	
SITRANS P280 WirelessHART	7MP1120-		
pressure transmitter			
(Required battery not included with delivery, see accessories)			
Measuring cell filling			
Dry measuring cell		0	
Measuring span			
Gauge pressure 0 2 bar (0 29 psi)		D	
0 10 bar (0 145 psi)		E	
0 50 bar (0 725 psi)		F	
0 200 bar (0 2900 psi) 0 400 bar (0 5800 psi)		G H	
Absolute pressure			
0 2 bar a (0 29 psia)		М	
0 10 bar a (0 145 psia)		N	
0 50 bar a (0 725 psia) 0 200 bar a (0 2900 psia)		P Q	
0 400 bar a (0 5800 psia)		R	
Wetted parts			
Ceramic		к	
Display			
Display, visible		1	
Enclosure			
Die-cast aluminum		1	
Process connection			
G½ as per EN 837-1 ½-14 NPT		0	
Explosion protection		·	
Without		A	
Antenna			
Variable, attached to device		A	
Further designs		Order code	
Please add "-Z" to Order No. and specify Order code(s) and plain text.			
Stainless steel tag plate (measuring point		Y15	
description) max. 16 digits entered in plain text Y15:			
Measuring point message		Y16	
max. 27 characters entered in plain text: Y16:			
Accessories		Order No.	
Lithium battery for SITRANS TF280/P280	D) >	7MP1990-0AA00	
Mounting bracket, steel		7MF4997-1AC	
Mounting bracket, stainless steel	>	7MF4997-1AJ	
Cover, die-cast aluminum, without window	F)	7MF4997-1BB	
Cover, die-cast aluminum, with window	F) >	7MF4997-1BE	
IE/WSN-PA LINK		see Sec. 8	
HART modem with RS232 interface	D) 🕨	7MF4997-1DA	
HART modem with USB interface	D) 🕨	7MF4997-1DB	
SIMATIC PDM		see Sec. 9	
➤ Available ex stock			
D) 0 1 : 1 : Al 1 : E1D 00 :			

- D) Subject to export regulations AL: N, EAR 99H.
- F) Subject to export regulations AL: 91999, ECCN: N.

Pressure Measurement Transmitters with WirelessHART

SITRANS P280 for gauge and absolute pressure

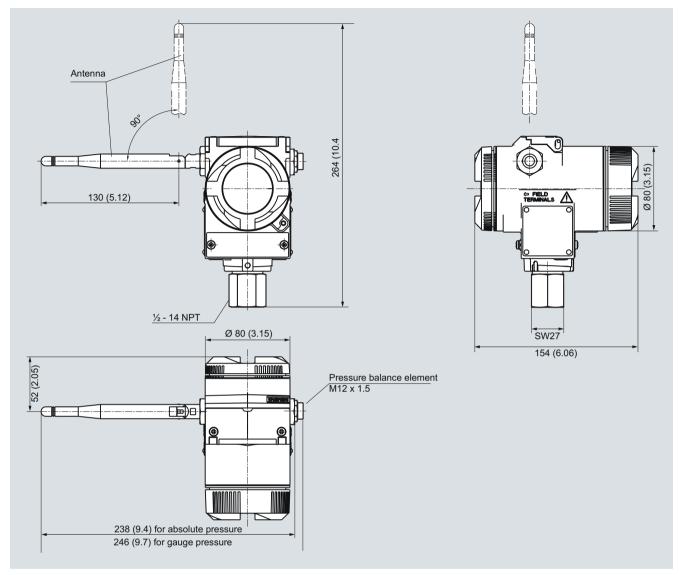
Dimensional drawings



SITRANS P280 WirelessHART pressure transmitter, process connection $6\frac{1}{2}$ ", dimensions in mm (inch) The dimensional drawing of the mounting bracket see on page 2/158.

Pressure Measurement Transmitters with WirelessHART

SITRANS P280 for gauge and absolute pressure



SITRANS P280 WirelessHART pressure transmitter, process connection $\frac{1}{2}$ - 14 NPT, dimensions in mm (inch) The dimensional drawing of the mounting bracket see on page 2/158.

Transmitters for food, pharmaceuticals and biotechnology

SITRANS P300 for gauge and absolute pressure

Overview



The SITRANS P300 is a digital pressure transmitter for relative and absolute pressure. The conventional thread versions are available as process connections, as are flush-mounted versions. A large number of the flush-mounted versions are suitable for food and pharmaceutical applications, and satisfy the EHEDG and 3A hygiene requirements.

The output signal is a load-independent direct current from 4 to 20 mA or a PROFIBUS PA or FOUNDATION signal, which is linearly proportional to the input pressure. Communication is via HART protocol or PROFIBUS PA interface. Convenient buttons for easy local operation of the basic settings of the pressure transmitter.

The SITRANS P300 has a single-chamber stainless steel casing. The pressure transmitter is approved with "intrinsically safe" type of protection. It can be used in zone 1 or zone 0.

Benefits

- High quality and service life
- High reliability even under extreme chemical and mechanical loads
- Extensive diagnosis and simulation functions
- Minimum conformity error
- Small long-term drift
- Wetted parts made of high-grade materials (such as stainless steel, Hastelloy)
- Measuring range 0,008 bar to 400 bar (0.1 psi to 5802 psi)
- · High measuring accuracy
- Parameterization over control keys and HART or PROFIBUS PA or FOUNDATION Fieldbus

Application

The pressure transmitter is available in versions for gauge pressure and for absolute pressure. The output signal is always a load-independent direct current from 4 to 20 mA or a PROFIBUS PA or FOUNDATION Fieldbussignal, which is linearly proportional to the input pressure. The pressure transmitter measures aggressive, non-aggressive and hazardous gases, as well as vapors and liquids.

It can be used for the following measurement types:

- Gauge pressure
- Absolute pressure

With appropriate parameter settings, it can also be used for the following additional measurement types:

- Level
- Volume
- Mass

The "intrinsically-safe" EEx version of the transmitter can be installed in hazardous areas (zone 1). The transmitters are provided with an EC type examination certificate and comply with the respective harmonized European standards of ATEX.

Gauge pressure

This variant measures aggressive, non-aggressive and hazardous gases, vapors and liquids.

The smallest span is 0.01 bar (0.15 psi), the largest is 400 bar (5802 psi).

Level

With appropriate parameter settings, the gauge pressure variant measures the level of aggressive, non-aggressive and hazardous liquids.

For measuring the level in an open container you require one device; for measuring the level in a closed container, you require two devices and a process control system.

Absolute pressure

This variant measures the absolute pressure of aggressive, nonaggressive and hazardous gases, vapors and liquids.

The smallest span is 0.008 bar a (0.12 psia), the largest is 30 bar a (435 psia).

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Transmitters for food, pharmaceuticals and biotechnology

SITRANS P300 for gauge and absolute pressure

Design

The device comprises:

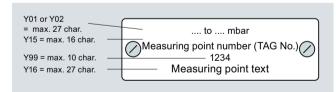
- Electronics
- Housing
- · Measuring cell



Perspective view of SITRANS P300

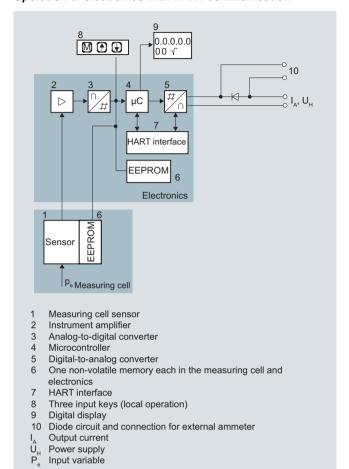
The housing has a screw-on cover (5) and, depending on the version, is with or without an inspection window. The electrical terminal housing, the buttons for operation of the device are located under this cover and, depending on the version, the display. The connections for the auxiliary power U_H and the shield are in the terminal housing. The cable gland is mounted on the side of the housing. The measuring cell with the process connection (2) is located on the bottom of the housing. The measuring cell with the process connection may differ from the one shown in the diagram, depending on the device version.

Example of attached measuring points sign



Function

Operation of electronics with HART communication



Function diagram of electronics

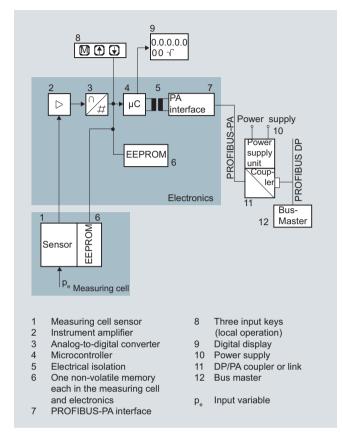
The input pressure is converted into an electrical signal by the sensor (1). This signal is amplified by the measuring amplifier (2) and digitalized in an analog-to-digital converter (3). The digital signal is analyzed in a microcontroller (4) and corrected according to linearity and thermal characteristics. In a digital-to-analog converter (5) it is then converted into the output current of 4 to 20 mA. A diode circuit provides reverse polarity protection. You can make an uninterrupted current measurement with a low-ohm ammeter at the connection (10). The data specific to the measuring cell, the electronic data and parameter settings are stored in two non-volatile memories (6). The first memory is linked to the measuring cell, the second to the electronics.

The buttons (8) can be used to call up individual functions, socalled modes. If you have a device with a display (9), you can use this to track mode settings and other messages. The basic mode settings can be changed with a computer via the HART modem (7).

Transmitters for food, pharmaceuticals and biotechnology

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Operation of electronics with PROFIBUS PA communication

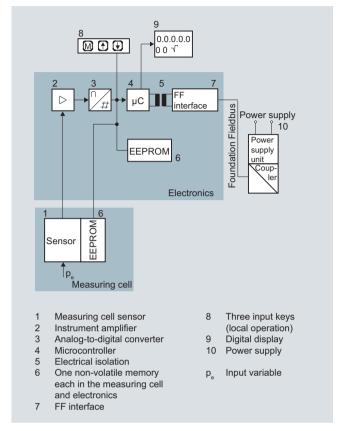


Function diagram of electronics

The input pressure is converted into an electrical signal by the sensor (1). This signal is amplified by the measuring amplifier (2) and digitalized in an analog-to-digital converter (3). The digital signal is analyzed in a microcontroller (4) and corrected according to linearity and thermal characteristics. It is then made available at the PROFIBUS PA over an electrically isolated PRO-FIBUS PA interface (7). The data specific to the measuring cell, the electronic data and parameter settings are stored in two nonvolatile memories (6). The first memory is linked to the measuring cell, the second to the electronics.

The buttons (8) can be used to call up individual functions, socalled modes. If you have a device with a display (9), you can use this to track mode settings and other messages. The basic mode settings (12) can be changed with a computer over the bus master.

Operation of electronics with FOUNDATION Fieldbus communication



Function diagram of electronics

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

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

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

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

Mode of operation of the measuring cells

The process connections available include the following:

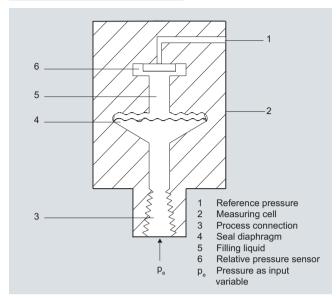
- G½
- ½-14 NPT
- Flush-mounted diaphragm:
- Flanges to EN
- Flanges to ASME
- NuG and pharmaceutical connections

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Transmitters for food, pharmaceuticals and biotechnology

SITRANS P300 for gauge and absolute pressure

Measuring cell for gauge pressure

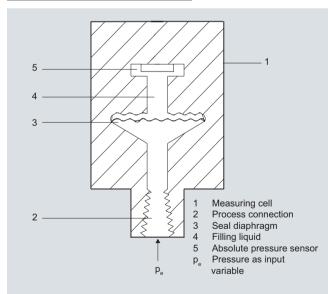


Measuring cell for gauge pressure, function diagram

The input pressure (p_e) is transferred to the gauge pressure sensor (6via the seal diaphragm (4) and the filling liquid (5), displacing its measuring diaphragm. The displacement changes the resistance value of the four piezo resistors in the measuring diaphragm in a bridge circuit. The change in the resistance causes a bridge output voltage proportional to the input pressure.

Transmitters with spans \leq 63 bar (\leq 926.1 psi) measure the input pressure compared to atmospheric, transmitters with spans of \geq 160 bar (\geq 2352 psi) compared to a vacuum.

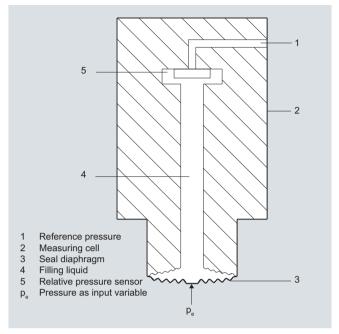
Measuring cell for absolute pressure



Measuring cell for absolute pressure, function diagram

The input pressure (p_e) is transferred to the absolute pressure sensor (5) via the seal diaphragm (3) and the filling liquid (4), displacing its measuring diaphragm. The displacement changes the resistance value of the four piezo resistors in the measuring diaphragm in a bridge circuit. The change in the resistance causes a bridge output voltage proportional to the input pressure.

Measuring cell for gauge pressure, front-flush diaphragm

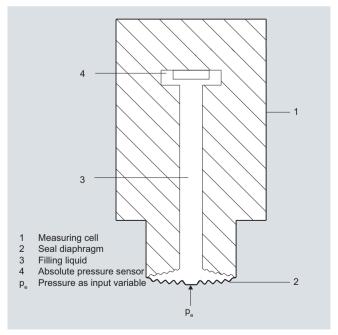


Measuring cell for gauge pressure, front-flush diaphragm, function diagram

The input pressure (p_e) is transferred to the gauge pressure sensor (6) via the seal diaphragm (4) and the filling liquid (5), displacing its measuring diaphragm. The displacement changes the resistance value of the four piezo resistors in the measuring diaphragm in a bridge circuit. The change in the resistance causes a bridge output voltage proportional to the input pressure.

Transmitters with spans \leq 63 bar (\leq 926.1 psi) measure the input pressure compared to atmospheric, transmitters with spans of \geq 160 bar (\geq 2352 psi) compared to a vacuum.

Measuring cell for absolute pressure, front-flush diaphragm



Measuring cell for absolute pressure, front-flush diaphragm, function diagram

Transmitters for food, pharmaceuticals and biotechnology

SITRANS P300 for gauge and absolute pressure

The input pressure (p_e) is transferred to the absolute pressure sensor (5) via the seal diaphragm (3) and the filling liquid (4), displacing its measuring diaphragm. The displacement changes the resistance value of the four piezo resistors in the measuring diaphragm in a bridge circuit. The change in the resistance causes a bridge output voltage proportional to the input pressure.

Parameterization

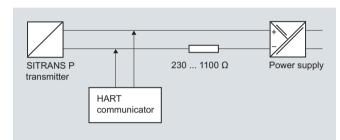
Depending on the version, there are a range of options for parameterizing the pressure transmitter and for setting or scanning the parameters.

Parameterization using the input buttons (local operation)

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

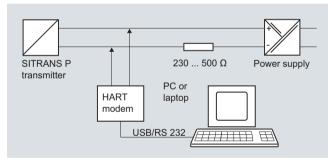
Parameterization using HART communication

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



Communication between a HART communicator and a pressure transmitter

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



HART communication between a PC communicator and a pressure transmitter.

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

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

Adjustable parameters on SITRANS P300 with HART communication

Parameters	Input keys	HART communication
Start of scale	Х	Х
Full-scale value	X	X
Electrical damping	X	X
Start-of-scale value without application of a pressure ("Blind setting")	×	X
Full-scale value without application of a pressure ("Blind setting")	×	X
Zero adjustment	Х	X
current transmitter	Х	X
Fault current	X	X
Disabling of buttons, write protection	Х	x ¹⁾
Type of dimension and actual dimension	×	X
Input of characteristic		X
Freely-programmable LCD		X
Diagnostic functions		X

¹⁾ Cancel apart from write protection

Diagnostic functions for SITRANS P300 with HART communication

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

Available physical units of display for SITRANS P300 with HART communication

Table style: Technical specifications 2

Physical variable	Physical dimensions
Pressure (setting can also be made in the factory)	Pa, MPa, kPa, bar, mbar, torr, atm, psi, g/cm², kg/cm², inH ₂ O, inH ₂ O (4 °C), mmH ₂ O, ftH ₂ O (20 °C), inHg, mmHg
Level (height data)	m, cm, mm, ft, in
Volume	m ³ , dm ³ , hI, yd ³ , ft ³ , in ³ , US gallon, lmp. gallon, bushel, barrel, barrel liquid
Mass	g, kg, t, lb, Ston, Lton, oz
Temperature	K, °C, °F, °R
Miscellaneous	%, mA

Transmitters for food, pharmaceuticals and biotechnology

SITRANS P300 for gauge and absolute pressure

Parameterization through PROFIBUS PA interface

Fully digital communication through PROFIBUS PA, profile 3.0, is particularly user-friendly. The PROFIBUS connects the SITRANS P300 PA to a process control system, e.g. SIMATIC PSC 7. Communication is possible even in a potentially explosive environment.

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

Parameterization through FOUNDATION Fieldbus interface

Fully digital communication through FOUNDATION Fieldbus is particularly user-friendly. Through the FOUNDATION Fieldbus the P300 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 SITRANS P300 with PROFIBUS PA and FOUNDATION Fieldbus

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

Diagnostic functions for SITRANS P300 with PROFIBUS PA and FOUNDATION Fieldbus

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

Physical dimensions available for the display

Physical variable	Physical dimensions
Pressure (setting can also be made in the factory)	Mpa, kPa, Pa, bar, mbar, torr, atm, psi, g/cm², kg/cm², mmH ₂ O, mmH ₂ O (4 °C), inH ₂ O, inH ₂ O (4 °C), ftH ₂ O (20 °C), mmHg, inHg
Level (height data)	m, cm, mm, ft, in, yd
Mass	g, kg, t, lb, Ston, Lton, oz
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/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	%

Hygiene version

In the case of the SITRANS P300 with 7MF812.-... front-flush diaphragm, selected connections comply with the requirements of the EHEDG or 3A. You will find further details in the order form. Please note in particular that the seal materials used must comply with the requirements of 3A. Similarly, the filling liquids used must be FDA-compliant.

for gauge and absolute pressure

Technical specifications

SITRANS P300 for gauge and absolute pre	ssure			
	HART		PROFIBUS PA and FO	JNDATION Fieldbus
Gauge pressure input				
Measured variable	Gauge pressure			
Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure	Span (min max.)	Max. perm. test pressure	Nominal measuring range	Max. perm. test pressure
	0.01 1 bar (0.15 14.5 psi)	6 bar (87 psi)	1 bar (14.5 psi)	6 bar (87 psi)
	0.04 4 bar (0.58 58 psi)	10 bar (145 psi)	4 bar (58 psi)	10 bar (145 psi)
	0.16 16 bar (2.3 232 psi)	32 bar (464 psi)	16 bar (232 psi)	32 bar (464 psi)
	0.6 63 bar (9.1 914 psi)	100 bar (1450 psi)	63 bar (914 psi)	100 bar (1450 psi)
	1.6 160 bar (23.2 2321 psi)	250 bar (3626 psi)	160 bar (2321 psi)	250 bar (3626 psi)
	4.0 400 bar (58 5802 psi)	600 bar (8700 psi)	400 bar (5802 psi)	600 bar (8700 psi)
	Depending on the proce may differ from these va	ess connection, the span		ess connection, the nomi- ay differ from these values
Lower measuring limit				
Measuring cell with silicone oil		30 mbar a	a (0.44 psia)	
Upper measuring limit				
Measuring cell with silicone oil	100% of max. span		100 % of the max. nominal measuring range	
Absolute pressure input				
Measured variable		1	e pressure	
Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure	Span (min max.)	Max. perm. test pressure	Nominal measuring range	Max. perm. test pressure
	8 250 mbar a (0.123.63 psia)	6 bar a (87 psia)	250 mbar a (3.63 psia)	6 bar a (87 psia)
	43 1300 mbar a (0.6218.9 psia)	10 bar a (145 psia)	1,30 bar a (19 psia)	10 bar a (145 psia)
	0.16 5 bar a (2.3 73 psia)	30 bar a (435 psia)	5 bar a (73 psia)	30 bar a (435 psia)
	1 30 bar a (14.5 435 psia)	100 bar a (1450 psia)	30 bar a (435 psia)	100 bar a (1450 psia)
Lower measuring limit				
Measuring cell with silicone oil		0 mbar	a (0 psia)	
Upper measuring limit	1000/		100.07 (1)	
Measuring cell with silicone oil Input of gauge processes with front flush	100% of max. span		100 % of the max. nomin	iai measuring range
Input of gauge pressure, with front-flush diaphragm				
Measured variable		Gauge press	sure, front-flush	
Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure	Span (min max.)	Max. perm. test pressure	Nominal measuring range	Max. perm. test pressure
	0,01 1 bar (0.15 14.5 psi)	6 bar (87 psi)	1 bar (14.5 psi)	6 bar (87 psi)
	0,04 4 bar (0.58 58 psi)	10 bar (145 psi)	4 bar (58 psi)	10 bar (145 psi)
	0,16 16 bar (2.32 232 psi)	32 bar (464 psi)	16 bar (232 psi)	32 bar (464 psi)
	0,6 63 bar (9.14 914 psi)	100 bar (1450 psi)	63 bar (914 psi)	100 bar (1450 psi)
Lower measuring limit Upper measuring limit		100 mbar	a (1.45 psia)	
Measuring cell with silicone oil	100% of max. span		100 % of the max. nomin	nal measuring range

SITRANS P300 for gauge and absolute pressure

SITRANS P300 for gauge and absolute pre						
	HART			PROFIBUS PA and Fe	DUNDATION	Fieldbus
Input of absolute pressure, with front-flush diaphragm						
Measured variable			Absolute pres	sure, front-flush		
Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure	Span (min max.)	Max. perm pressure	ı. test	Nominal measuring range	Max. perm pressure	n. test
	43 1300 mbar a (0.62 18.85 psia)	10 bar a (145 psia)		1300 mbar a (18.85 psia)	10 bar a (145 psia)	
	0.16 5 bar a (2.32 72.5 psi a)	30 bar a (435 psia)		5 bar a (72.5 psia)	30 bar a (435 psia)	
	1 30 bar a (14.5 435 psia)	100 bar a (1450 psia	.)	30 bar a (435 psia)	100 bar a (1450 psia	1)
	Depending on the proce may differ from these val		on, the span	Depending on the pro nal measuring range r		
Lower measuring limit			0 bar a	(0 psia)		
Upper measuring limit						
Measuring cell with silicone oil	100% of max. span			100 % of the max. non	ninal measurir	ng range
Output						
Output signal	4 20 mA Digital PROFIBUS PA signal					
Physical bus	- IEC 61158-2					
Protection against polarity reversal	Protected against short-circuit and polarity reversal. Each connection against the other with max. supply voltage.					
Electrical damping T ₆₃ (step width 0.1 s)	Set to 2 s (0 100 s)					
Measuring accuracy	According to IEC 60770-1					
Reference conditions (All error data refer always refer to the set span)	Rising characteristic curve, start-of-scale value 0 bar, stainless steel seal diaphragm, measuring cell with silicone oil, room temperature 25 °C (77 °F), span ratio (r = max. span / set span)					
Error in measurement at limit setting incl. hysteresis and reproducibility					_	_
	Gauge pressure	Absolute pressure	Absolute pressure, front-flush	Gauge pressure	Absolute pressure	Absolute pressure, front-flush
Linear characteristic				≤ 0.075 %	≤ 0.1 %	≤ 0.2 %
• r + 10	\leq (0.0029 · r + 0.071) %	≤ 0.1 %	≤ 0.2 %		!	"
• 10 < r ≤ 30	\leq (0.0045 · r + 0.071) %	≤ 0.2 %	≤ 0.4 %			
• 30 < r ≤ 100	\leq (0.005 · r + 0.05) %	-	-			
Step response time T ₆₃	approx. 0.2 NO					
Long-term stability at ± 30 °C (± 54 °F)	≤ (0.25 · r) %/5 years	$\leq (0.1 \cdot r)^{-9}$	%/year	≤ 0.25 %/5 years	≤ 0.1 %/ye	ar
Influence of ambient temperature						
• at -10 +60 °C (14 140 °F)	$\leq (0.08 \cdot r + 0.1) \%^{1)}$		≤ (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
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 K)		

SITRANS P300

	for gauge and absolute pressur
SITRANS P300 for gauge and absolute pressu	ıre
erranic record gauge and about to proceed	HART PROFIBUS PA and FOUNDATION Fieldbus
Rated conditions	
Installation conditions	
Ambient temperature	Observe the temperature class in areas subject to explosion hazard.
Measuring cell with silicone oil	-40 +85 °C (-40 +185 °F)
 Measuring cell with Neobee oil (FDA-compliant, with flush-mounted diaphragm) Measuring cell with inert liquid (not with front- 	-10 +85 °C (14 +185 °F)
flush diaphragm) • Display readable	-20 +85 °C (-4 +185 °F)
Storage temperature	-30 +85 °C (-22 +185 °F)
,	-50 +85 °C (-58 +185 °F) (for Neobee: -20 +85 °C (-4 +185 °F))
Climatic class	D
Condensation	Relative humidity 0 100 % Condensation permissible, suitable for use in the tropics
Degree of protection acc. to EN 60529	IP65, IP68, NEMA X, enclosure cleaning, resistant to lyes, steam to 150 °C (302 °F)
Electromagnetic Compatibility	
 Emitted interference and interference immunity 	Acc. to EN 61326 and NAMUR NE 21
Medium conditions	
Temperature of medium	
Measuring cell with silicone oil	-40 +100 °C (-40 +212 °F)
 Measuring cell with silicone oil (FDA-compli- ant, with flush-mounted diaphragm) 	-40 +150 °C (-40 +302 °F)
 Measuring cell with Neobee oil "Measuring cell with Neobee oil (FDA-compliant, with flush- mounted diaphragm) 	-10 +150 °C (-14 +302 °F)
 Measuring cell with silicone oil, with tempera- ture decoupler (only with flush-mounted dia- phragm) 	-40 +200 °C (-40 +392 °F)
Measuring cell with inert liquid	-20 +100 °C (-4 +212 °F)
 Measuring cell with high-temperature oil 	-10 +250 °C (14 482 °F)
Design (standard version)	
Weight (without options)	Approx. 800 g (1.8 lb)
Enclosure material	Stainless steel, mat. no. 1.4301/304
Material of parts in contact with the medium	
Connection shank	Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819
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
	 Inert filling liquid
Process connection	●G1/2B to EN 837-1
	 Female thread ½-14 NPT
	•Oval flange PN 160 (MAWP 2320 psi) with fastening thread: -7/ ₁₆ -20 UNF to IEC 61518
Design (vension with furth flort	-M10 as per DIN 19213
Design (version with front-flush diaphragm)	401-700 - 0011
Weight (without options)	approx. 1 13 kg (2.2 29 lb)
Enclosure material	Stainless steel, mat. no. 1.4301/304
Material of parts in contact with the medium Process connection	Stainless steel, mat. no. 1.4404/316L
Seal diaphragm	Stainless steel, mat. no. 1.4404/316L
Measuring cell filling	•Silicone oil
	 Inert filling liquid
	◆FDA compliant fill fluid (Neobee oil)
Process connection	•Flanges as per EN and ASME
0 (•F&B and pharmaceutical flanges
Surface quality touched-by-media	R_a -values \leq 0.8 μm (32 μ-inch)/welds R_a) \leq 1.6 μm (64 μ-inch) (Process connections acc. to 3A; R_a -values \leq 0.8 μm (32 μ-inch)/welds R_a \leq 0.8 μm (32 μ-inch)

SITRANS P300 for gauge and absolute pressure

	HART	PROFIBUS PA and FOUNDATION Fieldbus
Power cupply II	MANI	PROFIDOS PA dilu POUNDATION FIElubus
Power supply U _H	10.5 40.7 DC	Curanities of the recursion in the
Terminal voltage on transmitter	10.5 42 V DC for intrinsically safe operation: 10.5 30 V DC	Supplied through bus
Separate power supply	-	Not necessary
Bus voltage		
Without EEx	-	9 32 V
With intrinsically-safe operation	-	9 24 V
Current consumption		
Max. basic current	-	12.5 mA
• Start-up current ≤ basic current	-	Yes
Max. fault current in the event of a fault	-	15.5 mA
Fault disconnection electronics (FDE)	-	Available
Certificates and approvals		
Classification according to PED 97/23/EC		group 1; complies with requirements of Article 3 engineering practice)
Vater, waste water	In prep	paration
Explosion protection		
ntrinsic safety "i"	PTB 05 A	ATEX 2048
Marking	Ex II 1/2 G EEx ia/	ib IIB/IIC T4, T5, T6
Permissible ambient temperature		
- Temperature class T4	-40 +85 °C (-40 +185 °F)	
- Temperature class T5	-40 +70 °C	(-40 +158 °F)
- Temperature class T6	-40 +60 °C (-40 +140 °F)	
• Connection	To certified intrinsically-safe circuits with peak values: $U_i = 30 \text{ V, } I_i = 100 \text{ mA}, \\ P_i = 750 \text{ mW, } R_i = 300 \ \Omega$	To certified intrinsically-safe circuits with peak values: $ \frac{\text{FISCO supply unit:}}{\text{U}_i = 17.5 \text{ V}, \text{ I}_i = 380 \text{ mA},} $ $P_i = 5.32 \text{ W} $
		Linear barrier: $U_i = 24 \text{ V}, I_i = 250 \text{ mA}, P_i = 1.2 \text{ W}$
Effective inner capacitance:	$C_i = 6 \text{ nF}$	$C_i = 1.1 \text{ nF}$
Effective internal inductance:	$L_i = 0.4 \text{ mH}$	$L_i \le 7 \mu H$
Explosion protection to FM for USA $\underline{\text{and}}$ Canada (cFM $_{\text{US}}$)		
 Identification (DIP) or (IS); (NI) 	CL I, DIV 1, GP ABCD T4 T6; CL II, DIV 1, GP	mpliance 3025099 EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4 T6; CL ; CL II, DIV 2, GP FG; CL III
• Identification (DIP) or (IS)	CL I, DIV 1, GP ABCD T4 T6; CL II, DIV 1,	npliance 3025099C , GP EFG; CL III; Ex ia IIC 4 T6; CL I, DIV 2, _ II, DIV 2, GP FG; CL III
Dust explosion protection for zone 20/21/22		ATEX 2048
• Marking	Ex II 2D Ex ib	I D 20 T 120 °C D 21 T 120 °C D 21 T 120 °C
Permissible ambient temperature		
- Temperature class T4	-40 +85 °C (-40 +185 °F) (in the case of miner	ral glass windows only -20 +85 °C (-4 +185 °
- Temperature class T5	-40 +70 °C (-40 +158 °F) (in the case of mine	ral glass windows only-20 +70 °C (-4 +158 °
- Temperature class T6	-40 +60 °C (-40 +140 °F) (in the case of miner	ral glass windows only -20 +60 °C (-4 +140 °
• Connection	To certified intrinsically-safe circuits with peak values:	To certified intrinsically-safe circuits with peak values:
	$U_i = 30 \text{ V}, I_i = 100 \text{ mA}, P_i = 750 \text{ mW}$	$U_i = 24 \text{ V}, I_i = 380 \text{ mA}, P_i = 5.32 \text{ mW}$
• Effective inner capacitance:	$C_i = 6 \text{ nF}$	$C_i = 5 \text{ nF}$
 Effective internal inductance: 	$L_i = 0.4 \mu H$	$L_i = 10 \mu H$

for gauge and absolute pressure

SITRANS P300 for gauge and absolute press	ure			
	HART	PROFIBUS PA and FOUNDATION Fieldbus		
Type of protection Ex nA/nL/ic (Zone 2)	PTB 05 A	ATEX 2048		
Marking	II 2/3 G Ex	nA T4/T5/T6		
	II 2/3 G Ex nL IIB/IIC T4/T5/T6			
 Permissible ambient temperature 				
- Temperature class T4	-40 +85 °C (-40 +185 °F) (in the case of mineral glass windows only -20 +85 °C (-4 +185 °C)			
- Temperature class T5	-40 +70 °C (-40 +158 °F) (in the case of mineral glass windows only -20 +70 °C (-4 +158 °F)			
- Temperature class T6	-40 +60 °C (-40 +140 °F) (in the case of mine	ral glass windows only -20 +60 °C (-4 +140 °F))		
• Ex nA connection	To certified intrinsically-safe circuits with peak values:	To certified intrinsically-safe circuits with peak values:		
	$U_{m} = 45 \text{ V}$	$U_{m} = 32 \text{ V}$		
• Ex ic/nL connection	To certified intrinsically-safe circuits with	To certified intrinsically-safe circuits with		
	peak values:	peak values:		
	$U_i = 45 \text{ V}$	$U_i = 32 \text{ V}$		
Effective inner capacitance:	$C_i = 6 \text{ nF}$	$C_i = 5 \text{ nF}$		
Effective internal inductance:	$L_i = 0.4 \text{ mH}$	$L_i = 20 \mu H$		

¹⁾ Conversion of temperature error per 28 °C. Valid for temperature range -3 ... +53 °C < (0.064 . r + 0.08) %/28 °C (50 °F).

Pressure Measurement

Transmitters for food, pharmaceuticals and biotechnology

SITRANS P300 for gauge and absolute pressure

Tor gauge and absolute pr	essure		
HART Communication		FOUNDATION Fieldbus communication	
HART communication	230 1100 Ω	Function blocks	3 function blocks analog input,
Protocol	HART Version 5.x	1 diletion blocks	1 function block PID
Software for computer	SIMATIC PDM	Analog input	
PROFIBUS PA communication Simultaneous communication with	4	 Adaptation to customer-speci- fic process variables 	Yes, linearly rising or falling characteristic
master class 2 (max.)		- Electrical damping, adjustable	0 100 s
The address can be set using	Configuration tool or local operation	- Simulation function	Output/input (can be locked within the device with a bridge)
	(standard setting Address 126)	- Failure mode	parameterizable (last good
Cyclic data usage			value, substitute value, incorrect
 Output byte 	5 (one measured value) or	Literate and a set of a set of	value)
	10 (two measured values)	- Limit monitoring	Yes, one upper and lower war- ning limit and one alarm limit
Input byte	0.1 or 2 (totalizer mode and		respectively
Internal preprocessing	reset function for dosing)	 Square-rooted characteristic for flow measurement 	Yes
Device profile	PROFIBUS PA Profile for Process Control Devices Version	• PID	Standard FOUNDATION Field- bus function block
Europian Islando	3.0, Class B	 Physical block 	1 resource block
Function blocks • Analog input	2	Transducer blocks	1 transducer block Pressure with calibration, 1 transducer block
 Adaptation to customer-speci- fic process variables 	Yes, linearly rising or falling characteristic	Pressure transducer block	LCD
- Electrical damping adjustable	0 100 s	- Can be calibrated by applying	Yes
- Simulation function	Input /Output	two pressures	
- Failure function	parameterizable (last good value, substitute value, incorrect value)	 Monitoring of sensor limits Simulation function: Measured pressure value, sensor tempe- 	Yes Constant value or over parameterizable ramp function
- Limit monitoring	Yes, one upper and lower war- ning limit and one alarm limit respectively	rature and electronics tempera- ture	
Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output		
- Failure mode	parameterizable (summation with last good value, continuous summation, summation with incorrect value)		
- Limit monitoring	One upper and lower warning limit and one alarm limit respec- tively		
 Physical block 	1		
Transducer blocks	2		
 Pressure transducer block 			
 Can be calibrated by applying two pressures 	Yes		

- Monitoring of sensor limits

characteristic with

temperature

Specification of a container

- Simulation function for measu-

red pressure value and sensor

Yes

Max. 30 nodes

Constant value or over parame-

terizable ramp function

Transmitters for food, pharmaceuticals and biotechnology

SITRANS P300 for gauge and absolute pressure

Solootion and Oudering	v data		0.	40"	No.		
Selection and Ordering	g data re transmitters for rela-		Ord	ıer	INO.		_
tive and absolute pres							
measuring housing, rational English	ng plate inscription in						
· ·			7 N			^	
4 20 mA/HART					802		
PROFIBUS PA					802		
FOUNDATION Fieldbus	s (FF)				802		
Measuring cell filling Silicone oil	Measuring cell cleanin normal	g	1				
Inert liquid	Cleanliness level 2 to		3				
	DIN 25410						
max. span (min max	c.)						
0.01 1 bar	(0.145 14.5 psi)		В				
0.04 4 bar	(0.58 58 psi)		C				
0.1616 bar 0.63 63 bar	(2.32 232 psi) (9.14 914 psi)		D				
			F				
1.6 160 bar 4 400 bar	(23.2 2320 psi) (58 5802 psi)		G				
2.5 250 mbar a	(0.04 3.63 psia)	F)	Q	!			
13 1300 mbar a	(0.19 18.86 psia)	F)	N				
0.05 5 bar a 0.3 30 bar a	(0,7 72.5 psia) (4.35 435 psia)	F) F)	T				
Wetted parts materials	i						
Seal diaphragm	Measuring cell						
Stainless steel	Stainless steel			Α			
Hastelloy	Stainless steel	F)		В			
Hastelloy Version for diaphragm s	Hastelloy	F)		C			
	ear ^{-,-,}			Y			
• G½B to EN 837-1				١,	0		
• ½-14 NPT					1		
Stainless steel oval fla	nge						
- Mounting thread ⁷ / ₁₆				2	2		
- Mounting thread M1					3		
- Mounting thread M1:					4		
 Male thread M20 x 1.5 Male thread ½ -14 NP 					5 6		
Non-wetted parts mate	drawn and electrolytically				4		
polished	arawir aria cicotrory tioarry				7		
Version							
 Standard versions 						1	
Explosion protection							
None With ATEX Type of pro	ataction:					Α	
With ATEX, Type of protection: - "Intrinsic safety (EEx ia)"						В	
• Zone 20/21/22 ³⁾						C	
• Ex nA/nL (Zone 2) ⁴⁾						E	
• with FM "intrinsic safety" (cFM _{US})						M	
Electrical connection / cable entry							
Screwed gland M20x1 Screwed gland M20x1						A	
Screwed gland M20x1Screwed gland M20x1	,					B C	
•	.5 (stainless steer)					F	
	less steel), without cable					G	
• ½-14 NPT metal thread						Н	
• ½-14 NPT stainless steel thread ⁶⁾						J	

Selection and Ordering data	Order No.
SITRANS P300 pressure transmitters for relative and absolute pressure, single-chamber measuring housing, rating plate inscription in English	
4 20 mA/HART	7 M F 8 0 2 3 -
PROFIBUS PA	7 M F 8 0 2 4 -
FOUNDATION Fieldbus (FF)	7MF8025-
Display Without display, with keys, closed covers With display and keys, closed lid	1 2 4
 With display and keys, lid with Makrolon pane (setting on HART devices: mA, with PROFIBUS PA and FOUNDATION Fieldbus equipment: pressure units) 	
 With display and keys (setting acc. to specifications, Order Code "Y21" or "Y22" required), lid with Makrolon pane 	5
 With display and keys, lid with glass pane (setting on HART devices: mA, with PROFIBUS and FOUNDATION Fieldbus equip- ment: pressure units) 	6
 With display and keys (setting acc. to specifica- tions, Order Code "Y21" or "Y22" required), lid with glass pane 	7

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

Included in delivery of the device:

- Brief instructions (Leporello)
- CD-ROM with detailed documentation
- When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.
- 2) If the acceptance test certificate 3.1 is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- 3) Not available together with electrical connection option A
- ⁴⁾ Only available together with electrical connection options B, C, F or G.
- ⁵⁾ Only together with HART electronics.
- 6) Without cable gland.
- F) Subject to export regulations AL: 91999, ECCN: N.

Transmitters for food, pharmaceuticals and biotechnology

SITRANS P300

for gauge and absolute pressure

Selection and Ordering	g data	(Ord	er No	١.	
sitrans p300 pressure and absolute pressure rane, single-chamber m plate inscription in Engli						
4 20 mA/HART	F)	7 M	F 8 1 2	23-		
PROFIBUS PA		F)	7 M	F 8 1 2	24-	
FOUNDATION Fieldbus	s (FF)	F)	7 M	F 8 1 2	25-	
	•					
Measuring cell filling Silicone oil	Measuring cell cleaning	ı	1			
Inert liquid	Cleanliness level 2 to DIN 25410		3			
FDA compliant fill fluidNeobee oil	normal		4			
max. span						
0.01 1 bar	(0.15 14.5 psi)		В			
0.04 4 bar 0.16 16 bar	(0.58 58 psi)		C			
0.63 63 bar	(2.32 232 psi) (9.14 914 psi)		E			
13 1300 mbar a ¹⁾	(0.19 18.9 psia) ¹⁾		s			
0.05 5 bar a ¹⁾	(0.7 72.5 psia) ¹⁾		Т			
0.03 30 bar a ¹⁾	(4.35 435 psia) ¹⁾		U			
Wetted parts materials	i					
Seal diaphragm	Measuring cell					
Stainless steel Hastelloy ²⁾	Stainless steel Stainless steel			A B		
• Flange version with Or (see "Further designs"	der Code M, N, R or Q			7		
Non-wetted parts mate • Stainless steel, deep-opolished	erials drawn and electrolytically			4		
Version • Standard versions					1	
Explosion protection • None					А	
With ATEX, Type of protection:					l î	
- "Intrinsic safety (EEx ia)"					В	3
• Zone 20/21/22 ³⁾					C	
 Ex nA/nL (Zone 2)⁴⁾ with FM "intrinsic safety" (cFM_{US}) 					E	
Electrical connection /		-				
 Screwed gland M20x1 						Α
• Screwed gland M20x1.5 (polyamide)						В
Screwed gland M20x1						C
 M12 connectors (with 						F
will connectors (stain socket)	less steel), without cable					G
• ½-14 NPT metal thread						Н
• ½-14 NPT stainless ste					J	

Selection and Ordering data	Order No.
SITRANS P300 pressure transmitters for relative and absolute pressure with front-flush memb- rane, single-chamber measuring housing, rating plate inscription in English	
4 20 mA/HART F)	7 M F 8 1 2 3 -
PROFIBUS PA F)	7 M F 8 1 2 4 -
FOUNDATION Fieldbus (FF)	7 M F 8 1 2 5 -
Display • Without display, with keys, closed covers	1
 With display and keys, closed lid 	2
With display and keys, lid with Makrolon pane (setting on HART devices: mA, with PROFIBUS PA and FOUNDATION Fieldbus equipment: pressure units)	4
 With display and keys (setting acc. to specifica- tions, Order Code "Y21" or "Y22" required), lid with Makrolon pane 	5
 With display and keys, lid with glass pane (setting on HART devices: mA, with PROFIBUS PA and FOUNDATION Fieldbus equipment: pressure units) 	6
 With display and keys (setting acc. to specifica- tions, Order Code "Y21" or "Y22" required), lid with glass pane 	7

Power supply units see Chap. 8 "Supplementary Components"

Included in delivery of the device:

- Brief instruction (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 possible for flange with M.., N.. and Q.. option.
- 3) Not together with electrical connection option A.
- $^{\rm 4)}$ Only available together with electrical connection options B, C, F or G.
- ⁵⁾ Only together with HART electronics.
- 6) Without cable gland.
- F) Subject to export regulations AL: 91999, ECCN: N.

for gauge and absolute pressure

Selection and Ordering data	Order	code			Selection and Orderi
Further designs		HART	PA	FF	Further designs
Add " -Z " to Order No. and specify Order Code.					Add "-Z" to Order No. specify Order Code.
Pressure transmitter with mounting bra- cket (2 shackles, 4 nuts, 4 U-plates, 1 angle) made of: made completely of stainless steel, for wall of pipe mounting	A02	✓	*	✓	Sanitary process cor DIN 11851 (Dairy cor Certified to 3A ⁶⁾ • DN 50, PN 25
Cable socket for M12 plug					 DN 80, PN 25 Tri-Clamp connection
Metal Stainless steel	A50 A51		V	1	DIN 32676/ISO 2852 Certified to 3A ⁶⁾
Rating plate inscription					• DN 50/2", PN 16 • DN 65/3", PN 10
(instead of English) German	B10	1	✓	✓	Varivent connection
• French	B12	√	1	V	Certified to 3A and El
SpanishItalian	B13 B14	1	1	✓	• Type N = 68 for Vari DN 40 125 und 11
English rating plate Pressure units in inH ₂ 0 and/or psi	B21	✓	✓	✓	Temperature decoup for front-flush diaphra
Quality inspection certificate (Five-step	C11	✓	✓	✓	Temperature decoup
factory calibration) to IEC 60770-21) Inspection certificate ²⁾	C12	1	1	1	Measuring cell filling: (Silicone oil)
Acc. to EN 10204-3.1	CIZ	·	•	•	Bio-Control sanitary Certified to 3A and El-
Test report Acc. to EN 10204-2.2	C14	✓	✓	✓	• DN 50, PN 16 • DN 65, PN 16
Degree of protection IP68 (only for M20x1.5 and ½-14 NPT)	D12	✓	✓	✓	Sanitary process cor
Degree of protection IP6k9k (only for M20x1.5)	D46	✓	✓	✓	SMS socket with uni
Ex Approval IEC Ex (EEx ia)	E45	1	✓	✓	• 2" • 2½"
(only for transmitter 7MF8B)					• 3"
Ex Approval EEx ia/ib NEPSI	E55	✓	✓	✓	SMS threaded socke
Only for SITRANS P300 with front-flush diaphragm (7MF81)					• 2" • 2½"
Flange to EN 1092-1, Form b1					• 3"
• DN 25, PN 40 ³⁾	M11	1	√	1	IDF socket with unio
 DN 25, PN 100⁴⁾ DN 40, PN 40 	M21 M13	∀	∨	✓	• 2" • 2½"
• DN 40, PN 100	M23	1	1	V	• 3"
• DN 50, PN 16	M04	1	1	1	IDF threaded socket
• DN 50, PN 40	M14	1	✓	✓	• 2"
• DN 80, PN 16	M06	✓	✓	✓	• 21/2"
• DN 80, PN 40	M16	✓	✓	✓	• 3"
Flanges to ASME B16.5					Sanitary process co
• 1", class 150 ⁴⁾	M40	✓	✓	✓	Bio-Connect screw of
• 1½", class 150	M41	1	✓.	✓.	Certified to 3A and El-
• 2", class 150	M42	1	1	V	• DN 50, PN 16
• 3", class 150	M43	✓,	1	√	• DN 65, PN 16
• 4", class 150	M44	1	1	1	• DN 80, PN 16
• 1", class 300 ⁴⁾	M45	1	1	1	• DN 100, PN 16
• 1½", class 300	M46	√	✓	√	• DN 2", PN 16
• 2", class 300	M47	1	∨	∀	 DN 2½", PN 16 DN 3", PN 16
• 3", class 300	M48 M49	✓	v	*	• DN 4", PN 16
• 4", class 300					Sanitary process cor
Threaded connector to DIN 3852-2, form A	۸,				Bio-Connect flange
Threaded connector to DIN 3852-2, form <i>I</i> thread to ISO 228					
Threaded connector to DIN 3852-2, form A thread to ISO 228 • G ¾"-A, front-flush ⁴⁾	R01	4	V	1	Certified to 3A and El-
Threaded connector to DIN 3852-2, form A thread to ISO 228 • G ¾"-A, front-flush ⁴⁾ • G 1"-A, front-flush ⁴⁾	R01 R02	✓	✓	✓	Certified to 3A and El- • DN 50, PN 16
Threaded connector to DIN 3852-2, form A thread to ISO 228 • G ¾"-A, front-flush ⁴) • G 1"-A, front-flush ⁴) • G 2"-A, front-flush ⁴)	R01				Certified to 3A and EH DN 50, PN 16 DN 65, PN 16
Threaded connector to DIN 3852-2, form A thread to ISO 228 • G ¾"-A, front-flush ⁴) • G 1"-A, front-flush ⁴) • G 2"-A, front-flush ⁴) Tank connection ⁵)	R01 R02	✓	✓	✓	Certified to 3A and EH DN 50, PN 16 DN 65, PN 16 DN 80, PN 16
Threaded connector to DIN 3852-2, form A thread to ISO 228 • G ¾"-A, front-flush ⁴) • G 1"-A, front-flush ⁴) • G 2"-A, front-flush ⁴) Tank connection ⁵) Sealing is included in delivery	R01 R02 R04	✓	✓	*	Certified to 3A and EH DN 50, PN 16 DN 65, PN 16 DN 80, PN 16 DN 100, PN 16
 4", class 300 Threaded connector to DIN 3852-2, form A thread to ISO 228 G 3/4"-A, front-flush⁴) G 1"-A, front-flush⁴) G 2"-A, front-flush⁴) Tank connection⁵) Sealing is included in delivery TG 52/50, PN 40 	R01 R02 R04	√ √	✓	✓	Certified to 3A and EH DN 50, PN 16 DN 65, PN 16 DN 80, PN 16 DN 100, PN 16 DN 2", PN 16
Threaded connector to DIN 3852-2, form A thread to ISO 228 • G ¾"-A, front-flush ⁴) • G 1"-A, front-flush ⁴) • G 2"-A, front-flush ⁴) Tank connection ⁵) Sealing is included in delivery	R01 R02 R04	✓	✓	*	Certified to 3A and EH DN 50, PN 16 DN 65, PN 16 DN 80, PN 16 DN 100, PN 16

Salastian and Ordaring data	Ordor	oodo		
Selection and Ordering data	Order		DA	
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order Code.				
· · ·				
Sanitary process connection according DIN 11851 (Dairy connection) Certified to 3A ⁶⁾				
• DN 50, PN 25	N04	1	1	1
• DN 80, PN 25	N06	1	1	1
Tri-Clamp connection according				
DIN 32676/ISO 2852				
Certified to 3A ⁶⁾				
• DN 50/2", PN 16	N14	V	✓.	✓.
• DN 65/3", PN 10	N15	✓	✓	✓
Varivent connection				
Certified to 3A and EHEDG ⁶⁾	Noo	1	,	
 Type N = 68 for Varivent housing DN 40 125 und 1½" 6", PN 40 	N28	~	✓	•
Temperature decoupler up to 200 °C ⁷⁾	P00			
for front-flush diaphragm version	PUU	•	•	•
, 0			,	,
Temperature decoupler up to 250 °C Measuring cell filling: High-temperature oil (Silicone oil)	P10	V	✓	√
Bio-Control sanitary process connection				
Certified to 3A and EHEDG ⁶⁾	OFO	.,	1	.,
DN 50, PN 16DN 65, PN 16	Q53 Q54	1	1	1
· · · · · · · · · · · · · · · · · · ·	W34	_	•	_
Sanitary process connection to DRD • DN 50, PN 40	M32	1	1	1
,	WISZ	•	•	•
SMS socket with union nut		,		,
• 2"	M67	1	√	1
• 2½" • 3"	M68 M69	*	·/	1
-	MOS	•	•	•
SMS threaded socket • 2"	1470	1	1	,
• 21/2"	M73 M74	*	· /	1
• 3"	M75	· /	1	1
•				
IDF socket with union nut ISO 2853 • 2"	M82	1	1	1
• 21/2"	M83	V	1	1
• 3"	M84	1	1	1
IDF threaded socket ISO 2853	1010-1	•	·	
• 2"	M92	1	1	1
• 2½"	M93	1	1	1
• 3"	M94	1	1	1
Sanitary process connection to NEUMO				
Bio-Connect screw connection				
Certified to 3A and EHEDG ⁶⁾				
• DN 50, PN 16	Q05	√	√	1
• DN 65, PN 16	Q06	V	✓,	V
• DN 80, PN 16	Q07	1	1	1
• DN 100, PN 16	Q08	1	1	1
• DN 2", PN 16	Q13	1	1	✓
• DN 2½", PN 16 • DN 3", PN 16	Q14	*	√	√
• DN 3 , PN 16 • DN 4", PN 16	Q15 Q16	*	*	1
,	Q 10	,	•	
Sanitary process connection to NEUMO Bio-Connect flange connection				
Certified to 3A and EHEDG ⁶⁾				
• DN 50, PN 16	Q23	✓,	√	V
• DN 65, PN 16	Q24	1	1	1
• DN 80, PN 16	Q25	1	1	1
• DN 100, PN 16	Q26	1	√	1
• DN 2", PN 16	Q31	*	√	* * * *
DN 2½", PN 16DN 3", PN 16	Q32 Q33	∀	√	1
• DN 4", PN 16	Q34	1	V	1
- DIV T, I IV IO	G04	¥		•

Transmitters for food, pharmaceuticals and biotechnology

SITRANS P300 for gauge and absolute pressure

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order Code.				
Sanitary process connection to NEUMO Bio-Connect clamp connection Certified to 3A and EHEDG ⁶⁾				
• DN 50, PN 16	Q39	1	1	1
• DN 65, PN 10	Q40	1	1	✓
• DN 80, PN10	Q41	√	✓	✓
• DN 100, PN 10	Q42	✓	✓	✓
• DN 2½", PN 16	Q48	✓	✓	✓
• DN 3", PN 10	Q49	✓	✓	✓
• DN 4", PN 10	Q50	✓	✓	✓
Sanitary process connection to NEUMO Bio-Connect S flange connection Certified to 3A and EHEDG				
• DN 50, PN 16	Q63	1	1	✓
• DN 65, PN 10	Q64	✓	✓	✓
• DN 80, PN 10	Q65	✓	✓	✓
• DN 100, PN 10	Q66	✓	✓	✓
• DN 2", PN 16	Q72	✓	✓.	✓.
• DN 2½", PN 10	Q73	1	1	V
• DN 3", PN 10	Q74 Q75	1	✓	√
• DN 4", PN 10	Q/5	V	•	
Aseptic threaded socket to DIN 11864-1 Form A Certified to 3A and EHEDG				
• DN 50. PN 25	N33	1	1	1
• DN 65, PN 25	N34	1	1	1
• DN 80, PN 25	N35	1	1	1
• DN 100, PN 25	N36	✓	✓	✓
Aseptic flange with notch to DIN 11864-2				
Form A Certified to 3A and EHEDG				
• DN 50, PN 16	N43	1	1	1
• DN 65, PN 16	N44	1	1	1
• DN 80, PN 16	N45	1	1	1
• DN 100, PN 16	N46	1	✓	✓
Aseptic flange with groove to DIN 11864-2 Form A				
Certified to 3A and EHEDG				
• DN 50, PN 16	N43 + P11	✓	✓	✓
• DN 65, PN 16	N44 + P11	✓	✓	✓
• DN 80, PN 16	N45 + P11	✓	✓	✓
• DN 100, PN 16	N46 + P11	✓	✓	✓
Aseptic clamp with groove to DIN 11864-3 FormA				
Certified to 3A and EHEDG				
• DN 50, PN 25	N53	✓	✓	✓
• DN 65, PN 25	N54	✓	✓	✓
• DN 80, PN 16	N55	✓	1	✓
• DN 100, PN 16	N56	✓	✓	✓

Selection and Ordering data	Order	code			
Additional data		HART	PA	FF	Ī
Please add "-Z" to Order No. and specify Order code(s) and plain text.					
Measuring range to be set	Y01	✓			
Specify in plain text (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi					
Stainless steel tag plate (measuring point description)	Y15	✓	✓	✓	
Max. 16 characters, specify in plain text: Y15:					
Measuring point text	Y16	1	1	1	
Max. 27 characters, specify in plain text: Y16:					
Entry of HART TAG	Y17	✓			
Max. 8 characters, specify in plain text: Y17:					
Setting of the display in pressure units	Y21	✓	✓	1	
Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, Note: The following pressure units can be selected:					
bar, mbar, mm H 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 the display in non-	Y22 +	1			
pressure units ⁸⁾	Y01				
Specify in plain text: Y22: up to I, m³, m, USg, (specification of measuring range in pressure units "Y01" is essential, unit with max. 5 characters)					
Preset bus address	Y25		✓		
(possible between 1 126) Specify in plain text:					
Y25:					

Factory mounting of valve manifolds, see accessories.

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

✓ = available

Ordering example

Item line: 7MF8023-1DB24-1AB7-Z

B line: A02 + Y01 + Y21

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

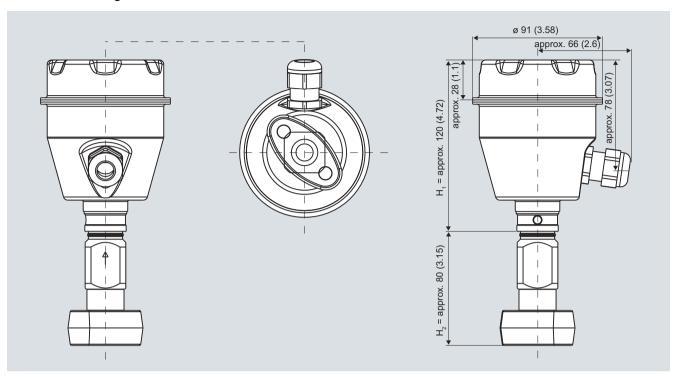
C line: Y21: bar (psi)

- When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.
- 2) If the acceptance test certificate 3.1 is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- 3) Special seal in Viton included in the scope of delivery
- 4) Cannot be combined with order codes P00 and P10. Can only be ordered with silicone oil measuring cell filling.
- 5) The weldable socket can be ordered under accessories.
- 6) 3A certification only if used in conjunction with 3A-compliant sealing rings.
- ⁷⁾ Certified to 3A. The maximum permissible temperatures of the medium depend on the respective cell fillings.
- 8) Preset values can only be changed over SIMATIC PDM.

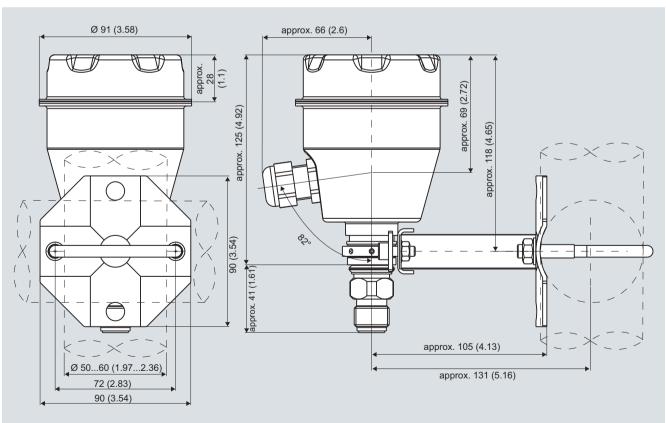
Transmitters for food, pharmaceuticals and biotechnology

SITRANS P300 for gauge and absolute pressure

Dimensional drawings



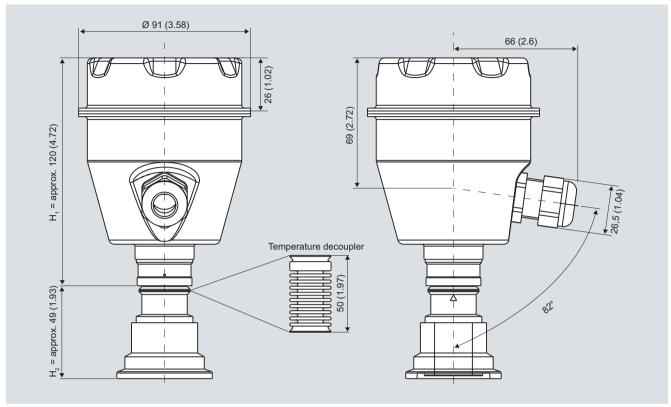
SITRANS P300, with oval flange, dimensions in mm (inch)



SITRANS P300, process connection M20 x 1.5, with mounted mounting bracket, dimensions in mm (inch)

Transmitters for food, pharmaceuticals and biotechnology

SITRANS P300 for gauge and absolute pressure



SITRANS P300, front-flush, dimensions in mm (inch)

The diagram shows a SITRANS P300 with an example of a flange. In this drawing the height is subdivided into $\rm H_1$ and $\rm H_2$.

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

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

Only the height H₂ is indicated in the dimensions of the flanges.

Transmitters for food, pharmaceuticals and biotechnology

SITRANS P300 for gauge and absolute pressure

Flanges as per EN and ASME

Flange to EN

EN 1092-1
T D

D	N	PN	ØD	H ₂
2	5	40	115 mm (4.5")	Approx.
2	5	100	140 mm (5.5")	52 mm (2")
4	0	40	150 mm (5.9")	
4	0	100	170 mm (6.7")	
5	0	16	165 mm (6.5")	
5	0	40	165 mm (6.5")	
8	0	16	200 mm (7.9")	
8	0	40	200 mm (7.9")	

Flanges to ASME

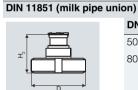
ASME B16.5



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



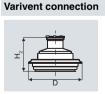
•	on)				
	DN	PN	ØD	H ₂	
	50	25	92 mm (3.6")	Approx.	
	80	25	127 mm (5.0")	52 mm (2")	

TriClamp to DIN 32676



DN	PN	∅D	H ₂
50	16	64 mm (2.5")	Approx.
65	16	91 mm (3.6")	52 mm (2")

Other connections



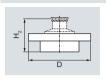
DN	PN	ØD	H ₂
40 125	40	84 mm (3.3")	Approx. 52 mm (2")

Biocontrol connection



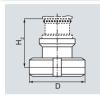
DN	PN	ØD	H ₂
50	16	90 mm (3.5")	Approx.
65	16	120 mm (4.7")	52 mm (2")

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



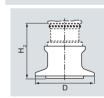
DN	PN	ØD	H ₂
50	16	82 mm (3.2")	Approx.
65	16	105 mm (4.1")	52 mm (2")
80	16	115 mm (4.5")	
100	16	145 mm (5.7")	
2"	16	82 mm (3.2")	
21/2"	16	105 mm (4.1")	
3"	16	105 mm (4.1")	
4"	16	145 mm (5.7")	

Sanitary process connection to NEUMO Bio-Connect flange connection



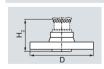
DN	PN	ØD	H ₂
50	16	110 mm (4.3")	Approx.
65	16	140 mm (5.5")	52 mm (2")
80	16	150 mm (5.9")	
100	16	175 mm (6.9")	
2"	16	100 mm (3.9")	
21/2"	16	110 mm (4.3")	
3"	16	140 mm (5.5")	
4"	16	175 mm (6.9")	

Sanitary process connection to NEUMO Bio-Connect clamp connection



DN	PN	ØD	H ₂
50	16	77.4 mm (3.0")	Approx.
65	10	90.9 mm (3.6")	52 mm (2")
80	10	106 mm (4.2")	
100	10	119 mm (4.7")	
2"	16	64 mm (2.5")	
21/2"	16	77.4 mm (3.0")	
3"	10	90.9 mm (3.6")	
4"	10	119 mm (4.7")	

Sanitary process connection to NEUMO Bio-Connect S flange connection

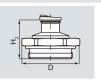


DN	PN	∅D	H ₂
50	16	125 mm (4.9")	Approx.
65	10	145 mm (5.7")	52 mm (2")
80	10	155 mm (6.1")	
100	10	180 mm (7.1")	
2"	16	125 mm (4.9")	
21/2"	10	135 mm (5.3")	
3"	10	145 mm (5.7")	
4"	10	180 mm (7.1")	

Transmitters for food, pharmaceuticals and biotechnology

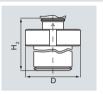
SITRANS P300 for gauge and absolute pressure

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



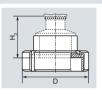
DN	PN	ØD	H ₂
3/4"	63	37 mm (1.5")	approx. 45 mm (1.8")
1"	63	48 mm (1.9")	approx. 47 mm (1.9")
2"	63	78 mm (3.1")	Approx. 52 mm (2")

Tank connection TG 52/50 and TG52/150



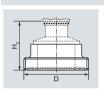
DN	PN	∅D	H ₂
25	40	63 mm (2.5")	approx. 63 mm (2.5")
25	40	63 mm (2.5")	approx. 170 mm (6.7")

SMS socket with union nut



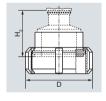
DI	1	PN	∅D	H ₂
2"		25	, ,	Approx.
21/	2"	25	100 mm (3.9")	52 mm (2.1")
3"		25	114 mm (4.5")	

SMS threaded socket



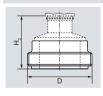
DN	PN	ØD	H ₂
2"	25	70 x 1/6 mm	Approx.
21/2	" 25	85 x 1/6 mm	52 mm (2.1")
3"	25	98 x 1/6 mm	

IDF socket with union nut



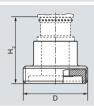
DN	PN	ØD	H ₂
2"	25	77 mm (3")	Approx.
21/2"	25	91 mm (3.6")	52 mm (2.1")
3"	25	106 mm (4.2")	

IDF threaded socket



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

Aseptic threaded socket to DIN 11864-1 Form A



DN	PN	ØD	H ₂
50	25	78 x 1/6"	Approx.
65	25	95 x 1/6"	52 mm (2.1")
80	25	110 x 1/4"	
100	25	130 x 1/4"	

Aseptic flange with notch to DIN 11864-2 Form A



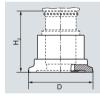
DN	PN	ØD	H ₂
50	16	94	Approx.
65	16	113	52 mm (2.1")
80	16	133	
100	16	159	

Aseptic flange with groove to DIN 11864-2 Form A



DN	PN	ØD	H_2
50	16	94	Approx.
65	16	113	52 mm (2.1")
80	16	133	
100		159	

Aseptic clamp with groove to DIN 11864-3 Form A



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

SITRANS P300 Accessories/Spare parts

Salaatian and Odaving data	Order No.
Selection and Odering data	Order No.
Spare parts / Accessories	
Mounting bracket and fastening parts kit made of stainless steel	71450007 4 4 4
	7MF8997-1AA
Cover without window	
gasket not included	7MF8997-1BA
Cover with glass window	
gasket not included	7MF8997-1BD
NBR enclosure sealing	7MF8997-1BG
Measuring point label	
unlabeled	7MF8997-1CA
Cable gland	
• metal	7MF8997-1EA
plastic (blue)	7MF8997-1EB
Weldable sockets for PMC connection	
PMC Style Standard: Thread 1½"	7MF4997-2HA
PMC Style Minibolt: front-flush 1"	7MF4997-2HB
Gaskets for PMC connection	
(packing unit = 5 units)	71454007 0110
 PTFE seal for PMC Style Standard: F Thread 1½" 	7MF4997-2HC
 Gasket made of Viton for PMC Style Minibolt: F 	7MF4997-2HD
front-flush 1"	
Weldable socket for TG52/50 and TG52/150	
connection	
 TG52/50 connection TG52/150 connection02 	7MF4997-2HE
	7MF4997-2HF
Seals for TG 52/50 and TG 52/150 made of silicone	7MF4997-2HG
Seals for flange connection with front-flush	
diaphragm Material FPM (Viton), 10 units	
, , , ,	7MF4997-2HH
	7MF4997-2HJ
, ,	7MF4997-2HK
• 1", class 300 (M45)	7MF4997-2HL

Selection and Odering data	Order No.
Operating Instructions ¹⁾	
• for SITRANS P300 series with HART	
- German	A5E00359580
- English	A5E00359579
- French	A5E00359578
- Spanish - Italian	A5E00359576 A5E00359577
- Italian - Leporello German/English	A5E00359577
• for SITRANS P300 series with PROFIBUS	
- German	A5E00414587
- English	A5E00414588
- French	A5E00414589
- Spanish	A5E00414590
- Italian	A5E00414591
- Leporello German/English	A5E00414592
CD with documentation for SITRANS P300 and SITRANS DS III	
• German, English, French, Spanish, Italian	n A5E00090345
Certificates (order only via SAP) instead of Internet download	
hard copy (to order)	A5E03252406
• on CD (to order)	A5E03252407
HART modem	
• with RS232 interface	7MF4997-1DA
• with USB interface	7MF4997-1DB
available ex stock	

- ▶ available ex stock
- D) Subject to export regulations AL: N, ECCN: EAR99H
- F) Subject to export regulations AL: 91999, ECCN: N

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

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

Transmitters for food, pharmaceuticals and biotechnology

SITRANS P300 - Factory-mounting of valve manifolds on transmitters

Overview

The SITRANS P300 transmitter for gauge and absolute pressure can be delivered factory-fitted with the following valve manifolds:

 7MF9011-4EA and 7MF9011-4FA valve manifolds for gauge pressure and absolute pressure transmitters

Design

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

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

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

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

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

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

Selection and Ordering data

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



Add -Z to the Order No. of the transmitter and add order codes	Order code
SITRANS P300 7MF8021	T03
With process connection female thread ½-14 NPT in-sealed with PTFE sealing tape	
Delivery incl. high-pressure test certified by test report to EN 10204-2.2	
Further designs:	
Delivery includes mounting brackets and mounting clips made of stainless steel (instead of the mounting bracket supplied with the transmitter)	A02
Supplied acceptance test certificate to EN 10204- 3.1 for transmitters and mounted valve manifold	C12

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



Add -Z to the Order No. of the transmitter and add order codes	Order code
SITRANS P300 7MF8020	T02
with process connection collar G½ A to EN 837-1 with gasket made of PTFE between valve manifold and transmitter	
Alternative sealing material:	
• Soft iron	A70
• Stainless steel, Mat. No. 14571	A71
• copper	A72
Delivery incl. high-pressure test certified by test report to EN 10204-2.2	
Further designs:	
Delivery includes mounting brackets and mounting clips made of stainless steel (instead of the mounting bracket supplied with the transmitter)	A02
Supplied acceptance test certificate to EN 10204- 3.1 for transmitters and mounted valve manifold	C12

Transmitters for food, pharmaceuticals and biotechnology

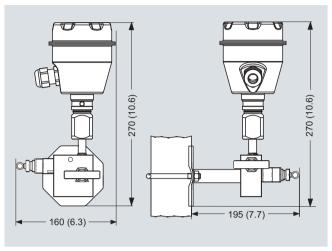
SITRANS P300 - Factory-mounting of valve manifolds on transmitters

Dimensional drawings

Valve manifolds mounted on SITRANS P300



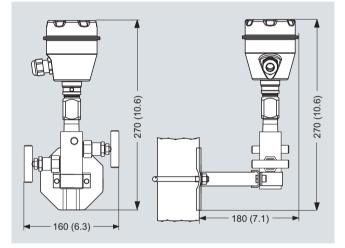
7MF9011-4EA valve manifold with mounted gauge pressure and absolute pressure transmitters



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



 $7 MF 9011 \hbox{-} 4 FA$ valve manifold with mounted gauge pressure and absolute pressure transmitters



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

Transmitters for gauge pressure for the paper industry

SITRANS P DS III and P300 with PMC connection Technical description

Overview



The SITRANS P300 and DS III pressure transmitters have been fitted with special process connections for the paper industry. With the two process connection threads $1\frac{1}{2}$ and 1 flush at the front, the SITRANS P300 and DS III transmitters can be used for all processes in the paper industry.

SITRANS P300 and SITRANS PDS III series pressure transmitters are digital pressure transmitters featuring extensive user-friendliness and high accuracy. The parameterization is performed using control keys via HART, PROFIBUS-PA or FOUNDATION Fieldbus interface.

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

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

Various versions of the pressure transmitters are available for measuring:

- Gauge pressure
- Level
- Mass level
- Volume level

Benefits

- High quality and service life
- High reliability even under extreme chemical and mechanical loads, e.g. abrasion.
- For aggressive and non-aggressive gases, vapors and liquids
- Extensive diagnosis and simulation functions
- Minimum conformity error
- · Small long-term drift
- Wetted parts made of Hastelloy
- Infinitely adjustable span from 0.03 bar to 16 bar (0.43 psi to 232 psi) for DS III with HART interface
- Nominal measuring range from 1 bar to 16 bar (14.5 psi to 232 psi) for DS III with PROFIBUS PA and FOUNDATION Fieldbus interface
- Infinitely adjustable span from 0.03 bar to 16 bar (0.43 psi to 232 psi) for SITRANS P300 with HART interface
- Nominal measuring range from 1 bar to 16 bar (14.5 psi to 232 psi) for SITRANS P300 with PROFIBUS PA interface
- High measuring accuracy
- Parameterization over control keys and HART Communication, or over PROFIBUS PA or FOUNDATION Fieldbus interface (DS III only).

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 or over PROFIBUS-PA or FOUNDATION Fieldbus interface (only DS III).

SITRANS P, DS III series

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

Span (infinitely adjustable)

For DS III with HART: 0,03 ... 16 bar (0.433 ... 232 psi)

Nominal measuring range

For DS III with PROFIBUS PA or FOUNDATION Fieldbus: 1 ... 16 bar (14.5 ... 232 psi)

SITRANS P300

Span (infinitely adjustable)

For DS III with HART: 0,03 ... 16 bar (0.433 ... 232 psi)

Nominal measuring range

For DS III with PROFIBUS PA or FOUNDATION Fieldbus: 1 ... 16 bar (14.5 ... 232 psi)

Transmitters for gauge pressure for the paper industry

SITRANS P DS III and P300 with PMC connection Technical description

Design

SITRANS P DS III



Device front view, SITRANS P DS III

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

The rating plate (7, Figure "Device 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).

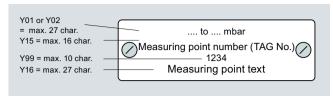
The approval label is located on the opposite side.

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 (2) can be fitted with a viewing pane so that the measured values can be read directly on the display. The inlet (8) for the electrical connection is located either on the left or right side. The unused opening on the opposite side is sealed by a blanking plug. The protective earth connection is located on the rear of the housing.

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

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

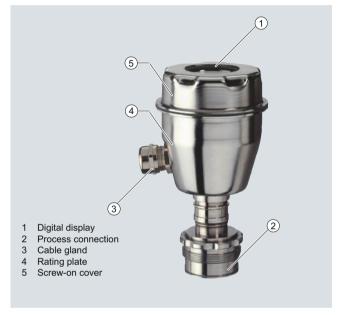
Example for an attached measuring point label



SITRANS P300

The device comprises:

- Electronics
- Housing
- Measuring cell



Perspective view of the SITRANS P300

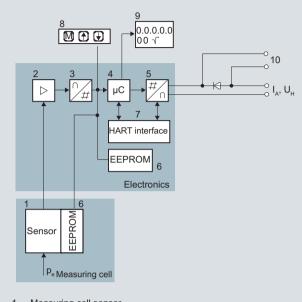
The housing has a screw-on cover (5) and, depending on the version, is with or without an inspection window. The electrical terminal housing, the buttons for operation of the device are located under this cover and, depending on the version, the display. The connections for the auxiliary power UH and the shield are in the terminal housing. The cable gland is on the side of the housing. The measuring cell with the process connection (2) is located on the bottom of the housing. The measuring cell with the process connection may differ from the one shown in the diagram, depending on the device version.

Transmitters for gauge pressure for the paper industry

SITRANS P DS III and P300 with PMC connection Technical description

Function

Operation of electronics with HART communication



- 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
- Û_H Power supply
- P Input variable

Function diagram of electronics

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

The diode circuit (10) protects against incorrect polarity.

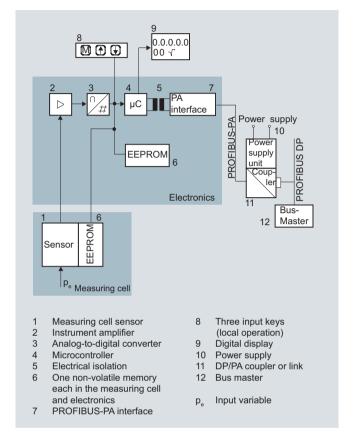
The data specific to the measuring cell, the electronics data, and the parameter data are stored in the two non-volatile memories (6). The one memory is coupled to the measuring cell, the other to the electronics. As the result of this modular design, the electronics and the measuring cell can be replaced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

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

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

The pressure transmitters with spans \leq 63 bar (914 psi) measure the input pressure compared to atmosphere, the transmitters with spans 160 bar (2320 psi) measure compared to vacuum.

Operation of electronics with PROFIBUS PA communication



Function diagram of electronics

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

The data specific to the measuring cell, the electronics data, and the parameter data are stored in the two non-volatile memories (6). The 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.

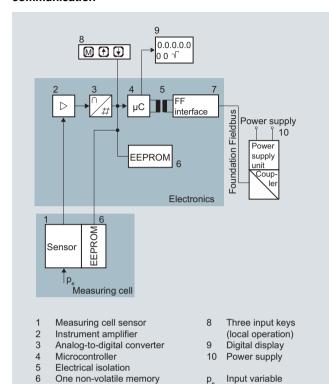
Using the three input buttons (8) you can parameterize the pressure transmitter directly at the measuring point. The input buttons can also be used to control the view of the results, the error messages and the operating modes on the display (9).

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

Transmitters for gauge pressure for the paper industry

SITRANS P DS III and P300 with PMC connection Technical description

Operation of electronics with FOUNDATION Fieldbus communication



Function diagram of electronics

FF interface

7

and electronics

each in the measuring cell

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

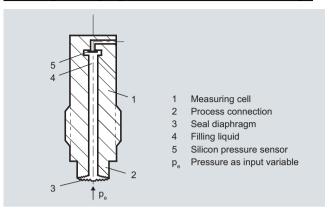
The data specific to the measuring cell, the electronics data, and the parameter data are stored in the two non-volatile memories (6). The one memory is coupled to the measuring cell, the other to the electronics. As the result of this modular design, the electronics and the measuring cell can be replaced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

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

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

Mode of operation of the measuring cell

Measuring cell for gauge pressure with front-flush diaphragm



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

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

Parameterization

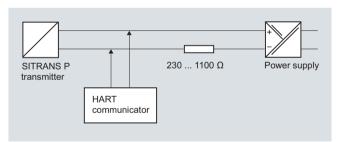
Depending on the version, there are a range of options for parameterizing the pressure transmitter and for setting or scanning the parameters.

Parameterization using the input buttons (local operation)

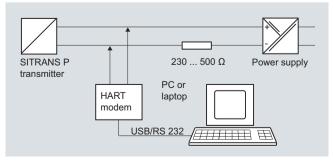
With the input buttons you can easily set the most important parameters without any additional equipment.

Parameterization using HART

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



Communication between a HART Communicator and a pressure transmitter When parameterizing with the HART Communicator, the connection is made directly to the 2-wire cable.



HART communication between a PC communicator and a pressure transmitter

Transmitters for gauge pressure for the paper industry

SITRANS P DS III and P300 with PMC connection Technical description

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 parameter DS III with HART and P300 with HART

Parameters	Input keys	HART commu- nication
Start of scale	X	X
Full-scale value	X	X
Electrical damping	X	X
Start-of-scale value without application of a pressure ("Blind setting")	Х	X
Full-scale value without application of a pressure ("Blind setting")	Х	X
Zero adjustment	X	X
current transmitter	X	X
Fault current	X	X
Disabling of buttons, write protection	×	x ¹⁾
Type of dimension and actual dimension	×	X
Characteristic (linear)	×	x
Input of characteristic		X
Freely-programmable LCD		X
Diagnostic functions		X

¹⁾ Cancel apart from write protection

Diagnostic functions for DS III with HART and P300 with HART

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

Available physical units of display for DS III with HART and P300 with HART

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
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 connects the DS III PA to a process control system, e.g. SIMATIC PSC 7. Communication is possible even in a potentially explosive environment.

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

Parameterization through FOUNDATION Fieldbus interface

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

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

Adjustable parameters for DS III with PROFIBUS PA and FOUNDATION Fieldbus, and P300 with PROFIBUS PA and FOUNDATION Fieldbus

Adjustable parameters	Input keys	PROFIBUS PA and FOUNDA- TION Fieldbus interface
Electrical damping	X	X
Zero adjustment (correction of position)	X	Х
Buttons and/or function disabling	X	X
Source of measured-value display	X	X
Physical dimension of display	X	X
Position of decimal point	X	X
Bus address	X	X
Adjustment of characteristic	X	X
Input of characteristic		X
Freely-programmable LCD		×
Diagnostic functions		X

Diagnostic functions for DS III with PROFIBUS PA and FOUNDATION Fieldbus, and P300 with PROFIBUS PA and FOUNDATION Fieldbus

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

Physical dimensions available for the display

Physical variable	Physical dimensions
Pressure (setting can also be made in the factory)	MPa, hPa, kPa, Pa, bar, mbar, torr, atm, psi, g/cm², kg/cm², mmH ₂ O, mmH ₂ O (4 °C), inH ₂ O, inH ₂ O (4 °C), ftH ₂ O, mmHg, inHg
Level (height data)	m, cm, mm, ft, in, yd
Mass	g, kg, t, lb, Ston, Lton, oz
Volume	m ³ , dm ³ , hl, yd ³ , ft ³ , in ³ , US gallon, lmp. gallon, bushel, barrel, barrel liquid
Temperature	K, °C, °F, °R
Miscellaneous	%

Pressure Measurement Transmitters for gauge pressure for the paper industry SITRANS P DS III with PMC connection

Technical specifications

	HART		PROFIBUS PA and F	OUNDATION Fieldbus	
Input					
Measured variable					
Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure	Span (min max.)	Max. perm. test pressure	Nominal measuring range	Max. perm. test pressure	
	0.01 1 bar (0.15 14.5 psi)	6 bar (87 psi)	1 bar (14.5 psi)	6 bar (87 psi)	
	0.04 4 bar (0.58 58 psi)	10 bar (145 psi)	4 bar (58 psi)	10 bar (145 psi)	
	0.16 16 bar (2.32 232 psi)	32 bar (464 psi)	16 bar (232 psi)	32 bar (464 psi)	
Lower measuring limit				,	
 Measuring cell with silicone oil filling 		100 mba	r a(1.45 psia)		
Upper measuring limit		100% o	f max. span		
Output					
Output signal	4 20 mA		Digital PROFIBUS PA FOUNDATION Fieldb		
 Lower limit (infinitely adjustable) 	3.55 mA, factory prese	et to 3.84 mA	-		
Upper limit (infinitely adjustable)	23 mA, factory preset set to 22.0 mA	to 20.5 mA or optionally	-		
Load					
Without HART communication	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0.0$ $U_{\rm H}$: Power supply in V	23 A in Ω,	η Ω,		
With HART communication	$R_{\rm B} = 230 \dots 500 \Omega$ (SI $R_{\rm B} = 230 \dots 1100 \Omega$ (H		-		
Physical bus	-		IEC 61158-2		
Protection against polarity reversal	Protected against sho	rt-circuit and polarity rev suppl	ersal. Each connection a y voltage.	against the other with ma	
Measuring accuracy		Acc. to	IEC 60770-1		
Reference conditions (All error data refer always refer to the set span)	Increasing characteris) bar, stainless steel sea 25 °C (77 °F)) r: Span ra pan / set span)		
Error in measurement at limit setting incl. hysteresis and reproducibility					
Linear characteristic			≤ 0.075 %		
- r ≤ 10	\leq (0.0029 · r + 0.071) 9	%			
- 10 < r ≤ 30	\leq (0.0045 · r + 0.071) 9	%			
- 30 < r ≤ 100	≤ (0.005 · r + 0.05) %				
Long-term stability (temperature change \pm 30 °C (\pm 54 °F))					
1- to 4-bar measuring cell	≤ (0.25 · r) % per 5 yea	ars	≤ 0.25 % per 5 years		
16-bar measuring cell	≤ (0.125 · r) % per 5 ye	ears	≤ 0.125 % per 5 years	3	
Influence of ambient temperature					
• at -10 +60 °C (14 140 °F)	$\leq (0.08 \cdot r + 0.1) \%^{1)}$		≤ 0.3 %		
• at -4010 °C and +60 +85 °C (-40 +14 °F and 140 185 °F)	\leq (0.1 · r + 0.15) %/10	K	≤ 0.25 %/10 K		
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 K)		
Influence of mounting position		≤ 0.1 mbar (0.00145	5 psi) per 10° inclination		
Measured Value Resolution			3 · 10 ⁻⁵ of nominal me	easuring range	

Pressure Measurement Transmitters for gauge pressure for the paper industry SITRANS P DS III with PMC connection

Rated conditions Degree of protection to IEC 60529 Temperature of medium Ambient conditions **Ambient conditions** **Ambient conditions** **Ambient temperature* **Storage temperature	SITRANS P, DS III series for gauge pressure v	SITRANS P, DS III series for gauge pressure with PMC connection for the paper industry				
Degree of protection to IEC 60529 Temperature of medium Ambient conditions Ambient conditions Ambient temperature Columnation Ambient temperature Columnation Condensation Ambient temperature Columnation Ambient temperature Columnation Condensation Ambient temperature Columnation Ambient temperature Columnation Ambient temperature Columnation Columnation Ambient temperature Acc. to EN 61326 and NAMUR NE 21 Acc. to		HART	PROFIBUS PA and FOUNDATION Fieldbus			
Temperature of medium Adv +100 °C (-40 +212 °F) Ambient conditions Ambient temperature Storage temperature Climatic class Condensation Relative humidity 0 100 % Condensation permissible, suitable for use in the tropics Electromagnetic Compatibility Emitted interference and interference immunity Emitted interference and interference immunity Design Weight (without options) Enclosure material Low-copper die-cast aluminum, GD-AlSi12 or stainless steel precision casting, mat. no. 1.44 Wetted parts materials Gasket (standard) O-ring (minibolt) Measuring cell filling Process connection (standard) Process connection (standard) Process connection (minibolt) Flush-mounted, 1**, PMC Standard design Frower supply U _H Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No Bus voltage Not Ex With intrinsically-safe operation Current consumption	Rated conditions					
Ambient conditions Ambient temperature Ambient temperature Storage temperature Condensation Condensation Relative humidity 0 100 % Condensation permissible, suitable for use in the tropics Electromagnetic Compatibility Emitted interference and interference immunity Pesign Weight (without options) Enclosure material Co-ring (minibolt) Porage (Standard) O-ring (minibolt) Measuring cell filling Process connection (standard) Process connection (minibolt) Power supply U _H Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode Separate 24 V power supply necessary Not Ex With intrinsically-safe operation With intrinsically-safe operation Current consumption	Degree of protection to IEC 60529	IP65, IP68, NEMA 4X, enclosure cleaning	g, resistant to lyes, steam to 150 °C (302 °F)			
Ambient temperature Storage temperature Coimatic class Condensation Relative humidity 0 100 % Condensation permissible, suitable for use in the tropics Ellectromagnetic Compatibility Emitted interference and interference immunity Pesign Weight (without options) Enclosure material Coasket (standard) O-ring (minibolt) Measuring cell filling Process connection (standard) Process connection (minibolt) Flush-mounted, 1½°, PMC Standard design Prover supply U _H Terminal voltage on transmitter Not Ex Not Ex Sunday Sunday	Temperature of medium	-40 +100 °C	C (-40 +212 °F)			
• Storage temperature • Climatic class - Condensation Relative humidity 0 100 % Condensation permissible, suitable for use in the tropics • Electromagnetic Compatibility - Emitted interference and interference immunity Pesign Weight (without options) Enclosure material Wetted parts materials • Gasket (standard) • O-ring (minibolt) Measuring cell filling Process connection (standard) Process connection (standard) Process connection (minibolt) Flush-mounted, 1½, PMC Standard design Process connection (minibolt) Flush-mounted, 1½, PMC Standard design Process connection (minibolt) Fush-mounted, 1½, PMC Standard design Process connection (minibolt) Flush-mounted, 1½, PMC Standard design Process connection (minibolt) Flush-mounted, 1½, PMC Standard design Power supply U _H Terminal voltage on transmitter 10.5 45 ∨ DC 10.5 30 ∨ DC in intrinsically-safe mode Separate 24 ∨ power supply necessary ■ No Supplied through bus No Supplied through bus No Wetter through the supply supply necessary ■ No Wetter through the supply supply supply necessary ■ No With intrinsically-safe operation - 2 9 32 ∨ ■ With intrinsically-safe operation Current consumption	Ambient conditions					
• Climatic class - Condensation Relative humidity 0 100 % Condensation Permissible, suitable for use in the tropics • Electromagnetic Compatibility - Emitted interference and interference immunity - Emitted interference immunity - Em	Ambient temperature	-20 +85 °C (-4 +185 °F)				
- Condensation Relative humidity 0 100 % Condensation permissible, suitable for use in the tropics • Electromagnetic Compatibility - Emitted interference and interference immunity Design Weight (without options) Enclosure material Low-copper die-cast aluminum, GD-AlSi12 or stainless steel precision casting, mat. no. 1.44 Wetted parts materials • Gasket (standard) • O-ring (minibolt) Measuring cell filling Process connection (standard) Process connection (minibolt) Flush-mounted, 1½**, PMC Standard design Prover supply U₁ Terminal voltage on transmitter 10.5 45 ∨ DC 10.5 30 ∨ DC in intrinsically-safe mode • No Separate 24 ∨ power supply necessary Bus voltage • Not Ex • With intrinsically-safe operation Current consumption	Storage temperature	-50 +85 °C (-58 +185 °F)				
Condensation permissible, suitable for use in the tropics • Electromagnetic Compatibility - Emitted interference and interference immunity Design Weight (without options) Enclosure material Wetted parts materials • Gasket (standard) • O-ring (minibolt) Measuring cell filling Process connection (standard) Process connection (minibolt) Fower supply U _H Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode • Not Ex • With intrinsically-safe operation Current consumption	Climatic class					
- Emitted interference and interference immunity - Emitted interference and interference immunity - Emitted interference and interference immunity - Design Weight (without options) Enclosure material - Cow-copper die-cast aluminum, GD-AlSi12 or stainless steel precision casting, mat. no. 1.44 Wetted parts materials - Gasket (standard) - O-ring (minibolt) - Measuring cell filling - Process connection (standard) - Process connection (standard) - Process connection (minibolt) - Flush-mounted, 1½*, PMC Standard design - Process connection (minibolt) - Supplied through bus - Supplied through bus - Terminal voltage on transmitter - 10.5 45 ∨ DC 10.5 30 ∨ DC in intrinsically-safe mode Separate 24 ∨ power supply necessary Bus voltage - Not Ex - With intrinsically-safe operation - With intrinsically-safe operation - With intrinsically-safe operation - Current consumption	- Condensation					
Design Weight (without options) ≈ 1.5 kg (≈ 3.3 lb) Enclosure material Low-copper die-cast aluminum, GD-AlSi12 or stainless steel precision casting, mat. no. 1.44 Wetted parts materials • Gasket (standard) PTFE flat gasket • O-ring (minibolt) FPM (Viton) or optionally: FFPM or NBR Measuring cell filling Silicone oil or inert filling liquid Process connection (standard) Flush-mounted, 1½*, PMC Standard design Process connection (minibolt) Flush-mounted, 1*, minibolt design Power supply U _H Supplied through bus Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No Separate 24 V power supply necessary No No Bus voltage • Not Ex 9 32 V • Not Ex 9 32 V • With intrinsically-safe operation - 9 24 V	Electromagnetic Compatibility					
Weight (without options) ≈ 1.5 kg (≈ 3.3 lb) Enclosure material Low-copper die-cast aluminum, GD-AlSi12 or stainless steel precision casting, mat. no. 1.44 Wetted parts materials • Gasket (standard) • Gasket (standard) PTFE flat gasket • O-ring (minibolt) FPM (Viton) or optionally: FFPM or NBR Measuring cell filling Silicone oil or inert filling liquid Process connection (standard) Flush-mounted, 1½", PMC Standard design Process connection (minibolt) Flush-mounted, 1*, minibolt design Power supply U _H Supplied through bus Terminal voltage on transmitter 10.5 45 V DC 10.5 45 V DC No Bus voltage No • Not Ex 9 32 V • With intrinsically-safe operation 9 24 V Current consumption		Acc. to EN 61326	and NAMUR NE 21			
Enclosure material Wetted parts materials • Gasket (standard) • O-ring (minibolt) Measuring cell filling Process connection (standard) Process connection (minibolt) Process connection (minibolt) Power supply U _H Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode • Not Ex • With intrinsically-safe operation Current consumption	Design					
Wetted parts materials • Gasket (standard) • O-ring (minibolt) Measuring cell filling Process connection (standard) Process connection (minibolt) Process connection (minibolt) Power supply U _H Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode Separate 24 V power supply necessary Bus voltage • Not Ex • With intrinsically-safe operation Current consumption	Weight (without options)	≈ 1.5 kg (≈ 3.3 lb)				
Gasket (standard) O-ring (minibolt) FPM (Viton) or optionally: FFPM or NBR Measuring cell filling Silicone oil or inert filling liquid Process connection (standard) Process connection (minibolt) Flush-mounted, 1½", PMC Standard design Flush-mounted, 1", minibolt design Flush-mounted, 1", minibolt design Fower supply U _H Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode Separate 24 V power supply necessary Bus voltage No No With intrinsically-safe operation Current consumption	Enclosure material	Low-copper die-cast aluminum, GD-AlSi12 or stainless steel precision casting, mat. no. 1.4				
O-ring (minibolt) Measuring cell filling Silicone oil or inert filling liquid Process connection (standard) Process connection (minibolt) Power supply U _H Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No Supplied through bus 10.5 30 V DC in intrinsically-safe operation No With intrinsically-safe operation Current consumption	Wetted parts materials					
Measuring cell filling Process connection (standard) Process connection (minibolt) Process connection (minibolt) Process connection (minibolt) Power supply U _H Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode Separate 24 V power supply necessary Bus voltage No No No No Vith intrinsically-safe operation Current consumption	Gasket (standard)	PTFE flat gasket				
Process connection (standard) Process connection (minibolt) Flush-mounted, 1½", PMC Standard design Flush-mounted, 1", minibolt design Power supply U _H Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode Separate 24 V power supply necessary Bus voltage No No No With intrinsically-safe operation Current consumption Flush-mounted, 1½", PMC Standard design Flush-mounted, 1½", PMC Standard desig	• O-ring (minibolt)	FPM (Viton) or optionally: FFPM or NBR				
Process connection (minibolt) Flush-mounted, 1", minibolt design Supplied through bus 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode Separate 24 V power supply necessary Supplied through bus No No Bus voltage No No With intrinsically-safe operation Current consumption	Measuring cell filling	Silicone oil or	inert filling liquid			
Power supply U _H Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode Separate 24 V power supply necessary • No Bus voltage • Not Ex • With intrinsically-safe operation Current consumption Supplied through bus - No 9 32 V 9 32 V 9 24 V	Process connection (standard)	Flush-mounted, 1½",	PMC Standard design			
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 No No No Separate 24 V power supply necessary No Unique No Separate 24 V power supply necessary No Separate 24 V power supp	Process connection (minibolt)	Flush-mounted,	1", minibolt design			
Separate 24 V power supply necessary Bus voltage • Not Ex • With intrinsically-safe operation Current consumption 10.5 30 V DC in intrinsically-safe mode No No 9 32 V 9 32 V 9 24 V	Power supply U_{H}		Supplied through bus			
Bus voltage • Not Ex • With intrinsically-safe operation Current consumption • With intrinsically-safe operation	Terminal voltage on transmitter					
 Not Ex With intrinsically-safe operation Current consumption 9 32 V 9 24 V 	Separate 24 V power supply necessary	-	No			
• With intrinsically-safe operation - 9 24 V Current consumption	Bus voltage					
Current consumption	• Not Ex	-	9 32 V			
	With intrinsically-safe operation	-	9 24 V			
• Basic current (max.) - 12.5 mA	Current consumption					
	Basic current (max.)	-	12.5 mA			
• Start-up current ≤ basic current - Yes	• Start-up current ≤ basic current	-	Yes			
• Max. current in event of fault - 15.5 mA	Max. current in event of fault	-	15.5 mA			
Fault disconnection electronics (FDE) available - Yes	Fault disconnection electronics (FDE) available	-	Yes			
Certificates and approvals	Certificates and approvals					
Classification according to PED 97/23/EC For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article paragraph 3 (sound engineering practice)	Classification according to PED 97/23/EC					

 $^{^{1)}}$ Conversion of temperature error per 28 °C. Valid for temperature range -3 ... +53 °C < (0.064 . r + 0.08) %/28 °C (50 °F).

Transmitters for gauge pressure for the paper industry

SITRANS P DS III with PMC connection

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

FOUNDATION Fieldbus communication

Function blocks

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

3 function blocks analog input, 1 function block PID

Yes, linearly rising or falling characteristic

0 ... 100 s

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

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

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

Yes

Standard FOUNDATION Fieldbus function block

1 resource block

1 transducer block Pressure with calibration, 1 transducer block LCD

Yes

Yes

Constant value or over parameterizable ramp function

Transmitters for gauge pressure for the paper industry

SITRANS P DS III with PMC connection

Selection and Orderin	g data	Ord	er No	٥.	
SITRANS P pressure transmitters for gauge F) pressure, with PMC connection			F 4 1		
series DS III with HAR	·-				
Measuring cell filling	Measuring cell- cleaning				
Silicone oil	normal	1			
Inert liquid	grease-free to cleanliness level 2	3			
Measuring span (min.					
0,01 1 bar ¹⁾	(0.15 14.5 psi) ¹⁾	В			
0.04 4 bar	(0.58 58 psi)	C			
0.1.6 16 bar	(2.32 232 psi)	D			
Wetted parts materials Seal diaphragm	S Connection shank				
Hastelloy	Stainless steel		В		
mum span: 500 mbar Non-wetted parts mate Housing made of die-			0		
 Housing stainless ste 	el precision casting		3		
Version					
 Standard versions International version, documentation in 5 la (no order code select 				1 2	
Explosion protection • None		-		ļ	١
Electrical connection					
• Female thread M20 x					В
 Female thread ½-14 N M12 connectors (met 					C
	ai) ·	-			•
DisplayWithout display					0
 Without display Without visible display setting: mA) 	y (display concealed,				1
 With visible display 					6
 With customer-specification of the customer of th	c display (setting as speci- I" required)				7
Available ex stock					

Available ex stock

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

Included in delivery of the device:

- Brief instructions (Leporello)CD-ROM with detailed documentation
- sealing ring
- 1) Only with "PMC Style Standard" process connection
- 2) M12 delivered without cable socket

Selection and Orderin	g data	Or	der	No	١.		
SITRANS P pressure to pressure, with PMC co							
DS III with PROFIBUS	PA (PA)	71	NF4	11:	34-		
DS III with FOUNDATION Fieldbus (FF)		71	NF4	11:	35-		
			Ŧ		- 1		i
Measuring cell filling	Measuring cell cleaning						_
Silicone oil	normal	1					
Inert liquid	grease-free to cleanliness level 2	3					
Nominal measuring ra	inge						
1 bar ¹⁾	(14.5 psi) ¹⁾	_	В				
4 bar	(58 psi)		С				
16 bar	(232 psi)	<u>'</u>	D				
Wetted parts materials Seal diaphragm	s Connection shank						
Hastelloy Process connection ²⁾	Stainless steel		В				
Non-wetted parts mat Housing made of die-Housing stainless ste	cast aluminium			0			
Version		-					
 Standard versions 					1		
 International version, documentation in 5 la (no order code select 	English label inscriptions, inguages on CD able)				2		
Explosion protection • None		_			A	L.	
Electrical connection	/ cable entry						
• Screwed gland M20x						В	
• Screwed gland ½-14						С	
• M12 connectors (met	aı)-′					F	
Display • Without display							1
 Without display Without visible display 	y (display concealed, set-						1
ting: mA)	y (Giopiay Corlocalcu, Sel-						•
With visible display							ô
With customer-specific Find Order Code "YOR"	c display (setting as speci-					7	7
fied, Order Code "Y2"	i requirea)						

Available ex stock

- Included in delivery of the device:
 Brief instructions (Leporello)
 CD-ROM with detailed documentation
- sealing ring
- 1) Only with "PMC Style Standard"process connection
- ²⁾ Sealing is included in delivery.
- 3) M12 delivered without cable socket
- F) Subject to export regulations AL:91999, ECCN:N

Transmitters for gauge pressure for the paper industry SITRANS P DS III

with PMC connection

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order Code.				
Plug				
• Angled	A32	1		
Han 8D (metal, gray)	A33	√	,	,
M12 cable sockets (metal)	A50	✓	✓	✓
Rating plate inscription (instead of German)				
• English	B11	✓	✓	✓
• French	B12	✓.	✓.	✓.
• Spanish	B13	1	1	1
• Italian	B14		-	v
English rating plate Pressure units in inH ₂ 0 and/or psi	B21	✓	✓	✓
Pressure units in inin ₂ 0 and/or psi				
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2	C11	✓	✓	✓
•	040	1	/	,
Inspection certificate Acc. to EN 10204-3.1	C12	•	•	•
Factory certificate Acc. to EN 10204-2.2	C14	✓	✓	✓
"Functional safety (SIL2)" certificate acc. to IEC 61508	C20	✓		
"Functional safety (SIL2/3)" certificate acc. to IEC 61508	C23	✓		
Device passport Russia (For price request please contact the technical support	C99	✓	✓	✓
www.siemens.com/automation/support-request)				
Output signal can be set to upper limit of 22.0mA	D05	✓	✓	✓
Degree of protection IP68 (only for M20 x 1.5 and ½-14 NPT)	D12	✓	✓	✓
Export approval Korea	E11	✓	✓	✓
Mounting				
 Weldable sockets for standard 1½" threaded connection 	P01	✓	✓	✓
• Weldable socket for minibolt connection 1" (incl. screw 5/16-18 UNC-2B and washer)	P02	✓	1	✓

Selection and Ordering data	Order	code		
Additional data		HART	PA	FF
Please add "-Z" to Order No. and specify Order code(s) and plain text.				
Measuring range to be set	Y01	✓		
Specify in plain text (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi				
Stainless steel tag plate (measuring point	Y15	✓	✓	✓
description) 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)	Y17	1		
Max. 8 characters, specify in plain text: Y17:				
Setting of pressure indication in pressure units	Y21	✓	✓	✓
Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, Note:				
The following pressure units can be selected:				
bar, mbar, mm H ₂ O*), inH ₂ O*), ftH ₂ O*), mmHG, inHG, psi, Pa, kPa, MPa, g/cm ² , kg/cm ² , Torr, ATM or % *) ref. temperature 20 °C				
Setting of pressure indication in non-	Y22 +	✓		
pressure units ¹⁾	Y01			
Specify in plain text: Y22: up to I, m³, m, USg, (specification of measuring range in pressure units "Y01" is essential, unit with max. 5 characters)				
Preset bus address	Y25		1	
possible between 1 and 126				
Max. 8 characters, specify in plain text: Y25:				
0-1-10/041110/04111-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-				

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

✓ = available

ordering example

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

B line: C11 + Y01 + Y21

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

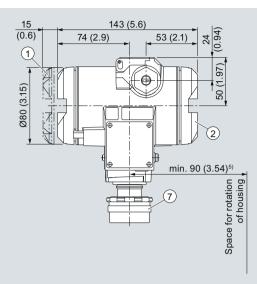
C line: Y21: bar (psi)

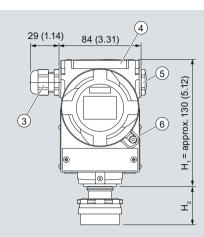
¹⁾ Preset values can only be changed over SIMATIC PDM.

Transmitters for gauge pressure for the paper industry

SITRANS P DS III
with PMC connection

Dimensional drawings





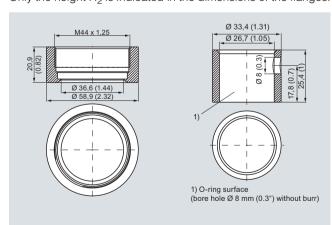
- 1 Electronic side, digital display (longer overall length for cover with window)¹⁾
- 2 Terminal side¹⁾
- 3 Electrical connection: Screwed gland M20 x 1,5 or screwed gland ½-14 NPT or M12 conector
- 1) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
- 2) 92 mm (3.6 inch) for minimum distance to permit rotation with indicator
- 4 Protective cover over keys
- 5 Blanking plug
- 6 Screw cover safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)
- (7) Process connection: PMC standard

SITRANS P DS III pressure transmitters for gauge pressure, with PMC connection, 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 .

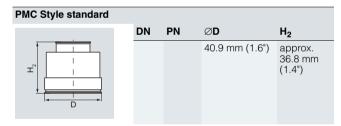
 $\ensuremath{H_1} = \ensuremath{\mbox{Height}}$ of the SITRANS P DS III up to a defined cross-section

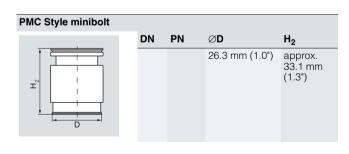
 H_2 = Height of the flange up to this defined cross-section Only the height H_2 is indicated in the dimensions of the flanges.



PMC Style Standard (left) and PMC Style Minibolt (right) weldable sockets, dimensions in mm (inch)

Material: Stainless steel, Mat. No. 1.4404/316L





Pressure Measurement Transmitters for gauge pressure for the paper industry SITRANS P300 with PMC connection

Technical specifications

SITRANS P300 for gauge pressure with PMC o	connection for the paper	er industry			
	HART		PROFIBUS PA and F	OUNDATION Fieldbus	
nput					
Measured variable		1	ire (front-flush)	1	
Spans (infinitely adjustable) or nominal measuring range and max. pemissible test pressure	Span (min max.)	Max. perm. test pressure	Nominal measuring range	Max. perm. test pressure	
	0.01 1 bar (0.15 14.5 psi)	6 bar (87 psi)	1 bar (14.5 psi)	6 bar (87 psi)	
	0.04 4 bar (0.58 58 psi) (145 psi) (58 psi) (145 psi)				
	0.16 16 bar (2.3 232 psi)				
	Depending on the process connection, the span may differ from these values Depending on the process connection, the span nominal measuring range may differ from values				
_ower measuring limit					
• Measuring cell with silicone oil	100 mbar a (1.45 psia)				
Jpper measuring limit					
Measuring cell with silicone oil	100 % of max. span		100 % of the max. non	ninal measuring range	
Output					
Output signal	4 20 mA		Digital PROFIBUS PA	signal	
Physical bus	-		IEC 61158-2		
Protection against polarity reversal	Protected against short-circuit and polarity reversal. Each connection against the other w max. supply voltage.				
Electrical damping T ₆₃ (step width 0.1 s)	Set to 0.1 s (0 100 s)				
Measuring accuracy	Acc. to IEC 60770-1				
2-f	cell with silicone oil, room temperature 25 °C (77 °F), span ratio (r = max. span / set span)				
Reference conditions (All error data always refer to the set span)					
o the set span) Error in measurement at limit setting incl. hyste-					
o the set span) Error in measurement at limit setting incl. hysteesis and reproducibility					
o the set span) Error in measurement at limit setting incl. hysteesis and reproducibility Linear characteristic		, room temperature 25°C	(77 °F), span ratio (r =		
o the set span) Error in measurement at limit setting incl. hysteesis and reproducibility Linear characteristic r + 10	cell with silicone oil	, room temperature 25°C	(77 °F), span ratio (r =		
o the set span) Error in measurement at limit setting incl. hystelesis and reproducibility Linear characteristic r + 10 10 < r ≤ 30	cell with silicone oil $\leq (0.0029 \cdot r + 0.071) \%$, room temperature 25°C	(77 °F), span ratio (r =		
o the set span) Error in measurement at limit setting incl. hysteesis and reproducibility Linear characteristic $r + 10$ $10 < r \le 30$ $30 < r \le 100$	cell with silicone oil $\leq (0.0029 \cdot r + 0.071) \%$ $\leq (0.0045 \cdot r + 0.071) \%$, room temperature 25°C	(77 °F), span ratio (r =		
o the set span) Error in measurement at limit setting incl. hystelesis and reproducibility Linear characteristic $r+10$ $10 < r \le 30$ $30 < r \le 100$ Step response time T_{63}	cell with silicone oil $\leq (0.0029 \cdot r + 0.071) \%$ $\leq (0.0045 \cdot r + 0.071) \%$, room temperature 25°C	(77 °F), span ratio (r = ≤ 0.075 %		
o the set span) Error in measurement at limit setting incl. hystelesis and reproducibility Linear characteristic $r+10$ $10 < r \le 30$ $30 < r \le 100$ Step response time T_{63} Long-term stability at ± 30 °C (± 54 °F)	cell with silicone oil $\leq (0.0029 \cdot r + 0.071) \%$ $\leq (0.0045 \cdot r + 0.071) \%$ $\leq (0.005 \cdot r + 0.05) \%$, room temperature 25°C	(77 °F), span ratio (r = ≤ 0,075 %		
control the set span) Error in measurement at limit setting incl. hysteresis and reproducibility Linear characteristic • $r + 10$ • $10 < r \le 30$ • $30 < r \le 100$ Step response time T_{63} Long-term stability at ± 30 °C (± 54 °F) Influence of ambient temperature	cell with silicone oil $\leq (0.0029 \cdot r + 0.071) \%$ $\leq (0.0045 \cdot r + 0.071) \%$ $\leq (0.005 \cdot r + 0.05) \%$, room temperature 25°C	(77 °F), span ratio (r = ≤ 0,075 %		
to the set span) Error in measurement at limit setting incl. hysteresis and reproducibility Linear characteristic $r + 10$ $10 < r \le 30$ $30 < r \le 100$ Step response time T_{63} Long-term stability at ± 30 °C (± 54 °F) Influence of ambient temperature $10 < r \le 10 < r \le 10$ $10 < r \le 10 < r \le 10$ $10 < r \le 10 < r \le 10$	cell with silicone oil $\leq (0.0029 \cdot r + 0.071) \%$ $\leq (0.0045 \cdot r + 0.071) \%$ $\leq (0.005 \cdot r + 0.05) \%$ $\leq (0.25 \cdot r) \%/5 \text{ years}$, room temperature 25°C	(77 °F), span ratio (r = ≤ 0,075 % x. 0.2 s ≤ 0.25 %/5 years		
Error in measurement at limit setting incl. hysteresis and reproducibility Linear characteristic • $r + 10$ • $10 < r \le 30$ • $30 < r \le 100$ Step response time T_{63} Long-term stability at ± 30 °C (± 54 °F) Influence of ambient temperature • at -10 +60 °C (14 140 °F) • at -4010 °C and 60 85 °C (-40 14 °F and 140 185 °F) Influence of the medium temperature (only with	cell with silicone oil $\leq (0.0029 \cdot r + 0.071) \%$ $\leq (0.0045 \cdot r + 0.071) \%$ $\leq (0.005 \cdot r + 0.05) \%$ $\leq (0.25 \cdot r) \%/5 \text{ years}$ $\leq (0.1 \cdot r + 0.2) \%^{1)}$, room temperature 25°C	(77 °F), span ratio (r = ≤ 0,075 % x. 0.2 s ≤ 0.25 %/5 years ≤ 0,3 %		
or the set span) Error in measurement at limit setting incl. hystelesis and reproducibility Linear characteristic $P + 10$	cell with silicone oil $\leq (0.0029 \cdot r + 0.071) \%$ $\leq (0.0045 \cdot r + 0.071) \%$ $\leq (0.005 \cdot r + 0.05) \%$ $\leq (0.25 \cdot r) \%/5 \text{ years}$ $\leq (0.1 \cdot r + 0.2) \%^{1)}$, room temperature 25°C appro	(77 °F), span ratio (r = ≤ 0,075 % x. 0.2 s ≤ 0.25 %/5 years ≤ 0,3 %		
or the set span) Error in measurement at limit setting incl. hystelesis and reproducibility Linear characteristic $P = r + 10$ $P = 10 < r \le 30$ $P = 30 < r \le 100$ Step response time T_{63} Long-term stability at ± 30 °C (± 54 °F) Influence of ambient temperature $P = 10 + 60$ °C ($14 + 140$ °F) $P = 10 + 10 $ °C and $P = 10 + 10 $ °C ($P = 10 + 10 $ °C) Influence of the medium temperature (only with ront-flush diaphragm) Temperature difference between medium temperature and ambient temperature	cell with silicone oil $\leq (0.0029 \cdot r + 0.071) \%$ $\leq (0.0045 \cdot r + 0.071) \%$ $\leq (0.005 \cdot r + 0.05) \%$ $\leq (0.25 \cdot r) \%/5 \text{ years}$ $\leq (0.1 \cdot r + 0.2) \%^{1)}$, room temperature 25°C appro	(77 °F), span ratio (r = ≤ 0,075 % x. 0.2 s ≤ 0.25 %/5 years ≤ 0.3 % ≤ 0.25 %/10 K		
or the set span) Error in measurement at limit setting incl. hystelesis and reproducibility Linear characteristic Pr + 10 10 < r ≤ 30 30 < r ≤ 100 Step response time T ₆₃ Long-term stability at ± 30 °C (± 54 °F) Influence of ambient temperature 1 at -10 +60 °C (14 140 °F) 1 at -4010 °C and 60 85 °C (-40 14 °F and 140 185 °F) Influence of the medium temperature (only with ront-flush diaphragm) Temperature difference between medium temperature and ambient temperature Rated conditions Installation conditions	cell with silicone oil $\leq (0.0029 \cdot r + 0.071) \%$ $\leq (0.0045 \cdot r + 0.071) \%$ $\leq (0.005 \cdot r + 0.05) \%$ $\leq (0.25 \cdot r) \%/5 \text{ years}$ $\leq (0.1 \cdot r + 0.2) \%^{1)}$ $\leq (0.1 \cdot r + 0.15) \%/10 \text{ f}$	appro.	(77 °F), span ratio (r = ≤ 0,075 % x. 0.2 s ≤ 0.25 %/5 years ≤ 0,3 % ≤ 0.25 %/10 K	max. span / set span)	
or the set span) Error in measurement at limit setting incl. hystelesis and reproducibility Linear characteristic • r + 10 • 10 < r ≤ 30 • 30 < r ≤ 100 Step response time T ₆₃ Long-term stability at ± 30 °C (± 54 °F) Influence of ambient temperature • at -10 +60 °C (14 140 °F) • at -4010 °C and 60 85 °C (-40 14 °F and 140 185 °F) Influence of the medium temperature (only with ront-flush diaphragm) • Temperature difference between medium temperature and ambient temperature Rated conditions Installation conditions Ambient temperature	cell with silicone oil $\leq (0.0029 \cdot r + 0.071) \%$ $\leq (0.0045 \cdot r + 0.071) \%$ $\leq (0.005 \cdot r + 0.05) \%$ $\leq (0.25 \cdot r) \%/5 \text{ years}$ $\leq (0.1 \cdot r + 0.2) \%^{1)}$ $\leq (0.1 \cdot r + 0.15) \%/10 \text{ f}$	appro. 3 mbar/10 K ((77 °F), span ratio (r = ≤ 0,075 % x. 0.2 s ≤ 0.25 %/5 years ≤ 0,3 % ≤ 0.25 %/10 K 0.04 psi/10 K)	max. span / set span)	
The set span of the set span	cell with silicone oil $\leq (0.0029 \cdot r + 0.071) \%$ $\leq (0.0045 \cdot r + 0.071) \%$ $\leq (0.005 \cdot r + 0.05) \%$ $\leq (0.25 \cdot r) \%/5 \text{ years}$ $\leq (0.1 \cdot r + 0.2) \%^{1)}$ $\leq (0.1 \cdot r + 0.15) \%/10 \text{ f}$	approx 3 mbar/10 K (the temperature class in -40 +85 °C ((77 °F), span ratio (r = ≤ 0,075 % x. 0.2 s ≤ 0.25 %/5 years ≤ 0,3 % ≤ 0.25 %/10 K 0.04 psi/10 K)	max. span / set span)	
or the set span) Error in measurement at limit setting incl. hystelesis and reproducibility Linear characteristic • r + 10 • 10 < r ≤ 30 • 30 < r ≤ 100 Step response time T ₆₃ Long-term stability at ± 30 °C (± 54 °F) Influence of ambient temperature • at -10 +60 °C (14 140 °F) • at -4010 °C and 60 85 °C (-40 14 °F and 140 185 °F) Influence of the medium temperature (only with ront-flush diaphragm) • Temperature difference between medium temperature and ambient temperature Rated conditions Ambient temperature • Measuring cell with silicone oil • Display readable	cell with silicone oil $\leq (0.0029 \cdot r + 0.071) \%$ $\leq (0.0045 \cdot r + 0.071) \%$ $\leq (0.005 \cdot r + 0.05) \%$ $\leq (0.25 \cdot r) \%/5 \text{ years}$ $\leq (0.1 \cdot r + 0.2) \%^{1)}$ $\leq (0.1 \cdot r + 0.15) \%/10 \text{ f}$	approx approx the temperature class in -40 +85 °C (-30 +85 °C ((77 °F), span ratio (r = ≤ 0,075 % x. 0.2 s ≤ 0.25 %/5 years ≤ 0.3 % ≤ 0.25 %/10 K 0.04 psi/10 K) areas subject to explose-40 +185 °F) -22 +185 °F)	max. span / set span)	
or the set span) Error in measurement at limit setting incl. hystelesis and reproducibility Linear characteristic Pr + 10 Pr + 10 Pr + 2 30 Pr + 2 30 Pr + 40	cell with silicone oil $\leq (0.0029 \cdot r + 0.071) \%$ $\leq (0.0045 \cdot r + 0.071) \%$ $\leq (0.005 \cdot r + 0.05) \%$ $\leq (0.25 \cdot r) \%/5 \text{ years}$ $\leq (0.1 \cdot r + 0.2) \%^{1)}$ $\leq (0.1 \cdot r + 0.15) \%/10 \text{ f}$	approx approx the temperature class in -40 +85 °C (-30 +85 °C ((77 °F), span ratio (r = ≤ 0,075 % x. 0.2 s ≤ 0.25 %/5 years ≤ 0,3 % ≤ 0.25 %/10 K 0.04 psi/10 K)	max. span / set span)	
or the set span) Error in measurement at limit setting incl. hystelesis and reproducibility Linear characteristic Pr + 10 Pr + 20 Pr + 30 Pr	cell with silicone oil $\leq (0.0029 \cdot r + 0.071) \%$ $\leq (0.0045 \cdot r + 0.071) \%$ $\leq (0.005 \cdot r + 0.05) \%$ $\leq (0.25 \cdot r) \%/5 \text{ years}$ $\leq (0.1 \cdot r + 0.2) \%^{1)}$ $\leq (0.1 \cdot r + 0.15) \%/10 \text{ f}$	appro. 3 mbar/10 K (40 +85 °C (-50 +85 °C ((77 °F), span ratio (r = ≤ 0,075 % x. 0.2 s ≤ 0.25 %/5 years ≤ 0,3 % ≤ 0.25 %/10 K 0.04 psi/10 K) areas subject to explose-40 +185 °F) -22 +185 °F) -58 +185 °F)	max. span / set span)	
Error in measurement at limit setting incl. hysteresis and reproducibility Linear characteristic $ \begin{array}{c} \texttt{r} + 10 \\ \texttt{l} + 10$	cell with silicone oil $\leq (0.0029 \cdot r + 0.071) \%$ $\leq (0.0045 \cdot r + 0.071) \%$ $\leq (0.005 \cdot r + 0.05) \%$ $\leq (0.25 \cdot r) \%/5 \text{ years}$ $\leq (0.1 \cdot r + 0.2) \%^{1}$ $\leq (0.1 \cdot r + 0.15) \%/10 \text{ P}$ Observe	approx approx approx the temperature class in -40 +85 °C (-50 +85 °C ((77 °F), span ratio (r = ≤ 0,075 % x. 0.2 s ≤ 0.25 %/5 years ≤ 0.3 % ≤ 0.25 %/10 K 0.04 psi/10 K) areas subject to explose 1-40 +185 °F) 1-22 +185 °F) 1-58 +185 °F)	max. span / set span)	
or the set span) Error in measurement at limit setting incl. hysteresis and reproducibility Linear characteristic Pr + 10 10 < r ≤ 30 30 < r ≤ 100 Step response time T ₆₃ Long-term stability at ± 30 °C (± 54 °F) Influence of ambient temperature Pat -10 +60 °C (14 140 °F) At -4010 °C and 60 85 °C (-40 14 °F and 140 185 °F) Influence of the medium temperature (only with ront-flush diaphragm) Temperature difference between medium temperature and ambient temperature Rated conditions Ambient temperature Measuring cell with silicone oil Display readable Storage temperature Climatic class Condensation	cell with silicone oil $\leq (0.0029 \cdot r + 0.071) \%$ $\leq (0.0045 \cdot r + 0.071) \%$ $\leq (0.005 \cdot r + 0.05) \%$ $\leq (0.25 \cdot r) \%/5 \text{ years}$ $\leq (0.1 \cdot r + 0.2) \%^{1)}$ $\leq (0.1 \cdot r + 0.15) \%/10 \text{ k}$ Observe	approduced approach approduced approach	(77 °F), span ratio (r = ≤ 0,075 % x. 0.2 s ≤ 0.25 %/5 years ≤ 0,3 % ≤ 0.25 %/10 K 0.04 psi/10 K) areas subject to explose (-40 +185 °F) (-22 +185 °F) (-58 +185 °F) (bity 0 100 % suitable for use in the tree of the suitable for use in the suitab	max. span / set span)	
Error in measurement at limit setting incl. hysteresis and reproducibility Linear characteristic • r + 10 • 10 < r ≤ 30 • 30 < r ≤ 100 Step response time T ₆₃ Long-term stability at ± 30 °C (± 54 °F) Influence of ambient temperature • at -10 +60 °C (14 140 °F) • at -4010 °C and 60 85 °C (-40 14 °F and 140 185 °F) Influence of the medium temperature (only with front-flush diaphragm) • Temperature difference between medium temperature and ambient temperature Rated conditions Installation conditions Ambient temperature • Measuring cell with silicone oil • Display readable • Storage temperature Climatic class	cell with silicone oil $\leq (0.0029 \cdot r + 0.071) \%$ $\leq (0.0045 \cdot r + 0.071) \%$ $\leq (0.005 \cdot r + 0.05) \%$ $\leq (0.25 \cdot r) \%/5 \text{ years}$ $\leq (0.1 \cdot r + 0.2) \%^{1)}$ $\leq (0.1 \cdot r + 0.15) \%/10 \text{ k}$ Observe	approx approx approx the temperature class in -40 +85 °C (-50 +85 °C ((77 °F), span ratio (r = ≤ 0,075 % x. 0.2 s ≤ 0.25 %/5 years ≤ 0,3 % ≤ 0.25 %/10 K 0.04 psi/10 K) areas subject to explose (-40 +185 °F) (-22 +185 °F) (-58 +185 °F) (bity 0 100 % suitable for use in the tree of the suitable for use in the suitable for use in the tree of the suitable for use in the suitab	max. span / set span)	

Pressure Measurement Transmitters for gauge pressure for the paper industry SITRANS P300 with PMC connection

	HART	PROFIBUS PA and FOUNDATION Fieldbus	
Medium conditions			
Temperature of medium			
 Measuring cell with silicone oil 	-40 +100 °C	(-40 +212 °F)	
Design			
Weight (without options)	Approx. 1	l kg (2.2 lb)	
Enclosure material	Stainless steel, m	nat. no. 1.4301/304	
Material of parts in contact with the medium			
Seal diaphragm	Hastelloy C276	5, mat. no. 2.4819	
Measuring cell filling	Silicone oil		
Surface quality touched-by-media	Ra-values ≤ 0.8 μm (32 μ inch	n)/welds Ra ≤ 1.6 µm (64 µ inch)	
Power supply U _H			
Terminal voltage on transmitter	10.5 42 V DC for intrinsically safe operation: 10.5 30 V DC	Supplied through bus	
Separate power supply	-	Not necessary	
Bus voltage			
Without EEx	-	9 32 V	
 With intrinsically-safe operation 	-	9 24 V	
Current consumption			
Max. basic current	-	12.5 mA	
• Start-up current ≤ basic current	-	Yes	
 Max. fault current in the event of a fault 	-	15.5 mA	
Fault disconnection electronics (FDE)	-	Available	
Certificates and approvals			
Classification according to PED 97/23/EC	For gases of fluid group 1 and liquids of fluid g paragraph 3 (sound	group 1; complies with requirements of Article engineering practice)	
Explosion protection			
Intrinsic safety "i"	PTB 05 A	ATEX 2048	
Marking	Ex II 1/2 G EEx ia/	/ib IIB/IIC T4, T5, T6	
Permissible ambient temperature			
• Temperature class T4		(-40 +185 °F)	
Temperature class T5	-40 +70 °C	(-40 +158 °F)	
• Temperature class T6		(-40 +140 °F)	
Connection	To certified intrinsically-safe circuits with peak values:	To certified intrinsically-safe circuits with pervalues:	
	$\begin{array}{l} \textbf{U}_{i} = 30 \ \textbf{V}, \ \textbf{I}_{i} = 100 \ \textbf{mA}, \\ \textbf{P}_{i} = 750 \ \textbf{mW}, \ \textbf{R}_{i} = 300 \ \boldsymbol{\Omega} \end{array}$	FISCO supply unit: $U_i = 17.5 \text{ V}$, $I_i = 380 \text{ mA}$, $P_i = 5.32 \text{ W}$	
		Linear barrier: $U_i = 24 \text{ V}, I_i = 250 \text{ mA}, P_i = 1.2 \text{ W}$	
Effective inner capacitance:	$C_i = 6 \text{ nF}$	$C_i = 1,1 \text{ nF}$	
Effective internal inductance:	$L_i = 0.4 \text{ mH}$	$L_i \le 7 \mu H$	
Explosion protection to FM for USA $\underline{ ext{and}}$ Canada $\operatorname{cFM}_{ ext{US}}$)			
• Identification (DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4 T6; CL II, DIV 1, (mpliance 3025099 GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4 T T6; CL II, DIV 2, GP FG; CL III	
• Identification (DIP) or (IS)		npliance 3025099C , GP EFG; CL III; Ex ia IIC 4 T6; CL I, DIV 2,	

¹⁾ Conversion of temperature error per 28 °C. Valid for temperature range -3 ... +53 °C < $(0.08 \cdot r + 0.16)$ % / 28 °C (50 °F).

Transmitters for gauge pressure for the paper industry

SITRANS P300 with PMC connection

HART communication	
HART	230 1100 Ω
Protocol	HART Version 5.x
Software for computer	SIMATIC PDM
PROFIBUS PA communication	
Simultaneous communication with master class 2 (max.)	4
The address can be set using	Configuration tool Local operation (standard setting Address 126)
Cyclic data usage	(standard setting Address 120)
Output byte	One measured value: 5 bytes
• Input byte	Two measured values: 10 bytes Register operating mode: 1 bytes
	Reset function due to metering. 1 bytes
Device profile	PROFIBUS PA Profile for Process Control Devices Version 3.0, Class B
Function blocks	2
Analog input	
- Adaptation to customer-speci- fic process variables	Linearly rising or falling characteristic
- Electrical damping	0 100 s adjustable
- Simulation function	Input /Output
- Limit monitoring	One upper and lower warning limit and one alarm limit respec- tively
Register (totalizer)	Can be reset and preset Optional direction of counting Simulation function of the register output
- Limit monitoring	One upper and lower warning limit and one alarm limit respec- tively
Physical block	1
Transducer blocks	2
Pressure transducer block	
- Monitoring of sensor limits	Yes
- Specification of a container characteristic with	Max. 31 nodes
- Characteristic curve	Linear
- Simulation function	Available
Transducer block "Electronic temperature"	

Available

Simulation function

FOUNDATION Fieldbus communication

Function blocks

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

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

3 function blocks analog input, 1 function block PID

Yes, linearly rising or falling characteristic

0 ... 100 s

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

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

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

Yes

Standard FOUNDATION Fieldbus function block

1 resource block

1 transducer block Pressure with calibration, 1 transducer block LCD

Yes

Yes

Constant value or over parameterizable ramp function

Transmitters for gauge pressure for the paper industry

SITRANS P300 with PMC connection

Selection and Ordering	g data		Or	der	. No		
SITRANS P300 pressu connection , single-cha rating plate inscription in	re transmitters with PMC mber measuring housing, n English						
with 4 20 mA / HART	-	F)	7 N	/F	8 1 2	23 -	•
with PROFIBUS PA		F)	7 N	/F	8 1 2	24 -	•
with FOUNDATION Fie	ldbus (FF)	F)			8 1 2		
Measuring cell filling Silicone oil	Measuring cell cleaning	ı	1				ï
Inert liquid	Cleanliness level 2 to DIN 25410		3				
Measuring span							
1 bar ¹⁾	(14.5 psi)		E	-			
4 bar 16 bar	(58 psi) (232 psi)		0				
	,		Ľ	1			
Wetted parts materials Seal diaphragm	Measuring cell						
		-		В			
Hastelloy Process connection	Stainless steel			В			
500 mbar (7.25 psi), n 1-bar-measuring cell (Non-wetted parts mate	Option B)) Prials			,	3		
 Stainless steel, deep-opolished 	drawn and electrolytically				4		
Version • Standard versions						1	
Explosion protection • None						,	
With ATEX, Type of pro	otection:						
- "Intrinsic safety (EEx	ia)"					E	
• Zone 20/21/22 ²⁾						(
 Ex nA/nL (Zone 2)³⁾ With FM + CSA, Type 	of protection:					E	
- "Intrinsic Safe (is)" (p	•					N	Л
Electrical connection/o	•	_					
 Screwed gland M20 x 	• •						Α
 Screwed gland M20 x 	, ,						В
 Screwed gland M20 x M10 compositors (with 	,						С
 M12 connectors (with M12 connectors (stain 	out cable socket) less steel), without cable						F G
socket)	iiess sieeij, wiliiout cable						G
• ½-14 NPT metal threa							Н
 ½-14 NPT stainless ste 	eel thread ⁵⁾						J

Selection and Ordering data		Order No.
SITRANS P300 pressure transmitters with PMC connection, single-chamber measuring housing, rating plate inscription in English		
with 4 20 mA / HART	=)	7 M F 8 1 2 3 -
with PROFIBUS PA	=)	7 M F 8 1 2 4 -
with FOUNDATION Fieldbus (FF)	=)	7 M F 8 1 2 5 -
Display		
 Without display, with keys, closed covers 		1
 With display and keys, closed lid 		2
 With display and keys, lid with glass pane (setting on HART devices: mA, with PROFIBUS PA and FOUNDATION Fieldbus equipment: pressure unit) 		6
With display (setting acc. to specifications, Order Code "Y21" or "Y22" required), lid with glass pane		7

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

Included in delivery of the device:

- Brief instructions (Leporello)
- CD-ROM with detailed documentation
- sealing ring
- 1) Only with "Standard" process connection"
- 2) Not in conjunction with electrical connection option A.
- 3) Only available together with electrical connection options B, C, F or G.
- ⁴⁾ Only together with HART electronics.
- 5) Without cable gland.
- F) Subject to export regulations AL: 91999, ECCN: N.

Transmitters for gauge pressure for the paper industry SITRANS P300 with PMC connection

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Order No. and				
specify Order Code.				
Cable socket for M12 plug	4-0		,	,
metal Stainless steel	A50 A51		1	√
	AJI			
Rating plate inscription (instead of English)				
German	B10	1	1	1
• French	B12	✓	✓	✓
• Spanish	B13	✓.	✓.	✓
• Italian	B14	✓	✓	✓
English rating plate	B21	✓	✓	✓
Pressure units in inH ₂ 0 and/or psi				
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2	C11	✓	✓	✓
Inspection certificate	C12	✓	1	1
Acc. to EN 10204-3.1				
Factory certificate	C14	1	1	1
Acc. to EN 10204-2.2	• • •		·	·
Set output signal to upper limit of 22.0mA	D05	1	1	✓
Degree of protection IP68	D12	1	1	1
(only for M20x1.5 and ½-14 NPT)	J.2		·	·
Mounting				
 Weldable sockets for standard 1½" 	P01	✓	✓	✓
threaded connection	DOO	1	,	,
 Weldable socket for minibolt connection 1" (incl. screw 5/16-18 UNC-2B and washer) 	P02	•	•	•
Additional data				
Please add "-Z" to Order No. and specify				
Order code(s) and plain text.				
Measuring range to be set	Y01	✓		
Specify in plain text (max. 5 characters):				
Y01: up to mbar, bar, kPa, MPa, psi	\/4E		,	,
Stainless steel tag plate (measuring point description)	Y15	V	•	~
Max. 16 char., specify in plain text: Y15:				
Measuring point text	Y16	1	1	1
Max. 27 char., specify in plain text: Y16:				
Entry of HART address (TAG)	Y17	✓		
Max. 8 char., specify in plain text: Y17:				
Setting of pressure indication in	Y21	1	1	1
pressure units				
Specify in plain text (standard setting: bar):				
Y21: mbar, bar, kPa, MPa, psi, Note: The following pressure units can				
be selected:				
bar, mbar, mm H ₂ O ^{*)} , inH ₂ O ^{*)} , ftH ₂ O ^{*)} ,				
mmHG, inHG, psi, Pa, kPa, MPa, g/cm ² , kg/cm ² , Torr, ATM or %				
*) ref. temperature 20 °C				
Setting of pressure indication in non-pressure units ⁵⁾	Y22 +	✓		
	Y01			
Specify in plain text: Y22: up to I, m ³ , m, USg,				
(specification of measuring range in pressure				
units "Y01" is essential, unit with max. 5 characters)				
Preset bus address	Y25		1	
possible between 1 and 126	123		•	
Specify in plain text: Y25:				
Only "Y01" and "Y21" can be factory preset				

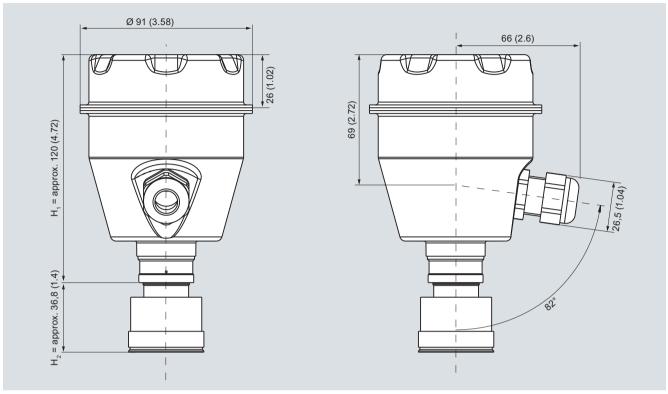
Only "Y01" and "Y21" can be factory preset

✓ = available

Transmitters for gauge pressure for the paper industry

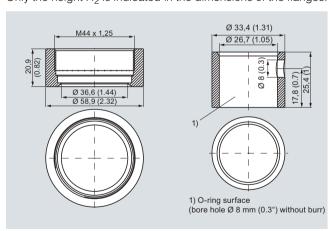
SITRANS P300 with PMC connection

Dimensional drawings



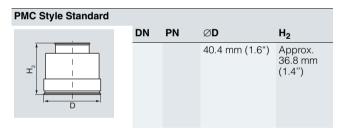
SITRANS P300 pressure transmitters for gauge pressure, with PMC connection, dimensions in mm (inch)

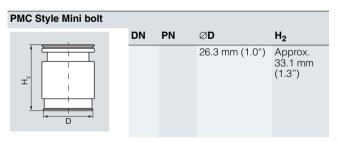
The diagram shows a SITRANS P300 with an example of a flange. In this drawing the height is subdivided into H_1 and H_2 . H_1 = Height of the SITRANS P300 up to a defined cross-section H_2 = Height of the flange up to this defined cross-section Only the height H_2 is indicated in the dimensions of the flanges.



PMC Style Standard (left) and PMC Style Minibolt (right) weldable sockets, dimensions in mm (inch)

Material: Stainless steel, mat. No. 1.4404 / 316L





Transmitters for general requirements

SITRANS P DS III
Technical description

Overview



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

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

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

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

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

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

Benefits

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

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

Application

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

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

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

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

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

Transmitters for general requirements

SITRANS P DS III **Technical description**

Pressure transmitter for gauge pressure

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

Span (infinitely adjustable)

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

Nominal measuring range

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

Pressure transmitters for absolute pressure

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

Span (infinitely adjustable)

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

Nominal measuring range

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

There are two series:

- Gauge pressure series
- · Differential pressure series

Pressure transmitters for differential pressure and flow

Measured variables:

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

Span (infinitely adjustable)

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

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

Pressure transmitters for level

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

Span (infinitely adjustable)

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

Nominal measuring range

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

Nominal diameter of the mounting flange

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

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

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

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

Design



Front view

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

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

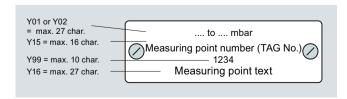
The approval label is located on the opposite side.

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

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

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

Example for an attached measuring point label

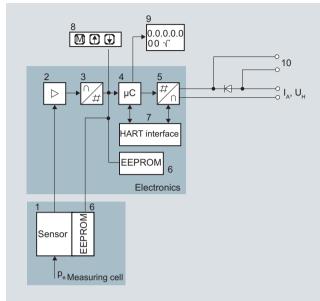


Transmitters for general requirements

SITRANS P DS III
Technical description

Function

Operation of electronics with HART communication



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

Function diagram of electronics

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

The diode circuit (10) protects against incorrect polarity.

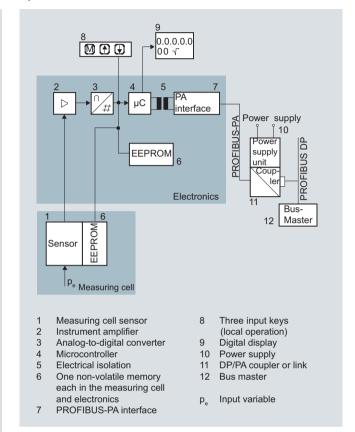
The data specific to the measuring cell, the electronics data, and the parameter data are stored in the two non-volatile memories (6). The one memory is coupled to the measuring cell, the other to the electronics. As the result of this modular design, the electronics and the measuring cell can be replaced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

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

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

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

Operation of electronics with PROFIBUS PA communication



Function diagram of electronics

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

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

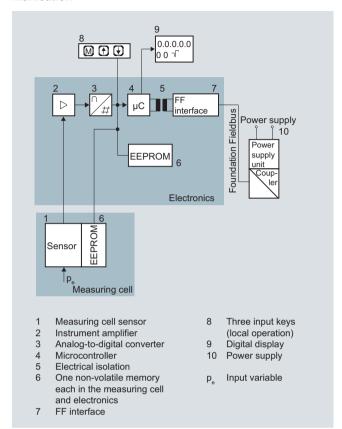
Using the three input buttons (8) you can parameterize the pressure transmitter directly at the measuring point. The input buttons can also be used to control the view of the results, the error messages and the operating modes on the display (9).

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

Transmitters for general requirements

SITRANS P DS III Technical description

Operation of electronics with FOUNDATION Fieldbus communication



Function diagram of electronics

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

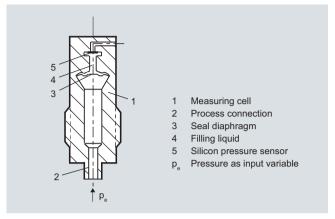
The data specific to the measuring cell, the electronics data, and the parameter data are stored in the two non-volatile memories (6). The one memory is coupled to the measuring cell, the other to the electronics. As the result of this modular design, the electronics and the measuring cell can be replaced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

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

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

Mode of operation of the measuring cells

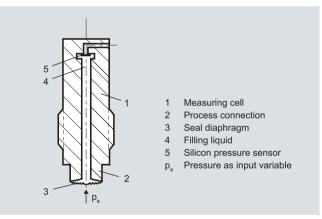
Measuring cell for gauge pressure



Measuring cell for gauge pressure, function diagram

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

Measuring cell for gauge pressure with front-flush diaphragm



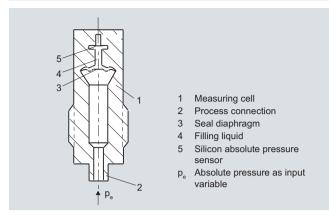
Measuring cell for gauge pressure, with front-flush diaphragm for paper industry, function diagram

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

Transmitters for general requirements

SITRANS P DS III Technical description

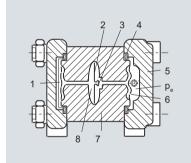
Measuring cell for absolute pressure from gauge pressure series



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

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

Measuring cell for absolute pressure from differential pressure series



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

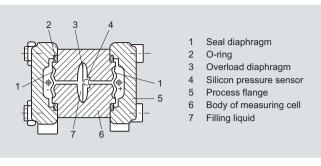
Measuring cell for absolute pressure from differential pressure series, function diagram

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

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

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

Measuring cell for differential pressure and flow



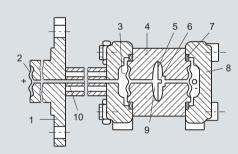
Measuring cell for differential pressure and flow, function diagram

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

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

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

Measuring cell for level



- 1 Flange with tube
- Seal diaphragm on mounting flange
- 3 Seal diaphragm
- 4 Body of measuring cell
- 5 Overload diaphragm
- 6 Silicon pressure sensor
- 7 O-ring
- 8 Process flange
- 9 Filling liquid
- 10 Capillary with filling liquid of mounting flange

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 general requirements

SITRANS P DS III Technical description

Parameterization DS III

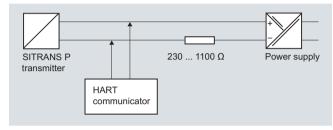
Depending on the version, there are a range of options for parameterizing the pressure transmitter and for setting or scanning the parameters.

Parameterization using the input buttons (local operation)

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

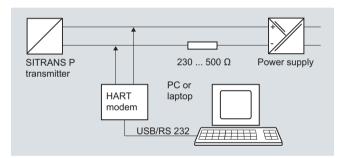
Parameterization using HART

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



Communication between a HART Communicator and a pressure transmitter

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



HART communication between a PC communicator and a pressure transmitter

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

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

Adjustable parameters. DS III with HART

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

¹⁾ Cancel apart from write protection

Diagnostic functions for DS III with HART

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

Available physical units of display for DS III with HART

Table style: Technical specifications 2

Physical variable	Physical dimensions
Pressure (setting can also be made in the factory)	Pa, MPa, kPa, bar, mbar, torr, atm, psi, g/cm², kg/cm², inH ₂ O, inH ₂ O (4 °C), mmH ₂ O, ftH ₂ O (20 °C), inHg, mmHg
Level (height data)	m, cm, mm, ft, in
Volume	m ³ , dm ³ , hl, yd ³ , ft ³ , in ³ , US gallon, lmp. gallon, bushel, barrel, barrel liquid
Mass	g, kg, t, lb, Ston, Lton, oz
volume flow	$\rm m^3/d,~m^3/h,~m^3/s,~l/min,~l/s,~ft^3/d,~ft^3/min,~ft^3/s,~US~gallon/min,~US~gallon/s$
Mass flow	t/d, t/h, t/min, kg/d, kg/h, kg/min, kg/s, g/d, g/h, g/min, g/s, lb/d, lb/h, lb/min, lb/s, LTon/d, LTon/h, STon/d, STon/h, STon/min
Temperature	K, °C, °F, °R
Miscellaneous	%, mA

Parameterization through PROFIBUS PA interface

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

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

Parameterization through FOUNDATION Fieldbus interface

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

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

Adjustable parameters for DS III with PROFIBUS PA and FOUNDATION Fieldbus

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

²⁾ Only differential pressure

Transmitters for general requirements

SITRANS P DS III
Technical description

Diagnostic functions for DS III with PROFIBUS PA and FOUNDATION Fieldbus

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

Physical dimensions available for the display

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

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

Technical specifications

Technical specifications				
SITRANS P, DS III series for gauge pressure				
	HART		PROFIBUS PA and F	OUNDATION Fieldbus
Input				
Measured variable		Gauge	e pressure	
Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure	Span (min max.)	Max. perm. test pressure	Nominal measuring range	Max. perm. test pressure
	0.01 1 bar (0.15 14.5 psi)	6 bar (87 psi)	1 bar (14.5 psi)	6 bar (87 psi)
	0.04 4 bar (0.58 58 psi)	10 bar (145 psi)	4 bar (58 psi)	10 bar (145 psi)
	0.16 16 bar (2.32 232 psi)	32 bar (464 psi)	16 bar (232 psi)	32 bar (464 psi)
	0.6 63 bar (9.14 914 psi)	100 bar (1450 psi)	63 bar (914 psi)	100 bar (1450 psi)
	1.6 160 bar (23.2 2320 psi)	250 bar (3626 psi)	160 bar (2320 psi)	250 bar (3626 psi)
	4.0 400 bar (58 5802 psi)	600 bar (8700 psi)	400 bar (5802 psi)	600 bar (8700 psi)
	7.0 700 bar (102 10153 psi)	800 bar (11603 psi)	700 bar (10153 psi)	800 bar (11603 psi)
Lower measuring limit				
 Measuring cell with silicone oil filling 		30 mbar	a (0.44 psia)	
 Measuring cell with inert filling liquid 		30 mbar	a (0.44 psia)	
Upper measuring limit	100 % of max. sp	an (for oxygen version a	and inert filling liquid; ma	x. 120 bar (1740 psi))
Output				
Output signal	4 20 mA		Digital PROFIBUS PA bus signal	and FOUNDATION Field
 Lower limit (infinitely adjustable) 	3.55 mA, factory prese	et to 3.84 mA	-	
Upper limit (infinitely adjustable)	23 mA, factory preset set to 22.0 mA	to 20.5 mA or optionally	-	
Load				
Without HART	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{V})/0.0$ $U_{\rm H}$: Power supply in V	23 A in Ω,		
With HART	$R_{\rm B} = 230 \dots 500 \Omega$ (SI $R_{\rm B} = 230 \dots 1100 \Omega$ (H			
Physical bus	-		IEC 61158-2	
Protection against polarity reversal	Protected against sho		ersal. Each connection a ly voltage.	against the other with max
Measuring accuracy		Acc. to	IEC 60770-1	
Reference conditions (All error data refer always refer to the set span)		stic, start-of-scale value (emperature 25 °C (77 °F)		l diaphragm, silicone oil fi span / set span)
Error in measurement at limit setting incl. hysteresis and reproducibility				
Linear characteristic			≤ 0.075 %	
- r ≤ 10	\leq (0.0029 · r + 0.071) °	%		
- 10 < r ≤ 30	\leq (0.0045 · r + 0.071) °	%		
- 30 < r ≤ 100	\leq (0.005 · r + 0.05) %			
Long-term drift (temperature change \pm 30 °C (\pm 54 °F))				
• 1 4-bar measuring cell	≤ (0.25 · r) % per 5 yea	ars	≤ 0.25 % per 5 years	
• 16 400-bar measuring cell	≤ (0.125 · r) % per 5 ye	ears	≤ 0.125 % per 5 years	S
Influence of ambient temperature				
• at -10 +60 °C (14 140 °F)	\leq (0.08 · r + 0.1) % ¹⁾ (at 700 bar: \leq (0.1 · r +	· 0.2) % ²⁾	≤ 0,3 %	
		14	< 0.0E 9/110 I/	
• at -4010 °C and +60 +85 °C (-40 +14 °F and 140 185 °F)	\leq (0.1 · r + 0.15) %/10	K	≤ 0.25 %/10 K	

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

Rated conditions PROFIGUR PA and FOUNDATION Fieldows Degree or protection (to EN 60529) IP66 (opt)—on IP68) Temperature of medium	SITRANS P, DS III series for gauge pressure		
Degree of protection (to EN 60529) IP65 (optional IP68) Temperature of medium ************************************		HART	PROFIBUS PA and FOUNDATION Fieldbus
Temperature of medium - Measuring cell with silicone oil filling liquid -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 +100 °C (-4 +212 °F) Ambient temperature -20 +85 °C (-22 +185 °F) • Sibrage temperature -30 +85 °C (-25 +185 °F) • Climatic class -50 +85 °C (-58 +185 °F) • Climatic class -60 condensation permissible, suitable for use in the tropics • Electromagnetic Compatibility - Emilted interference and interference immunity • Electromagnetic Compatibility - Emilted interference and interference immunity • Electromagnetic Compatibility - Emilted interference and interference immunity • Electromagnetic Compatibility - Emilted interference and interference immunity • Electromagnetic Compatibility - Emilted interference and interference immunity • Electromagnetic Compatibility - Emilted interference and interference immunity • Electromagnetic Compatibility - Emilted interference and interference immunity • Electromagnetic Compatibility - Emilted interference and interference immunity • Electromagnetic Compatibility - Emilted int	Rated conditions		
• Measuring cell with instribling liquid -40 +100 °C (-40 +212 °F) • Measuring cell with insert filling liquid -20 +100 °C (-4 +212 °F) • In conjunction with dust explosion protection -20 +160 °C (-4 +212 °F) • Ambient conditions -40 +160 °C (-4 +140 °F) • Ambient temperature -30 +85 °C (-22 +185 °F) • Display readable -30 +85 °C (-58 +185 °F) • Cliradic class -50 +85 °C (-58 +185 °F) • Condensation Relative humidity 0 100 % • Electromagnetic Compatibility - Envitted interference and interference immunity • Emitted interference and interference immunity Acc. to EN 61326 and NAMUR NE 21 • Enclosure material Low-copper die-cast aluminum, GD-AlSi 12 or stainless steel precision casting, mat. no. 1.4408 • Connection shank Stainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4610 • Voval flange Stainless steel, mat. no. 1.4404/316L or Hastelloy C24, mat. no. 2.4610 • Seal diaphragm Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Measuring cell filling Silicone oil or inert filling liquid (maximum value with oxygen measurement pressure 120 tor (1740 ps) si 60 °C (140 °F)) • Power supply Uth Connection shank G/88 to	Degree of protection (to EN 60529)	IP65 (op	itional IP68)
• 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 -30 +86 °C (-22 +185 °F) • Ambient temperature -30 +86 °C (-22 +185 °F) • Storage temperature -50 +85 °C (-58 +185 °F) • Climatic class - Condensation • Condensation Relative humidity 0 100 % • Condensation permissible, suitable for use in the tropics • Electromagnetic Compatibility - Acc. to EN 61326 and NAMUR NE 21 • Electromagnetic Compatibility - Acc. to EN 61326 and NAMUR NE 21 • Embosure material Low-copper die-cast aluminum, GD-AlSi 12 or stainless steel precision casting, mat. no. 1.4408 • 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 or Hastelloy C276, mat. no. 2.4819 • Seel diaphragm Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 • Material of mounting bracket Silicone oil or inert filling liquid (maximum value with oxygen measurement pressure 120 bar (174 opps) ait of °C (140 °F)) • Power supply U ₁ Connection shank (5½ to DIN EN 837-1, female thread ½-14 NPT or oval flange (PN 160 (M	Temperature of medium		
• In conjunction with dust explosion protection Ambient conditions -20 +60 °C (-4 +140 °F) Ambient tonditions - Ambient temperature • Display readable -30 +85 °C (-22 +185 °F) • Storage temperature -50 +85 °C (-58 +185 °F) • Climatic class - Condensation • Electromagnetic Compatibility - Condensation permissible, suitable for use in the tropics • Electromagnetic Compatibility - Emitted interference and interference immunity Design Acc. to EN 61326 and NAMUR NE 21 Weight (without options) ≈ 1.5 kg (≈ 3.3 lb) Enclosure material Low-copper die-cast aluminum, GD-AlSi 12 or stainless steel precision casting, mat. no. 1.44048 • Connection shank Stainless steel, mat. no. 1.4404/316L or Hastelloy C24, mat. no. 2.4610 • Coal flange Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4619 • Seal diaphragm Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Measuring cell filling Silicone oil or inert filling liquid (maximum value with oxygen measurement pressure 120 bar (1740 psi) at 60 °C (140 °F) • Torocess connection Connection shank G/95 to DIN EN 837-1, female thread % -14 NPT or oval flange (PN 160 (MAWP 2320 psi)) to DIN 1823 with mounting thread M 10 or '1/10 20 UNF to EN 61518	Measuring cell with silicone oil filling	-40 +100 °C	C (-40 +212 °F)
Ambient conditions • Ambient temperature - Display readable • Storage temperature - Climatic class - Condensation • Electromagnetic Compatibility - Emitted interference and interference immunity - Entress steel interference and interference interferen	Measuring cell with inert filling liquid	-20 +100 °	C (-4 +212 °F)
- Ambient temperature	• In conjunction with dust explosion protection	-20 +60 °C	C (-4 +140 °F)
- Display readable - \$10 +85 °C (-22 +185 °F) - \$10 +85 °C (-58 +185 °C (-5	Ambient conditions		
• Storage temperature -50 +85 °C (-58 +185 °F) • Climatic class -Condensation • Condensation Relative humidity 0 100 % Condensation permissible, suitable for use in the tropics • Electromagnetic Compatibility -Enritted interference and interference immunity • Emitted interference and interference immunity Acc. to EN 61326 and NAMUR NE 21 • Possign • Convection shark • Connection startials Low-copper die-cast aluminum, GD-AIS1 2 or stainless steel precision casting, mat. no. 1.4404 • Connection shank Stainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4610 • Connection shank Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 • Seal diaphragm Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 • Measuring cell filling Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 • Seal diaphragm Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 • Material of mounting bracket Connection shank G/5e to Din INE 937-1, ferthereal ½-14 NPT or oval flange (PN 160 (MAWP 2320 psi)) to DIN 19213 with mounting thread five 14 NPT or oval flange (PN 160 (MAWP 2320 psi)) to DIN 19213 with mounting thread five 14 NPT or oval flange (PN 160 (MAWP 2320 psi)) to DIN 19213 with mounting thread five 14 NPT or oval flange (PN 160 (MAWP 2320 psi)) to DIN 19213 with moun	Ambient temperature		
• Climatic class - Condensation permissible, suitable for use in the tropics - Electromagnetic Compatibility - Emitted interference and interference immunity - Emitted interference and interference immunity - Condensation permissible, suitable for use in the tropics - Condensation permissible, suitable for use in the tropics - Condensation permissible, suitable for use in the tropics - Condensation permissible, suitable for use in the tropics - Condensation permissible, suitable for use in the tropics - Condensation permissible, suitable for use in the tropics - Condensation permissible, suitable for use in the tropics - Condensation permissible, suitable for use in the tropics - Condensation permissible, suitable for use in the tropics - Condensation permissible, suitable for use in the tropics - Condensation permissible, suitable for use in the tropics - Condensation permissible, suitable for use in the tropics - Sea (so NAMUR NE 21) - Sea (so NAMUR NE 21) - Connection shank (so Namura, no. 1.4404/316L or Hastelloy C4, mat. no. 1.4408 - Connection shank (so Namura, no. 1.4404/316L or Hastelloy C4, mat. no. 2.4610 - Satinless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 - Connection shank Gylés to DIN EN 837-1, female thread 's - 14 NPT or oval flange (PN 160 (MAWP 2320 psi)) to DIN 19213 with mounting thread M10 or 7/16-20 UNF to EN 6158 - Connection shank Gylés to DIN EN 837-1, female thread 's - 14 NPT or oval flange (PN 160 (MAWP 2320 psi)) to DIN 19213 with mounting thread M10 or 7/16-20 UNF to EN 6158 - Seal (so Namura, no. 1.4404/316L or Hastelloy C276, mat. no. 1.4301 (SS 304) - Power supply U₁ - Terminal voltage on transmitter - 10.5 45 V DC	- Display readable	-30 +85 °C	(-22 +185 °F)
• Electromagnetic Compatibility • Emitted interference and interference immunity Design Weight (without options) Enclosure material • Connection shank • Oval flange Seal diaphragm Measuring cell filling Process connection Process connection Acc. to EN 61326 and NAMUR NE 21 Low-copper die-cast aluminum, GD-AISi 12 or stainless steel precision casting, mat. no. 1.4408 Wetted parts materials • Connection shank • Oval flange • Stainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4610 • Seal diaphragm Measuring cell filling Silicone oil or inert filling liquid (maximum value with oxygen measurement pressure 120 bar (1740 psi) at 60 °C (140 °F)) Process connection Connection shank G/98 to DIN EN 387-1, female thread ⅓-14 NPT or oval flange (PN 160 (MAWP 2320 psi)) to DIN 19213 with mounting thread M10 or 7/16-20 UNF to EN 61518 Material of mounting bracket Steel Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel in no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel or Sheet-steel, mat. no. 1.4301 (SS 304) Power supply UH Ferminal voltage on transmitter 10.5 45 ∨ DC 10.5 30 ∨ DC in intrinsically-safe mode Separate 24 ∨ power supply necessary Separate 24 ∨ power supply necessary Not Ex • Sheet-steel, Mat. No. 1.0330, chrome-plated Sheet stainless steel, mat. no. 1.4301 (SS 304) Power supply this processary Supplied through bus From the filling liquid (maximum value with oxygen measurement pressure of the filling liquid (maximum value with oxygen measurement pressure of the filling liquid (maximum value with oxygen measurement pressure of the filling liquid (maximum value with oxygen measurement pressure of the filling liquid (maximum value with oxygen measurement pressure of the filling liquid (maximum value with oxyg	Storage temperature	-50 +85 °C	(-58 +185 °F)
Electromagnetic Compatibility - Emitted interference and interference immunity Posign Weight (without options) Enclosure material Low-copper die-cast aluminum, GD-AlSi 12 or stainless steel precision casting, mat. no. 1.4408 Wetted parts materials Connection shank Stainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4610 Seal diaphragm Measuring cell filling Silicone oil or inert filling liquid (maximum value with oxygen measurement pressure 120 bar (1740 psi) at 60 °C (140 °F)) Process connection Connection shank G½8 be to DIN 19213 with mounting thread M1 or '/ ₁₆ -20 UNF to EN 61518 Material of mounting bracket Steel Sheet-steel, Mat. No. 1.0330, chrome-plated Steel Sheet-steel, Mat. No. 1.0330, chrome-plated Sheet stainless steel, mat. no. 1.4401 (SS 304) Power supply UH Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode Separate 24 V power supply necessary Not Ex Very thintrinsically-safe operation Current consumption Basic current (max.) Salones and interference and interference intered interest inte	Climatic class		
Electromagnetic Compatibility - Emitted interference and interference immunity Posign Weight (without options) Enclosure material Low-copper die-cast aluminum, GD-AlSi 12 or stainless steel precision casting, mat. no. 1.4408 Wetted parts materials Connection shank Stainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4610 Seal diaphragm Measuring cell filling Silicone oil or inert filling liquid (maximum value with oxygen measurement pressure 120 bar (1740 psi) at 60 °C (140 °F)) Process connection Connection shank G½8 be to DIN 19213 with mounting thread M1 or '/ ₁₆ -20 UNF to EN 61518 Material of mounting bracket Steel Sheet-steel, Mat. No. 1.0330, chrome-plated Steel Sheet-steel, Mat. No. 1.0330, chrome-plated Sheet stainless steel, mat. no. 1.4401 (SS 304) Power supply UH Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode Separate 24 V power supply necessary Not Ex Very thintrinsically-safe operation Current consumption Basic current (max.) Salones and interference and interference intered interest inte	- Condensation	Relative hum	nidity 0 100 %
Emitted interference and interference immunity Acc. to EN 61326 and NAMUR NE 21 immunity Design a 1.5 kg (≈ 3.3 lb) Weight (without options) ≈ 1.5 kg (≈ 3.3 lb) Enclosure material Low-copper die-cast aluminum, GD-AlSi 12 or stainless steel precision casting, mat. no. 1.4408 Wetted parts materials Connection shank Stainless steel, mat. no. 1.4404/316L or Hastelloy C24, mat. no. 2.4610 • Coal flange Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Measuring cell filling Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Measuring cell filling Silicone oil or inert filling liquid (maximum value with oxygen measurement pressure 120 bar (1740 psi) at 60 °C (140 °F)) Process connection Connection shank G3/8 to DIN EN 837-1, female thread ½-14 NPT or oval flange (PN 160 (MAWP 2320 psi)) to DIN 19213 with mounting thread M10 or ⁷ / _{16°} 20 UNF to EN 61518 Material of mounting bracket Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel Sheet stainless steel, mat. no. 1.4301 (SS 304) Power supply U₁ Supplied through bus Terminal voltage on transmitter 10.5 45 V DC No 10.5 45 V DC No No Supplied through bu		Condensation permissible,	, suitable for use in the tropics
Design x 1.5 kg (x 3.3 lb) Weight (without options) x 1.5 kg (x 3.3 lb) Enclosure material Low-copper die-cast aluminum, GD-AlSi 12 or stainless steel precision casting, mat. no. 1.4408 Wetted parts materials Stainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4610 • Oval flange Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Measuring cell filling Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Measuring cell filling Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Measuring cell filling Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Measuring cell filling Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Measuring cell filling Connection shank Gl/bB to DIN EN 837-1, female thread ½-14 NPT or oval flange (PN 160 (MAWP 2320 psi)) to DIN 19213 with mounting thread M10 or 7/16-20 UNF to EN 61518 Material of mounting bracket Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel Supplied through bus Terminal voltage on transmitter 10.5 45 V DC No Separate 24 V power supply necessary No No <	Electromagnetic Compatibility		
Weight (without options) ≈ 1.5 kg (≈ 3.3 lb) Enclosure material Low-copper die-cast aluminum, GD-AlSi 12 or stainless steel precision casting, mat. no. 1.4408 Wetted parts materials Connection shank Stainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4610 • Connection shank Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Measuring cell filling Stlicone oil or inert filling liquid (maximum value with oxygen measurement pressure 120 bar (1740 psi) at 60 °C (140 °F)) Process connection Connection shank GV/B to DIN EN 837-1, female thread ½-14 NPT or oval flange (PN 160 (MAWP 2320 psi)) to DIN 19213 with mounting thread M10 or 7/16-20 UNF to EN 61518 Material of mounting bracket Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel Sheet stainless steel, mat. no. 1.4301 (SS 304) Power supply U _H Supplied through bus Terminal voltage on transmitter 10.5 45 V DC (10.5 30 V DC in intrinsically-safe mode) No Separate 24 V power supply necessary - No With intrinsically-safe operation - 9 32 V With intrinsically-safe operation - 9 24 V Current consumption - 2.5 mA		Acc. to EN 61326 and NAMUR NE 21	
Enclosure material Low-copper die-cast aluminum, GD-AlSi 12 or stainless steel precision casting, mat. no. 1.4408 Wetted parts materials • Connection shank • Oval flange • Stainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4610 • Oval flange • Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Measuring cell filling Silicone oil or inert filling liquid (maximum value with oxygen measurement pressure 120 bar (1740 psi) at 60 °C (140 °F)) Process connection Connection shank G½B to DIN EN 837-1, female thread ½ -14 NPT or oval flange (PN 160 (MAWP 2320 psi)) to DIN 19213 with mounting thread M10 or 7/16-20 UNF to EN 61518 Material of mounting bracket Steel Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel, mat. no. 1.4301 (SS 304) Power supply UH Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode • No Supplied through bus *Not Ex • With intrinsically-safe operation • Not Ex • With intrinsically-safe operation • Basic current (max.) • Basic current (max.) • Start-up current ≤ basic current • Max. current in event of fault • Low-copper die-cast aluminum, GD-AlSi 12 or stainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4610 Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Sheet-steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Supplied through material flow or 7/16-20 UNF to EN 61518 Sheet-steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Supplied through bus **Over supply UH Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode • No **Over supply UH **Over supply UH Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode • No **Over supply UH **Over	Design		
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 or Hastelloy C276, mat. no. 2.4819 • Seal diaphragm Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Measuring cell filling Silicone oil or inert filling liquid (maximum value with oxygen measurement pressure 120 bar (1740 psi) at 60 °C (140 °F)) Process connection Connection shank G½B to DIN EN 837-1, female thread ½ -14 NPT or oval flange (PN 160 (MAWP 2320 psi)) to DIN 19213 with mounting thread M10 or 7/16-20 UNF to EN 61518 Material of mounting bracket Sheet-steel, Mat. No. 1.0330, chrome-plated Steel Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel Sheet stainless steel, mat. no. 1.4301 (SS 304) Power supply U _H Supplied through bus Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No Separate 24 V power supply necessary No Bus voltage No • Not Ex 9 32 V • With intrinsically-safe operation - 24 V Current consumption 12.5 mA • Start-up current ≤ basic current - 2.5 mA • Start-up current in event of fault	Weight (without options)	≈ 1.5 kg	g (≈ 3.3 lb)
• 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 or Hastelloy C276, mat. no. 2.4819 • Seal diaphragm Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Measuring cell filling Silicone oil or inert filling liquid (maximum value with oxygen measurement pressure 120 bar (1740 psi) at 60 °C (140 °F)) Process connection Connection shank G½B to DIN EN 837-1, female thread ½-14 NPT or oval flange (PN 160 (MAWP 2320 psi)) to DIN 19213 with mounting thread M10 or ⁷ / ₁₆ -20 UNF to EN 61518 Material of mounting bracket Sheet-steel, Mat. No. 1.0330, chrome-plated Steil Sheet stainless steel, mat. no. 1.4301 (SS 304) Power supply U₁ Supplied through bus Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No Separate 24 V power supply necessary No No Bus voltage Not Ex 9 32 V • Not Ex 9 32 V With intrinsically-safe operation 9 24 V Current consumption 12.5 mA Start-up current ≤ basic current - - • Basic current (max.) - 12.5 mA - • Max. cur	Enclosure material	Low-copper die-cast aluminum, GD-AlSi 12 or	stainless steel precision casting, mat. no. 1.4408
• Oval flange • Seal diaphragm Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Measuring cell filling Silicone oil or inert filling liquid (maximum value with oxygen measurement pressure 120 bar (1740 psi) at 60 °C (140 °F)) Process connection Connection shank G½B to DIN EN 837-1, female thread ½ -14 NPT or oval flange (PN 160 (MAWP 2320 psi)) to DIN 19213 with mounting thread M10 or 7/16-20 UNF to EN 61518 Material of mounting bracket Steel Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel Sheet stainless steel, mat. no. 1.4301 (SS 304) Power supply UH 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 Not Ex With intrinsically-safe operation Current consumption Basic current (max.) Basic current ≤ basic current Axis current in event of fault Nax. current in event of fault Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Satinless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Measuring cell filling liquid (maximum value with oxygen measurement pressure 120 bar (1740 psi) at 60 °C (140 °F)) Connection shank G½B to DIN EN 837-1, female thread ½ -14 NPT or oval flange (PN 160 (MAWP 2320 psi)) to DIN 19213 with mounting thread ½ -14 NPT or oval flange (PN 161518 Sheet-steel, Mat. No. 1.0330, chrome-plated Sheet-steel, M	Wetted parts materials		
• Seal diaphragm Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Measuring cell filling Silicone oil or inert filling liquid (maximum value with oxygen measurement pressure 120 bar (1740 psi) at 60 °C (140 °F)) Process connection Connection shank G½B to DIN EN 837-1, female thread ½ -14 NPT or oval flange (PN 160 (MAWP 2320 psi)) to DIN 19213 with mounting thread M10 or 7/16-20 UNF to EN 61518 Material of mounting bracket Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel Sheet stainless steel, mat. no. 1.4301 (SS 304) Power supply U₁ Supplied through bus Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No Separate 24 V power supply necessary No No Bus voltage Not Ex 9 32 V V • With intrinsically-safe operation 2 24 V 24 V 24 V Current consumption 2 24 V 25 mA 5 start-up current ≤ basic current 4 Poss 4 Poss • Max. current in event of fault - 15.5 mA 15.5 mA	Connection shank	Stainless steel, mat. no. 1.4404/3	16L or Hastelloy C4, mat. no. 2.4610
Measuring cell filling Silicone oil or inert filling liquid (maximum value with oxygen measurement pressure 120 bar (1740 psi) at 60 °C (140 °F)) Process connection Connection shank G½B to DIN EN 837-1, female thread ½-14 NPT or oval flange (PN 160 (MAWP 2320 psi)) to DIN 19213 with mounting thread M10 or 7/16-20 UNF to EN 61518 Material of mounting bracket Sheet-steel, Mat. No. 1.0330, chrome-plated Steel Sheet stainless steel, mat. no. 1.4301 (SS 304) Power supply UH Supplied through bus Terminal voltage on transmitter 10.5 45 V DC 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No Separate 24 V power supply necessary No Bus voltage No • Not Ex 9 32 V • With intrinsically-safe operation - 9 32 V Current consumption - 12.5 mA • Basic current (max.) - 12.5 mA • Start-up current ≤ basic current - Yes • Max. current in event of fault - 15.5 mA	Oval flange	Stainless steel, m	nat. no. 1.4404/316L
Process connection Connection shank G½B to DIN EN 837-1, female thread ½-14 NPT or oval flange (PN 160 (MAWP 2320 psi)) to DIN 19213 with wunting thread M10 or 7/16-20 UNF to EN 61518 Material of mounting bracket Steel Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel Sheet stainless steel, mat. no. 1.4301 (SS 304) Power supply UH Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode Separate 24 V power supply necessary Bus voltage No No With intrinsically-safe operation 2.0 9 32 V With intrinsically-safe operation 3.0 2.0 4 V Current consumption Basic current (max.) 2.0 5 mA Start-up current ≤ basic current 4.0 5 mA Material of nounting bracket 1.2 5 mA Power supply 21.1 0.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Seal diaphragm	Stainless steel, mat. no. 1.4404/31	6L or Hastelloy C276, mat. no. 2.4819
Material of mounting bracket Steel Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel Sheet stainless steel, mat. no. 1.4301 (SS 304) Power supply U _H Terminal voltage on transmitter 10.5 45 ∨ DC 10.5 30 ∨ DC in intrinsically-safe mode Separate 24 ∨ power supply necessary - No Bus voltage • Not Ex • Not Ex • With intrinsically-safe operation - 20 24 ∨ Current consumption • Basic current (max.) - 20 24 ∨ Current ≤ basic current ≤ basic current ≤ basic current of fault - 20 24 ∨ Current in event of fault - 20 26 .	Measuring cell filling		
SteelSheet-steel, Mat. No. 1.0330, chrome-platedStainless steelSheet stainless steel, mat. no. 1.4301 (SS 304)Power supply UHSupplied through busTerminal voltage on transmitter10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode-Separate 24 V power supply necessaryNoBus voltageNo• Not Ex9 32 V• With intrinsically-safe operation9 24 VCurrent consumption9 24 V• Basic current (max.)12.5 mA• Start-up current ≤ basic current-Yes• Max. current in event of fault-15.5 mA	Process connection		
Stainless steel Sheet stainless steel, mat. no. 1.4301 (SS 304) Power supply U _H Supplied through bus Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode - Separate 24 V power supply necessary - No Bus voltage - 9 32 V • Not Ex - 9 24 V • With intrinsically-safe operation - 9 24 V Current consumption - 12.5 mA • Start-up current ≤ basic current - Yes • Max. current in event of fault - 15.5 mA	Material of mounting bracket		
Power supply UH 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 - - No Ex - 9 32 V With intrinsically-safe operation - 9 24 V Current consumption - 12.5 mA Basic current (max.) - 12.5 mA Start-up current ≤ basic current - Yes Max. current in event of fault - 15.5 mA	Steel	Sheet-steel, Mat. No.	. 1.0330, chrome-plated
Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No Separate 24 V power supply necessary No Bus voltage No No No With intrinsically-safe operation Current consumption Basic current (max.) Start-up current ≤ basic current Max. current in event of fault 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No No 9 32 V 9 32 V 9 24 V 12.5 mA	Stainless steel	Sheet stainless steel,	mat. no. 1.4301 (SS 304)
Separate 24 V power supply necessary Bus voltage No No No No Separate 24 V power supply necessary Not Ex No No No No No No No No No N	Power supply U_{H}		Supplied through bus
Bus voltage • Not Ex • With intrinsically-safe operation • With intrinsically-safe operation • Basic current (max.) • Start-up current ≤ basic current • Max. current in event of fault • Interval and the same of the	Terminal voltage on transmitter		-
 Not Ex With intrinsically-safe operation Current consumption Basic current (max.) Start-up current ≤ basic current Max. current in event of fault 9 32 V 9 24 V 12.5 mA Yes 15.5 mA 	Separate 24 V power supply necessary	-	No
 With intrinsically-safe operation Current consumption Basic current (max.) Start-up current ≤ basic current Max. current in event of fault 9 24 V 12.5 mA Yes 15.5 mA 	Bus voltage		
Current consumption • Basic current (max.) • Start-up current ≤ basic current • Max. current in event of fault - 12.5 mA Yes 15.5 mA	• Not Ex	-	9 32 V
 Basic current (max.) Start-up current ≤ basic current Max. current in event of fault 12.5 mA Yes 15.5 mA 	With intrinsically-safe operation	-	9 24 V
• Start-up current ≤ basic current • Max. current in event of fault - Yes - 15.5 mA	Current consumption		
• Max. current in event of fault - 15.5 mA	Basic current (max.)	-	12.5 mA
	• Start-up current ≤ basic current	-	Yes
Fault disconnection electronics (FDE) available - Yes	Max. current in event of fault	-	15.5 mA
	Fault disconnection electronics (FDE) available	-	Yes

Transmitters for general requirements SITRANS P DS III for gauge pressure

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

¹⁾ Conversion of temperature error per 28 °C. Valid for temperature range -3 ... +53 °C < (0.064 . r + 0.08) % / 28 °C (50 °F).

²⁾ Conversion of temperature error per 28 °C. Valid for temperature range -3 ... +53 °C < $(0.08 \cdot r + 0.16)$ % / 28 °C (50 °F).

Transmitters for general requirements

SITRANS P DS III for gauge pressure

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

temperature

FOUNDATION Fieldbus communication

Function blocks

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

3 function blocks analog input, 1 function block PID

Yes, linearly rising or falling characteristic

0 ... 100 s

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

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

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

Yes

Standard FOUNDATION Fieldbus function block

1 resource block

1 transducer block Pressure with calibration, 1 transducer block LCD

Yes

Yes

Constant value or over parameterizable ramp function

Transmitters for general requirements

SITRANS P DS III for gauge pressure

Silicone oil Inert liquid ¹⁾ Measuring span (min 0.01 1 bar 0.04 4 bar 0.16 16 bar 0.63 63 bar 1.6 160 bar 4.0 400 bar 7.0 700 bar Wetted parts materials	r gauge pressure, HART Measuring cell cleaning normal grease-free to cleanliness level 2	*		1 F	4 0	3	3 -	
Measuring cell filling Silicone oil Inert liquid ¹⁾ Measuring span (min 0.01 1 bar 0.04 4 bar 0.16 16 bar 0.63 63 bar 1.6 160 bar 4.0 400 bar 7.0 700 bar Wetted parts materials	Measuring cell cleaning normal grease-free to cleanliness level 2 max.) (0.15 14.5 psi) (0.58 58 psi) (2.32 232 psi) (9.14 914 psi) (23.2 2320 psi) (58.0 5802 psi)	>	1 3	3				
Silicone oil Inert liquid 1) Measuring span (min 0.01 1 bar 0.04 4 bar 0.16 16 bar 0.63 63 bar 1.6 160 bar 4.0 400 bar 7.0 700 bar Wetted parts materials	cleaning normal grease-free to cleanliness level 2max.) (0.15 14.5 psi) (0.58 58 psi) (2.32 232 psi) (9.14 914 psi) (23.2 2320 psi) (58.0 5802 psi)	>	3					
Silicone oil Inert liquid 1) Measuring span (min 0.01 1 bar 0.04 4 bar 0.16 16 bar 0.63 63 bar 1.6 160 bar 4.0 400 bar 7.0 700 bar Wetted parts materials	normal grease-free to cleanliness level 2 max.) (0.15 14.5 psi) (0.58 58 psi) (2.32 232 psi) (9.14 914 psi) (23.2 2320 psi) (58.0 5802 psi)	>	3					
Measuring span (min 0.01 1 bar 0.04 4 bar 0.16 16 bar 0.63 63 bar 1.6 160 bar 4.0 400 bar 7.0 700 bar Wetted parts materials	Cleanliness level 2max.) (0.15 14.5 psi) (0.58 58 psi) (2.32 232 psi) (9.14 914 psi) (23.2 2320 psi) (58.0 5802 psi)	>	E					
0.01 1 bar 0.04 4 bar 0.16 16 bar 0.63 63 bar 1.6 160 bar 4.0 400 bar 7.0 700 bar Wetted parts materials	max.) (0.15 14.5 psi) (0.58 58 psi) (2.32 232 psi) (9.14 914 psi) (23.2 2320 psi) (58.0 5802 psi)	>	C					
0.01 1 bar 0.04 4 bar 0.16 16 bar 0.63 63 bar 1.6 160 bar 4.0 400 bar 7.0 700 bar Wetted parts materials	(0.15 14.5 psi) (0.58 58 psi) (2.32 232 psi) (9.14 914 psi) (23.2 2320 psi) (58.0 5802 psi)	>	C					
0.04 4 bar 0.16 16 bar 0.63 63 bar 1.6 160 bar 4.0 400 bar 7.0 700 bar Wetted parts materials	(0.58 58 psi) (2.32 232 psi) (9.14 914 psi) (23.2 2320 psi) (58.0 5802 psi)	>	C					
0.16 16 bar 0.63 63 bar 1.6 160 bar 4.0 400 bar 7.0 700 bar Wetted parts materials	(2.32 232 psi) (9.14 914 psi) (23.2 2320 psi) (58.0 5802 psi)	•		•				
0.63 63 bar 1.6 160 bar 4.0 400 bar 7.0 700 bar Wetted parts materials	(9.14 914 psi) (23.2 2320 psi) (58.0 5802 psi)			١.				
1.6 160 bar 4.0 400 bar 7.0 700 bar Wetted parts materials	(23.2 2320 psi) (58.0 5802 psi)		E					
4.0 400 bar 7.0 700 bar Wetted parts materials	(58.0 5802 psi)		Ē	-				
7.0 700 bar Wetted parts materials			Ġ					
Wetted parts materials	(10210 III 10 100 poi)		J					
•								
	Process connection							
Stainless steel	Stainless steel	_		Α				
Hastelloy	Stainless steel			В				
•	Hastelloy			C				
าลรเยแบง Version as diaphragm se				Υ				
Process connection				Ė				
 Connection shank G½ 	B to EN 837-1				0			
Female thread ½-14 N	PT				1			
 Stainless steel oval flar 								
- Mounting thread ⁷ / ₁₆ -	20 UNF to IFC 61518				2			
- Mounting thread M10	to DIN 19213				3			
- Mounting thread M12					4			
 Male thread M20 x 1.5 	.				5			
 Male thread ½ -14 NPT 					6			
Non-wetted parts mater	rials							
 Housing made of die-c 	ast aluminium	▶			0			
 Housing stainless steel 	precision casting ⁴⁾				3	3		
Version		-]						
Standard versions							1	
 International version, E 		3, ▶					2	
documentation in 5 lan (no order code selecta								
Explosion protection	,							
None							Α	
With ATEX, Type of pro								
- "Intrinsic safety (EEx i							В	
- "Explosion-proof (EEx							D	
- "Intrinsic safety and fl	ameproof enclosure"						P	
(EEx ia + EEx d)" ⁶⁾								
- "Ex nA/nL (Zone 2)"							E	
- "Intrinsic safety, explo	sion-proof enclosure an	d▶					R	
Zone 1D/2D) ⁶⁾	ction (EEx ia + EEx d +							
 With FM + CSA, Type c 	of protection:							
- "Intrinsic Safe und Ex		5)					N	С
Electrical connection /								
 Screwed gland Pg 13.5 								Α
 Screwed gland M20 x1 		▶						В
 Screwed gland ½-14 N 								С
Han 7D plug (plastic hearth)	ousing) incl. mating							D
 Han 7D plug (plastic he connector⁷⁾ 								
 M12 connectors (metal 								

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

Available ex stock

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

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

Transmitters for general requirements

SITRANS P DS III for gauge pressure

	g data	Order	140.
Pressure transmitter for			
SITRANS P DS III with	PROFIBUS PA (PA)	7 M F	4034-
	FOUNDATION Fieldbus	7 M F	4035-
(FF)			
Measuring cell filling			
Silicone oil	cleaning normal	1	
Inert liquid ¹⁾	grease-free to	3	
4.	cleanliness level 2		
Nominal measuring ra	nge		
1 bar	(14.5 psi)	В	
4 bar	(58 psi)	С	
16 bar 63 bar	(232 psi) (914 psi)	D E	
160 bar	(2320 psi)	F	
400 bar	(5802 psi)	G	
700 bar	(10153 psi)	J	
Wetted parts materials	· · · · · · · · · · · · · · · · · · ·		
Seal diaphragm	Process connection		
Stainless steel	Stainless steel	A	
Hastelloy	Stainless steel	В	
Hastelloy	Hastelloy	С	
Version as diaphragm s	eal ²⁾³⁾	Y	
 Mounting thread M1 Mounting thread M1 Male thread M20 x 1.5 Male thread ½ -14 NP Non-wetted parts mate 	g-20 UNF to IEC 61518 0 to DIN 19213 2 to DIN 19213 T		2 3 4 5 6
Housing made of die- Housing stainless stee		_	0
Version • Standard versions			1
	English label inscriptions, nguages on CD able)		2
Explosion protection		_	
		_	A
None	ection:		
None With ATEX, Type of prot			A B
None With ATEX, Type of prot "Intrinsic safety (EEx ia)	11		B D
None With ATEX, Type of prote "Intrinsic safety (EEx ia) "Explosion-proof (EExd) "Intrinsic safety and flan	"4)		В
None With ATEX, Type of prote "Intrinsic safety (EEx ia) "Explosion-proof (EExd) "Intrinsic safety and flan (EEx ia + EEx d)" ⁵⁾	"4)		B D
None With ATEX, Type of prote "Intrinsic safety (EEx ia) "Explosion-proof (EExd) "Intrinsic safety and flan (EEx ia + EEx d)" ⁵⁾ "Ex nA/nL (Zone 2)" "Intrinsic safety explosion	" "4) neproof enclosure"		B D P
None With ATEX, Type of prote "Intrinsic safety (EEx ia)" "Explosion-proof (EExd) "Intrinsic safety and flan (EEx ia + EEx d)" "Ex nA/nL (Zone 2)" "Intrinsic safety, explosindust explosion protectic 1D/2D)" (not for DS III	neproof enclosure" on-proof enclosure and on (EEx ia + EExd + Zone FF)		B D P
With ATEX, Type of prote "Intrinsic safety (EEx ia)" "Explosion-proof (EExd) "Intrinsic safety and flan (EEx ia + EEx d)" "Ex nA/nL (Zone 2)" "Intrinsic safety explosions and the safety explosions are	neproof enclosure" on-proof enclosure and on (EEx ia + EExd + Zone FF) f protection:		B D P
None With ATEX, Type of prote "Intrinsic safety (EEx ia)" "Explosion-proof (EExd) "Intrinsic safety and flan (EEx ia + EEx d)" "Ex nA/nL (Zone 2)" "Intrinsic safety, explosion dust explosion protectic 1D/2D)" (Intrinsic SA, Type of	neproof enclosure" on-proof enclosure and on (EEx ia + EExd + Zone FF) f protection: osion Proof (is + xp)*5)		B D P E R
None With ATEX, Type of prote "Intrinsic safety (EEx ia) "Explosion-proof (EExd) "Intrinsic safety and flan (EEx ia + EEx d)" ⁵) "Ex nA/nL (Zone 2)" "Intrinsic safety, explosion dust explosion protectic 1D/2D)" ⁶) (not for DS III With FM + CSA, Type of "Intrinsic Safe und Explosion	neproof enclosure" on-proof enclosure and on (EEx ia + EExd + Zone FF) f protection: psion Proof (is + xp)*5) cable entry 1.5		B D P E R

Selection and Ordering data	Order No.
Pressure transmitter for gauge pressure	
SITRANS P DS III with PROFIBUS PA (PA)	7 M F 4 0 3 4 -
SITRANS P DS III with FOUNDATION Fieldbus (FF)	7MF4035-
Display	
Without display	0
 Without visible display (display concealed, setting: bar) 	1
With visible display	6
 with customer-specific display (setting as specified, Order Code "Y21" required) 	7

Available ex stock

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

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

Transmitters for general requirements

SITRANS P DS III for gauge pressure

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order Code.				
Pressure transmitter with mounting bracket (2 shackles, 4 nuts, 4 U-plates,				
1 angle) made of:			,	
Steel Stainless steel	A01 A02	1	1	1
	AUZ	ľ	•	•
● Han 7D (metal, gray)	A30	1		
• Han 8U (instead of Han 7D)	A31	✓		
• Angled	A32	✓		
Han 8D (metal, gray)	A33	V	,	,
Cable sockets for M12 connectors (metal)	A50	✓	✓	✓
Rating plate inscription (instead of German)				
• English	B11	✓	✓	✓
• French	B12	✓	✓	1
Spanish Italian	B13 B14	√	1	1
	B21	1	*	1
English rating plate Pressure units in inH ₂ 0 and/or psi	DZI	ľ	•	•
Quality inspection certificate (Five-step	C11	1	✓	√
factory calibration) to IEC 60770-2 ¹⁾	•			
Inspection certificate ²⁾	C12	✓	✓	✓
Acc. to EN 10204-3.1				
Factory certificate Acc. to EN 10204-2.2	C14	✓	✓	✓
"Functional safety (SIL2)" certificate	C20	1		
to IEC 61508	020	ľ		
PROFIsafe certificate and protocol	C21		✓	
"Functional safety (SIL2/3)" certificate	C23	✓		
to IEC 61508				
Device passport Russia (For price request please contact the technical	C99	✓	✓	✓
support				
www.siemens.com/automation/support-request) Setting of upper limit of output signal to	D05	1		
22.0 mA	D03	ľ		
Manufacturer's declaration acc. to NACE	D07	✓	✓	✓
Degree of protection IP68	D12	✓	✓	✓
(only for M20x1.5 and ½-14 NPT)				
Supplied with oval flange	D37	✓	✓	✓
(1 item), PTFE packing and screws in thread of oval flange				
Use in or on zone 1D/2D	E01	✓	✓	✓
(only together with type of protection				
"Intrinsic safety (EEx ia)")			,	,
Oxygen application (In the case of oxygen measurement and inert	E10	✓	✓	•
liquid max. 120 bar (1740 psi) at 60°C (140 °F))				
Export approval Korea	E11	✓	1	✓
Explosion-proof "Intrinsic safety" (Ex ia) to	E25	✓	1	1
INMETRO (Brazil)				
(only for transmitter 7MF4B)				
Explosion-proof "Intrinsic safety" (Ex d) to INMETRO (Brazil)	E26	V	V	√
(only for transmitter 7MF4				
Explosion-proof "Intrinsic safety" (Ex ia +	E28	✓	✓	
Ex d) to INMETRO (Brazil) (only for transmitter 7MF4P)				
	EAF		/	./
(only for transmitter 7MF4B)	E45	V	v	v
Ex Approval IEC Ex (EEx id)	E46	1	1	1
(only for transmitter 7MF4D)	,			
(only for transmitter 7MF4				

Selection and Ordering data	Order	code		
Further designs Add "-Z" to Order No. and specify Order Code.		HART	PA	FF
Explosion-proof "Intrinsic safety" to NEPSI (China)	E55	✓	1	✓
Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D)	E56	✓	✓	✓
Ex protection "Zone 2" to NEPSI (China) (only for transmitter 7MF4	E57	✓	✓	1
Two coats of lacquer on casing and cover (PU on epoxy)	G10	✓	1	✓

Selection and Ordering data	Order	code		
Additional data Please add "-Z" to Order No. and specify Order code(s) and plain text.	Orael	HART	PA	FF
Measuring range to be set Specify in plain text (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi	Y01	√		
Stainless steel tag plate (measuring point description) Max. 16 characters, specify in plain text: Y15:	Y15	✓	✓	✓
Measuring point text Max. 27 characters, specify in plain text: Y16:	Y16	✓	✓	✓
Entry of HART address (TAG) Max. 8 characters, specify in plain text: Y17:	Y17	✓		
Setting of pressure indication in pressure units Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, Note: The following pressure units can be selected: bar, mbar, mm H 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	Y21	•	*	✓
Setting of pressure indication in non-pressure units ³) Specify in plain text: Y22: up to //min, m ³ /h, m, USgpm, (specification of measuring range in pressure units "Y01" is essential, unit with max. 5 characters)	Y22 + Y01	√		
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	Y25		✓	

Factory mounting of valve manifolds, see accessories.

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

✓ = available

ordering example

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

B line: A01 + Y01 + Y21

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

C line: Y21: bar (psi)

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

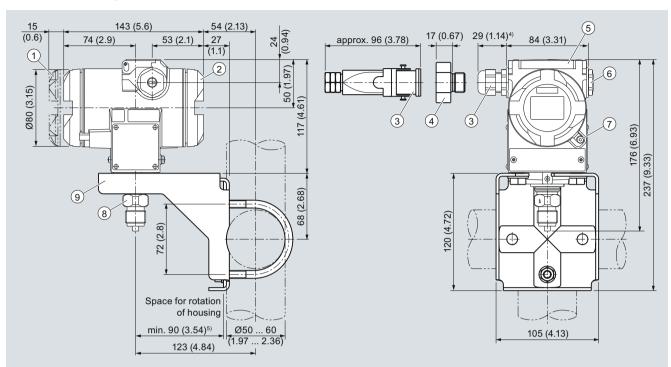
²⁾ If the acceptance test certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.

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

Transmitters for general requirements

SITRANS P DS III for gauge pressure

Dimensional drawings



- 1 Electronic side, digital display (longer overall length for cover with window)1)
- 2 Terminal side¹⁾
- 3 Electrical connection: Screwed gland Pg 13,5 (adapter)(Adapter)^{2) 3)}, Screwed gland M20 x 1,5 or Screwed gland ½-14 NPT or Han 7D/Han 8D2)3)plug
- 4 Harting adapter
- 1) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
- Not with type of protection "Explosion-proof enclosure"

 Not with type of protection "FM + CSA" [IS + XP]"
- For Pg 13,5 with adapter approx. 45 mm (1.77 inch)
- 5) Minimum distance for rotating

- 5 Protective cover over keys
- 6 Blanking plug
- Screw cover safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)
- Process connection: Connection shank G½A or Oval flange
- Mounting bracket (option)

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

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

Technical specifications

SITRANS P DS III series for gauge and absolu	te pressure, with front-	flush diaphragm					
	HART		PROFIBUS PA and FO	OUNDATION Fieldbus			
Input of gauge pressure, with front-flush diaphragm							
Measured variable		Gauge press	e pressure, front-flush				
Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure	Span (min max.)	Span (min max.) Max. perm. test pressure Nominal measuring range		Max. perm. test pressure			
	0.01 1 bar (0.15 14.5 psi)	6 bar (87 psi)	1 bar (14.5 psi)	6 bar (87 psi)			
	0.04 4 bar (0.58 58 psi)	10 bar (145 psi)	4 bar (58 psi)	10 bar (145 psi)			
	0.16 16 bar (2.32 232 psi)	32 bar (464 psi)	16 bar (232 psi)	32 bar (464 psi)			
	0.6 63 bar (9.14 914 psi)	100 bar (1450 psi)	63 bar (914 psi)	100 bar (1450 psi)			
Lower measuring limit		100 mbar a	a (1.45 psia)				
Upper measuring limit	100 % of max. span		100 % of the max. nom	inal measuring range			
Input of absolute pressure, with front-flush diaphragm							
Measured variable	0 ()		sure, front-flush	ls.			
Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure	Span (min max.)	Max. perm. test pressure	Nominal measuring range	Max. perm. test pressure			
	43 1300 mbar a (0.62 18.85 psia)	10 bar a (145 psia)	1300 mbar a (18.85 psia)	10 bar a (145 psia)			
	0.16 5 bar a (2.32 72.5 psia)	30 bar a (435 psia)	5 bar a (72.5 psia)	30 bar a (435 psia)			
	1 30 bar a (14.5 435 psia)	100 bar a (1450 psia)	30 bar a (435 psia)	100 bar a (1450 psia)			
Lower measuring limit		0 bar a (0 psia)					
Upper measuring limit Output	100 % of max. span		100 % of the max. nom	inal measuring range			
Output signal	4 20 mA		Digital PROFIBUS PA a bus signal	and FOUNDATION Field-			
Lower limit (infinitely adjustable)	3.55 mA, factory preset	to 3.84 mA	-				
Upper limit (infinitely adjustable)	23 mA, factory preset to set to 22.0 mA	20.5 mA or optionally	-				
Load							
Without HART	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}$: Power supply in V		-				
With HART	$R_{\rm B} = 230 \dots 500 \Omega \text{ (SIN } R_{\rm B} = 230 \dots 1100 \Omega \text{ (HA})$		-				
Physical bus	Protected against at all	oirouit on deal-site	IEC 61158-2	roingt the ather with m			
Protection against polarity reversal	Protected against short	supply	voltage.	gainst the other with max.			
Measuring accuracy	Inorogoine above to 11		C 60770-1	diophrogra alliana a 200			
Reference conditions (All error data refer always refer to the set span)		ic, start-of-scale value 0 l ling, room temperature 2 (r = max. sp					
Error in measurement at limit setting incl. hysteresis and reproducibility							
	Gauge pressure, front-flush	Absolute pressure, front-flush	Gauge pressure, front-flush	Absolute pressure, front-flush			
Linear characteristic			≤ 0.075 %	≤ 0.2 %			
- r ≤ 10	\leq (0.0029 · r + 0.071) %	≤ 0.2 %					
- 10 < r ≤ 30	\leq (0.0045 · r + 0.071) %	≤ 0.4 %					
- 30 < r ≤ 100	\leq (0.005 · r + 0.05) %						
Long-term stability	≤ (0.25 · r) % per 5		≤ 0.25 % per 5 years				

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

SITRANS P DS III series for gauge and absolu	te pressure, with front-flush diaphragm				
	HART	PROFIBUS PA and	FOUNDATION Fieldbus		
Influence of ambient temperature					
• at -10 +60 °C (14 140 °F)	$\leq (0.1 \cdot r + 0.2) \%^{1)} \leq (0.2 \cdot r + 0.3) \%$	≤ 0.3 %	≤ 0.5 %		
• at -4010 °C and 60 85 °C (-40 +14 °F and 140 185 °F)	\leq (0.1 · r + 0.15) %/10 K \leq (0.2 · r + 0.3) %/10 K	≤ 0.25 %/10 K	≤ 0.5 %/10 K		
Influence of mounting position	0.1 mbar (0.00145 p	osi) per 10° inclination	ı		
Measured Value Resolution		$3 \cdot 10^{-5}$ of nominal m	neasuring 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 K)			
Rated conditions					
Installation conditions					
Ambient temperature	Observe the temperature class in	areas subject to exp	losion hazard.		
Measuring cell with silicone oil	-40 +85 °C ((-40 +185 °F)			
Measuring cell with Neobee oil (with front-flush diaphragm)	-10 +85 °C	(14 +185 °F)			
Measuring cell with inert liquid (not with front- flush diaphragm)	-20 +85 °C	(-4 +185 °F)			
Display readable	-30 +85 °C ((-22 +185 °F)			
• Storage temperature	-50 +85 °C (in the case of Neobee: -2	(-58 +185 °F) 0 +85 °C (-4 +18	35/°F))		
Climatic class					
- Condensation	Relative humi Condensation permissible,	dity 0 100 % suitable for use in the	tropics		
Degree of protection (to IEC 60529)	IP65, IP68, NEMA 4X, enclosure cleaning, resistant to lyes, steam to 150 ° C (302 °F)				
• Electromagnetic Compatibility		•			
- Emitted interference and interference immunity	Acc. to EN 61326	and NAMUR NE 21			
Medium conditions	The max. medium temperature of the front-flush in accordance with the relevant connection				
Temperature of medium					
Measuring cell with silicone oil	-40 +100 °C	(-40 +212 °F)			
 Measuring cell with silicone oil (with front-flush diaphragm) 	-40 +150 °C	(-40 +302 °F)			
 Measuring cell with Neobee oil (with front-flush diaphragm) 	-10 +150 °C	C (14 302 °F)			
 Measuring cell with silicone oil, with tempera- ture decoupler (only with front-flush dia- phragm) 	-40 +200 °C	(-40 +392 °F)			
Measuring cell with inert filling liquid	-20 +100 °C	(-4 +212 °F)			
Measuring cell with high-temperature oil	-10 +250 °C	C (14 482 °F)			
Design					
Weight (without options)	≈ 1.5 kg	(≈ 3.3 lb)			
Enclosure material	Low-copper die-cast aluminum, GD-AlSi12 or s	stainless steel precision	on casting, mat. no. 1.440		
Wetted parts materials	Stainless steel, ma	at. no. 1.4404/316L			
Measuring cell filling	Silicone oil or i	nert filling liquid			
Process connection		er EN and ASME			
		maceutical flanges			
Surface quality touched-by-media	R _a -values ≤ 0.8 μm (32 μ-inch) (Process connections according to 3A; R _a -va)/welds R _{a)} ≤ 1.6 µm (

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

SITRANS P DS III series for gauge and absolu	te pressure, with front-flush diaphragm	
	HART	PROFIBUS PA and FOUNDATION Fieldbus
Power supply $ extbf{ extit{U}}_{ ext{H}}$		Supplied through bus
erminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	
eparate 24 V power supply necessary	-	No
us voltage		
Not Ex	-	9 32 V
With intrinsically-safe operation	-	9 24 V
Current consumption		
Basic current (max.)	-	12.5 mA
Start-up current ≤ basic current	-	Yes
Max. current in event of fault	-	15.5 mA
ault disconnection electronics (FDE) available	-	Yes
ertificates and approvals		
lassification according to PED 97/23/EC		group 1; complies with requirements of article lengineering practice)
xplosion protection		
Intrinsic safety "i"		ATEX 2122
- Marking		ix ia/ib IIB/IIC T6
- Permissible ambient temperature	-40 +70 °C (-40 +15	85°F) temperature class T4; 8°F) temperature class T5; 40°F) temperature class T6
- Connection	To certified intrinsically-safe circuits with peak	FISCO supply unit:
	values: $U_i = 30 \text{ V}, I_i = 100 \text{ mA},$	$U_{\rm o} = 17.5 \text{V}, I_{\rm o} = 380 \text{mA}, P_{\rm o} = 5.32 \text{W}$ Linear barrier:
	$P_{\rm i} = 750 \text{ mW}; R_{\rm i} = 300 \Omega$	$U_0 = 24 \text{ V}, I_0 = 250 \text{ mA}, P_0 = 1.2 \text{ W}$
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 \rm mH, C_{\rm i} = 6 \rm nF$	$L_{\rm i} = 7 \mu \text{H}, C_{\rm i} = 1.1 \text{nF}$
Explosion-proof "d"		ATEX 1160
- Marking		Ex d IIC T4/T6
- Permissible ambient temperature		35 °F) temperature class T4; 40 °F) temperature class T6
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC	To circuits with values: $U_{\rm H}$ = 9 32 V DC
Dust explosion protection for zone 20		ATEX 2055
- Marking		P65 T 120 °C IP65 T 120 °C
- Permissible ambient temperature		(-40 +185 °F)
- Max. surface temperature	120 °C	C (248 °F)
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}=30~{\rm V},~l_{\rm i}=100~{\rm mA},~P_{\rm i}=750~{\rm mW},~P_{\rm i}=300~\Omega$	FISCO supply unit: $U_0 = 17.5 \text{ V, } I_0 = 380 \text{ mA, } P_0 = 5.32 \text{ W}$ Linear barrier:
Effective internal industrials ($U_0 = 24 \text{ V}, I_0 = 250 \text{ mA}, P_0 = 1.2 \text{ W}$
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_{\rm i} = 7 \mu\text{H}, C_{\rm i} = 1.1 \text{nF}$
Dust explosion protection for zone 21/22		ATEX 2055
- Marking		P65 T 120 °C
- Connection	To circuits with values: $U_H = 10.5 \dots 45 \text{ V DC}$; $P_{\text{max}} = 1.2 \text{ W}$	To circuits with values: $U_{H} = 9 32 \text{ V DC}$; $P_{\text{max}} = 1.2 \text{ W}$
Type of protection "n" (zone 2)	TÜV 01 ATEX 1696 X	Planned
- Marking	Ex II 3 G EEx nA L IIC T4/T5/T6	- " 0000 400
Explosion protection acc. to FM		mpliance 3008490
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV 1, CL I, DIV 2, GP ABCD T4	GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4T6 T6; CL II, DIV 2, GP FG; CL III
Explosion protection to CSA	Certificate of Co	mpliance 1153651
- Identification (XP/DIP) or (IS)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV 1, GP E	FG; CL III; Ex ia IIC T4T6; CL I, DIV 2, GP AE

¹⁾ Conversion of temperature error per 28 °C. Valid for temperature range -3 ... +53 °C < (0.064 . r + 0.08) % / 28 °C (50 °F).

Hygiene version

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

Transmitters for general requirements

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

230 1100 Ω
HART Version 5.x
SIMATIC PDM
4
Configuration tool or local operation (standard setting address 126)
5 (one measured value) or 10 (two measured values)
0, 1, or 2 (register operating mode and reset function for metering)
PROFIBUS PA Profile for Process Control Devices Version 3.0, Class B
2
Yes, linearly rising or falling characteristic
0 100 s
Input /Output
parameterizable (last good value, substitute value, incorrect value)
Yes, one upper and lower war- ning limit and one alarm limit respectively
Can be reset, preset, optional direction of counting, simulation function of register output
parameterizable (summation with last good value, continuous summation, summation with incorrect value)
One upper and lower warning limit and one alarm limit respec- tively
1
2
Yes
Yes
Max. 30 nodes
Yes
Parameterizable
Constant value or over parameterizable ramp function

FOUNDATION Fieldbus communication

Function blocks

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

3 function blocks analog input, 1 function block PID

Yes, linearly rising or falling characteristic

0 ... 100 s

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

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

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

Yes

Standard FOUNDATION Fieldbus function block

1 resource block

1 transducer block Pressure with calibration, 1 transducer block LCD

Yes

Yes

Constant value or over parameterizable ramp function

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

Selection and Ordering	n data	Orde	r No		
l`	or gauge and absolute F)				
pressure, front-flush d SITRANS P DS III HAR	liaphragm,				1
Measuring cell filling	Measuring cell cleaning				
Silicone oil	normal	1			
Inert liquid	grease-free to cleanliness level 2	3			
FDA compliant fill fluid • Neobee oil	normal	4			
Measuring span (min.		Ŀ			
0,01 1 bar	(0.15 14.5 psi)	В			
0,04 4 bar	(0.58 58 psi)	c			
0,16 16 bar	(2.32 232 psi)	D			
0,63 63 bar	(9.14 914 psi)	E			
13 1300 mbar a ¹⁾	(0.62 18.85 psia) ¹⁾	s			
0,05 5 bar a ¹⁾	(0.7 72.5 psia) ¹⁾	т			
0,3 30 bar a ¹⁾	(4.35 435 psia) ¹⁾	Ü			
Wetted parts materials					
Seal diaphragm	Connection shank				
Stainless steel	Stainless steel	Α			
Hastelloy ²⁾	Stainless steel	В			
Process connection					
Flange version with Ord	der Code M, N, R or Q		7		
Non-wetted parts mate					
Housing made of die-			0 3		
Housing stainless stee	er precision casting		3		
Version • Standard versions				1	
	English label inscriptions,			2	
documentation in 5 la				-	
(no order code selecta	able)				
Explosion protection					
• None				Α	
With ATEX, Type of pro "Intringia agfaty (FEY)				ь	
- "Intrinsic safety (EEx- "Explosion-proof (EE				B D	
	osion-proof enclosure and			R	
dust explosion prote	ection (EEx ia+ EEx d +				
• With FM + CSA, Type					
	xplosion Proof (is + xp)"3)				
(Available soon)				NC	
Electrical connection/	•				
• Inner thread M20 x 1.5				В	
• Female thread ½-14 N				C	
• M12 connectors (meta	ਗ਼) ⁻ ′			F	
DisplayWithout display					0
Without display Without visible display					1
(display concealed, se					
• with visible display, se	etting: mA				6
 with customer-specific (setting as specified, required) 	c display Order Code "Y21" or "Y22"				7

Available ex stock

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

Included in delivery of the device:

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

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

Pressure Measurement Transmitters for general requirements

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

Selection and Orderin	g data	0	rde	r No).
Pressure transmitter F	of for gauge and absolute				
pressure, front-flush of SITRANS P DS III with	. •	7	ME	41	3 4 -
	FOUNDATION Fieldbus F)				
(FF)	1 CONDATION 1 ICIADAS 1)	•		- '	
					-
Measuring cell filling	Measuring cell cleaning				
Silicone oil	normal	1			
Inert liquid	grease-free to cleanliness level 2	3			
FDA compliant fill fluid					
Neobee oil	normal	4			
Nominal measuring ra			_		
1 bar	(14.5 psi)		В		
4 bar	(58 psi)		С		
16 bar	(232 psi)		D		
63 bar 1300 mbar a ¹⁾	(914 psi)		E		
1300 mbar a.,	(18.85 psia) ¹⁾		N O		
5 bar a ¹⁾	(72.5 psia) ¹⁾		T		
30 bar a ¹⁾	(435 psia) ¹⁾		U		
Wetted parts materials		-			
Seal diaphragm	Connection shank				
Stainless steel	Stainless steel		Α		
Hastelloy ²⁾	Stainless steel		В		
• Flange version with O Q	rder Code M, N, R or			7	
Non-wetted parts mate	erials				
• Housing made of die-	cast aluminium			0	
 Housing stainless ste 	el precision casting			3	
Version					
 Standard versions 					1
documentation in 5 la					2
(no order code select	auiej	-			
Explosion protectionNone					A
With ATEX, Type of pr	otection:				A
- "Intrinsic safety (EE)					В
- "Explosion-proof (EE					D
					_
 "Intrinsic safety, expl 	osion-proof enclosure and				R
 "Intrinsic safety, expl dust explosion prote 	osion-proof enclosure and ection (EEx ia+ EEx d +				R
dust explosion prote Zone 1D/2D)" ⁴⁾	ection (EEx ia+ EEx d +				R
dust explosion prote Zone 1D/2D)" ⁴⁾ • With FM + CSA, Type	ection (EEx ia+ EEx d + of protection:				R
dust explosion prote Zone 1D/2D)" ⁴⁾ • With FM + CSA, Type	ection (EEx ia+ EEx d +				R N C
dust explosion prote Zone 1D/2D)" ⁴⁾ • With FM + CSA, Type - "Intrinsic Safe und E	ection (EEx ia+ EEx d + of protection: explosion Proof (is + xp)*3)				
dust explosion prote Zone 1D/2D)*4) • With FM + CSA, Type - "Intrinsic Safe und E (Available soon)	of protection: (xplosion Proof (is + xp)*3) cable entry	_			
dust explosion prote Zone 1D/2D)**4) • With FM + CSA, Type - "Intrinsic Safe und E (Available soon) Electrical connection/	ection (EEx ia+ EEx d + of protection: explosion Proof (is + xp)*3) cable entry 1.5	_			N C
dust explosion prote Zone 1D/2D)*4) • With FM + CSA, Type - "Intrinsic Safe und E (Available soon) Electrical connection/ • Screwed gland M20 x • Screwed gland ½-14 • Han 7D plug (plastic	cation (EEx ia+ EEx d + of protection: ixplosion Proof (is + xp)*3) cable entry x 1.5 NPT				N C B
dust explosion prote Zone 1D/2D)*4) • With FM + CSA, Type - "Intrinsic Safe und E (Available soon) Electrical connection/ • Screwed gland M20 x • Screwed gland ½-14	oction (EEx ia+ EEx d + of protection: explosion Proof (is + xp)*3) cable entry cable entry cable entry nousing) incl. mating				N C B C

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

Available ex stock

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 possible for flange with M.., N.. and Q.. option.
- 3) Without cable gland, with blanking plug
- 4) With enclosed cable gland EEx ia and blanking plug
- 5) Not in conjunction with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof".
- 6) M12 delivered without cable socket
- F) Subject to export regulations AL: 91999, ECCN: N.

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

man nont naon alapinagin				
Selection and Ordering data	Order	code		
Further designs Add "-Z" to Order No. and specify Order Code.		HART	PA	FF
Plug				
Angled	A32	✓		
 Han 8D (metal, gray) 	A33	✓		
Cable sockets for M12 connectors (metal)	A50	✓	✓	✓
Rating plate inscription (instead of German)				
• English	B11	✓	✓	✓
• French	B12	✓	√	√
Spanish Italian	B13 B14	✓	√	1
		1	v	,
English rating plate	B21	V	✓	•
Pressure units in inH ₂ 0 and/or psi	011	1	1	,
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2	C11	•	•	•
Inspection certificate	C12	1	1	1
Acc. to EN 10204-3.1	CIZ	•	•	Ť
Factory certificate	C14	1	1	1
Acc. to EN 10204-2.2	014	•	•	·
"Functional safety (SIL2)" certificate	C20	1		
to IEC 61508	0_0			
PROFIsafe certificate and protocol	C21		✓	
"Functional safety (SIL2/3)" certificate	C23	1		
to IEC 61508				
Device passport Russia	C99	✓	✓	✓
(For price request please contact the technical support				
www.siemens.com/automation/support-request.)				
Export approval Korea	E11	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia) to	E25	1	1	1
INMETRO (Brazil)				
(only for transmitter 7MF4B)				
Explosion-proof "Intrinsic safety" (Ex d) to	E26	✓	✓	✓
INMETRO (Brazil) (only for transmitter 7MF4D)				
· · ·	- 00	,	,	
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil)	E28	•	•	
(only for transmitter 7MF4P)				
Ex Approval IEC Ex (EEx ia)	E45	1	✓	✓
(only for transmitter 7MF4B)				
Ex Approval IEC Ex (EEx id)	E46	✓	✓	1
(only for transmitter 7MF4)				
Two coats of lacquer on casing and cover	G10	✓	✓	✓
(PU on epoxy)				
Flanges to EN 1092-1, Form b1				,
 DN 25, PN 40¹⁾ DN 25, PN 100¹⁾ 	M11 M21	1	√	1
• DN 40, PN 40	M13	1	*	1
• DN 40, PN 100	M23	1	1	1
• DN 50, PN 16	M04	✓	✓	✓
• DN 50, PN 40	M14	✓	✓	✓
• DN 80, PN 16	M06	1	1	1
• DN 80, PN 40	M16	✓	✓	✓
Flanges to ASME B16.5	N/ 40	,	,	,
 Stainless steel flange 1" class 150¹⁾ Stainless steel flange 1½" class 150 	M40 M41	1	√	1
• Stainless steel flange 2" class 150	M42	1	V	1
• Stainless steel flange 3" class 150	M43	1	1	✓
Stainless steel flange 4" class 150	M44	✓	✓	✓
• Stainless steel flange 1" class 300 ¹⁾	M45	V	V	1
• Stainless steel flange 11/2" class 300	M46	✓	1	✓
Stainless steel flange 2" class 300Stainless steel flange 3" class 300	M47 M48	✓	√	√
• Stainless steel flange 4" class 300	M49	1	1	1
3				

Further designs Add '-Z' to Order No. and specify Order Code. Threaded connector to DIN 3852-2, form A, thread to ISO 228	Selection and Ordering data	Order	code		
Threaded connector to DIN 3852-2, form A, thread to ISO 228	Further designs			PA	FF
G 34"-A, front-flush² R01					
• G ¾"-A, front-flush²) • G 1"-A, front-flush²) • G 1"-A, front-flush²) R02 • G 1"-A, front-flush²) R04 • C 2"-A, front-flush²) R04 • C 3"-A, front-flush²) R04 • C 4 ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓					
• G 2*-A, front-flush²? Tank connection³) Sealing is included in delivery • TG 52/50, PN 40 • TG 52/150, PN 40 Sanitary process connection according DIN 11851 (Dairy connection) • DN 50, PN 25 • DN 80, PN 25 • DN 80, PN 25 • DN 50/2*, PN 16 • DN 65/3*, PN 10 Varivent connection Certified to EHEDG • Type N = 68 for Varivent housing DN 40 125 und 1½* 6*, PN 40 Temperature decoupler up to 200 °C⁴) for version with front-flush diaphragm Temperature decoupler up to 250 °C Measuring cell filling: High-temperature oil, only in conjunction with measuring cell filling silicone oil Bio-Control sanitary process connection Certified to EHEDG • DN 50, PN 16 • DN 65, PN 16 • DN 65, PN 16 Sanitary process connection to DRD • DN 50, PN 40 SMS socket with union nut • 2** • 2½** • 3** M69 • ✓ ✓ SMS threaded socket • 2** • 2½** • 3** M73 • 7 ✓ SMS breaded socket ISO 2853 • 2** • 2** • 2** • 3** M92 • 7 ✓ Sanitary process connection to NEUMO Bio-Connect screw connection Certified to EHEDG • DN 50, PN 16 •	• G ¾"-A, front-flush ²⁾	R01		✓	✓
Sealing is included in delivery			✓	✓	1
Sealing is included in delivery To 52/50, PN 40		R04	✓	✓	✓
• TG 52/50, PN 40 • TG 52/150, PN 40 • TG 52/150, PN 40 Sanitary process connection according DIN 11851 (Dairy connection) • DN 50, PN 25 • DN 80, PN 25 • DN 80, PN 25 • DN 80, PN 16 • DN 65/3*, PN 10 Varivent connection Certified to EHEDG • Type N = 68 for Varivent housing DN 40 125 und 11½* 6*, PN 40 Temperature decoupler up to 200 °C4¹ for version with front-flush diaphragm Temperature decoupler up to 250 °C Measuring cell filling: High-temperature oil, only in conjunction with measuring cell filling silicone oil Bio-Control sanitary process connection Certified to EHEDG • DN 50, PN 16 • DN 50, PN 16 • DN 50, PN 16 Sanitary process connection to DRD • DN 50, PN 40 SMS socket with union nut • 2° • 2½* • 3° M67 SMS threaded socket • 2° • 2½* • 3° IDF socket with union nut ISO 2853 • 2° • 2½* • 3° IDF threaded socket ISO 2853 • 2° • 2½* • 3° Sanitary process connection to NEUMO Bio-Connect screw connection Certified to EHEDG • DN 50, PN 16 • DN 50, P					
■ TG 52/150, PN 40 Sanitary process connection according DIN 11851 (Dairy connection) □ DN 50, PN 25 □ DN 80, PN 25 □ DN 80, PN 25 □ DN 80, PN 25 □ DN 80/2*, PN 16 □ DN 65/3*, PN 10 Varivent connection Certified to EHEDG □ Temperature decoupler up to 200 °C4 for version with front-flush diaphragm Temperature decoupler up to 200 °C4 for version with front-flush diaphragm Temperature decoupler up to 250 °C Measuring cell filling: High-temperature oil, only in conjunction with measuring cell filling silicone oil Bio-Control sanitary process connection Certified to EHEDG □ DN 50, PN 16 □ DN 50, PN 16 □ DN 50, PN 40 SMS socket with union nut □ 2** □ 2½** □ 3** M67 SMS threaded socket □ 2** □ 2½** □ 3** M73 □ A**	,	R10	1	1	1
DIN 11851 (Dairy connection) DIN 50, PN 25			✓		✓
• DN 50, PN 25 • DN 80, PN 25 • DN 80, PN 25 Tri-Clamp connection according DIN 32676/ISO 2852 • DN 50/2", PN 16 • DN 65/3", PN 10 Varivent connection Certified to EHEDG • Type N = 88 for Varivent housing DN 40 125 und 1½" 6", PN 40 Temperature decoupler up to 200 °C4 for version with front-flush diaphragm Temperature decoupler up to 250 °C Measuring cell filling: High-temperature oil, only in conjunction with measuring cell filling silicone oil Bio-Control sanitary process connection Certified to EHEDG • DN 50, PN 16 • DN 50, PN 40 Sanitary process connection to DRD • DN 50, PN 40 SMS socket with union nut • 2" • 2½" • 3" SMS threaded socket • 2" • 2½" • 3" SMS threaded socket • 2" • 2½" • 3" IDF socket with union nut ISO 2853 • 2" • 2½" • 3" M82 ✓ ✓ ✓ M83 ✓ ✓ ✓ M84 ✓ ✓ ✓ M85 Sanitary process connection to NRD • DN 50, PN 16 • DN 50, PN 16 • DN 50, PN 16 DF socket with union nut ISO 2853 • 2" • 2½" • 3" SMS threaded socket ISO 2853 • 2" • 2½" • 3" Sanitary process connection to NEUMO Bio-Connect screw connection Certified to EHEDG • DN 50, PN 16 • DN 50, PN 16 • DN 50, PN 16 • DN 80, PN 16 • DN 2½", PN 16					
• DN 80, PN 25 Tri-Clamp connection according DIN 32676/S0 2852 • DN 50/2*, PN 16 • DN 65/3*, PN 10 Varivent connection Certified to EHEDG • Type N = 86 for Varivent housing DN 40 125 und 1½* 6*, PN 40 Temperature decoupler up to 200 °C⁴ for version with front-flush diaphragm Temperature decoupler up to 250 °C Measuring cell filling: High-temperature oil, only in conjunction with measuring cell filling silicone oil Bio-Control sanitary process connection Certified to EHEDG • DN 50, PN 16 • DN 50, PN 16 • DN 50, PN 40 Sanitary process connection to DRD • DN 50, PN 40 SMS socket with union nut • 2* • 2½** • 3** SMS threaded socket • 2* • 2½** • 3** IDF socket with union nut ISO 2853 • 2* • 2½** • 3** IDF socket with union nut ISO 2853 • 2* • 2½** • 3** IDF threaded socket ISO 2853 • 2* • 2½** • 3** Sanitary process connection to NEUMO Bio-Connect screw connection Certified to EHEDG • DN 50, PN 16 • DN 50	` •	NO4	1	/	1
DIN 32676/ISO 2852 • DN 50/2", PN 16 • DN 65/3", PN 10 Varivent connection Certified to EHEDG • Type N = 68 for Varivent housing DN 40 125 und 1½" 6", PN 40 Temperature decoupler up to 200 °C4) for version with front-flush diaphragm Temperature decoupler up to 250 °C Measuring cell filling: High-temperature oil, only in conjunction with measuring cell filling silicone oil Bio-Control sanitary process connection Certified to EHEDG • DN 50, PN 16 • DN 50, PN 16 • DN 50, PN 40 SMS socket with union nut • 2" • 2½" • 3" SMS threaded socket • 2" • 2½" • 3" SMS threaded socket • 2" • 2½" • 3" IDF socket with union nut ISO 2853 • 2" • 2½" • 3" IDF threaded socket ISO 2853 • 2" • 2½" • 3" Sanitary process connection to NEU • DN 50, PN 16 • DN 50, PN 16 • ON 80, PN 16 • DN 50, PN 16 • DN 100, PN 16 • DN 2½", PN 16 • DN 3", PN 16	•		1	1	1
• DN 50/2", PN 16 • DN 65/3", PN 10 Varivent connection Certified to EHEDG • Type N = 68 for Varivent housing DN 40 125 und 1½" 6", PN 40 Temperature decoupler up to 200 °C4) for version with front-flush diaphragm Temperature decoupler up to 250 °C Measuring cell filling: High-temperature oil, only in conjunction with measuring cell filling silicone oil Bio-Control sanitary process connection Certified to EHEDG • DN 50, PN 16 • DN 50, PN 16 • DN 50, PN 40 SMS socket with union nut • 2" • 2½" • 3" SMS threaded socket • 2" • 2½" • 3" IDF socket with union nut ISO 2853 • 2" • 2½" • 3" IDF socket with union nut ISO 2853 • 2" • 2½" • 3" IDF threaded socket ISO 2853 • 2" • 2½" • 3" IDF threaded socket ISO 2853 • 2" • 2½" • 3" Sanitary process connection to NeUMO Bio-Connect screw connection Certified to EHEDG • DN 50, PN 16 • DN 80, PN 16 • DN 100, PN 16 • DN 100, PN 16 • DN 100, PN 16 • DN 2", PN 16 • DN 3", PN 16	Tri-Clamp connection according				
• DN 65/3*, PN 10 Varivent connection Certified to EHEDG • Type N = 68 for Varivent housing DN 40 125 und 1½* 6*, PN 40 Temperature decoupler up to 200 °C4) for version with front-flush diaphragm Temperature decoupler up to 250 °C Measuring cell filling: High-temperature oil, only in conjunction with measuring cell filling silicone oil Bio-Control sanitary process connection Certified to EHEDG • DN 50, PN 16 Sanitary process connection to DRD • DN 50, PN 16 Sanitary process connection to DRD • DN 50, PN 40 SMS socket with union nut • 2" • 2½" • 3" SMS threaded socket • 2" • 2½" • 3" IDF socket with union nut ISO 2853 • 2" • 2½" • 3" IDF threaded socket ISO 2853 • 2" • 2½" • 3" IDF threaded socket ISO 2853 • 2" • 2½" • 3" Sanitary process connection to Neumon socket iso 2853 • 2" • 2½" • 3" Sanitary process connection to Neumon socket iso 2853 • 2" • 2½" • 3" Sanitary process connection to Neumon socket iso 2853 • 2" • 2½" • 3" Sanitary process connection to Neumon socket iso 2853 • 2" • 2½" • 3" Sanitary process connection to Neumon socket iso 2853 • 2" • 2½" • 3" Sanitary process connection to Neumon socket iso 2853 • 2" • 2½" • 3" Sanitary process connection to Neumon socket iso 2853 • 2" • 2½" • 3" Sanitary process connection to Neumon socket iso 2853 • 2" • 2½" • 3" Sanitary process connection to Neumon socket iso 2853 • 2" • 2½" • 3" Sanitary process connection to Neumon socket iso 2853 • 2" • 2½" • 3" Sanitary process connection to Neumon socket iso 2853 • 2" • 2½" • 3" Sanitary process connection to Neumon socket iso 2853 • 2" • 2½" • 3" Sanitary process connection to Neumon socket iso 2853 • 2" • 2½" • 3" Sanitary process connection to Neumon socket iso 2853 • 2" • 2½" • 3" Sanitary process connection to Neumon socket iso 2853 • 2" • 2½" • 3" Sanitary process connection to Neumon socket iso 2853 • 2" • 2½" • 3" Sanitary process connection to Neumon socket iso 2853 • 2" • 2½" • 3" • 3" • 3" • 3" •		NAA	,	,	,
Varivent connection Certified to EHEDG • Type N = 68 for Varivent housing DN 40 125 und 1½" 6", PN 40 N28 ✓ <td></td> <td></td> <td></td> <td>4</td> <td>V</td>				4	V
Certified to EHEDG • Type N = 68 for Varivent housing DN 40 125 und 1½" 6", PN 40 Temperature decoupler up to 200 °C ⁴⁾ for version with front-flush diaphragm Temperature decoupler up to 250 °C Measuring cell filling: High-temperature oil, only in conjunction with measuring cell filling silicone oil Bio-Control sanitary process connection Certified to EHEDG • DN 50, PN 16 • DN 50, PN 16 • DN 50, PN 10 • DN 50, PN 40 Sanitary process connection to DRD • DN 50, PN 10 • DN 50, PN 40 SMS socket with union nut • 2" • 2½" • 3" M68 * ✓ ✓ ✓ * ✓ * ✓ * M68 * ✓ ✓ ✓ * ✓ * DF socket with union nut ISO 2853 • 2" • 2½" • 3" IDF socket with union nut ISO 2853 • 2" • 2½" • 3" M82 • 2½" • 3" M84 • ✓ ✓ * Sanitary process connection to NEUMO Bio-Connect screw connection Certified to EHEDG • DN 65, PN 16 • DN 80, PN 16 • DN 92, PN 16 • DN 2", PN 16 • DN 3", PN 16				·	
Temperature decoupler up to 200 °C ⁴) for version with front-flush diaphragm					
Temperature decoupler up to 200 °C4 \ for version with front-flush diaphragm Temperature decoupler up to 250 °C Measuring cell filling: High-temperature oil, only in conjunction with measuring cell filling silicone oil Bio-Control sanitary process connection Certified to EHEDG • DN 50, PN 16 • DN 50, PN 16 • DN 50, PN 40 Sanitary process connection to DRD • DN 50, PN 40 SMS socket with union nut • 2"		N28	✓	✓	✓
Temperature decoupler up to 250 °C Measuring cell filling: High-temperature oil, only in conjunction with measuring cell filling silicone oil Bio-Control sanitary process connection Certified to EHEDG • DN 50, PN 16 • DN 65, PN 16 • DN 50, PN 40 Sanitary process connection to DRD • DN 50, PN 40 SMS socket with union nut • 2" • 2½" • 3" SMS threaded socket • 2" • 2½" • 3" SMS threaded socket • 2" • 2½" • 3" IDF socket with union nut ISO 2853 • 2" • 2½" • 3" M82 • 7 • 7 M82 • 7 M82 • 7 • 8 M83 • 7 • 7 IDF threaded socket ISO 2853 • 2" • 2½" • 3" M84 • 7 • 8 Sanitary process connection to NEUMO Bio-Connect screw connection Certified to EHEDG • DN 50, PN 16 • DN 50, PN 16 • DN 80, PN 16 • DN 100, PN 16 • DN 100, PN 16 • DN 100, PN 16 • DN 2", PN 16 • DN 3", PN 16		P00	1	1	1
Measuring cell filling: High-temperature oil, only in conjunction with measuring cell filling silicone oil	for version with front-flush diaphragm	. 00	Ť	•	·
Bio-Control sanitary process connection Certified to EHEDG		P10	✓	✓	✓
Bio-Control sanitary process connection Certified to EHEDG					
Certified to EHEDG • DN 50, PN 16 • DN 65, PN 16 Sanitary process connection to DRD • DN 50, PN 40 SMS socket with union nut • 2" • 2½" • 3" SMS threaded socket • 2" • 2½" • 3" M68 SMS threaded socket • 2" • 2½" • 3" SMS threaded socket • 2" • 2½" • 3" IDF socket with union nut ISO 2853 • 2" • 2½" • 3" IDF threaded socket ISO 2853 • 2" • 2½" • 3" Sanitary process connection to NEUMO Bio-Connect screw connection Certified to EHEDG • DN 50, PN 16 • DN 80, PN 16 • DN 80, PN 16 • DN 80, PN 16 • DN 2½", PN 16 • DN 3", PN 16					
• DN 50, PN 16 • DN 65, PN 16 • DN 65, PN 16 Sanitary process connection to DRD • DN 50, PN 40 SMS socket with union nut • 2" • 2½" • 3" SMS threaded socket • 2" • 2½" • 3" M69 SMS threaded socket • 2" • 2½" • 3" IDF socket with union nut ISO 2853 • 2" • 2½" • 3" IDF threaded socket ISO 2853 • 2" • 3" IDF threaded socket ISO 2853 • 2" • 1½" • 3" Sanitary process connection to NEUMO Bio-Connect screw connection Certified to EHEDG • DN 50, PN 16 • DN 80, PN 16 • DN 80, PN 16 • DN 2", PN 16 • DN 2½", PN 16					
• DN 65, PN 16 Sanitary process connection to DRD • DN 50, PN 40 SMS socket with union nut • 2" • 2½" • 3" SMS threaded socket • 2" • 2½" • 3" IDF socket with union nut ISO 2853 • 2" • 2½" • 3" M82 • 2½" • 3" M84 • 3" M85 • 2" • 2½" • 3" M84 • 3" SIDF threaded socket ISO 2853 • 2" • 2½" • 3" M84 • 3" Sanitary process connection to NEUMO Bio-Connect screw connection Certified to EHEDG • DN 50, PN 16 • DN 50, PN 16 • DN 80, PN 16 • DN 80, PN 16 • DN 2½", PN 16		Q53	1	1	1
• DN 50, PN 40 SMS socket with union nut • 2" • 2½" • 3" SMS threaded socket • 2" • 2½" • 3" M69 SMS threaded socket • 2" • 2½" • 3" M74 • 3" M75 ✓ ✓ ✓ ✓ IDF socket with union nut ISO 2853 • 2" • 2½" • 3" M82 • 2½" • 3" M83 ✓ ✓ ✓ ✓ ✓ IDF threaded socket ISO 2853 • 2" • 2½" • 3" M84 ✓ ✓ ✓ Saniary process connection to NEUMO Bio-Connect screw connection Certified to EHEDG • DN 50, PN 16 • DN 65, PN 16 • DN 80, PN 16 • DN 80, PN 16 • DN 2½", PN 16 • DN 3", PN 16	•		✓	✓	✓
SMS socket with union nut • 2" • 2½" • 3" M69 SMS threaded socket • 2" • 2½" • 3" M74 • 3" M75 * 4 * 5 * 1DF socket with union nut ISO 2853 • 2" • 2½" • 3" M82 • 2½" • 3" M83 • 4 • 5 * 1DF threaded socket ISO 2853 • 2" • 2½" • 3" M84 • 4 • 5 * 1DF threaded socket ISO 2853 • 2" • 2½" • 3" M84 • 4 • 5 * 5 * 6 * 1DF threaded socket ISO 2853 • 2" • 2½" • 3" M92 • 2½" • 3" M94 • 4 • 5 * 5 * 5 * 6 * 1DN 50, PN 16 • DN 50, PN 16 • DN 50, PN 16 • DN 65, PN 16 • DN 100, PN 16 • DN 2", PN 16 • DN 2½", PN 16 • DN 3", PN 16	Sanitary process connection to DRD				
• 2" • 2½" • 2½" • 3" SMS threaded socket • 2" • 2½" • 3" M73	,	M32	✓	✓	✓
• 2½°		Mez			./
SMS threaded socket				v	V
• 2" • 2½" • 3" IDF socket with union nut ISO 2853 • 2" • 2½" • 3" M82			1	1	1
• 2½" • 3" IDF socket with union nut ISO 2853 • 2" • 2½" • 3" M82	SMS threaded socket				
● 3" IDF socket with union nut ISO 2853 ● 2" ● 2½" ● 3" IDF threaded socket ISO 2853 ● 2" ● 2½" ● 3" M84	_			✓	✓.
IDF socket with union nut ISO 2853 2"				1	1
• 2" • 2½" • 3" IDF threaded socket ISO 2853 • 2" • 2½" • 3" M84 ✓ ✓ ✓ IDF threaded socket ISO 2853 • 2" • 2½" • 3" M92 ✓ ✓ ✓ M93 ✓ ✓ ✓ M94 ✓ ✓ ✓ Sanitary process connection to NEUMO Bio-Connect screw connection Certified to EHEDG • DN 50, PN 16 • DN 65, PN 16 • DN 80, PN 16 • DN 80, PN 16 • DN 100, PN 16 • DN 2", PN 16 • DN 2½", PN 16 • DN 3", PN 16		IVI 7 3		•	
• 2½" • 3" IDF threaded socket ISO 2853 • 2" • 2½" • 3" M92 ✓ ✓ ✓ • 2½" M93 ✓ ✓ ✓ • 3" Sanitary process connection to NEUMO Bio-Connect screw connection Certified to EHEDG • DN 50, PN 16 • DN 65, PN 16 • DN 80, PN 16 • DN 80, PN 16 • DN 100, PN 16 • DN 2", PN 16 • DN 2½", PN 16 • DN 2½", PN 16 • DN 2½", PN 16 • DN 3", PN 16		M82	1	✓	1
DF threaded socket ISO 2853	• 2½"	M83			✓
• 2" • 2½" • 3" Sanitary process connection to NEUMO Bio-Connect screw connection Certified to EHEDG • DN 50, PN 16 • DN 65, PN 16 • DN 80, PN 16 • DN 100, PN 16 • DN 2", PN 16 • DN 2½", PN 16 • DN 2½", PN 16 • DN 3", PN 16 • DN 3", PN 16		M84	✓	✓	✓
• 2½" • 3" Sanitary process connection to NEUMO Bio-Connect screw connection Certified to EHEDG • DN 50, PN 16 • DN 65, PN 16 • DN 80, PN 16 • DN 100, PN 16 • DN 2", PN 16 • DN 2½", PN 16 • DN 2½", PN 16 • DN 3", PN 16		1400	,		,
• 3" Sanitary process connection to NEUMO Bio-Connect screw connection Certified to EHEDG • DN 50, PN 16 • DN 65, PN 16 • DN 80, PN 16 • DN 100, PN 16 • DN 2", PN 16 • DN 2", PN 16 • DN 2½", PN 16 • DN 3", PN 16 • DN 3", PN 16					V
NEUMÖ Bio-Connect screw connection Certified to EHEDG • DN 50, PN 16 Q05 ✓ ✓ • DN 65, PN 16 Q06 ✓ ✓ • DN 80, PN 16 Q07 ✓ ✓ • DN 100, PN 16 Q08 ✓ ✓ • DN 2", PN 16 Q13 ✓ ✓ • DN 2½", PN 16 Q14 ✓ ✓ • DN 3", PN 16 Q15 ✓ ✓					1
Certified to EHEDG • DN 50, PN 16 • DN 65, PN 16 • DN 80, PN 16 • DN 100, PN 16 • DN 2", PN 16 • DN 2½", PN 16 • DN 3", PN 16 • DN 3", PN 16 • DN 3", PN 16					
 DN 50, PN 16 DN 65, PN 16 DN 80, PN 16 DN 100, PN 16 DN 2", PN 16 DN 2½", PN 16 DN 2½", PN 16 DN 3", PN 16 Q15 V <					
 DN 80, PN 16 DN 100, PN 16 DN 2", PN 16 DN 2½", PN 16 DN 2½", PN 16 DN 3", PN 16 Q15 Q15 					1
 DN 100, PN 16 DN 2", PN 16 DN 2½", PN 16 DN 2½", PN 16 DN 3", PN 16 Q15 ✓ 					1
• DN 2", PN 16 Q13 ✓ ✓ • DN 2½", PN 16 Q14 ✓ ✓ • DN 3", PN 16 Q15 ✓ ✓	•				
• DN 2½", PN 16 Q14 ✓ ✓ • DN 3", PN 16 Q15 ✓ ✓ • DN 4", PN 16 Q16 ✓ ✓			1	1	1
• DN 3", PN 16 • DN 4", PN 16 Q16 ✓ ✓ ✓	• DN 2½", PN 16		✓	✓	1
- DIN 4, I IN IO	,				1
	- DN 4 , I N 10	Q 10	•	•	•

Transmitters for general requirements

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

Selection and Ordering data	Order	code		
Further designs Add "-Z" to Order No. and specify Order Code.		HART	PA	FF
Sanitary process connection to NEUMO				
Bio-Connect flange connection				
Certified to EHEDG • DN 50, PN 16	Q23	1	1	1
• DN 65, PN 16	Q24	1	1	1
• DN 80, PN 16	Q25	✓	✓	✓
• DN 100, PN 16	Q26	✓.	✓	✓
• DN 2", PN 16	Q31	√	1	✓
DN 2½", PN 16DN 3", PN 16	Q32 Q33	✓	∀	V
• DN 4", PN 16	Q34	1	✓	1
Sanitary process connection to				
NEUMO Bio-Connect clamp connection Certified to EHEDG				
• DN 50, PN 16	Q39	✓	✓	✓
• DN 65, PN 10	Q40	✓	✓	✓
• DN 80, PN 10	Q41	√	V	1
• DN 100, PN 10	Q42	✓	1	1
DN 2½", PN 16DN 3", PN 10	Q48 Q49	✓	V	V
• DN 4", PN 10	Q50	1	✓	1
Sanitary process connection to				
NEUMO Bio-Connect S flange connection Certified to EHEDG				
• DN 50, PN 16	Q63	✓	✓	✓
• DN 65, PN 10	Q64	✓	✓	✓
• DN 80, PN 10	Q65	√	1	1
DN 100, PN 10DN 2", PN 16	Q66 Q72	1	✓	1
• DN 2½", PN 10	Q73	1	1	1
• DN 3", PN 10	Q74	1	1	1
• DN 4", PN 10	Q75	✓	✓	✓
Aseptic threaded socket to DIN 11864-1 Form A				
approved according to EHEDG				
• DN 50, PN 25	N33	✓	✓	✓
• DN 65, PN 25	N34	√	✓.	V
• DN 80, PN 25	N35 N36	1	1	1
• DN 100, PN 25 Aseptic flange with notch to DIN 11864-2	NOO	ľ	•	·
Form A				
approved according to EHEDG	N/AO	.,	1	./
DN 50, PN 16DN 65, PN 16	N43 N44	1	✓	✓
• DN 80, PN 16	N45	1	1	1
• DN 100, PN 16	N46	✓	✓	✓
Aseptic flange with groove to DIN 11864-2 Form A				
approved according to EHEDG				
• DN 50, PN 16	N43 +	1	✓	✓
• DN 65, PN 16	P11 N44 +	1	1	1
	P11		1	./
• DN 80, PN 16	N45 + P11		•	•
• DN 100, PN 16	N46 + P11	1	✓	✓

Selection and Ordering data	Order code			
Further designs Add "-Z" to Order No. and specify Order Code.		HART	PA	FF
Aseptic clamp with groove to DIN 11864-3 FormA				
approved according to EHEDG				
• DN 50, PN 25	N53	✓	✓	✓
• DN 65, PN 25	N54	✓	✓	✓
• DN 80, PN 16	N55	✓	✓	✓
• DN 100, PN 16	N56	✓	✓	✓
1) Special real in Vitan included in the sagns of delivery				

- 1) Special seal in Viton included in the scope of delivery.
- 2) Lower measuring limit -100 mbar (1.45 psi).
- 3) The weldable socket can be ordered under accessories.
- 4) The maximum permissible temperatures of the medium depend on the respective cell fillings.

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

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

B line: A22 + Y01 + Y21

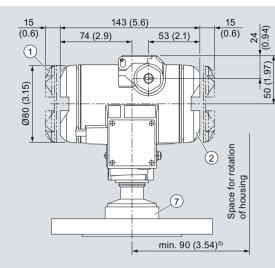
C line: Y01: 1 ... 10 bar (14.5 ... 145 psi)

C line: Y21: bar (psi)

Transmitters for general requirements

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

Dimensional drawings



2 = approx. 130 (5.12) 95 (2.17)

- Electronic side, digital display
 (longer overall length for cover with window)¹)
- 2 Terminal side¹⁾
- 3 Electrical connection: Screwed gland M20 x 1,5 or screwed gland ½-14 NPT or M12 conector
- 4 Protective cover over keys
- Blanking plug
- 6 Screw cover safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)
- 7 Process connection: see flange tables
- 1) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
- 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 H₁ and H₂.

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

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

Only the height H₂ is indicated in the dimensions of the flanges.

Flanges as per EN and ASME

Flange to EN

EN 1092-1

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

Flanges to ASME

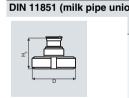
ASME B16.5



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

F&B and pharmaceutical flanges

Connections to DIN



110	lion)							
	DN	PN	ØD	H ₂				
	50	25	92 mm (3.6")	Approx.				
	80	25	127 mm (5.0")	52 mm (2")				

TriClamp to DIN 32676



DN	PN	ØD	H ₂
50	16	64 mm (2.5")	Approx.
65	16	91 mm (3.6")	52 mm (2")

Transmitters for general requirements

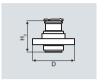
SITRANS P DS III for gauge/absolute pressure, with front-flush diaphragm

Other connections

Varivent connection

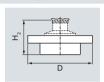
D	N	PN	ØD	H ₂
) 25	40	84 mm (3.3")	Approx. 52 mm (2")

Biocontrol connection



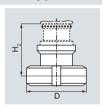
DN	PN	ØD	H ₂
50	16	90 mm (3.5")	Approx.
65	16	120 mm (4.7")	52 mm (2")

Sanitary process connection to DRD



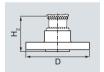
DN	PN	ØD	H ₂
50	40	105 mm (4.1")	Approx. 52 mm (2")

Sanitary process screw connection to NEUMO Bio-Connect



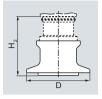
DN	PN	∅D	H ₂
50	16	82 mm (3.2")	Approx.
65	16	105 mm (4.1")	52 mm (2")
80	16	115 mm (4.5")	
100	16	145 mm (5.7")	
2"	16	82 mm (3.2")	
21/2"	16	105 mm (4.1")	
3"	16	105 mm (4.1")	
4"	16	145 mm (5.7")	

Sanitary process connection to NEUMO Bio-Connect flange



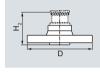
DN	PN	ØD	H ₂
50	16	110 mm (4.3")	Approx.
65	16	140 mm (5.5")	52 mm (2")
80	16	150 mm (5.9")	
100	16	175 mm (6.9")	
2"	16	100 mm (3.9")	
21/2"	16	110 mm (4.3")	
3"	16	140 mm (5.5")	
4"	16	175 mm (6.9")	

Sanitary process connection to NEUMO Bio-Connect clamp connection



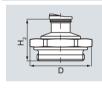
D	N	PN	ØD	H ₂
5	0	16	77.4 mm (3.0")	Approx.
6	5	10	90.9 mm (3.6")	52 mm (2")
8	0	10	106 mm (4.2")	
1	00	10	119 mm (4.7")	
2	"	16	64 mm (2.5")	
2	1/2"	16	77.4 mm (3.0")	
3	"	10	90.9 mm (3.6")	
4	"	10	779 mm (4.7")	

Sanitary process connection to NEUMO Bio-Connect S flange connection



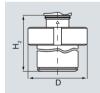
DN	PN	ØD	H ₂
50	16	125 mm (4.9")	Approx.
65	10	145 mm (5.7")	52 mm (2")
80	10	155 mm (6.1")	
100	10	180 mm (7.1")	
2"	16	125 mm (4.9")	
21/2"	10	135 mm (5.3")	
3"	10	145 mm (5.7")	
4"	10	180 mm (7.1")	

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



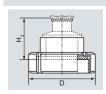
DN	PN	∅D	H ₂
3/4"	63	37 mm (1.5")	Approx. 45 mm (1.8")
1"	63	48 mm (1.9")	approx. 47 mm (1.9")
2"	63	78 mm (3.1")	Approx. 52 mm (2")

Tank connection TG 52/50 and TG52/150



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

SMS socket with union nut



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

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

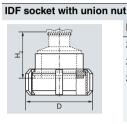
SMS threaded socket

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

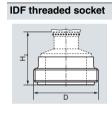
Aseptic clamp with groove to DIN 11864-3 Form A					
- 200100	DN	PN	ØD		
	50	25	77,5		
ı İ	65	25	91		
	80	16	106		
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	100	16	130		

 H_2

Approx. 52 mm (2.1")



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



DN	PN	ØD	H ₂
2"	25	64 mm (2.5")	Approx.
2½"	25	77.5 mm (3.1")	52 mm (2.1")
3"	25	91 mm (3.6")	,

Aseptic threaded socket to DIN 11864-1 Form A

to DIN	11864-1	Form A	
DN	PN	∅D	H ₂
50	25	94	Approx.
65	25	113	52 mm (2.1")
80	25	133	` '
100	25	159	

Aseptic flange with notch to DIN 11864-2 Form A

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

Aseptic flange with groove to DIN 11864-2 Form A

PN	∅D	H ₂
16	94	Approx.
16	113	52 mm (2.1")
16	133	,
16	159	
	16 16 16	16 94 16 113 16 133

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

Technical specifications

	HART	sure series)	DROFIRIUS DA and E	OUNDATION Fieldbus
lamit	HARI		FAULIDOS PA and F	OUNDATION FIEIDDUS
Input		A In		
Measured variable		1	e pressure	1
Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure	Span (min max.)	Max. perm. test pressure	Nominal measuring range	Max. perm. test pres- sure
	8.3 250 mbar a (0.12 3.62 psia)	6 bar a (87 psia)	250 mbar a (3.6 psia)	6 bar a (87 psia)
	43 1300 mbar a (0.62 18.85 psi a)	10 bar a (145 psia)	1300 mbar a (18.9 psi a)	10 bar a (145 psia)
	160 5000 mbar a (2.32 72.5 psia)	30 bar a (435 psia)	5 bar a (72.5 psia)	30 bar a (435 psia)
	1 30 bar a (14.5 435 psia)	100 bar a (1450 psia)	30 bar a (435 psia)	100 bar a (1450 psia)
Lower measuring limit		•		"
 Measuring cell with silicone oil filling 		0 mbar	a (0 psia)	
Upper measuring limit		100 % of	max. span	
Output				
Output signal	4 20 mA		Digital PROFIBUS PA FOUNDATION Fieldb	
 Lower limit (infinitely adjustable) 	3.55 mA, factory prese	t to 3.84 mA	-	
Upper limit (infinitely adjustable)	23 mA, factory preset to 20.5 mA or optionally set to 22.0 mA			
Load				
Without HART	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}$: Power supply in V	23 A in Ω,	-	
• With HART	$R_{\rm B} = 230 \dots 500 \Omega$ (SII) $R_{\rm B} = 230 \dots 1100 \Omega$ (H		-	
Physical bus	-		IEC 61158-2	
Protection against polarity reversal	Protected against short	t-circuit and polarity reve supply	ersal. Each connection a voltage.	gainst the other with ma
Measuring accuracy		Acc. to II	EC 60770-1	
Reference conditions (All error data refer always refer to the set span)	Increasing characteris	tic, start-of-scale value 0 ling, room temperature : (r = max. sp		
Error in measurement at limit setting incl. hysteresis and reproducibility				
Linear characteristic			≤ 0.1 %	
- r ≤ 10	≤ 0.1 %			
- 10 < r ≤ 30	≤ 0.2 %			
Long-term stability (temperature change ± 30 °C (± 54 °F))	≤ (0.1 · r) %/year		≤ 0.1 %/year	
Influence of ambient temperature				
• at -10 +60 °C (14 140 °F)	$\leq (0.1 \cdot r + 0.2) \%^{1)}$		≤ 0.3 %	
• at -4010 °C and 60 85 °C (-40 +14 °F and 140 185 °F)	\leq (0.1 · r + 0.15) %/10	K	≤ 0.25 %/10 K	
Measured Value Resolution			3 · 10 ⁻⁵ of nominal me	acuring range

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

SITRANS P DS III series for absolute pressure	SITRANS P DS III series for absolute pressure (from the gauge pressure series)				
	HART	PROFIBUS PA and FOUNDATION Fieldbus			
Rated conditions					
Degree of protection (to IEC 60529)	IP65, op	otional IP68			
Temperature of medium					
Measuring cell with silicone oil filling	-40 +100 °C (-40 +212 °F)				
 Measuring cell with inert filling liquid 	-20 +100 °C	C (-4 +212 °F)			
• In conjunction with dust explosion protection	-20 +60 °C	C (-4 +140 °F)			
Ambient conditions					
Ambient temperature					
- Display readable	-30 +85 °C	(-22 +185 °F)			
Storage temperature	-50 +85 °C	(-58 +185 °F)			
Climatic class					
- Condensation		idity 0 100 % suitable for use in the tropics			
Electromagnetic Compatibility					
- Emitted interference and interference immunity	Acc. to EN 61326 and NAMUR NE 21				
Design					
Weight (without options)	≈ 1.5 kg (≈ 3.3 lb)				
Enclosure material	Low-copper die-cast aluminum, GD-AlSi 12 or stainless steel precision casting, mat. no. 1.4408				
Wetted parts materials					
Connection shank	Stainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4610				
Oval flange	Stainless steel, m	nat. no. 1.4404/316L			
Seal diaphragm	Stainless steel, mat. no. 1.4404/310	6L or Hastelloy C276, mat. no. 2.4819			
Measuring cell filling		ne with oxygen measurement pressure 120 bar a) at 60 °C (140 °F))			
Process connection		female thread $\frac{1}{2}$ -14 NPT or oval flange mounting thread M10 or $\frac{7}{16}$ -20 UNF to IEC 61518			
Material of mounting bracket					
• Steel	Sheet-steel, Mat. No.	1.0330, chrome-plated			
• Stainless steel	Sheet stainless steel,	mat. no. 1.4301 (SS 304)			
Power supply $U_{\mathbb{H}}$		Supplied through bus			
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	-			
Separate 24 V power supply necessary	-	No			
Bus voltage					
• Not Ex	-	9 32 V			
With intrinsically-safe operation	-	9 24 V			
Current consumption					
Basic current (max.)	-	12.5 mA			
• Start-up current ≤ basic current	-	Yes			
Max. current in event of fault	-	15.5 mA			
Fault disconnection electronics (FDE) available	-	Yes			

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

SITRANS P DS III series for absolute pressure (from the gauge pressure series)				
	HART	PROFIBUS PA and FOUNDATION Fieldbus		
Certificates and approvals				
Classification according to PED 97/23/EC		group 1; complies with requirements of article 3, d engineering practice)		
Explosion protection				
• Intrinsic safety "i"	PTB 99	ATEX 2122		
- Marking	Ex II 1/2 G E	Ex ia/ib IIB/IIC T6		
- Permissible ambient temperature	-40 +70 °C (-40 +15	35 °F) temperature class T4; 58 °F) temperature class T5; 40 °F) temperature class T6		
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}=30$ V, $I_{\rm i}=100$ mA, $P_{\rm i}=750$ mW; $P_{\rm i}=300$ Ω	FISCO supply unit: U_0 = 17.5 V, I_0 = 380 mA, P_0 = 5.32 W Linear barrier: U_0 = 24 V, I_0 = 250 mA, P_0 = 1.2 W		
- Effective internal inductance/capacitance	$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$L_i = 7 \mu H, C_i = 1.1 nF$		
• Explosion-proof "d"	PTB 99	ATEX 1160		
- Marking	Ex II 1/2 G I	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: $U_H = 10.5 \dots 45 \text{ V DC}$ To circuits with values: $U_H = 9 \dots 32 \text{ V DC}$			
• Dust explosion protection for zone 20	PTB 01 ATEX 2055			
- Marking		P65 T 120 °C IP65 T 120 °C		
- Permissible ambient temperature	-40 +85 °C	(-40 +185 °F)		
- Max. surface temperature	120 °C	C (248 °F)		
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}=30$ V, $I_{\rm i}=100$ mA, $P_{\rm i}=750$ mW, $P_{\rm i}=300$ Ω	FISCO supply unit: U_0 = 17.5 V, I_0 = 380 mA, P_0 = 5.32 W Linear barrier: U_0 = 24 V, I_0 = 250 mA, P_0 = 1.2 W		
- Effective internal inductance/capacitance	$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$L_i = 7 \mu H, C_i = 1.1 nF$		
• Dust explosion protection for zone 21/22	PTB 01	ATEX 2055		
- Marking	Ex II 2 D I	P65 T 120 °C		
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC; $P_{\rm max}$ = 1.2 W	To circuits with values: $U_{\rm H}$ = 9 32 V DC; $P_{\rm max}$ = 1.2 W		
• Type of protection "n" (zone 2)	TÜV 01 ATEX 1696 X	Planned		
- Marking	Ex II 3 G EEx nA L IIC T4/T5/T6	-		
• Explosion protection acc. to FM	Certificate of Co	ompliance 3008490		
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV 1, CL I, DIV 2, GP ABCD T4	GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4T6; T6; CL II, DIV 2, GP FG; CL III		
• Explosion protection to CSA	Certificate of Co	ompliance 1153651		
- Identification (XP/DIP) or (IS)		EFG; CL III; Ex ia IIC T4T6; CL I, DIV 2, GP ABCD DIV 2, GP FG; CL III		
	.,, -	,		

¹⁾ Conversion of temperature error per 28 °C. Valid for temperature range -3 ... +53 °C < (0.08. r + 0.16) % / 28 °C (50 °F).

Transmitters for general requirements

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

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

FOUNDATION Fieldbus communication

Function blocks

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

3 function blocks analog input, 1 function block PID

Yes, linearly rising or falling characteristic

0 ... 100 s

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

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

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

Yes

Standard FOUNDATION Fieldbus function block

1 resource block

1 transducer block Pressure with calibration, 1 transducer block LCD

Yes

Yes

Constant value or over parameterizable ramp function

Transmitters for general requirements

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

Selection and Orderin		Orde			
Pressure transmitters f	or absolute pressure aus F)	7 M F	4 2 3	3 3	•
series pressure, SITRA	NS P DS III with HART			-	
Measuring cell filling	Measuring cell cleaning				
Silicone oil	normal	1			
nert liquid ¹⁾	grease-free to	3			
	cleanliness level 2				
Measuring span (min. 3.3 250 mbar a		_			
3.3 250 mbar a 13 1300 mbar a	(0.12 3.62 psia) (0.62 18.85 psia)	D F			
).16 5 bar a	(2.32 72.5 psia)	Ġ			
1 30 bar a	(14.5 435 psia)	Н			
Wetted parts materials	,				
Seal diaphragm	Process connection				
Stainless steel	Stainless steel	А			
Hastelloy	Stainless steel	В			
Hastelloy	Hastelloy	С			
Version for diaphragm s	seal ²⁾³⁾⁴⁾	Υ			
Process connection					
Connection shank G1/2			0		
Female thread ½-14 N			1		
 Stainless steel oval flagger 					
	3-20 UNF to EN 61518		2		
Mounting thread M1Mounting thread M1			3		
 Male thread M20 x 1.5 			5		
 Male thread ½ -14 NP 			6		
			•		
Non-wetted parts mate Housing made of die- 			0		
 Housing made of die- Housing stainless stee 			3		
Version	or production eaching				
 Standard versions 				1	
	English label inscriptions,			2	
documentation in 5 la	nguages on CD				
(no order code select	able)				
Explosion protection					
NoneWith ATEX, Type of pre	otection:			,	Α .
- "Intrinsic safety (EEx					3
- "Explosion-proof (EE					5
- "Intrinsic safety and					P
(EEx ia + EEx d)"7)	·				
 "Ex nA/nL (Zone 2)" 				ı	E
	osion-proof enclosure and				3
dust explosion prote	ection (EEx ia+ EEx d +				
• With FM + CSA, Type					
- will Five + CSA, Type - "Intrinsic Safe and F	xplosion Proof (is + xp)" ⁶⁾				٧С
Electrical connection/					
 Screwed gland Pg 13 					Α
 Screwed gland M20x³ 					В
Screwed gland ½-14					C
 Han 7D plug (plastic l 					D
connector ⁸⁾	-				
 M12 connectors (meta) 	0)				F

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

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

Included in delivery of the device:

Brief instructions (Leporello)

Available ex stock

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

Transmitters for general requirements

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

Colootion and Ouds	a data	Orde)r N	ماد		
Selection and Ordering data				٧U.		
For absolute pressure (from the gauge pressure series)						
ŕ	PROFIBUS PA (PA) F)	7 M F	. 1	2 2	4 -	
	FOUNDATION Fieldbus F)					
(FF)	FOUNDATION FIEldbus 1)	/ IVI F	4	23	J -	
Measuring cell filling	Measuring cell		Н			
	cleaning					
Silicone oil	normal	1				
Inert liquid ¹⁾	grease-free to cleanliness level 2	3				
Naminal massuring re						
Nominal measuring ra 250 mbar a	(3.62 psia)	D				
1300 mbar a	(18.85 psia)	F				
5 bar a	(72.5 psia)	G				
30 bar a	(435 psia)	Н				
Wetted parts materials	3					
Seal diaphragm	Process connection					
Stainless steel	Stainless steel	1	١			
Hastelloy	Stainless steel	E	3			
Hastelloy	Hastelloy	(1 1			
Version as diaphragm s	eal ^{2) 3) 4)}	١	_			
Process connection						
Connection shank G½			0			
 Female thread ½-14 N Stainless steel oval fla 	** *		1			
			2			
- Mounting thread ⁷ / ₁₆ -20 UNF to IEC 61518 - Mounting thread M10 to DIN 19213			3			
- Mounting thread M12 to DIN 19213			4			
 Male thread M20 x 1.5 			5			
• Male thread ½ -14 NP	T		6			
Non-wetted parts mate						
Housing made of die-				0		
Housing stainless stee	ei precision casting	_		3		
Version						
Standard versions International version	English label inscriptions,				1 2	
documentation in 5 la	nguages on CD				_	
(no order code select	able)					
Explosion protection						
• None					Α	
With ATEX, Type of pre "Intringia agfaty (FF)						
- "Intrinsic safety (EEx- "Explosion-proof (EE					D	
- "Intrinsic safety and	flameproof enclosure"				P	
(EEx ia + EEx d) ⁶⁾	flameproof enclosure"					
- "Ex nA/nL"					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	of protection:					
- "Intrinsic Safe und E	xplosion Proof (is + xp)"5)				N	С
Electrical connection/	cable entry					
• Screwed gland M20 x						В
• Screwed gland ½-14						C
M12 connectors (meta-	ਗ <i>) '</i>					F

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

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

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

Transmitters for general requirements

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

Selection and Ordering data	Order	code		
Further designs		HART	FF	
Add "-Z" to Order No. and specify Order Code.				
Pressure transmitter with mounting bra-				
cket (2 shackles, 4 nuts, 4 U-plates, 1 angle) made of:				
• Steel	A01	✓	✓	✓
Stainless steel	A02	✓	✓	✓
Plug	400			
Han 7D (metal, gray)Han 8U (instead of Han 7D)	A30 A31	1		
• Angled	A32	1		
Han 8D (metal, gray)	A33	✓		
Cable sockets for M12 connectors (metal)	A50	✓	✓	✓
Rating plate inscription (instead of German)	D 44			,
English French	B11 B12	1	√	✓
• Spanish	B13	1	1	1
• Italian	B14	✓	✓	✓
English rating plate	B21	✓	✓	✓
Pressure units in inH ₂ 0 and/or psi	011			
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2 ¹⁾	C11	~	✓	✓
Inspection certificate ²⁾	C12	✓	✓	✓
Acc. to EN 10204-3.1	014		./	./
Factory certificate Acc. to EN 10204-2.2	C14	•	•	•
"Functional safety (SIL2)" certificate to IEC 61508	C20	✓		
PROFIsafe certificate and protocol	C21		✓	
"Functional safety (SIL2/3)" certificate to IEC 61508	C23	✓		
Device passport Russia (For price request please contact the technical support	C99	✓	✓	✓
www.siemens.com/automation/support-request)				
Setting of upper limit of output signal to 22.0 mA	D05	✓		
Manufacturer's declaration acc. to NACE	D07	1	✓	✓
Degree of protection IP68 (only for M20 x 1.5 and ½-14 NPT)	D12	✓	✓	✓
Supplied with oval flange	D37	✓	✓	✓
(1 item), PTFE packing and screws in thread of oval flange				
Use in or on zone 1D/2D	E01	✓	✓	✓
(only together with type of protection "Intrinsic safety (EEx ia)")				
Oxygen application	E10	1	1	1
(In the case of oxygen measurement and inert liquid max. 120 bar a (1740 psia) at 60°C				
(140 °F))				
Export approval Korea	E11	1	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil)	E25	✓	✓	✓
(only for transmitter 7MF4B)	F 00		,	,
Explosion-proof "Intrinsic safety" (Ex d) to INMETRO (Brazil) (only for transmitter 7MF4D)	⊏ ∠6	•	•	•
(o, .oa.io.i.io. / ivii ¬D/	E28	1	1	
•				
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4P)				
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil)	E45	1	✓	1
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4P)	E45	✓	✓	✓

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order Code.				
Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B)	E55	✓	1	1
Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D)	E56	✓	✓	✓
Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4E)	E57	✓	✓	1
Two coats of lacquer on casing and cover (PU on epoxy)	G10	✓	✓	✓
Additional data				
Please add "-Z" to Order No. and specify Order code(s) and plain text.				
Measuring range to be set Specify in plain text (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi	Y01	✓		
Stainless steel tag plate (measuring point description) Max. 16 characters, specify in plain text: Y15:	Y15	✓	✓	✓
Measuring point text Max. 27 characters, specify in plain text: Y16:	Y16	✓	✓	✓
Entry of HART address (TAG) Max. 8 characters, specify in plain text: Y17:	Y17	✓		
Setting of pressure indication in pressure units	Y21	✓	✓	✓
Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi,				
Note: The following pressure units can be selected: bar, mbar, mm H_2O^*), inH_2O^*), ftH_2O^*), $mmHG$, $inHG$, psi , Pa , kPa , MPa , g/cm^2 , kg/cm^2 , $Torr$, ATM or $\%$				
Setting of pressure indication in non-pressure units ³⁾ Specify in plain text: Y22: up to I/min, m ³ /h, m, USgpm, (specification of measuring range in pressure units "Y01" is essential, unit with max. 5 characters)	Y22 + Y01	1		
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	Y25		✓	

Factory mounting of valve manifolds, see accessories.

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

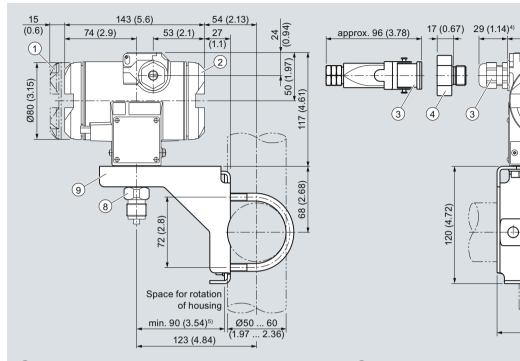
✓ = available

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

Transmitters for general requirements

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

Dimensional drawings



- 1 Electronic side, digital display (longer overall length for cover with window)1)
- 2 Terminal side¹⁾
- 3 Electrical connection: Screwed gland Pg 13,5 (adapter)(Adapter)²⁾³⁾, Screwed gland M20 x 1,5 or Screwed gland $\frac{1}{2}$ -14 NPT or Han 7D/Han 8D2)3)plug
- 4 Harting adapter
- 1) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
- Not with type of protection "Explosion-proof enclosure" Not with type of protection "FM + CSA" [IS + XP]"
- For Pg 13,5 with adapter approx. 45 mm (1.77 inch)
- 5) Minimum distance for rotating

- 5 Protective cover over keys
- 6 Blanking plug
- Screw cover safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)
- Process connection: Connection shank G½A or Oval flange

84 (3.31)

(6)

 \oplus

105 (4.13)

176 (6.93)

237 (9.33)

Mounting bracket (option)

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

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

Technical specifications

	the differential pressu	ile selles)					
	HART		PROFIBUS PA and F	OUNDATION Fieldbus			
Input							
Measured variable		Absolute	pressure				
Spans (infinitely adjustable) or nominal measuring range and max. permissible operating pressure	Span (min max.)	Maximum operating pressure	Nominal measuring range	Maximum operating pressure			
	8.3 250 mbar a (0.12 3.62 psia)	32 bar a (464 psia)	250 mbar a (3.62 psia)	32 bar a (464 psia)			
	43 1300 mbar a (0.62 18.85 psia)	32 bar a (464 psia)	1300 bar a (18.85 psia)	32 bar a (464 psia)			
	160 5000 mbar a (2.32 72.52 psia)	32 bar a (464 psia)	5 bar a (72.5 psia)	32 bar a (464 psia)			
	1 30 bar a (14.5 435 psia)	160 bar a (2320 psia)	30 bar a (435 psia)	160 bar a (2320 psia)			
	5.3 100 bar a (76.9 1450 psia)	160 bar a (2320 psia) (for connection thread M10 and 7/16-20 UNF in the process flanges)	100 bar a (1450 psia)	160 bar a (2320 psia) (for connection thread M10 and 7/16-20 UNF in the process flanges			
Lower measuring limit		1					
Measuring cell with silicone oil filling		0 mbar a	a (0 psia)				
Upper measuring limit		100 % of	max. span				
Output			·				
Output signal	4 20 mA		Digital PROFIBUS PA FOUNDATION Fieldbo				
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	to 20.5 mA or optionally	-				
Load							
Without HART	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}$: Power supply in V	23 A in Ω,	-				
• With HART	$R_{\rm B} = 230 \dots 500 \Omega$ (SII $R_{\rm B} = 230 \dots 1100 \Omega$ (H		-				
Physical bus	-		IEC 61158-2				
Protection against polarity reversal	Protected against shor	t-circuit and polarity rever supply	rsal. Each connection a voltage.	gainst the other with max			
Measuring accuracy		Acc. to IE	C 60770-1				
Reference conditions (All error data refer always refer to the set span)		tic, start-of-scale value 0 l emperature 25 °C (77 °F))					
Error in measurement at limit setting incl. hysteresis and reproducibility							
Linear characteristic			≤ 0.1 %				
- r ≤ 10	≤ 0.1 %						
- 10 < r ≤ 30	≤ 0.2 %						
Long-term stability (temperature change ± 30 °C (± 54 °F))	≤ (0.1 · r) %/year		≤ 0.1 %/year				
Influence of ambient temperature							
• at -10 +60 °C (14 140 °F)	$\leq (0.1 \cdot r + 0.2) \%^{1)}$		≤ 0.3 %				
• at -4010 °C and 60 85 °C (-40 +14 °F and 140 185 °F)	\leq (0.1 · r + 0.15) %/10	K	≤ 0.25 %/10 K				
Measured Value Resolution	-		3 · 10 ⁻⁵ of nominal me	asuring range			

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

Degrae of protection (to IEC 60529) Tamperature of medium Measuring cell with isilicone oil filling Measuring cell with inert filling liquid Note in confidence on with dust explosion protection arbitent conditions Arribient conditions Climatic class - Condensation Condensation Condensation permissible, suitable for use in the tropics Electromagnetic Compatibility - Emitted interference and interference immunity Acc. to EN 61326 and NAMUR NE 21 Design Weight (without options) Enclosure material Low-copper die-cast aluminum, GD-AlSi12 or stainless steel precision casting, mat. no. 1.4408 Wetted parts materials - Seal diaphragm Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819, Monel, mat. no. 2.4360, Iarnalaum or gold Process flanges and sealing screw - O-Ring FPM (Vitron) or optionally: PTFE, FEP, FEPM and NER Material of mounting bracket - Stainless steel, mat. no. 1.4408, Hastelloy C4, mat. no. 2.4610 or Monel, mat. no. 2.4360, Irribing cell filling FPM (Vitron) or optionally: PTFE, FEP, FEPM and NER Material of mounting bracket - Stainless steel Sheet-steel, Mat. No. 1.0330, chrome-plated - Stainless steel Sheet-steel, Mat. No. 1.0300, chrome-plated - Stainless steel Sheet stainless steel No Bus voltage - No Experimentation - Salve Vower supply V ₁	SITRANS P, DS III for absolute pressure (from	the differential pressure series)	
Degree of protection (to IEC 60529) IP65, optional IP68		HART	PROFIBUS PA and FOUNDATION Fieldbus
Temperature of medium • Measuring cell with silicone oil filling • Measuring cell with silicone oil filling licjuid -40 +100 °C (-4 +212 °F) • In conjunction with dust explosion protection -20 +600 °C (-4 +212 °F) Ambient temperature -20 +600 °C (-4 +140 °F) • Ambient temperature -50 +85 °C (-22 +185 °F) • Storage temperature -50 +85 °C (-22 +185 °F) • Climatic class -60 +85 °C (-58 +185 °F) • Climatic class Relative humidity 0 100 % • Condensation Condensation permissible, suitable for use in the tropics • Electromagnetic Compatibility -1 +150 °C (-29 +185 °F) • Electromagnetic Compatibility -2 +160 °C (-4 +212 °F) • Electromagnetic Compatibility -2 +160 °C (-4 +212 °F) • Electromagnetic Compatibility -2 +160 °C (-58 +185 °F) • Electromagnetic Compatibility -2 +160 °C (-59 +185 °F) • Electromagnetic Compatibility -2 +160 °C (-4 +212 °F) • Electromagnetic Compatibility -2 +160 °C (-4 +212 °F) • Electromagnetic Compatibility -2 +160 °C (-4 +212 °F) • Electromagnetic Compatibility -2 +160 °C (-4	Rated conditions		
• Measuring cell with silicone oil filling	Degree of protection (to IEC 60529)	IP65, op	tional IP68
• Measuring cell with inert filling liquid • In conjunction with dust explosion protection Ambient conditions • Annibent temperature • Display readable • Storage temperature • Climatic class • Condensation • Condensation • Electromagnetic Compatibility • Ernitted interference and interference immunity • Ernitted interference and interference immunity • Condensation • Condensation • Electromagnetic Compatibility • Ernitted interference and interference immunity • Ernitted interference and interference immunity • Condensation permissible, suitable for use in the tropics • Electromagnetic Compatibility • Ernitted interference and interference immunity • Explosive material • Low-copper die-cast aluminum, GD-AlSi12c and NAMUR NE 21 • Low-copper die-cast aluminum, GD-AlSi12c and stanless steel precision casting, mat. no. 1.4408 • Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819, Monel, mat. no. 2.4360, tanlatum or gold • Process flanges and sealing screw • Process flanges and sealing screw • Process flanges and sealing screw • Stainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4819, Monel, mat. no. 2.4360, tanlatum or gold • Process connection • Stainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4810 or Monel, mat. no. 2.4360 • FPM (Vitton) or optionally: PTFE, EFE, EPE mad NBR Material of mounting bracket • Steel • Stainless steel, mat. no. 1.4408, its indication or with mounting thread M10 to DIN 19213 or 7/16/20 UNF • Stainless steel • Steel stainless steel, mat. no. 1.4301 (SS 304) • Process connection • Va-18 NPT and flange connection with mounting thread M10 to DIN 19213 or 7/16/20 UNF • Stainless steel • Stainless steel, mat. no. 1.4301 (SS 304) • Process connection • Stainless steel mounting thread M10 to DIN 19213 or 7/16/20 UNF • Stainless steel • Stainless steel mounting thread M10 to DIN 19213 or 7/16/20 UNF • Stainles	Temperature of medium		
• In conjunction with dust explosion protection Ambient conditions Ambient temperature - Display readable - Storage temperature - Display readable - Storage temperature - Climatic class - Condensation - Electromagnetic Compatibility - Emitted interference and interference immunity - Emitted interference and interference immunity - Condensation - Condensation permissible, suitable for use in the tropics - Condensation permissible, suitable for use in the tropics - Condensation permissible, suitable for use in the tropics - Condensation permissible, suitable for use in the tropics - Condensation permissible, suitable for use in the tropics - Condensation permissible, suitable for use in the tropics - Condensation permissible, suitable for use in the tropics - Condensation permissible, suitable for use in the tropics - Condensation permissible, suitable for use in the tropics - Condensation permissible, suitable for use in the tropics - Condensation permissible, suitable for use in the tropics - Condensation permissible, suitable for use in the tropics - Condensation permissible, suitable for use in the tropics - Condensation permissible, suitable for use in the tropics - Condensation permissible, suitable for use in the tropics - Last use tropics and NAMUR NE 21	Measuring cell with silicone oil filling	-40 +100 °C	C (-40 +212 °F)
Ambient conditions *Ambient temperature - Display readable - Storage temperature - Climatic class - Condensation - Condensation - Condensation - Condensation - Condensation - Condensation - Condensation - Condensation permissible, suitable for use in the tropics - Electromagnetic Compatibility - Emitted interference and interference immunity - Emitted interference and interference immunity - Condensation permissible, suitable for use in the tropics - Condensation permissible satel	Measuring cell with inert filling liquid	-20 +100 °C	C (-4 +212 °F)
Ambient temperature Display readable Storage temperature Climatic class Condensation Condensation Condensation Condensation Condensation Condensation permissible, suitable for use in the tropics Electromagnetic Compatibility Emitted interference and interference immunity Condensation permissible, suitable for use in the tropics Electromagnetic Compatibility Emitted interference and interference immunity Condensation permissible, suitable for use in the tropics Electromagnetic Compatibility Emitted interference and interference immunity Condensation permissible, suitable for use in the tropics Electromagnetic Compatibility Acc. to EN 61326 and NAMUR NE 21 Electromagnetic Compatibility Condensation permissible, suitable for use in the tropics Electromagnetic Compatibility Acc. to EN 61326 and NAMUR NE 21 Electromagnetic Compatibility Acc. to EN 61326 and NAMUR NE 21 Electromagnetic Compatibility Acc. to EN 61326 and NAMUR NE 21 Electromagnetic Compatibility Acc. to EN 61326 and NAMUR NE 21 Electromagnetic Compatibility Acc. to EN 61326 and NAMUR NE 21 Electromagnetic Compatibility Acc. to EN 61326 and NAMUR NE 21 Electromagnetic Compatibility Acc. to EN 61326 and NAMUR NE 21 Electromagnetic Compatibility Acc. to EN 61326 and NAMUR NE 21 Electromagnetic Compatibility Stainless steel precision casting, mat. no. 1.4408 Electromagnetic Compatibility Stainless steel precision casting, mat. no. 1.4408 Electromagnetic Compatibility Stainless steel precision casting, mat. no. 1.4408 Electromagnetic Compatibility Stainless steel precision casting, mat. no. 1.4408 Electromagnetic Compatibility Emitted interference and interference immunity Emitted interference and interference immunity Emitted interference and interference immunity Acc. to EN 61326 and NAMUR NE 21 Electromagnetic Compatible Compatible Compatible Compatible Compatible Compatible Compatible Compatible Compatibl	• In conjunction with dust explosion protection	-20 +60 °C	C (-4 +140 °F)
- Display readable - \$30 +85 °C (-22 +185 °F) - \$50 +85 °C (-58 +185 °F) - \$60 +85 °C (-58 +185 °C (-58 +185 °F) - \$60 +85 °C (-58 +185 °F) - \$60 +85	Ambient conditions		
• Storage temperature	Ambient temperature		
• Climatic class • Condensation Relative humidity 0 100 % Condensation permissible, suitable for use in the tropics • Electromagnetic Compatibility • Emitted interference and interference immunity Design Weight (without options) Enclosure material • Cow-copper die-cast aluminum, GD-AlSi12 or stainless steel precision casting, mat. no. 1.4408 Wetted parts materials • Seal diaphragm Stainless steel, mat. no. 1.4404/316L or Hastellloy C276. mat. no. 2.4819, Monel, mat. no. 2.4360, tantialum or gold • Process flanges and sealing screw • Process flanges and sealing screw • O-Ring Measuring cell filling FPM (Viton) or optionally: PTFE, FEP, FEPM and NBR Measuring cell filling FYM (Viton) or optionally: PTFE, FEP, FEPM and NBR Material of mounting bracket • Stainless steel, mat. no. 1.4408, Hastelloy C4, mat. no. 2.4610 or Monel, mat. no. 2.4360 • (1740 psi) at 80° (140° psi) Process connection 1/4-18 NPT and flange connection with mounting thread M10 to DIN 19213 or 7/16-20 UNF to IEC 61518 Material of mounting bracket • Stainless steel Sheet-steel, Mat. No. 1.0330, chrome-plated • Stainless steel Sheet-steel, Mat. No. 1.3301 (SS 304) Power supply U₁ 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. Except the supplementation of th	- Display readable	-30 +85 °C	(-22 +185 °F)
• Electromagnetic Compatibility • Emitted interference and interference immunity Pesign Weightf (without options) Enclosure material • Stainless steel, mat. no. 1.4404/316L or Hastellloy C276. mat. no. 2.4819, Monel, mat. no. 2.4360, tantalum or gold • Process flanges and sealing screw • O-Ring Measuring cell filling Silicone oil or inert filling liquid (maximum value with oxigen measurement pressure 120 bar a) Vesteel • Stainless steel • Sheet-steel, Mat. No. 1.0330, chrome-plated • Stainless steel • Sheet-steel, Mat. No. 1.0300, chrome-plated • Stainless steel • Sheet-steel, Mat. No. 1.4301 (SS 304) Power supply U₁ Torminal voltage on transmitter 10.5 45 ∨ DC 10.5 30 ∨ DC in intrinsically-safe mode ■ No Bus voltage • Not Ex • With intrinsically-safe operation Current consumption • Basic current (max.) • Stain-eyem to fault • Acc. to EN 61326 and NAMUR NE 21 Acc. to EN 61326 and NAMUR NE 21 Acc. to EN 61326 and NAMUR NE 21 Acc. to EN 61326 and NAMUR NE 21 Acc. to EN 61326 and NAMUR NE 21 Acc. to EN 61326 and NAMUR NE 21 Acc. to EN 61326 and NAMUR NE 21 Acc. to EN 61326 and NAMUR NE 21 Acc. to EN 61326 and NAMUR NE 21 Acc. to EN 61326 and NAMUR NE 21 Acc. to EN 61326 and NAMUR NE 21 Acc. to EN 61326 and NAMUR NE 21 Acc. to EN 61326 and NAMUR NE 21 Low-copper die-cast aluminum, GD-AlSi120 or stainless steel precision casting, mat. no. 1.4408 Enclosure naterial Stainless steel, mat. no. 1.4404/316L or Hastelloy C276. mat. no. 2.4819, Monel, mat. no. 1.24300, tantalum or gold FPM (Vitro) or optionally: PTFE, FEP FEPM and NER Acc. to EN 61918 (1974) or optionally: PTFE, FEP FEPM and NER Acc. to EN 61918 (1974) or optionally: PTFE, FEP FEPM and NER Acc. to EN 61918 (1974) or optionally: PTFE, FEP, FEPM and NER Acc. to EN 61918 (1974) or optionally: PTFE, FEP, FEPM and NER Acc. to EN 61918 (1974) or optionally: PTFE, FEP, FEPM and NER Acc. to EN 61918 (1974) or optionally: PTFE, FEP, FEPM and NER Acc. to EN 61918 (1974) or optionally: PTFE, FEP, FEPM and NER Acc. to EN	Storage temperature	-50 +85 °C	(-58 +185 °F)
Condensation permissible, suitable for use in the tropics Electromagnetic Compatibility - Emitted interference and interference immunity Posign Weight (without options) Ecolosure material Low-copper die-cast aluminum, GD-AlSi12 or stainless steel precision casting, mat. no. 1.4408 Wetted parts materials • Seal diaphragm Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819, Monel, mat. no. 2.4360, tartialum or gold • Process flanges and sealing screw • O-Ring FPM (Viton) or optionally: PTFE, FEP, FEPM and NBR Measuring cell filling Silicone oil or inert filling liquid (maximum value with oxigen measurement pressure 120 bar a) (1740 psia) at 60 °C (140 °F)) Process connection * Sheet steel, Mat. No. 1.0330, chrome-plated • Stainless steel • Sheet-steel, Mat. No. 1.0330, chrome-plated • Stainless steel • Sheet stainless steel, mat. no. 1.4401 (SS 304) Power supply U _H Terminal voltage on transmitter 10.545 ∨ DC 10.530 ∨ DC in intrinsically-safe mode Separate 24 ∨ power supply necessary • Not Ex • Not Ex • With intrinsically-safe operation Current consumption • Basic current (max.) • Start-up current ≤ basic current • Assicrity in trevent of fault Conditions and the tropics * Ves • Max. current in event of fault	Climatic class		
Emitted interference and interference immunity Design Weight (without options) Enclosure material Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819, Monel, mat. no. 2.4360, tantalum or gold Process flanges and sealing screw Process	- Condensation		
Emitted interference and interference immunity Design Weight (without options) Enclosure material Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819, Monel, mat. no. 2.4360, tantalum or gold Process flanges and sealing screw Process	Electromagnetic Compatibility		·
Weight (without options)	- Emitted interference and interference immu-	Acc. to EN 61326	and NAMUR NE 21
Enclosure material Low-copper die-cast aluminum, GD-AlSi12 or stainless steel precision casting, mat. no. 1.4408 Wetted parts materials Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819, Monel, mat. no. 2.4360, tantalum or gold Process flanges and sealing screw O-Ring Stainless steel, mat. no. 1.4408, Hastelloy C4, mat. no. 2.4610 or Monel, mat. no. 2.4360 FPM (Viton) or optionally: PTFE, FEP, FEPM and NBR Measuring cell filling Silicone oil or inert filling liquid (maximum value with oxigen measurement pressure 120 bar a) (1740 psia) at 60 °C (140 °F)) Process connection 1/4-18 NPT and flange connection with mounting thread M10 to DIN 19213 or 7/16-20 UNF to IEC 61518 Material of mounting bracket Steel Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel Sheet stainless steel, mat. no. 1.4301 (SS 304) Power supply U₁ 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 With intrinsically-safe operation Wether intrinsically-safe operation Basic current (max.) Basic current ≤ basic current	Design		
Wetted parts materials Seal diaphragm Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819, Monel, mat. no. 2.4360, tantalum or gold Process flanges and sealing screw O-Ring Stainless steel, mat. no. 1.4408, Hastelloy C4, mat. no. 2.4610 or Monel, mat. no. 2.4360 FPM (Viton) or optionally: PTFE, FEP M and NBR Silicone oil or inert filling liquid (maximum value with oxigen measurement pressure 120 bar a) (1740 psia) at 60 °C (140 °F)) Process connection Material of mounting bracket Steel Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel Sheet stainless steel, mat. no. 1.4408, Hastelloy C4, mat. no. 2.4610 or Monel, mat. no. 2.4360 FPM (Viton) or optionally: PTFE, FEP Mem dn NBR Silicone oil or inert filling liquid (maximum value with oxigen measurement pressure 120 bar a) (1740 psia) at 60 °C (140 °F)) Process connection **Stainless steel And No. 1.0330, chrome-plated Stainless steel Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel, mat. no. 1.4401 (SS 304) **Process connection **Stainless steel And No. 1.0330, chrome-plated Stainless steel, mat. no. 1.4301 (SS 304) **Process connection **Stainless steel And No. 1.0330, chrome-plated Stainless steel, mat. no. 1.4301 (SS 304) **Process connection **Stainless steel, mat. no. 1.4301 (SS 304) **Process connection **Stainless steel, mat. no. 1.4301 (SS 304) **Process connection **Stainless steel, mat. no. 1.4101 to DIN 19213 or 7/16-20 UNF to IEC 61518 **Supplied through bus	Weight (without options)	≈ 4.5 kg	(≈ 9.9 (lb)
Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819, Monel, mat. no. 2.4360, tantalum or gold Process flanges and sealing screw O-Ring Stainless steel, mat. no. 1.4408, Hastelloy C4, mat. no. 2.4610 or Monel, mat. no. 2.4360 FPM (Viton) or optionally: PTFE, FEP, FEPM and NBR Silicone oil or inert filling liquid (maximum value with oxigen measurement pressure 120 bar a) (1740 psia) at 60 °C (140 °F)) Process connection V4-18 NPT and flange connection with mounting thread M10 to DIN 19213 or 7/16-20 UNF to IEC 61518 Material of mounting bracket Steel Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel Sheet-steel, Mat. No. 1.4301 (SS 304) Power supply U₁ Terminal voltage on transmitter 10.5 45 ∨ DC 10.5 30 ∨ DC in intrinsically-safe mode Separate 24 ∨ power supply necessary No Bus voltage Not Ex Not Ex With intrinsically-safe operation Uther the safe operation Supplied through bus Terminal voltage on transmitter Supplied through bus Terminal voltage on transmitter 10.5 45 ∨ DC 10.5 30 ∨ DC in intrinsically-safe mode No Bus voltage Not Ex Not Ex Supplied through bus Terminal voltage on transmitter 10.5 45 ∨ DC 10.5 30 ∨ DC in intrinsically-safe mode No Bus voltage No Ex Not Ex Supplied through bus Terminal voltage on transmitter 10.5 45 ∨ DC 10.5 30 ∨ DC in intrinsically-safe mode No Bus voltage No Ex N	Enclosure material	Low-copper die-cast aluminum, GD-AlSi12 or	stainless steel precision casting, mat. no. 1.4408
tantalum or gold Process flanges and sealing screw Process flanges and sealing screw Process flanges and sealing screw Process flanges and sealing screw Process flanges and sealing screw Process flanges and sealing screw Process connection Silicone oil or inert filling liquid (maximum value with oxigen measurement pressure 120 bar a) (1740 psia) at 60 °C (140 °F)) Process connection Va-18 NPT and flange connection with mounting thread M10 to DIN 19213 or 7/16-20 UNF to IEC 61518 Material of mounting bracket Steel Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel Process steel Sheet stainless steel, mat. no. 1.4301 (SS 304) Power supply U _{F1} Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode Separate 24 V power supply necessary Not Ex Not Ex Not Ex Sheet-steel, Mat. No. 1.0330, chrome-plated No Waterial of mounting bracket No Waterial of mounting bracket Sheet stainless steel, mat. no. 1.4301 (SS 304) No Supplied through bus No Bus voltage No Waterial of mounting bracket No Supplied through bus 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No Separate 24 V power supply necessary No Waterial of mounting bracket No Supplied through bus 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No Separate 24 V power supply necessary No Bus voltage No Supplied through bus 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No Supplied through bus 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No Supplied through bus 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No Supplied through bus 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No No Supplied through bus 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No No Supplied through bus 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No No Supplied through bus 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No No Supplied through bus 10.5 45 V DC 10.5 30 V DC 10.	Wetted parts materials		
FPM (Viton) or optionally: PTFE, FEP, FEPM and NBR Measuring cell filling Silicone oil or inert filling liquid (maximum value with oxigen measurement pressure 120 bar a) (1740 psia) at 60 °C (140 °F)) Process connection V4-18 NPT and flange connection with mounting thread M10 to DIN 19213 or 7/16-20 UNF to IEC 61518 Material of mounting bracket Steel Sheet-steel, Mat. No. 1.0330, chrome-plated Sheet stainless steel, mat. no. 1.4301 (SS 304) Power supply U₁ Terminal voltage on transmitter 10.5 45 ∨ DC 10.5 30 ∨ DC in intrinsically-safe mode Separate 24 ∨ power supply necessary No Bus voltage Not Ex Not Ex Not Ex With intrinsically-safe operation Current consumption Basic current (max.) Basic current ≤ basic current Ax. current in event of fault PM (Viton) or optionally: PTFE, FEP, FEPM and NBR Silicone oil or inert filling liquid (maximum value with oxigen measurement pressure 120 bar a) (1740 psia) at 60 °C (140 °F)) No IN 19213 or 7/16-20 UNF to IEC 61518 Sheet-steel, Mat. No. 1.0330, chrome-plated Sheet-steel, Mat. No. 1.0330, chrome-plated Supplied through bus No No 10.5 45 ∨ DC 10.5 30 ∨ DC in intrinsically-safe mode No 10.5 45 ∨ DC 10.5 30 ∨ DC in intrinsically-safe mode No 10.5 45 ∨ DC 10.5 30 ∨ DC in intrinsically-safe mode No 10.5 45 ∨ DC 10.5 30 ∨ DC in intrinsically-safe mode No 10.5 45 ∨ DC 10.5 30 ∨ DC in intrinsically-safe mode No 10.5 45 ∨ DC 10.5 30 ∨ DC in intrinsically-safe mode No 10.5 45 ∨ DC 10.5 30 ∨ DC in intrinsically-safe mode No 10.5 45 ∨ DC	Seal diaphragm		
Measuring cell filling Silicone oil or inert filling liquid (maximum value with oxigen measurement pressure 120 bar a) 1/4-18 NPT and flange connection with mounting thread M10 to DIN 19213 or 7/16-20 UNF Material of mounting bracket Steel Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel Sheet stainless steel, mat. no. 1.4301 (SS 304) Power supply UH Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No Separate 24 V power supply necessary No Supplied through bus 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No Separate 24 V power supply necessary No Supplied through bus 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No Separate 24 V power supply necessary No Supplied through bus 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No Separate 24 V power supply necessary No Supplied through bus 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No Separate 24 V power supply necessary No Supplied through bus 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No Separate 24 V power supply necessary No Supplied through bus 10.5 45 V DC 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No Separate 24 V power supply necessary No Supplied through bus 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No Separate 24 V power supply necessary No Supplied through bus 10.5 45 V DC 10.5	Process flanges and sealing screw	Stainless steel, mat. no. 1.4408, Hastelloy (C4, mat. no. 2.4610 or Monel, mat. no. 2.4360
Process connection 1/4-18 NPT and flange connection with mounting thread M10 to DIN 19213 or 7/16-20 UNF to IEC 61518 Material of mounting bracket Steel Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel Sheet stainless steel, mat. no. 1.4301 (SS 304) Power supply U _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 Supplied through bus No Supplied through bus - No Supplied through bus - No Supplied through bus - No Supplied through bus - 10.5 30 V DC in intrinsically-safe mode No Separate 24 V power supply necessary No Supplied through bus - No Supplied through bus - 10.5 30 V DC in intrinsically-safe mode No Supplied through bus - No Supplied through bus - 10.5 30 V DC in intrinsically-safe mode No Separate 24 V power supply necessary No Supplied through bus - 10.5 30 V DC in intrinsically-safe mode No Supplied through bus - 10.5 30 V DC in intrinsically-safe mode No 10.5 30 V DC in intrinsically-safe mode No Supplied through bus - 10.5 30 V DC in intrinsically-safe mode No Supplied through bus - 10.5 30 V DC in intrinsically-safe mode No Supplied through bus - 10.5 30 V DC in intrinsically-safe mode No Supplied through bus - 10.5 30 V DC in intrinsically-safe mode No Supplied through bus - 10.5 30 V DC in intrinsically-safe mode No Supplied through bus - 10.5 30 V DC in intrinsically-safe mode No Supplied through bus - 10.5 30 V DC in intrinsically-safe mode No Supplied through bus - 10.5 30 V DC in intrinsically-safe mode No Supplied through bus - 10.5 30 V DC in intrinsically-safe mode No Supplied through bus - 10.5 30 V DC in intrinsically-safe mode No Supplied through bus - 10.5 30 V DC in intrinsically-safe mode No Supplied through bus - 10.5 30 V DC in intrinsically-safe mode No Supplied through bus - 10.5 30 V DC in intrinsically-safe	• O-Ring		
Material of mounting bracket Steel Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel Sheet stainless steel, mat. no. 1.4301 (SS 304) Power supply U _H 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 Not Ex Not Ex Not Ex Sheet-steel, Mat. No. 1.0330, chrome-plated Supplied through bus No No Supplied through bus No No Bus voltage No Bus voltage No Supplied through bus No 10.5 30 V DC in intrinsically-safe mode No Bus voltage No Supplied through bus No 10.5 32 V No No 12.5 mA Start-up current ≤ basic current No Max. current in event of fault	Measuring cell filling		
Steel Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel Sheet stainless steel, mat. no. 1.4301 (SS 304) Power supply U _H Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No Separate 24 V power supply necessary No Bus voltage No No With intrinsically-safe operation - 2 9 32 V With intrinsically-safe operation - 9 24 V Current consumption Basic current (max.) - 12.5 mA Start-up current ≤ basic current - 2 Yes Max. current in event of fault - 15.5 mA	Process connection		
Stainless steel Sheet stainless steel, mat. no. 1.4301 (SS 304) Power supply U _H Terminal voltage on transmitter 10.5 45 ∨ DC 10.5 30 ∨ DC in intrinsically-safe mode Separate 24 ∨ power supply necessary Bus voltage No No No With intrinsically-safe operation Current consumption Basic current (max.) Start-up current ≤ basic current Max. current in event of fault Supplied through bus No No 10.5 45 ∨ DC 10.5 30 ∨ DC in intrinsically-safe mode No 10.5 45 ∨ DC 10.5 30 ∨ DC in intrinsically-safe mode No 10.5 45 ∨ DC 10.5 30 ∨ DC in intrinsically-safe mode No 12.5 mA	Material of mounting bracket		
Power supply U _H Supplied through bus Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode - Separate 24 V power supply necessary - No Bus voltage - - • Not Ex - 9 32 V • With intrinsically-safe operation - 9 24 V Current consumption • Basic current (max.) - 12.5 mA • Start-up current ≤ basic current - Yes • Max. current in event of fault - 15.5 mA	• Steel	Sheet-steel, Mat. No.	1.0330, chrome-plated
Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode Separate 24 V power supply necessary Bus voltage No No No With intrinsically-safe operation Current consumption Basic current (max.) Start-up current ≤ basic current Max. current in event of fault 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode No No 12.5 mA	• Stainless steel	Sheet stainless steel, i	mat. no. 1.4301 (SS 304)
Separate 24 V power supply necessary Bus voltage No No No Bus voltage No No No Separate 24 V power supply necessary No Bus voltage No Separate 24 V power supply necessary Separate 24 V power supply necessary No Separate 24 V power supply necessary No Separate 24 V power supply necessary Separate 24 V power supply n	Power supply U_{H}		Supplied through bus
Bus voltage Not Ex - Not Ex - With intrinsically-safe operation - With intrinsically-safe operation - Start-up current (max.) - Start-up current ≤ basic current - Max. current in event of fault - Start-up current ≤ basic current	Terminal voltage on transmitter		-
 Not Ex With intrinsically-safe operation Current consumption Basic current (max.) Start-up current ≤ basic current Max. current in event of fault 9 32 V 9 24 V 12.5 mA Yes 15.5 mA 	Separate 24 V power supply necessary	-	No
 With intrinsically-safe operation Current consumption Basic current (max.) Start-up current ≤ basic current Yes Max. current in event of fault 12.5 mA Yes 15.5 mA 	Bus voltage		
Current consumption • Basic current (max.) - 12.5 mA • Start-up current ≤ basic current - Yes • Max. current in event of fault - 15.5 mA	• Not Ex	-	9 32 V
 Basic current (max.) Start-up current ≤ basic current Max. current in event of fault 12.5 mA Yes 15.5 mA 	With intrinsically-safe operation	-	9 24 V
 Start-up current ≤ basic current Max. current in event of fault Yes 15.5 mA 	Current consumption		
Max. current in event of fault 15.5 mA	Basic current (max.)	-	12.5 mA
Max. current in event of fault 15.5 mA	• Start-up current ≤ basic current	-	
	·	-	15.5 mA
	Fault disconnection electronics (FDE) available	-	

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

Certificates and approvals	HART	PROFIBUS PA and FOUNDATION Fieldbus
Certificates and approvals		
Classification according to PED 97/23/EC		group 1; complies with requirements of article 3, engineering practice)
Explosion protection		
Intrinsic safety "i"	PTB 99 A	ATEX 2122
- Marking	Ex II 1/2 G EE	x ia/ib IIB/IIC T6
- Permissible ambient temperature	-40 +70 °C (-40 +15	5 °F) temperature class T4; 8 °F) temperature class T5; 0 °F) temperature class T6
- Connection	To certified intrinsically-safe circuits with peak values: $U_i = 300$, $I_i = 100$ mA,	FISCO supply unit: $U_0 = 17.5 \text{ V}$, $I_0 = 380 \text{ mA}$, $P_0 = 5.32 \text{ W}$ Linear barrier:
	$P_{i} = 750 \text{ mW}; R_{i} = 300 \Omega$	$U_0 = 24 \text{ V}, I_0 = 250 \text{ mA}, P_0 = 1.2 \text{ W}$
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_{i} = 7 \mu H, C_{i} = 1.1 nF$
Explosion-proof "d"	PTB 99 A	ATEX 1160
- Marking	Ex II 1/2 G E	Ex d IIC T4/T6
- Permissible ambient temperature		5 °F) temperature class T4; 0 °F) temperature class T6
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC	To circuits with values: $U_{\rm H}$ = 9 32 V DC
 Dust explosion protection for zone 20 	PTB 01 A	ATEX 2055
- Marking		² 65 T 120 °C P65 T 120 °C
- Permissible ambient temperature	-40 +85 °C	(-40 +185 °F)
- Max. surface temperature	120 °C	(248 °F)
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}=30$ V, $I_{\rm i}=100$ mA, $P_{\rm i}=750$ mW, $P_{\rm i}=300$ Ω	FISCO supply unit: U_0 = 17.5 V, I_0 = 380 mA, P_0 = 5.32 W Linear barrier: U_0 = 24 V, I_0 = 250 mA, P_0 = 1.2 W
- Effective internal inductance/capacitance	$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$L_{i} = 7 \mu H, C_{i} = 1.1 nF$
Dust explosion protection for zone 21/22	PTB 01 A	ATEX 2055
- Marking	Ex II 2 D IF	P65 T 120 °C
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC; $P_{\rm max}$ = 1.2 W	To circuits with values: $U_{\rm H}$ = 9 32 V DC; $P_{\rm max}$ = 1.2 W
Type of protection "n" (zone 2)	TÜV 01 ATEX 1696 X	Planned
- Marking	Ex II 3 G EEx nA L IIC T4/T5/T6	-
 Explosion protection acc. to FM 	Certificate of Cor	mpliance 3008490
- Identification (XP/DIP) or (IS); (NI)		GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4T6; F6; CL II, DIV 2, GP FG; CL III
 Explosion protection to CSA 	Certificate of Cor	mpliance 1153651
- Identification (XP/DIP) or (IS)		FG; CL III; Ex ia IIC T4T6; CL I, DIV 2, GP ABCD V 2, GP FG; CL III

¹⁾ Conversion of temperature error per 28 °C. Valid for temperature range -3 ... +53 °C < (0.08. r + 0.16) % / 28 °C (50 °F).

Transmitters for general requirements

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

(IIOIII dillerential pressure	361163)
HART communication	
HART	230 1100 Ω
Protocol	HART Version 5.x
Software for computer	SIMATIC PDM
PROFIBUS PA communication	
Simultaneous communication with master class 2 (max.)	4
The address can be set using	Configuration tool or local opera- tion (standard setting address 126)
Cyclic data usage	
Output byte	5 (one measured value) or 10 (two measured values)
• Input byte	0, 1, or 2 (register operating mode and reset function for metering)
Internal preprocessing	
Device profile	PROFIBUS PA Profile for Process Control Devices Version 3.0, Class B
Function blocks	2
Analog input	
 Adaptation to customer-speci- fic process variables 	Yes, linearly rising or falling characteristic
- Electrical damping, adjustable	0 100 s
- Simulation function	Input /Output
- Failure mode	parameterizable (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower war- ning limit and one alarm limit respectively
Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output
- Failure mode	parameterizable (summation with last good value, continuous summation, summation with incorrect value)
- Limit monitoring	One upper and lower warning limit and one alarm limit respec- tively
Physical block	1
Transducer blocks	2
Pressure transducer block	
 Can be calibrated by applying two pressures 	Yes
- Monitoring of sensor limits	Yes
 Specification of a container characteristic with 	Max. 30 nodes
- Square-rooted characteristic for flow measurement	Yes
 Gradual volume suppression and implementation point of square-root extraction 	Parameterizable
 Simulation function for measured pressure value and sensor temperature 	Constant value or over parameterizable ramp function

FOUNDATION Fieldbus communication

Function blocks

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

3 function blocks analog input, 1 function block PID

Yes, linearly rising or falling characteristic

0 to 100 s

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

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

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

Yes

Standard FOUNDATION Fieldbus function block

1 resource block

1 transducer block Pressure with calibration, 1 transducer block I CD

Yes

Yes

Constant value or over parameterizable ramp function

Transmitters for general requirements

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

	g data		Ord	er I	VO.	
	for absolute pressure	F)	7 M	F 4	3 3	3 -
from differential press SITRANS P DS III with	sure series, HART				-	
Measuring cell filling						
Silicone oil	normal		1			
Inert liquid ¹⁾	grease-free to		3			
	cleanliness level 2					
Measuring span (min.						
3.3 250 mbar a	(0.12 3.62 psia)	E)	D			
43 1300 mbar a	(0.62 18.85 psia)	E)	F			
0.16 5 bar a	(2.32 72.5 psia)	E)	G			
1 30 bar a	(14.5 435 psia)		Н			
5.3 100 bar a	(76.9 1450 psia)		K	E		
Wetted parts materials Seal diaphragm	Parts of measuring cell					
		_				
Stainless steel	Stainless steel			A B		
Hastelloy Hastelloy	Stainless steel			C		
Hastelloy Tantalum	Hastelloy Tantalum			C E		
Monel	Monel	E)		Н		
Gold	Gold	(ت		П L		
Joid Version for diaphragm s				Y		
Process connection		-				
	T with flange connection					
 Sealing screw opposit 						
	₆ -20 UNF to EN 61518			2		
 Mounting thread M1 				0		
(only for replacemen	nt requirement)			ľ		
 Vent on side of proces 	ss flange ⁵⁾					
 Mounting thread ⁷/₁₆ 	₆ -20 UNF to EN 61518			6		
- Mounting thread M1				4		
(only for replacemen						
Non-wetted parts mate						
•						
process flange screws	Electronics housing	_			,	
orocess flange screws Stainless steel	Electronics housing Die-cast aluminum	-			2	
orocess flange screws Stainless steel	Electronics housing Die-cast aluminum	_ า			2	
orocess flange screws Stainless steel Stainless steel	Electronics housing	— ท				
process flange screws Stainless steel Stainless steel Version	Electronics housing Die-cast aluminum	– า			3	1
orocess flange screws Stainless steel Stainless steel Version Standard versions	Electronics housing Die-cast aluminum Stainless steel precisior casting ⁶⁾				3	1 2
orocess flange screws Stainless steel Stainless steel Version Standard versions International version, documentation in 5 la	Electronics housing Die-cast aluminum Stainless steel precision casting ⁶) English label inscriptions nguages on CD				3	
orocess flange screws Stainless steel Stainless steel Version Standard versions International version, I documentation in 5 la (no order code selecti	Electronics housing Die-cast aluminum Stainless steel precision casting ⁶) English label inscriptions nguages on CD				3	
orocess flange screws Stainless steel Stainless steel Version Standard versions International version, documentation in 5 la (no order code selection	Electronics housing Die-cast aluminum Stainless steel precision casting ⁶) English label inscriptions nguages on CD				3	2
orocess flange screws Stainless steel Stainless steel Version Standard versions International version, documentation in 5 la (no order code select. Explosion protection None	Electronics housing Die-cast aluminum Stainless steel precision casting ⁶) English label inscriptions nguages on CD able)				3	
orocess flange screws Stainless steel Stainless steel Version Standard versions International version, documentation in 5 la (no order code select: Explosion protection None With ATEX, Type of pro	Electronics housing Die-cast aluminum Stainless steel precision casting ⁶) English label inscriptions nguages on CD able)				3	2 A
orocess flange screws Stainless steel Stainless steel Version Standard versions International version, documentation in 5 la (no order code select: Explosion protection None With ATEX, Type of prinching in 5 la (no select) International version, documentation in 5 la (no order code select) International version protection International version protection International version protection International version protection International version protection International version protection protection protection International version protection protec	Electronics housing Die-cast aluminum Stainless steel precision casting ⁶) English label inscriptions nguages on CD able) otection:				3	2
Stainless steel Stainless steel Stainless steel Version Standard versions International version, I documentation in 5 la (no order code select: Explosion protection None With ATEX, Type of production in 5 la (no order code select: Explosion protection in 5 la (no order code sel	Electronics housing Die-cast aluminum Stainless steel precision casting ⁶) English label inscriptions nguages on CD able) otection:				3	2 A B
Stainless steel Stainless steel Stainless steel Stainless steel Version Standard versions International version, I documentation in 5 Ia (no order code select: Explosion protection None With ATEX, Type of properties of proper	Electronics housing Die-cast aluminum Stainless steel precision casting ⁶) English label inscriptions nguages on CD able) otection: (ia)" Ex d)" ⁷⁾				3	A B D
process flange screws Stainless steel Stainless steel Version Standard versions International version, I documentation in 5 la (no order code select: Explosion protection None With ATEX, Type of promoter in the process of the proce	Electronics housing Die-cast aluminum Stainless steel precision casting ⁶) English label inscriptions nguages on CD able) otection: (ia)" Ex d)" ⁷⁾				3	A B D
version Stainless steel Stainless steel Stainless steel Stainless steel Version Standard versions International version, documentation in 5 la (no order code selection) None Intrinsic safety (EEx - "Intrinsic safety (EEx - "Intrinsic safety (EEx ia + EEx d)" 8) - "Ex nA/nL (Zone 2)" - "Intrinsic safety, expl	Electronics housing Die-cast aluminum Stainless steel precision casting ⁶) English label inscriptions nguages on CD able) otection: (ia)" (ix)" (flameproof enclosure"	,			3	A B D P
Stainless steel Stainless steel Stainless steel Stainless steel Stainless steel Version Standard versions International version, documentation in 5 la (no order code select. Explosion protection None With ATEX, Type of pro-"Intrinsic safety (EEx -"Explosion-proof (EEx ia + EEx d)" 8) - "Ex nA/nL (Zone 2)" "Intrinsic safety, explodust explosion prote	Electronics housing Die-cast aluminum Stainless steel precision casting ⁶) English label inscriptions nguages on CD able) otection: (ia)" (ix d)" ⁷) flameproof enclosure"	,			3	A B D P
version Stainless steel Stainless steel Stainless steel Stainless steel Stainless steel Version Standard versions International version, documentation in 5 la (no order code select: Explosion protection None With ATEX, Type of production Intrinsic safety (EEx - "Explosion-proof (EE - "Intrinsic safety and (EEx ia + EEx d)" 8) "Ex nA/nL (Zone 2)" "Intrinsic safety, expl dust explosion prote Zone 1D/2D)" Stainless steel	Electronics housing Die-cast aluminum Stainless steel precision casting ⁶) English label inscriptions nguages on CD able) otection: (ia)" (ix d)" ⁷) flameproof enclosure" osion-proof enclosure and action (EEx ia+ EEx d +	,			3	A B D P
Process flange screws Stainless steel Stainless steel Stainless steel Version Standard versions International version, documentation in 5 la (no order code select Explosion protection None With ATEX, Type of promoter in the safety (EEx "Explosion-proof (EEx "Explosion-proof (EEx ia + EEx d)" 8) "Ex nA/nL (Zone 2)" "Intrinsic safety, each dust explosion protez dust explosion protez are 1D/2D)"8) With FM + CSA, Type	Electronics housing Die-cast aluminum Stainless steel precision casting ⁶) English label inscriptions nguages on CD able) otection: (ia)" Ex d)" ⁷⁾ flameproof enclosure and ection (EEx ia+ EEx d + of protection:	, 			3	A B D P E R
Version Stainless steel Stainless steel Stainless steel Stainless steel Stainless steel Version Standard versions International version, documentation in 5 la (no order code selection) None With ATEX, Type of primiting affection of the code selection of the code s	Electronics housing Die-cast aluminum Stainless steel precision casting ⁶) English label inscriptions nguages on CD able) otection: (ia)" (ix)" flameproof enclosure" osion-proof enclosure and ection (EEx ia+ EEx d + of protection: xplosion Proof (is + xp)" ⁷	, 			3	A B D P
Version Stainless steel Stainless steel Stainless steel Stainless steel Version Standard versions International version, documentation in 5 la (no order code select: Explosion protection None With ATEX, Type of propertime of the properties of the	Electronics housing Die-cast aluminum Stainless steel precision casting ⁶) English label inscriptions nguages on CD able) otection: (ia)" (ix d)" ⁷) flameproof enclosure" osion-proof enclosure and ection (EEx ia+ EEx d + of protection: xplosion Proof (is + xp)" ⁷ cable entry	, 			3	A B D P E R
Process flange screws Stainless steel Stainless steel Stainless steel Stainless steel Version Standard versions International version, documentation in 5 la (no order code select: Explosion protection None With ATEX, Type of processive safety (EEx - "Intrinsic safety (EEx - "Explosion-proof (EE - "Intrinsic safety and (EEx ia + EEx d)" 8) "Ex nA/nL (Zone 2)" "Intrinsic safety, explust explosion protezone 1D/2D)" With FM + CSA, Type "Intrinsic Safe und E Electrical connection/ Screwed gland Pg 13	Electronics housing Die-cast aluminum Stainless steel precision casting ⁶) English label inscriptions nguages on CD able) otection: (ia)" (ix)" osion-proof enclosure and cotion (EEx ia+ EEx d + of protection: xplosion Proof (is + xp)" ⁷ cable entry .5 ⁹)	, 			3	A B D P E R N C A
Process flange screws Stainless steel Stainless steel Stainless steel Stainless steel Version Standard versions International version, documentation in 5 la (no order code select: Explosion protection None With ATEX, Type of production in 5 la (no order code select: Explosion protection Intrinsic safety (EEx - "Explosion-proof (EE - "Intrinsic safety and (EEx ia + EEx d)" 8) - "Ex nA/nL (Zone 2)" "Intrinsic safety, explust explosion protection protection in the process of the proc	Electronics housing Die-cast aluminum Stainless steel precision casting ⁶) English label inscriptions nguages on CD able) otection: (ia)" (ix)" flameproof enclosure and action (EEx ia+ EEx d + of protection: xplosion Proof (is + xp)" cable entry (59) (1.5)	, 			3	A B D P E R N C A B
Process flange screws Stainless steel Stainless steel Stainless steel Version Standard versions International version, documentation in 5 la (no order code select. Explosion protection None With ATEX, Type of production in 5 la (no order code select. Explosion protection Intrinsic safety (EEx - "Explosion-proof (EEx ia + EEx d)" 8) - "Ex nA/nL (Zone 2)" Intrinsic safety, explosion protection in the company of the compan	Electronics housing Die-cast aluminum Stainless steel precision casting ⁶) English label inscriptions nguages on CD able) otection: (a)" (x d)" ⁷) flameproof enclosure and action (EEx ia+ EEx d + of protection: xplosion Proof (is + xp)" ⁷ cable entry (59) (1.5 NPT	, 			3	A B D P E R N C A B C
Process flange screws Stainless steel Stainless steel Stainless steel Stainless steel Version Standard versions International version, documentation in 5 la (no order code select: Explosion protection None With ATEX, Type of production in 5 la (no order code select: Explosion protection Intrinsic safety (EEx - "Explosion-proof (EE - "Intrinsic safety and (EEx ia + EEx d)" 8) - "Ex nA/nL (Zone 2)" "Intrinsic safety, explust explosion protection protection in the process of the proc	Electronics housing Die-cast aluminum Stainless steel precision casting ⁶) English label inscriptions nguages on CD able) otection: (a)" (x d)" ⁷) flameproof enclosure and action (EEx ia+ EEx d + of protection: xplosion Proof (is + xp)" ⁷ cable entry (59) (1.5 NPT	, 			3	A B D P E R N C A B

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

Available ex stock

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

Included in delivery of the device:

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

Transmitters for general requirements

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

Selection and Ordering	g data		Ord	dei	۲١	VO.				
Pressure transmitter for										
from differential press	ure series									
SITRANS P DS III with	PROFIBUS PA (PA)	F)	7 M	F	4	3 3	3 4	-		
SITRANS P DS III with	FOUNDATION Fieldbus	F)	7 M	F	4	3 3	3 5			
(FF)		Í								
Measuring cell filling	Measuring cell				T			T		_
	cleaning									
Silicone oil	normal		1							
Inert liquid ¹⁾	grease-free to		3							
	cleanliness level 2	_								
Nominal measuring ra	-	_/								
250 mbar a 1300 mbar a	(3.62 psia)	E)	D F							
5 bar a	(18.85 psia) (72.5 psia)	E)	G							
30 bar a	(435 psia)	<u>-)</u>	Н							
100 bar a	(1450 psia)			Ε						
	, ,		ľ	-						
Wetted parts materials Seal diaphragm	Parts of measuring cell									
Seal diaphragm		-								
Stainless steel	Stainless steel			A						
Hastelloy	Stainless steel			В						
Hastelloy	Hastelloy			С						
Tantalum Manal	Tantalum	E/		Е						
Monel Gold	Monel Gold	E)		H						
aoid Version as diaphragm s				Y						
	eai ' ' '			ı						
Process connection	T 10 0									
	T with flange connection									
 Sealing screw opposit 	e process connection 3-20 UNF to IEC 61518									
	•				2					
- Mounting thread M1					0					
(only for replacementVent on side of process										
	3-20 UNF to IEC 61518									
					6					
 Mounting thread M1 (only for replacement 					4					
Non-wetted parts mate		-								
process flange screws										
Stainless steel	Die-cast aluminum	-				2				
Stainless steel	Stainless steel precision					3				
	casting									
Version		_								
 Standard versions 							1			
 International version, I 	English label inscriptions,						2			
documentation in 5 la										
(no order code selecta	abie)									
Explosion protection										
• None								A		
With ATEX, Type of pro										
- "Intrinsic safety (EEx								В		
- "Explosion-proof (EE- "Intrinsic safety and								D P		
(EEx ia + EEx d)" 7)	nameproor enclosure							٢		
- "Ex nA/nL (Zone 2)"								Е		
- "Intrinsic safety, expl	osion-proof enclosure and							R		
dust explosion prote	ction (EEx ia + EEx d +									
Zone 1D/2D)" ⁽¹⁾ (not	for DS III FF)									
• With FM + CSA, Type		,								
	ynlosion Proof (is + yn)" ⁶)						N	С	
- "Intrinsic Safe und E	xpiosioi111001 (i3 1 xp)									
- "Intrinsic Safe und E		_								
 "Intrinsic Safe und E Electrical connection/o Screwed gland M20 x 	cable entry 1.5								В	
- "Intrinsic Safe und E Electrical connection/o	cable entry 1.5 NPT							(B C F	

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

Included in delivery of the device:

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

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

Selection and Ordering data	Order	code		
Further designs Add "-Z" to Order No. and specify Order Code.		HART	PA	FF
Pressure transmitter with mounting bra-				
cket (2 shackles, 4 nuts, 4 U-plates, 1 angle) made of:				
• Steel	A01	✓	✓	✓
Stainless steel	A02	✓	✓	✓
O-rings for process flanges				
(instead of FPM (Viton))	A 20	./	./	./
PTFE (Teflon)FEP (with silicone core, approved for food)	A20 A21	V	V	*
• FFPM (Kalrez, compound 4079)	A22	1	1	1
• NBR (Buna N)	A23	✓	✓	✓
plug				
Han 7D (metal, gray) Han 7D (instead of Han 7D)	A30 A31	1		
Han 8U (instead of Han 7D)Angled	A32	1		
Han 8D (metal, gray)	A33	1		
Sealing screw	A40	1	1	1
1/4-18 NPT, with valve in mat. of process flanges				
Cable sockets for M12 connectors (metal)	A50	✓	✓	✓
Rating plate inscription				
(instead of German)	B11	1	1	,
EnglishFrench	B12	1	*	V
• Spanish	B13	✓	✓	✓
Italian	B14	✓	✓	✓
English rating plate	B21	✓	✓	✓
Pressure units in inH ₂ 0 and/or psi				
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2 ¹⁾	C11	✓	✓	✓
Inspection certificate ²⁾ Acc. to EN 10204-3.1	C12	✓	✓	1
Factory certificate Acc. to EN 10204-2.2	C14	✓	✓	✓
"Functional safety (SIL2)" certificate to IEC 61508	C20	✓		
PROFIsafe certificate and protocol	C21		✓	
"Functional safety (SIL2/3)" certificate to IEC 61508	C23	✓		
Device passport Russia (For price request please contact the technical	C99	✓	✓	1
support www.siemens.com/automation/support-request)				
Setting of upper limit of	D05	1		
output signal to 22.0 mA				
Manufacturer's declaration acc. to NACE (only together with seal diaphragm made of Hastelloy and stainless steel)	D07	~	✓	✓
Degree of protection IP68 (only for M20 x 1.5 and ½-14 NPT)	D12	✓	✓	✓
Supplied with oval flange (1 item), PTFE packing and screws in thread of process flange	D37	✓	✓	✓
Use in or on zone 1D/2D (only together with type of protection "Intrinsic safety (EEx ia)")	E01	✓	✓	✓
Oxygen application (In the case of oxygen measurement and inert liquid max. 120 bar a (1740 psia) at 60°C (140 °F))	E10	1	✓	✓
Export approval Korea	E11	1	✓	1
Explosion-proof "Intrinsic safety" (Ex ia) to	E25	1	✓	1
INMETRO (Brazil)				

Selection and Ordering data	Order	code		
Further designs Add "-Z" to Order No. and specify Order Code.		HART	PA	FF
Explosion-proof "Intrinsic safety" (Ex d) to INMETRO (Brazil) (only for transmitter 7MF4D)	E26	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4P)	E28	✓	✓	
Ex Approval IEC Ex (EEx ia) (only for transmitter 7MF4B)	E45	✓	✓	✓
Ex Approval IEC Ex (EEx id) (only for transmitter 7MF4D)	E46	✓	✓	✓
Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B)	E55	✓	✓	1
Explosion protection "Explosion-proof" to NEPSI (China)	E56	✓	✓	✓
(only for transmitter 7MF4				
Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4E)	E57	✓	✓	✓
Two coats of lacquer on casing and cover (PU on epoxy)	G10	✓	✓	✓
Interchanging of process connection side	H01	✓	✓	✓
Vent on side for gas measurements	H02	✓	✓	✓
Process flange Hastelloy Monel Stainless steel with PVDF insert max. PN 10 (MAWP 145 psi), max. temperature of medium 90 °C (194 °F) For ½-14 NPT inner process connection on the side in the middle of the process flange, vent valve not possible	K01 ^{F)} K02 ^{F)} K04 ^{F)}	* * *	√ √	* * *
1) When the manufacture's certificate (calibratio	n cortifi	oato) ha	to bo	ord

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

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

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

Selection and Ordering data	Order	code		
Additional data		HART	PA	FF
Please add "-Z" to Order No. and specify Order code(s) and plain text.				
Measuring range to be set Specify in plain text (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi	Y01	1		
Stainless steel tag plate (measuring point description) Max. 16 characters, specify in plain text: Y15:	Y15	✓	✓	✓
Measuring point text Max. 27 characters, specify in plain text: Y16:	Y16	✓	✓	✓
Entry of HART address (TAG) Max. 8 characters, specify in plain text: Y17:	Y17	✓		
Setting of pressure indication in pressure units	Y21	✓	✓	✓
Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, Note:				
The following pressure units can be selected: bar, mbar, mm H ₂ O [*]), inH ₂ O [*]), ftH ₂ O [*]), mmHG, inHG, psi, Pa, kPa, MPa, g/cm ² , kg/cm ² , Torr, ATM or % *) ref. temperature 20 °C				
Setting of pressure indication in non-pressure units ³⁾ Specify in plain text: Y22: up to I/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		✓	

Factory mounting of valve manifolds, see accessories.

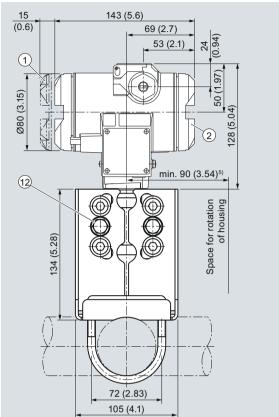
Only "Y01", "Y21", "Y22", "Y25" and "D05" can be factory preset

✓ = available

Transmitters for general requirements

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

Dimensional drawings



- 1 Electronic side, digital display (longer overall length for cover with window)¹⁾
- (2) Terminal side¹⁾
- 3 Electrical connection: Screwed gland Pg 13,5 (adapter)(Adapter)^{2) 3)}, Screwed gland M20 x 1,5 or Screwed gland ½-14 NPT or Han 7D/ Han 8D^{2) 3)} plug
- 4 Harting adapter
- 5 Protective cover over keys
- 1) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
- 2) Not with type of protection "Explosion-proof enclosure"
- 3) Not with type of protection "FM + CSA" [IS + XP]"
- 4) 92 mm (3.62 inch) for minimum distance to permit rotation with indicator
- 5) For Pg 13,5 with adapter approx. 45 mm (1.77 inch)

84 (3.31)

6 Blanking plug

29

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

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

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

Technical specifications

Technical specifications				
SITRANS P, DS III for differential pressure and				
	HART		PROFIBUS PA and I	FOUNDATION Fieldbus
Input Management and in the		D:#ti-l		
Measured variable	0 ()		ressure and flow	
Spans (infinitely adjustable) or nominal measuring range and max. permissible operating pressure	Span (min max.)	Maximum operating pressure	Nominal measuring range	Maximum operating pressure
	1 20 mbar (0.4 8 inH ₂ O)	32 bar (464 psi)	20 mbar (8 inH ₂ O)	32 bar (464 psi)
	1 60 mbar (0.4 24 inH ₂ O)	160 bar (2320 psi)	60 mbar (24 inH ₂ O)	160 bar (2320 psi)
	2.5 250 mbar (1 100 inH ₂ O)		250 mbar (100 inH ₂ O)	
	6 600 mbar (2.4 240 inH ₂ O)		600 mbar (240 inH ₂ O)	
	16 1600 mbar (6.4 642 inH ₂ O)		1600 mbar (642 inH ₂ O)	
	50 5000 mbar (20 2000 inH ₂ O)		5 bar (2000 inH ₂ O)	
	0.3 30 bar (4.35 435 psi)		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)	
Lower measuring limit				
 Measuring cell with silicone oil filling 	-100 % of max. spa	n (-33 % with 30 bar (43	5 psi) measuring cell o	r 30 mbar a (0.44 psia))
Upper measuring limit	100 % of max. spa	an (for oxygen version ar	nd inert filling liquid; ma	ax. 120 bar (1740 psi))
Output				
Output signal	4 20 mA		Digital PROFIBUS PA FOUNDATION Fields	
Lower limit (infinitely adjustable)	3.55 mA, factory prese		-	
Upper limit (infinitely adjustable)	23 mA, factory preset to set to 22.0 mA	o 20.5 mA or optionally	-	
Load Without HART	$R_{\rm B} \le (U_{\rm H} - 10.5 \rm V)/0.02$	23 A in Ω ,	-	
• With HART	$U_{\rm H}$: Power supply in V $R_{\rm B} = 230 \dots 500 \Omega (\text{SIN})$		-	
Physical bus	$R_{\rm B} = 230 \dots 1100 \Omega ({\rm Hz})$	ART Communicator)	IEC 61158-2	
Protection against polarity reversal	Protected against shor			against the other with max.
Measuring accuracy			EC 60770-1	
Reference conditions (All error data refer always refer to the set span)			bar, stainless steel sea	al diaphragm, silicone oil fil- span / set span)
Error in measurement at limit setting incl. hysteresis and reproducibility		. "		
Linear characteristic			≤ 0.075 %	
- r ≤ 10	$\leq (0.0029 \cdot r + 0.071) \%$			
- 10 < r ≤ 30 - 30 < r ≤ 100	\leq (0.0045 · r + 0.071) % \leq (0.005 · r + 0.05) %	6		
	≥ (U.UUJ·I + U.UJ) %			
	,		< 0.1%	
• Square-rooted characteristic (flow > 50 %) - r ≤ 10	≤ 0.1 %		≤ 0,1 %	

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

SITRANS P, DS III for differential pressure and	HART	PROFIBUS PA and FOUNDATION Fieldbus
Square-rooted characteristic	MANI	≤ 0.2
(flow > 25 50 %)		≥ 0.2
- r ≤ 10	≤ 0.2 %	
- 10 < r ≤ 30	≤ 0.4 %	
Long-term stability temperature change ± 30 °C (± 54 °F))	≤ (0.25 · r)% every 5 years static pressure max. 70 bar (1015 psi)	≤ 0.25 % every 5 years static pressure max. 70 bar (1015 psi)
20 mbar (0.29 psi)-measuring cell	≤ (0.2 · r) per year	≤ 0.2 per year
250, 600, 1600 and 5000 mbar (0.29, 0.87, 2.32 and 7.25 psi) -measuring cell	≤ (0.125 · r) per 5 years	≤ 0.125 per 5 years
nfluence of ambient temperature		
at -10 +60 °C (14 140 °F)	$\leq (0.08 \cdot r + 0.1) \%^{1)}$	≤ 0.3 %
e at -4010 °C and 60 85 °C (-40 +14 °F and 140 185 °F)	\leq (0.1 · r + 0.15) %/10 K (Twice the value with 20-mbar (0.29 psi) measuring cell)	≤ 0.25 %/10 K
nfluence of static pressure		
on the zero point (PKN)	≤ (0.15 · r)% per 70 bar (1015 psi)	≤ 0.15 % per 70 bar (1015 psi)
- 20 mbar (0.29 psi)-measuring cell	≤ (0.15 · r)% per 32 bar (464 psi)	≤ 0.15 % per 32 bar (464 psi)
on the span (PKS)	≤ 0.14 % per 70 bar (1015 psi)	-
- 20 mbar (0.29 psi)-measuring cell	≤ 0.2 % per 32 bar (464 psi)	-
Measured Value Resolution	-	$3 \cdot 10^{-5}$ of nominal measuring range
Rated conditions		
Degree of protection (to EN 60529)	IP65, op	tional IP68
emperature of medium		
Measuring cell with silicone oil filling	-40 +100 °C	G (-40 +212 °F)
Measuring cell with inert filling liquid	-20 +100 °C	C (-4 +212 °F)
In conjunction with dust explosion protection	-20 +60 °C	C (-4 +140 °F)
Ambient conditions		
Ambient temperature		
- Display readable	-30 +85 °C	(-22 +185 °F)
Storage temperature	-50 +85 °C	(-58 +185 °F)
Climatic class		
- Condensation		idity 0 100 %
5 1	Condensation permissible,	suitable for use in the tropics
• Electromagnetic Compatibility	A	LANGE OF STREET
- Emitted interference and interference immunity	Acc. to EN 61326	and NAMUR NE 21
Design		(0.0 (lb)
Weight (without options)	·	(≈ 9.9 (lb)
Enclosure material	Low-copper die-cast aluminum, GD-AlSi12 or	stainless steel precision casting, mat. no. 1.440
Vetted parts materials • Seal diaphragm	Stainless steel, mat. no. 1.4404/316L or Hastellu	oy C276, mat. no. 2.4819, Monel, mat. no. 2.436 m or gold
Measuring cell filling	Silicone oil or inert filling liquid (maximum valu	e with oxygen measurement pressure 120 bar a t 60 °C (140 °F))
Process connection	Female thread 1/4-18 NPT and flange connec	tion with mounting thread M10 to DIN 19213 or to IEC 61518
Material of mounting bracket	. 10	
Steel	Sheet-steel, Mat. No.	1.0330, chrome-plated
• Stainless steel		mat. no. 1.4301 (SS 304)
Power supply $U_{\mathbb{H}}$		Supplied through bus
Ferminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	-
Separate 24 V power supply necessary	-	No
Bus voltage		
• Not Ex	_	9 32 V
With intrinsically-safe operation		9 24 V

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

SITRANS P, DS III for differential pressure and	HART	PROFIBUS PA and FOUNDATION Fieldbus
Power supply <i>U_H</i> (Continuation)		
Current consumption		
Basic current (max.)	-	12.5 mA
• Start-up current ≤ basic current	-	Yes
Max. current in event of fault	-	15.5 mA
Fault disconnection electronics (FDE) available	-	Yes
Certificates and approvals		
Classification according to PED 97/23/EC		
PN 32/160 (MAWP 464/2320 psi)		group 1; complies with requirements of article 3, engineering practice)
PN 420 (MAWP 6092 psi)	Article 3, paragraph 1 (appendix 1); assigned t	oup 1; complies with basic safety requirements o o category III, conformity evaluation module H by JV Nord.
Explosion protection		
Intrinsic safety "i"	PTB 99 /	ATEX 2122
- Marking	Ex II 1/2 G EE	x ia/ib IIB/IIC T6
- Permissible ambient temperature	-40 +70 °C (-40 +15	5°F) temperature class T4; 8°F) temperature class T5; 10°F) temperature class T6
- Connection	To certified intrinsically-safe circuits with peak values: $U_i = 30 \text{ V}$, $I_i = 100 \text{ mA}$,	FISCO supply unit: $U_0 = 17.5 \text{ V}$, $I_0 = 380 \text{ mA}$, $P_0 = 5.32 \text{ W}$
	$P_{i} = 750 \text{ mW}; R_{i} = 300 \Omega$	Linear barrier: $U_0 = 24 \text{ V}, I_0 = 250 \text{ mA}, P_0 = 1.2 \text{ W}$
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_{\rm i} = 7 \mu \text{H}, C_{\rm i} = 1.1 \text{nF}$
Explosion-proof "d"	PTB 99 /	ATEX 1160
- Marking		Ex d IIC T4/T6
- Permissible ambient temperature	-40 +85 °C (-40 +18 -40 +60 °C (-40 +14	15 °F) temperature class T4; 10 °F) temperature class T6
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC	To circuits with values: $U_{\rm H}$ = 9 32 V DC
Dust explosion protection for zone 20	PTB 01 /	ATEX 2055
- Marking		P65 T 120 °C IP65 T 120 °C
- Permissible ambient temperature	-40 +85 °C	(-40 +185 °F)
- Max. surface temperature	120 °C	C (248 °F)
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}=30$ V, $I_{\rm i}=100$ mA, $P_{\rm i}=750$ mW, $P_{\rm i}=300$ 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	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_i = 7 \mu H, C_i = 1.1 \text{ nF}$
• Dust explosion protection for zone 21/22		ATEX 2055
- Marking		P65 T 120 °C
- Connection	To circuits with values: $U_{\rm H} = 10.5 \dots 45 \text{ V DC}$; $P_{\rm max} = 1.2 \text{ W}$	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
- Marking	Ex II 3 G EEx nA L IIC T4/T5/T6	_
Explosion protection acc. to FM		mpliance 3008490
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV 1, 0	GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4T6; T6; CL II, DIV 2, GP FG; CL III
Explosion protection to CSA		mpliance 1153651
- Identification (XP/DIP) or (IS)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV 1, GP E	FG; CL III; Ex ia IIC T4T6; CL I, DIV 2, GP ABCI IV 2, GP FG; CL III

¹⁾ Conversion of temperature error per 28 °C. Valid for temperature range -3 ... +53 °C < (0.064 . r + 0.08) % / 28 °C (50 °F).

Transmitters for general requirements

SITRANS P DS III for differential pressure and flow

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

FOUNDATION Fieldbus communication

Function blocks

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

3 function blocks analog input, 1 function block PID

Yes, linearly rising or falling characteristic

0 ... 100 s

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

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

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

Yes

Standard FOUNDATION Fieldbus function block

1 resource block

1 transducer block Pressure with calibration, 1 transducer block LCD

Yes

Yes

Constant value or over parameterizable ramp function

Transmitters for general requirements

SITRANS P DS III for differential pressure and flow

ioi amerenda pi			
Selection and Ordering	g data		Order No.
SITRANS P DS III with mitters for differential PN 32/160 (MAWP 464)	pressure and flow,		7 M F 4 4 3 3 -
Measuring cell filling	Measuring cell		
Silicone oil	cleaning normal		1
Inert liquid ¹⁾	grease-free to		3
mort liquid	cleanliness level 2		ı ı
Measuring span (min. PN 32 (MAWP 464 psi)	max.)		
1 20 mbar ²⁾	(0.4015 8.03 inH ₂ O)	▶	В
PN 160 (MAWP 2320 ps	si)		
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 G
50 5000 mbar 0,3 30 bar	(20.08 2008 inH ₂ O) (4.35 435 psi)	•	H
Wetted parts materials (stainless steel process			
Seal diaphragm	Parts of measuring cell		
Stainless steel	Stainless steel		A
Hastelloy	Stainless steel		B
Hastelloy	Hastelloy		c
Tantalum ³⁾	Tantalum		E
Monel ³⁾	Monel		Н
Gold ³⁾	Gold		L
Version for diaphragm s	eal ⁴⁾⁵⁾		Υ
Process connection			
	T with flange connection		
Sealing screw opposit	e process connection -20 UNF to IEC 61518		
 Mounting thread 1/16 Mounting thread M1 			2
(only for replacemen			
 Vent on side of proces 	ss flange ²⁾		
	₃ -20 UNF to IEC 61518		6
- Mounting thread M1			4
(only for replacemen			
Non-wetted parts mate process flange screws	Electronics housing		
·	Die-cast aluminum	_	
Stainless steel Stainless steel	Stainless steel precision		2
Stairliess steel	casting ⁶⁾		3
Version			
 Standard versions 			1
• International version, I	English label inscriptions,	▶	2
documentation in 5 la (no order code select			
	2010)		
Explosion protectionNone			A
With ATEX, Type of pro	otection:		
- "Intrinsic safety (EEx			В
- "Explosion-proof (EE	x d)" ⁷⁾		D
- "Intrinsic safety and	flameproof enclosure"		P
(EEx ia + EEx d) ⁽⁸⁾			_
- "Ex nA/nL (Zone 2)" - "Intrinsic safety expl	osion-proof enclosure and		E R
dust explosion prote	ction (EEx ia+ EEx d +		n
Zone 1D/2D)"8)			
• With FM + CSA, Type			
- "Intrinsic Safe und E	xplosion Proof (is + xp)" ⁷⁾		NC

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

Available ex stock

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

Included in delivery of the device:

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

Transmitters for general requirements

SITRANS P DS III for differential pressure and flow

Selection and Ordering	n data	Or	de	· No.	
Selection and Ordering Pressure transmitters	j data for differential pressure	UI	uel	INU.	
and flow PN 32/160 (M	AWP 464/2320 psi)				
SITRANS P DS III with	PROFIBUS PA (PA)	7 N	1F	4434-	
	FOUNDATION Fieldbus	7 N	1F	4435-	
(FF)					
Manageria and filling	Magazzeiner agli				
Measuring cell filling	Measuring cell cleaning				
Silicone oil	normal	1			
Inert liquid ¹⁾	grease-free to cleanliness level 2	3			
Nominal measuring ra					
PN 32 (MAWP 464 psi)	iige				
20 mbar ²⁾	(8.03 inH ₂ O)	E	3		
PN 160 (MAWP 2320 ps	i)				
60 mbar	(24.09 inH ₂ O)	C			
250 mbar	(100.4 inH ₂ O)	_ C			
600 mbar 1600 mbar	(240.9 inH ₂ O) (642.4 inH ₂ O)	F	_		
5 bar	(2008 inH ₂ O)	Ġ			
30 bar	(435 psi)	H	ı		
Wetted parts materials					
(stainless steel process Seal diaphragm	flanges) Parts of measuring cell				
Stainless steel	Stainless steel		Α		
Hastelloy	Stainless steel		В		
Hastelloy	Hastelloy		С		
Tantalum ³⁾	Tantalum		E		
Monel ³⁾ Gold ³⁾	Monel Gold		H		
Gold 7 Version as diaphragm s			Y		
Process connection			Ė		
	T with flange connection				
 Sealing screw opposit 					
- Mounting thread ⁷ / ₁₆			:	2	
- Mounting thread M10				0	
(only for replacemenVenting on side of prod					
 Mounting thread ⁷/₁₆ 	-20 UNF to IEC 61518			6	
- Mounting thread M10				4	
(only for replacemen	t requirement)				
Non-wetted parts mate	rials				
process flange screws	Electronics housing				
process flange screws Stainless steel				2 3	
process flange screws Stainless steel	Electronics housing Die-cast aluminum				
process flange screws Stainless steel Stainless steel Version	Die-cast aluminum Stainless steel precision			3	
process flange screws Stainless steel Stainless steel Version • Standard versions	Electronics housing Die-cast aluminum Stainless steel precision casting			3	
process flange screws Stainless steel Stainless steel Version Standard versions International version, Edocumentation in 5 lar	Electronics housing Die-cast aluminum Stainless steel precision casting English label inscriptions, Inquages on CD			3	
process flange screws Stainless steel Stainless steel Version Standard versions International version, Edocumentation in 5 lar (no order code selecte	Electronics housing Die-cast aluminum Stainless steel precision casting English label inscriptions, Inquages on CD			3	
process flange screws Stainless steel Stainless steel Version Standard versions International version, Edocumentation in 5 lar (no order code selectate) Explosion protection None	Electronics housing Die-cast aluminum Stainless steel precision casting English label inscriptions, Enguages on CD able)			3	
process flange screws Stainless steel Stainless steel Version • Standard versions • International version, Edocumentation in 5 lar (no order code selecta Explosion protection • None • With ATEX, Type of pro	Electronics housing Die-cast aluminum Stainless steel precision casting English label inscriptions, Enguages on CD able)			3 1 2	
process flange screws Stainless steel Stainless steel Version • Standard versions • International version, Edocumentation in 5 lar (no order code selecta Explosion protection • None • With ATEX, Type of pro-"Intrinsic safety (EEX	Electronics housing Die-cast aluminum Stainless steel precision casting English label inscriptions, Enguages on CD able) otection: ia)"			1 2	
process flange screws Stainless steel Stainless steel Version • Standard versions • International version, Edocumentation in 5 lar (no order code selecta Explosion protection • None • With ATEX, Type of pro "Intrinsic safety (EEX - "Explosion-proof (EEX	Electronics housing Die-cast aluminum Stainless steel precision casting English label inscriptions, Enguages on CD able) otection: ia)" x d)"6)			3 1 2 A B D	
process flange screws Stainless steel Stainless steel Version • Standard versions • International version, Edocumentation in 5 lar (no order code selecta Explosion protection • None • With ATEX, Type of pro "Intrinsic safety (EEx "Explosion-proof (EE "Intrinsic safety and the stainless steel to the stainless st	Electronics housing Die-cast aluminum Stainless steel precision casting English label inscriptions, Enguages on CD able) otection: ia)" x d)"6)			3 1 2 A B	
process flange screws Stainless steel Stainless steel Version • Standard versions • International version, E documentation in 5 lar (no order code selecta Explosion protection • None • With ATEX, Type of pro "Intrinsic safety (EEx - "Explosion-proof (EE - "Intrinsic safety and (EEx ia + EEx d)" (EEx ia + EEx d)"	Electronics housing Die-cast aluminum Stainless steel precision casting English label inscriptions, Enguages on CD able) otection: ia)" x d)"6)			3 1 2 A B D	
process flange screws Stainless steel Stainless steel Stainless steel Version • Standard versions • International version, E documentation in 5 lar (no order code selecta Explosion protection • None • With ATEX, Type of proceed in the steel of the selectation	Electronics housing Die-cast aluminum Stainless steel precision casting English label inscriptions, payages on CD able) Detection: ia)" otection: ia)" flameproof enclosure"			3 1 2 A B D P	
process flange screws Stainless steel Stainless steel Stainless steel Version • Standard versions • International version, E documentation in 5 lar (no order code selecta Explosion protection • None • With ATEX, Type of proceed in the steel of the selectation	Electronics housing Die-cast aluminum Stainless steel precision casting English label inscriptions, payages on CD able) Detection: ia)" otection: ia)" flameproof enclosure"			3 1 2 A B D P E	
process flange screws Stainless steel Stainless steel Stainless steel Version • Standard versions • International version, E documentation in 5 lar (no order code selecta Explosion protection • None • With ATEX, Type of proceed in the steel of the selectation	Electronics housing Die-cast aluminum Stainless steel precision casting English label inscriptions, Inguages on CD able) Detection: ia)" ox d)"6) filameproof enclosure" Desion-proof enclosure and ction (EEx ia + EEx d + for DS III FF)			3 1 2 A B D P E	

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

- Included in delivery of the device:

 Brief instructions (Leporello)

 CD-ROM with detailed documentation

 Sealing plug(s) or sealing screw(s) for the process flanges(s)
- 1) For oxygen application, add Order code E10.
- 2) Not suitable for connection of remote seal. Position of the top vent valve in the process flange (see dimensional drawing).
- $^{3)}$ Not in conjunction with max. span 20 and 60 mbar (8.03 und 24.09 inH₂O))
- 4) When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.
- 5) If the acceptance test certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- 6) Without cable gland, with blanking plug.
- 7) With enclosed cable gland EEx ia and blanking plug.
- 8) M12 delivered without cable socket

Transmitters for general requirements

SITRANS P DS III
for differential pressure and flow

Selection and Ordering data	Order code				
Further designs		HART	PA	FF	
Add "-Z" to Order No. and specify Order Code.					
Pressure transmitter with mounting bracket (2 shackles, 4 nuts, 4 U-plates, 1 angle) made of:					
SteelStainless steel	A01 A02	1	1	√	
O-rings for process flanges (instead of FPM (Viton))					
PTFE (Teflon)FEP (with silicone core, approved for food)	A20 A21	√	√	√	
FFPM (Kalrez, compound 4079)NBR (Buna N)	A22 A23	√	√	✓	
plugHan 7D (metal, gray)	A30	1			
Han 8U (instead of Han 7D)Angled	A31 A32	√			
Han 8D (metal, gray) Seeling across (2 unit(s))	A33 A40	1		./	
Sealing screws (2 unit(s) 1/4-18 NPT, with valve in mat. of process flanges	A40	•	•	•	
Cable sockets for M12 connectors (metal)	A50	✓	✓	✓	
Rating plate inscription (instead of German)					
• English	B11	✓	✓	✓	
• French	B12	√	1	1	
SpanishItalian	B13 B14	V	v	1	
English rating plate	B21	1	1	1	
Pressure units in inH ₂ O and/or psi	DZI	·	•	•	
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2 ¹⁾	C11	✓	✓	1	
Inspection certificate ²⁾ to EN 10204-3.1	C12	✓	✓	✓	
Factory certificate to EN 10204-2.2	C14	✓	✓	✓	
"Functional safety (SIL2)" certificate to IEC 61508	C20	✓			
PROFIsafe certificate and protocol	C21		✓		
"Functional safety (SIL2/3)" certificate to IEC 61508	C23	✓			
Device passport Russia (For price request please contact the technical support	C99	✓	✓	✓	
www.siemens.com/automation/support-request) Setting of upper limit of	D05	√			
output signal to 22.0 mA		, ·			
Manufacturer's declaration acc. to NACE (only together with seal diaphragm made of Hastelloy and stainless steel)	D07	√	✓	✓	
Degree of protection IP68 (only for M20 x 1.5 and ½-14 NPT)	D12	✓	✓	✓	
Process flange screws made of Monel (max. nominal pressure PN20)	D34	✓	✓	✓	
Supplied with oval flange set (2 items), PTFE packings and screws in thread of process flanges	D37	1	1	✓	
Use in or on zone 1D/2D (only together with type of protection "Intrinsic safety (EEx ia)")	E01	✓	✓	✓	
TÜV approval to AD/TRD (only together with type of protection	E06	✓			

0.1 11 10.1 1 11	0 :	,		
Selection and Ordering data	Order			
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order Code.				
Overfilling safety device for flammable and non-flammable liquids (max. PN 32 (MAWP 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	✓		
Oxygen application (In the case of oxygen measurement and inert liquid max. 120 bar a (1740 psia) at 60°C (140 °F))	E10	✓	✓	✓
Export approval Korea	E11	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil)	E25	✓	✓	✓
(only for transmitter 7MF4B) Explosion-proof "Intrinsic safety" (Ex d) to INMETRO (Brazil) (apply for transmitter 7MF4	E26	✓	✓	✓
(only for transmitter 7MF4D) Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4P)	E28	✓	✓	
Ex Approval IEC Ex (EEx ia) (only for transmitter 7MF4B)	E45	✓	✓	✓
Ex Approval IEC Ex (EEx id) (only for transmitter 7MF4	E46	✓	✓	✓
Explosion-proof "Intrinsic safety" to NEPSI (China)	E55	✓	✓	✓
(only for transmitter 7MF4B.) Explosion protection "Explosion-proof" to	E56	1	✓	✓
NEPSI (China) (only for transmitter 7MF4D)				
Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4E)	E57	✓	✓	✓
Two coats of lacquer on casing and cover (PU on epoxy)	G10	✓	✓	✓
Interchanging of process connection side	H01	✓	✓	✓
Vent on side for gas measurements	H02	✓	✓	✓
Stainless steel process flanges for vertical differential pressure lines	H03	✓	✓	✓
(not together with K01, K02 and K04) ³⁾				
Process flange				
Hastelloy Manal	K01	1	1	1
 Monel Stainless steel with PVDF insert max. PN 10 (MAWP 145 psi), max. temperature of medium 90 °C (194 °F) For ½-14 NPT inner process connection on the side in the middle of the process flange, 	K02 K04	*	*	*
vent valve not possible				

Factory mounting of valve manifolds, see accessories.

Supplementary electronics for 4-wire connection, see accessories.

✓ = available

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

Pressure Measurement Transmitters for general requirements

SITRANS P DS III for differential pressure and flow

Selection and Ordering data	election and Ordering data Order code			
Additional data Please add "-Z" to Order No. and specify Order code(s) and plain text.		HART	PA	FF
Measuring range to be set				
Specify in plain text: • in the case of linear characteristic curve (max. 5 characters):	Y01	✓		
Y01: up to mbar, bar, kPa, MPa, psi • in the case of square rooted characteristic (max. 5 characters): Y02: up to mbar, bar, kPa, MPa, psi	Y02	✓		
Stainless steel tag plate (measuring point description) Max. 16 char., specify in plain text: Y15:	Y15	✓	✓	✓
Measuring point text	Y16	1	1	1
Max. 27 char., specify in plain text: Y16:				
Entry of HART address (TAG) Max. 8 char., specify in plain text: Y17:	Y17	✓		
Setting of pressure indicator in	Y21	✓	✓	✓
pressure units Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, Note: The following pressure units can be selected: bar, mbar, mm H ₂ O*), inH ₂ O*), ftH ₂ O*), mmHG, inHG, psi, Pa, kPa, MPa, g/cm², kg/cm², Torr, ATM or % *) ref. temperature 20 °C				
Setting of pressure indicator in non-pressure units 1) Specify in plain text: Y22: up to I/min, m³/h, m, USgpm, (specification of measuring range in pressure units "Y01" or "Y02" is essential, unit with max. 5 characters)	Y22 ²⁾ + Y01 <i>or</i> Y02			
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	Y25		✓	

Factory mounting of valve manifolds, see accessories.

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

✓ = available

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

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

Transmitters for general requirements

SITRANS P DS III
for differential pressure and flow

	coourc and now		
Selection and Ordering		Order	
SITRANS P DS III with		7 M F 4	533-
	nitters for differential pressure and flow, N 420 (MAWP 6092 psi)		
Measuring cell filling	Measuring cell		
-	cleaning		
Silicone oil	normal	1	
Measuring span (min.			
2.5 250 mbar	(1.004 100.4 inH ₂ O)	D	
6 600 mbar	(2.409 240.9 inH ₂ O)	E F	
16 1600 mbar 50 5000 mbar	(6.424 642.4 inH ₂ O) (20.08 2008 inH ₂ O)	G	
0.3 30 bar	(4.35 435 psi)	Н	
Wetted parts materials			
(stainless steel process			
Seal diaphragm	Parts of measuring cell		
Stainless steel	Stainless steel	Α	
Hastelloy	Stainless steel	В	
Gold ¹⁾	Gold	L	
Connection of remote s	eal possible on request		
Process connection			
	T with flange connection		
 Sealing screw opposit Mounting thread ⁷/₂ 	e process connection s-20 UNF to IEC 61518	3	
 Mounting thread 7₁₆ Mounting thread M1 		1	
(only for replacement		'	
 Venting on side of pro 	cess flanges, location of		
vent valve at top of prosional drawing)	ocess flanges (see dimen-		
	₃ -20 UNF to IEC 61518	7	
- Mounting thread M1		5	
(only for replacemen	nt requirement)		
Non-wetted parts mate			
process flange screws	Electronics housing		
Stainless steel	Die-cast aluminum		2
Stainless steel	Stainless steel precision casting ²⁾		3
Version			
Standard versions			1
• International version,	English label inscriptions,		2
documentation in 5 la			
(no order code select	able)		
Explosion protectionNone			Α
 With ATEX, Type of pre 	otection:		^
- "Intrinsic safety (EEx			В
- "Explosion-proof (EE			D
- "Intrinsic safety and	flameproof enclosure"		P
(EEx ia + EEx d)"4)	•		
- "Ex nA/nL (Zone 2)"	anion munof and to the second		E
 Intrinsic safety, expl dust explosion prote 	osion-proof enclosure and ection (FEx ia+ FEx d +		R
Zone 1D/2D) ^{"4)}	ection (EEx ia+ EEx d +		
• With FM + CSA, Type	of protection:		
 "Intrinsic safety and (is + xp)" ³⁾, max PN 	explosion-proof		NC
 Electrical connection/s Screwed gland Pg 13 			۸
 Screwed gland Pg 13 Screwed gland M20x 			A B
 Screwed gland ½-14 			C
Han 7D plug (plastic I connector ⁵⁾⁶⁾	nousing) incl. mating		D
• M12 connectors (meta	ai)' ′		F

Selection and Ordering data	Order No.
SITRANS P DS III with HART pressure trans- mitters for differential pressure and flow, PN 420 (MAWP 6092 psi)	7 M F 4 5 3 3 -
Display • Without display • Without visible display (display concealed, setting: mA) • With visible display • with customer-specific display (setting as specified, Order Code "Y21" or "Y22" required)	0 1 6 7

Available ex stock

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

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

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

Transmitters for general requirements

SITRANS P DS III for differential pressure and flow

Selection and Order		Orde	r No	O	
Pressure transmitte and flow, PN 420 (M	rs for differential pressure AWP 6092 psi)				
SITRANS P DS III wi	ith PROFIBUS PA (PA)	7 M F	4 5	34-	
SITRANS P DS III wi	ith FOUNDATION Fieldbus	7 M F	4 5	35-	
(FF)					
		1		-	
Nominal measuring	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)	G H			
	(435 psi)	. П			
Wetted parts materi					
(stainless steel proce Seal diaphragm	Parts of measuring cell				
Stainless steel Hastelloy	Stainless steel Stainless steel	A B			
Gold 1)	Gold	1			
	e seal possible on request				
Process connection	'				
	NPT with flange connection				
	osite process connection				
	⁷ / ₁₆ -20 UNF to IEC 61518		3		
- Mounting thread I			1		
(only for replacen			ľ		
 Venting on side of p 	process flanges, location of				
vent valve at top of	process flanges (see dimen-				
sional drawing).	7/ 00				
	7/ ₁₆ -20 UNF to IEC 61518		7		
- Mounting thread I			5		
(only for replacen		-			
Non-wetted parts m Process flange screw	aterials vs Electronics housing				
Stainless steel	Die-cast aluminum		2		
Stainless steel	Stainless steel precision		3		
	casting				
Version		_			
 Standard versions 				1	
 International version 	n, English label inscriptions,			2	
documentation in 5 (no order code sele	languages on CD				
1.75 5. 55, 55, 55, 50, 50, 50, 50, 50, 50, 50,		-			
Explosion protection	n				
•	n			Α	
•				A	
NoneWith ATEX, Type of"Intrinsic safety (E	protection: Ex ia)"			A B	
NoneWith ATEX, Type of"Intrinsic safety (E"Explosion-proof (protection: Ex ia)" EEx d)" ²⁾				
 None With ATEX, Type of "Intrinsic safety (E "Explosion-proof ("Intrinsic safety ar 	protection: Ex ia)" EEx d)" ²⁾ nd flameproof enclosure"			В	
 None With ATEX, Type of - "Intrinsic safety (E - "Explosion-proof (- "Intrinsic safety ar (EEx ia + EEx d)" 	protection: Ex ia)" EEx d)" ²⁾ nd flameproof enclosure" 3)			B D P	
- "Intrinsic safety (E - "Explosion-proof (- "Intrinsic safety ar (EEx ia + EEx d)" - "Ex nA/nL (Zone 2)	protection: Ex ia)" EEx d)" ²⁾ nd flameproof enclosure" 2)"			B D P	
 None With ATEX, Type of - "Intrinsic safety (E - "Explosion-proof (- "Intrinsic safety ar (EEx ia + EEx d)" - "Ex nA/nL (Zone 2 - "Intrinsic safety, ex 	protection: EEx ia)" EEx d)" ²⁾ nd flameproof enclosure" 2)" oplosion-proof enclosure and			B D P	
 None With ATEX, Type of - "Intrinsic safety (E - "Explosion-proof (- "Intrinsic safety ar (EEx ia + EEx d)" - "Ex nA/nL (Zone 2 - "Intrinsic safety, ex 	protection: EEx ia)" EEx d)" ²⁾ nd flameproof enclosure" 2)" oplosion-proof enclosure and			B D P	
 None With ATEX, Type of - "Intrinsic safety (E - "Explosion-proof (- "Intrinsic safety ar (EEx ia + EEx d)" - "Ex nA/nL (Zone 2 - "Intrinsic safety, ex 	protection: Ex ia)" EEx d)" ²⁾ nd flameproof enclosure" 2)" xplosion-proof enclosure and otection (EEx ia + EEx d + ot for DS III FF)			B D P	
 None With ATEX, Type of - "Intrinsic safety (E - "Explosion-proof (- "Intrinsic safety ar (EEx ia + EEx d)" - "Ex nA/nL (Zone 2 - "Intrinsic safety, ex dust explosion produst explosion produst explosion produst explosion product explosi	protection: Ex (a)" EEx (d)" ²⁾ nd flameproof enclosure" 2)" (x)losion-proof enclosure and otection (EEx ia + EEx d + ot for DS III FF) De of protection:			B D P	
None With ATEX, Type of "Intrinsic safety (E "Explosion-proof ("Intrinsic safety ar (EEx ia + EEx d)" "Ex nA/nL (Zone 2 "Intrinsic safety ar dust explosion produst explosion produst explosion product explosion of the content of the conte	protection: Ex (a)" EEx (d)" ²⁾ nd flameproof enclosure" 2)" (x)losion-proof enclosure and otection (EEx ia + EEx d + ot for DS III FF) De of protection:			B D P E R	
 None With ATEX, Type of - "Intrinsic safety (E - "Explosion-proof (- "Intrinsic safety ar (EEx ia + EEx d)" - "Ex nA/nL (Zone 2 - "Intrinsic safety, ex dust explosion produst explosion produst explosion produst explosion product explosi	protection: Ex (a)" EEx (d)" ²⁾ and flameproof enclosure" 2)" (xplosion-proof enclosure and otection (EEx ia + EEx d + ot for DS III FF) De of protection: and explosion-proof N 360			B D P E R	
 None With ATEX, Type of "Intrinsic safety (E "Explosion-proof ("Intrinsic safety ar (EEx ia + EEx d)" "Ex nA/nL (Zone 2 "Intrinsic safety of dust explosion proposed to proposed t	protection: (Ex ia)" (Ex d)" ²) (Ind flameproof enclosure" (Ind flameproof enclosure and otection (EEx ia + EEx d + ot for DS III FF) (Ind explosion-proof enclosure and otection (Ex ia + EEx d + ot for DS III FF) (Ind explosion-proof enclosure and explosion-proof enclosure entry 0 x 1.5			B D P E R	
None With ATEX, Type of "Intrinsic safety (E "Explosion-proof ("Intrinsic safety ar (EEx ia + EEx d)" "Ex nA/nL (Zone 2 "Intrinsic safety ar dust explosion produst explosion produst explosion of the control of the	protection: (Ex ia)" (Ex d)" ² (Ind flameproof enclosure") (Ind flameproof enclosure and obtection (EEx ia + EEx d + ot for DS III FF) (Ind explosion-proof enclosure and obtection (Ex ia + EEx d + ot for DS III FF) (Ind explosion-proof enclosure and explosion-proof enclosion enclosion enclosure and explosion-proof enclosure and explosion-proof enclosure and explosion enclosion enclo	_		B D P E R	

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

Available ex stock

Included in delivery of the device:

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

Transmitters for general requirements

SITRANS P DS III for differential pressure and flow

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order Code.				
Pressure transmitter with mounting bra- cket (2 shackles, 4 nuts, 4 U-plates, 1 angle) made of:				
Steel Stainless steel	A01 A02	1	√	√
O-rings for process flanges	702		Ť	·
(instead of FPM (Viton))				
• PTFE (Teflon)	A20	1	1	1
 FEP (with silicone core, approved for food) FFPM (Kalrez, compound 4079) 	A21 A22	1	√	∀
• NBR (Buna N)	A23	✓	✓	✓
Plug				
Han 7D (metal, gray)	A30	1		
Han 8U (instead of Han 7D)Angled	A31 A32	✓		
Han 8D (metal, gray)	A33	1		
Sealing screws (2 unit(s) 1/4-18 NPT, with valve in mat. of process flanges	A40	✓	✓	✓
Cable sockets for M12 connectors (metal)	A50	1	✓	✓
Rating plate inscription (instead of German)				
English	B11	1	1	1
• French	B12	✓	✓	✓
• Spanish	B13 B14	1	1	1
• Italian	B14	1	v	·
English rating plate Pressure units in inH ₂ O and/or psi	DZI			
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2	C11	✓	✓	✓
Inspection certificate Acc. to EN 10204-3.1	C12	✓	✓	✓
Factory certificate Acc. to EN 10204-2.2	C14	✓	✓	✓
"Functional safety (SIL2)" certificate to IEC 61508	C20	✓		
PROFIsafe certificate and protocol	C21		✓	
"Functional safety (SIL2/3)" certificate to IEC 61508	C23	✓		
Device passport Russia (For price request please contact the technical support www.siemens.com/automation/support-request)	C99	✓	✓	✓
Setting of upper limit of output signal to 22.0 mA	D05	✓		
Manufacturer's declaration acc. to NACE (only together with seal diaphragm made of Hastelloy and stainless steel)	D07	✓	✓	1
Degree of protection IP68 (only for M20 x 1.5 and ½-14 NPT)	D12	✓	✓	✓
Nominal pressure rating PN 500 (MAWP 7250 psi)	D56	✓		
(Only for measuring cell 600 mbar 30 bar (240 inH ₂ O 435 psi), SIL- und Ex-options not possible)) ²⁾				
Use in or on zone 1D/2D (only together with type of protection "Intrinsic safety (EEx ia)")	E01	✓	✓	✓
Export approval Korea	E11	1	✓	1
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil)	E25	✓	1	✓
(only for transmitter 7MF4B)	E26	1	1	1
Explosion-proof "Intrinsic safety" (Ex d) to INMETRO (Brazil)	LZU			

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order Code.				
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4P)	E28	1	✓	
Ex Approval IEC Ex (EEx ia) (only for transmitter 7MF4	E45	✓	✓	✓
Ex Approval IEC Ex (EEx id) (only for transmitter 7MF4)	E46	✓	✓	✓
Explosion-proof "Intrinsic safety" to NEPSI (China)	E55	✓	✓	1
(only for transmitter 7MF4B) Ex prot. "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D)	E56	✓	✓	1
Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4E)	E57	✓	✓	✓
Two coats of lacquer on casing and cover (PU on epoxy)	G10	✓	✓	✓
Interchanging of process connection side	H01	✓	1	1
Stainless steel process flanges for vertical differential pressure lines	H03	✓	✓	✓
Additional data				
Please add "-Z" to Order No. and specify Order code(s) and plain text.				
Measuring range to be set				
Specify in plain text: • in the case of linear characteristic curve (max. 5 characters):	Y01	1		
Y01: up to mbar, bar, kPa, MPa, psi • in the case of square rooted characteristic (max. 5 characters): Y02: up to mbar, bar, kPa, MPa, psi	Y02	1		
Stainless steel tag plate	Y15	1	1	1
(measuring point description)				
Max. 16 char., specify in plain text: Y15: Measuring point text	Y16	1	✓	✓
Max. 27 char., specify in plain text: Y16: Entry of HART address (TAG) Max. 8 char., specify in plain text: Y17:	Y17	✓		
Setting of pressure indication in pressure	Y21	1	1	1
units Specify in plain text (standard setting: bar):	121	Ľ	•	•
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	\/a=			
Setting of pressure indication in non-pressure units ¹⁾ Specify in plain text: Y22: up to I/min, m³/h, m, USgpm, (specification of measuring range in pressure units "Y01" or "Y02" is essential, unit with max. 5 characters)	Y22 + Y01 0 Y02			
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	Y25		✓	
Factory mounting of valve manifolds, see acc	occorio	c		

Factory mounting of valve manifolds, see accessories.

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

^{✓ =} available

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

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

Transmitters for general requirements

SITRANS P DS III for differential pressure and flow

(8)

(10)

68 (2.7)

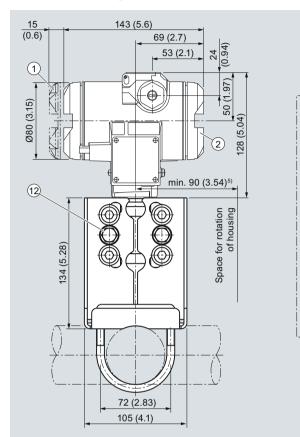
120 (4.7)

166 (6.54)

96 (3.8)

262 (10.3)

Dimensional drawings



- 1 Electronic side, digital display (longer overall length for cover with window)1)
- (2) Terminal side¹⁾
- 3 Electrical connection: Screwed gland Pg 13,5 (adapter)(Adapter)^{2) 3)}, Screwed gland M20 x 1,5 or Screwed gland ½-14 NPT or Han 7D/ Han 8D2)3)plug
- 4 Harting adapter
- Protective cover over keys

(6) Blanking plug

(3)

approx. 96 (3.78)

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

52 (2.05)

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

17 (0.67)

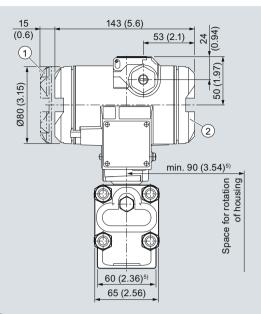
(4)

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

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

Transmitters for general requirements

SITRANS P DS III for differential pressure and flow



- 17 (0.67) 29 (1.14)8) 84 (3.31) approx. 96 (3.78) (6) 128 (5.04) 217 (8.54)7) (8) 85 (3.35)6) approx. 87 (3.43)
- 1 Electronic side, digital display (longer overall length for cover with window)1)
- 2 Terminal side¹⁾
- 3 Electrical connection: Screwed gland Pg 13,5 (adapter)(Adapter)^{2) 3)}, Screwed gland M20 x 1,5 or Screwed gland ½-14 NPT or Han 7D/ Han 8D^{2) 3)} plug
- 4 Harting adapter
- 1) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
- Not with type of protection "Explosion-proof enclosure" Not with type of protection "FM + CSA" [IS + XP]"
- 92 mm (3.6 inch) for minimum distance to permit rotation with indicator
- 74 mm (2.9 inch) for PN ≥ 420 (MAWP ≥ 6092 psi)
- 6) 91 mm (3.6 inch) for PN \geq 420 (MAWP \geq 6092 psi)
- 219 mm (8.62 inch) for PN ≥ 420 (MAWP ≥ 6092 psi)
- For Pg 13,5 with adapter approx. 45 mm (1.77 inch)

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

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



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

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

Technical specifications

SITRANS P DS III for level				
	HART		PROFIBUS PA or FO	UNDATION Fieldbus
Input				
Measured variable	Level			
Spans (infinitely adjustable) or nominal measuring range and max. permissible operating pressure	Span (min max.)	Maximum operating pressure	Nominal measuring range	Maximum operating pressure
	25 250 mbar (10 100 inH ₂ O)	See "Mounting flange"	250 mbar (100 inH ₂ O)	See "Mounting flang
	25 600 mbar (10 240 inH ₂ O)	See "Mounting flange"	600 mbar (240 inH ₂ O)	See "Mounting flang
	53 1600 mbar (21 642 inH ₂ O)	See "Mounting flange"	1600 mbar (642 inH ₂ O)	See "Mounting flang
	160 5000 mbar (64 2000 inH ₂ O)	See "Mounting flange"	5 bar (2000 inH ₂ O)	See "Mounting flang
_ower measuring limit		"		•
Measuring cell with silicone oil filling	-100 % of ma	x. span or 30 mbar a (0.4	44 psia), depending on	mounting flange
Jpper measuring limit	100 % of max. span		100 % of the max. nor	minal measuring range
Output				
Dutput signal	4 20 mA		Digital PROFIBUS PA FOUNDATION Fieldbu	
Lower limit (infinitely adjustable)	3.55 mA, factory preset	to 3.84 mA	-	
Upper limit (infinitely adjustable)	23 mA, factory preset to set to 22.0 mA	20.5 mA or optionally	-	
Load				
Without HART	$R_{\rm B} \leq (U_{\rm H}$ - 10.5 V)/0.023 A in Ω , $U_{\rm H}$: Power supply in V			
With HART	$R_{\rm B}$ = 230 500 Ω (SIMATIC PDM) or - $R_{\rm B}$ = 230 1100 Ω (HART Communicator)			
Physical bus	- IEC 61158-2			
Protection against polarity reversal	Protected against short	t-circuit and polarity reve supply	rsal. Each connection a voltage.	gainst the other with m
Measuring accuracy		Acc. to IE	EC 60770-1	
Reference conditions All error data refer always refer to the set span)		ic, start-of-scale value 0 mperature 25 °C (77 °F))		
Error in measurement at limit setting incl.				
Linear characteristic			≤ 0.15 %	
- r ≤ 10	≤ 0.15 %			
- 10 < r ≤ 30	≤ 0.3 %			
- 30 < r ≤ 100	≤ (0.0075 · r + 0.075) %			
ong-term stability temperature change ± 30 °C (± 54 °F))	≤ (0.25 · r)% every 5 ye static pressure max. 70	ars	≤ 0.25 % every 5 year static pressure max. 7	
nfluence of ambient temperature				
at -10 +60 °C (14 140 °F)				
- 250 mbar- (100 inH ₂ O)-measuring cell	$\leq (0.5 \cdot r + 0.2) \%^{1) 4}$		≤ 0.7 %	
- 600 mbar- (240 inH ₂ O)-measuring cell	$\leq (0.3 \cdot r + 0.2) \%^{2) 4}$		≤ 0.5 %	
- 1600 and 5000 mbar- (642 and 2000 inH ₂ O)-measuring cell			≤ 0.45 %	
at -4010 °C and 60 85 °C (-40 +14 °F and 140 185 °F)				
- 250 mbar- (100 inH ₂ O)-measuring cell	≤ (0.25 · r + 0.15) %/10 doubled values at 10 <		≤ 0.4 %/10 K	
- 600 mbar- (240 inH ₂ O)-measuring cell	≤ (0.15 · r + 0.15) %/10 doubled values at 10 <		≤ 0.3 %/10 K	
		\leq (0.12 · r + 0.15) %/10 K \leq 0.27 %/10 K double values at 10 < r \leq 30		

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

SITRANS P DS III for level		
	HART	PROFIBUS PA or FOUNDATION Fieldbus
Influence of static pressure		
• on the zero point		
- 250 mbar- (100 inH ₂ O)-measuring cell	\leq (0.3 · r) % per nominal pressure	≤ 0.3 % per nominal pressure
- 600 mbar- (240 inH ₂ O)-measuring cell	\leq (0.15 · r) % per nominal pressure	≤ 0.15 % per nominal pressure
 1600 and 5000 mbar- (642 and 2000 inH₂O)- measuring cell 	\leq (0.1 · r) % per nominal pressure	≤ 0.1 % per nominal pressure
• on the span	\leq (0.1 · r) % per nominal pressure	≤ 0.1 % per nominal pressure
Measured Value Resolution	-	$3 \cdot 10^{-5}$ of nominal measuring range
Rated conditions		
Degree of protection to IEC 60529	IP65, op	tional IP68
Temperature of medium		max. permissible operating temperature to max. of the respective flange connection!
Measuring cell with silicone oil filling	-40 +100 °C	C (-40 +212 °F)
- High-pressure side	p _{abs} ≥ 1 bar: -40 +	175 °C (-40 +347 °F)
	p _{abs} < 1 bar: -40	+80 °C (-40 +176 °F)
- Low-pressure side		C (-40 +212 °F)
	-20 +60 °C (-4 +140 °F) in conj	junction with dust explosion protection
Ambient conditions		
Ambient temperature		
Display readable	-30 +85 °C	(-22 +185 °F)
Storage temperature	-50 +85 °C	(-58 +185 °F)
Climatic class		
- Condensation	Relative humidity 0 100 % Condensation permissible, suitable for use in the tropics	
Electromagnetic Compatibility Emitted interference and interference immu-	Ann to EN 61226	and NAMUR NE 21
nity	ACC. 10 LIN 01320	and MANION NE 21
Design		
Weight (without options)		
To EN (pressure transmitter with mounting flange, without tube)	≈ 11 13 kg (a	≈ 24.2 28.7 (lb)
To ASME (pressure transmitter with mounting flange, without tube)	≈ 11 18 kg (≈ 24.2 39.7 lb)
Enclosure material	Low-copper die-cast aluminum, GD-AlSi12 or	stainless steel precision casting, mat. no. 1.4408
Wetted parts materials		
High-pressure side		
Seal diaphragm of mounting flange		at. no. 2.4360, Hastelloy B2, mat. no. 2.4617, Has 24, mat. no. 2.4610, tantalum, PTFE, ETCFE
Measuring cell filling	Silic	one oil
Process connection		
High-pressure side	Flange to E	EN and ASME
• Low-pressure side		tion with mounting thread M10 to DIN 19213 or to EN 61518
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		
• Not Ex	-	9 32 V
With intrinsically-safe operation	-	9 24 V
Current consumption		
Basic current (max.)		12.5 mA
• Start-up current ≤ basic current		Yes
Max. current in event of fault		15.5 mA
Fault disconnection electronics (FDE) available		Yes
Taut disconfiscuon electronics (FDE) available		100

Pressure Measurement Transmitters for general requirements

SITRANS P DS III for level

Certificates and approvals	HART	PROFIBUS PA or FOUNDATION Fieldbus
Certificates and approvals		
oei tilicates alia appiovals		
Classification according to PED 97/23/EC		group 1; complies with requirements of article 3, engineering practice)
Explosion protection		
Intrinsic safety "i"	PTB 99 A	ATEX 2122
- Marking	Ex II 1/2 G EEx ia/ib IIB/IIC T6	
- Permissible ambient temperature	-40 +70 °C (॓-40 +158	5 °F) temperature class T4; 8 °F) temperature class T5; 0 °F) temperature class T6
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i} = 30 \text{ V}, I_{\rm i} = 100 \text{ mA}, P_{\rm i} = 750 \text{ mW}; P_{\rm i} = 300 \Omega$	FISCO supply unit: $U_0 = 17.5 \text{ V}$, $I_0 = 380 \text{ mA}$, $P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V}$, $I_0 = 250 \text{ mA}$, $P_0 = 1.2 \text{ W}$
- Effective internal inductance/capacitance	$L_i = 0.4 \text{ mH}, C_i = 6 \text{ nF}$	$C_0 = 24 \text{ V}, I_0 = 250 \text{ Hz}, F_0 = 1.2 \text{ W}$ $C_1 = 7 \text{ \muH}, C_1 = 1.1 \text{ nF}$
Explosion-proof "d"	' '	$\mathcal{L}_i = 7 \mu \text{H}$, $\mathcal{C}_i = 1.7 \text{Hz}$ $ATEX 1160$
- Marking		Ex d IIC T4/T6
- Permissible ambient temperature		5 °F) temperature class T4;
- Fermissible ambient temperature		0 °F) temperature class T4,
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC	To circuits with values: $U_{\rm H}$ = 9 32 V DC
 Dust explosion protection for zone 20 	PTB 01 A	ATEX 2055
- Marking		°65 T 120 °C P65 T 120 °C
- Permissible ambient temperature	-40 +85 °C ((-40 +185 °F)
- Max. surface temperature	120 °C	(248 °F)
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}$ = 30 V, $I_{\rm i}$ = 100 mA, $P_{\rm i}$ = 750 mW, $P_{\rm i}$ = 300 Ω	FISCO supply unit: $U_0 = 17.5 \text{ V}$, $I_0 = 380 \text{ mA}$, $P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V}$, $I_0 = 250 \text{ mA}$, $P_0 = 1.2 \text{ W}$
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_i = 7 \mu H, C_i = 1.1 nF$
Dust explosion protection for zone 21/22	PTB 01 A	ATEX 2055
- Marking	Ex II 2 D IP	265 T 120 °C
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC; $P_{\rm max}$ = 1.2 W	To circuits with values: $U_{\rm H}$ = 9 32 V DC; $P_{\rm max}$ = 1.2 W
Type of protection "n" (zone 2)	TÜV 01 ATEX 1696 X	TÜV 01 ATEX 1696 X
- Marking	Ex II 3 G EEx nA L IIC T4/T5/T6	Ex II 3 G EEx nA L IIC T4/T5/T6
 Explosion protection acc. to FM 	Certificate of Cor	mpliance 3008490
- Identification (XP/DIP) or (IS); (NI)		GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4T6; 76; CL II, DIV 2, GP FG; CL III
Explosion protection to CSA	Certificate of Cor	mpliance 1153651
- Identification (XP/DIP) or (IS)		FG; CL III; Ex ia IIC T4T6; CL I, DIV 2, GP ABCD V 2, GP FG; CL III

¹⁾ Conversion of temperature error per 28 °C. Valid for temperature range -3 ... +53 °C < (0.4 · r + 0.16) % / 28 °C (50 °F).

²⁾ Conversion of temperature error per 28 °C. Valid for temperature range -3 ... +53 °C < (0.24 · r + 0.16) % / 28 °C (50 °F).

³⁾ Conversion of temperature error per 28 °C. Valid for temperature range -3 ... +53 °C < (0.2 · r + 0.16) % / 28 °C (50 °F).

 $^{^{4)}}$ 0.32 instead of 0.16 at 10 < r < 30

Transmitters for general requirements

SITRANS P DS III for level

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

FOUNDATION Fieldbus communication

Function blocks

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

3 function blocks analog input, 1 function block PID

Yes, linearly rising or falling characteristic

0 ... 100 s

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

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

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

Yes

Standard FOUNDATION Fieldbus function block

1 resource block

1 transducer block Pressure with calibration, 1 transducer block LCD

- - Yes

Constant value or over parameterizable ramp function

Mounting flange

Nominal diameter

- Acc. to EN 1092-1
 - DN 80
- DN100
- To ASME B16.5
- 3 inch
- 4 inch

Nominal pressure

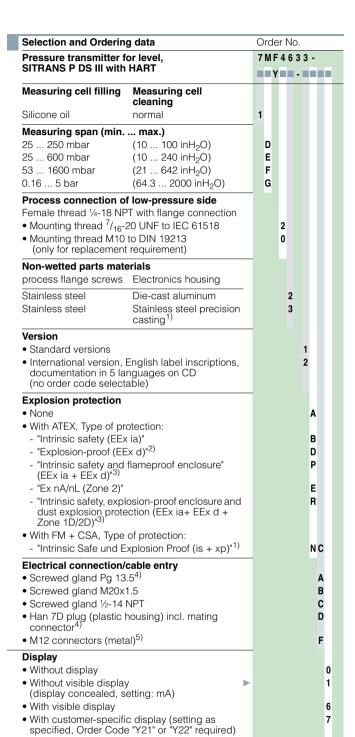
PN 40

PN16, PN40

Class 150, class 300 Class 150, class 300

Transmitters for general requirements

SITRANS P DS III for level



Available ex stock

Ordering information

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

ordering example

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

B line: Y01

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

Item line 2: 7MF4912-3GE01

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

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

Transmitters for general requirements SITRANS P DS III for level

Selection and Orderin	g data	Ord	er l	No			
Pressure transmitters	for level						
SITRANS P DS III with	PROFIBUS PA (PA)	7 M	F 4	6	34-		
SITRANS P DS III with	FOUNDATION Fieldbus	7 M	F 4	6 :	35-		
(FF)							
		1=	Y				٠
Nominal measuring ra	ange						
250 mbar	(100 inH ₂ O)	D					
600 mbar	(240 inH ₂ O)	E					
1600 mbar	(642 inH ₂ O)	F					
5 bar	(2000 inH ₂ O)	G					
Process connection of							
_	PT with flange connection						
 Mounting thread ¹/₁₆ 			2				
 Mounting thread M10 (only for replacemen 			0				
Non-wetted parts mat process flange screws	Electronics housing						
<u> </u>							
Stainless steel	Die-cast aluminum			2			
Stainless steel	Stainless steel precision casting			3			
Version		-					
Standard versions					1		
	English label inscriptions,				2		
documentation in 5 la	inguages on CD						
(no order code select	table)						
Explosion protection							
• None					1	١	
With ATEX, Type of pr							
- "Intrinsic safety (EE:					E		
- "Explosion-proof (El	flameproof enclosure"				[F		
(EEx ia + EEx d)" ²⁾	nameproof enclosure				"		
- "Ex nA/nL (Zone 2)"					E		
- "Intrinsic safety, exp	losion-proof enclosure and				F	?	
dust explosion prote	ection (EEx ia + EEx d + for DS III FF)						
• With FM + CSA, Type							
	Explosion Proof (is + xp)"1)					1 C	
-	, , , ,						
Serowed gland M20 x	•					В	
 Screwed gland M20 : Screwed gland ½-14 						С	
M12 connectors (met	6)					F	
Display	/						
Without display							0
Without display Without visible displa	v						1
(display concealed, s							
 With visible display 	•						6
With customer-specif							7
specified, Order Cod	e "Y21" required)						
Nucliable au atacl							

Available ex stock

Ordering information

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

ordering example

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

- Included in delivery of the device:

 Brief instructions (Leporello)

 CD-ROM with detailed documentation

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

Pressure Measurement Transmitters for general requirements

SITRANS P DS III for level

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order Code.				
O-rings for process flanges on				
low-pressure side				
(instead of FPM (Viton)) • PTFE (Teflon)	A20	1	/	1
FEP (with silicone core, approved for food)	A21	1	1	1
• FFPM (Kalrez, compound 4079)	A22	✓	✓	✓
• NBR (Buna N)	A23	✓	✓	✓
Plug				
Han 7D (metal, gray)Han 8U (instead of Han 7D)	A30 A31	√		
Angled	A32	1		
Han 8D (metal, gray)	A33	✓		
Sealing screw				
$\frac{1}{4}$ -18 NPT, with valve in mat. of process flanges	A40	✓	✓	✓
Cable sockets for M12 connectors (metal)	A50	✓	✓	✓
Rating plate inscription				
(instead of German)	B11	1	1	1
English French	B12	✓	v	∀
• Spanish	B13	1	1	1
• Italian	B14	✓	✓	✓
English rating plate	B21	✓	✓	✓
Pressure units in inH ₂ 0 and/or psi				
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2	C11	✓	✓	✓
Inspection certificate	C12	1	1	1
Acc. to EN 10204-3.1	CIZ	ľ	•	v
Factory certificate	C14	1	1	1
Acc. to EN 10204-2.2	•			
"Functional safety (SIL2)" certificate to IEC 61508	C20	✓		
PROFIsafe certificate and protocol	C21		1	
"Functional safety (SIL2/3)" certificate	C23	✓		
to IEC 61508				
Device passport Russia (For price request please contact the technical	C99	✓	✓	✓
support				
www.siemens.com/automation/support-request)	DOE			
Setting of upper limit of output signal to 22.0 mA	D05	✓		
Degree of protection IP68 (only for M20x1.5 and ½-14 NPT)	D12	✓	✓	✓
Supplied with oval flange	D37	1	1	1
(1 item), PTFE packing and screws in thread				
of process flange				
Use on zone 1D / 2D	E01	✓	✓	✓
(only together with type of protection "Intrinsic safety (EEx ia)")				
Overfilling safety device for flammable and	E08	1		
non-flammable liquids				
(max. PN 32 (MAWP 464 psi), basic device with type of protection "Intrinsic safety (EEx ia)")				
Export approval Korea	E11	1	1	1
Explosion-proof "Intrinsic safety" (Ex ia) to		1	1	,
Explosion-proof "intrinsic salety" (Ex Ia) to INMETRO (Brazil)	LZJ	•	•	
(only for transmitter 7MF4B)				
Explosion-proof "Intrinsic safety" (Ex d) to	E26	1	✓	✓
INMETRO (Brazil)				
(only for transmitter 7MF4D)	F00	,	,	
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil)	E28	•	V	
(only for transmitter 7MF4P)				

Selection and Ordering data	Order			
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order Code.				
Ex Approval IEC Ex (EEx ia)	E45	✓	✓	✓
(only for transmitter 7MF4				
Ex Approval IEC Ex (EEx id) (only for transmitter 7MF4)	E46	1	✓	✓
Explosion-proof "Intrinsic safety"	E55	✓	✓	✓
to NEPSI (China) (only for transmitter 7MF4B)				
Explosion protection "Explosion-proof" to NEPSI (China)	E56	✓	✓	✓
(only for transmitter 7MF4D)				
Ex protection "Zone 2" to NEPSI (China)	E57	✓	✓	✓
(only for transmitter 7MF4				
Two coats of lacquer on casing and cover (PU on epoxy)	G10	✓	✓	✓
Replacement of process connection side	H01	✓	✓	✓
Additional data				
Please add "-Z" to Order No. and specify Order code(s) and plain text.				
Measuring range to be set	Y01	√		
Specify in plain text (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi				
Stainless steel tag plate (measuring point description)	Y15	✓	✓	1
Max. 16 characters, specify in plain text: Y15:				
Measuring point text Max. 27 characters, specify in plain text:	Y16	✓	✓	✓
Y16:	Y17			
Entry of HART address (TAG) Max. 8 characters, specify in plain text: Y17:	¥ 17	•		
Setting of pressure indicator in pressure	Y21	1	✓	✓
units Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, Note:				
The following pressure units can be selected: bar, mbar, mm H 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	Y22 ¹⁾	1		
Setting of pressure indicator in non-pressure units ²⁾	+ Y01			
Specify in plain text: Y22: up to I/min, m³/h, m, USgpm, (specification of measuring range in pressure units "Y01" is essential, unit with max. 5 characters)				
Preset bus address	Y25		1	
possible between 1 and 126 Specify in plain text Y25:				
Only "Y01", "Y21", "Y22", "Y25" and "D05" can be	o footo	ry proce	n#	

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

- ✓ = available
- 1) Not in conjunction with over-filling safety device for flammable and non-flammable liquids (Order Code "E08")
- ²⁾ Preset values can only be changed over SIMATIC PDM.

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

Selection and Order	ing data	(Orde	r N	lo.			-
Mounting flange		D) :				2		
Directly mounted on t	he SITRANS P pressure part) for level, for DS III	′	3					
Connection to EN 10	92-1							
Nominal diameter DN 80 DN 100	Nominal pressure PN 40 PN 16 PN 40		D G H					
Connection to ASME								
Nominal diameter	Nominal pressure							
3 inch	Class 150		Q					
4 inch	Class 300 Class 150 Class 300		R T U					
Other version, add Order Code and plain Nominal diameter:;	ı text:		Z			J	1 Y	,
• Stainless steel 316L - Coated with PFA - Coated with PTFE • Coated with ECTFE			A D E	0				
 Monel 400, mat. no. Hastelloy B2, mat. n Hastelloy C276, mat Hastelloy C4, mat. n Tantalum 	io. 2.4617 t. no. 2.4819		G H J U K	l				
Other version, add Order Code and plain material of parts in co Sealing face, see "Teo	ntact with the medium:		Z			K	1 \	
Tube length								
 None 				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 tube length:	,			9		L	1 ١	,
Filling liquid								
Silicone oil M5					1			
• Silicone oil M50					2			
High-temperature oi					3			
Halocarbon oil (for (Chaprin (unter ²)	J ₂ -measurement)				4			
 Glycerin/water²⁾ Food oil (FDA-listed)				6 7			
`)							,
Other version, add Order Code and plain filling liquid:	text:				9	IVI	1١	

1) F	or vac	uum o	n rea	uest
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²⁾ Not suitable for use in low-pressure range

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order Code.				
Spark arrester For mounting on zone 0 (including documentation)	A01	✓	✓	
Certificate to EN 10204-2.2 For certification of oil - and grease-free cleaned and packed version for oxygen and summer applications in which only inert filling liquid may be used. (Only in conjunction with halocarbon oil fill fluid)	C10			
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2	C11	✓	✓	
Inspection certificate Acc. to EN 10204-3.1	C12	✓	✓	
"Functional safety (SIL2)" certificate to IEC 61508	C20	✓		
(only for conjunction with the order code "C20" in the case of SITRANS P DS III transmitter)				
"Functional safety (SIL2/3)" certificate to IEC 61508	C23	✓		
(only for conjunction with the order code "C23" in the case of SITRANS P DS III transmitter)				
Vacuum-proof design (for use in low-pressure range) Note: suffix "Y01" required with pressure transmitter!	V04	√	√	

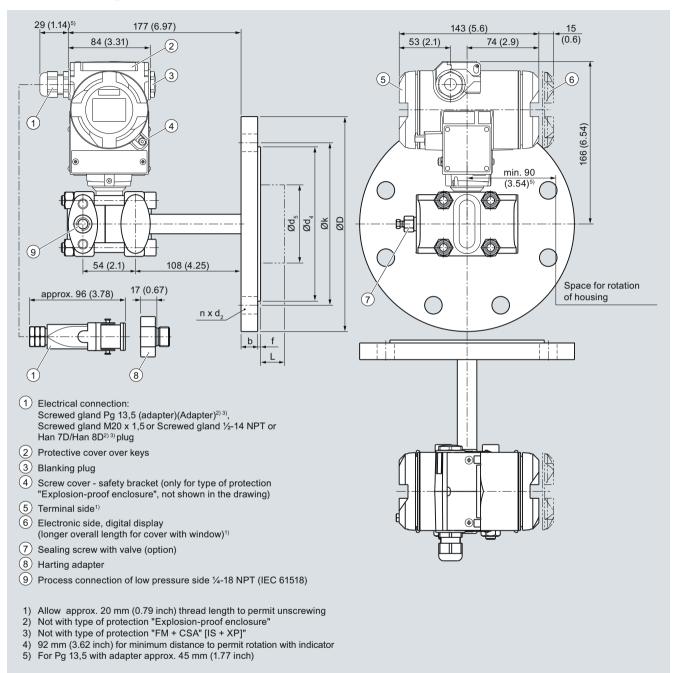
^{✓ =} available

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

Transmitters for general requirements

SITRANS P DS III for level

Dimensional drawings



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

Transmitters for general requirements SITRANS P DS III for level

Connection to EN 1092-1

Nominal diameter	Nominal pressure	L	D	h	d ₂	d ₄	d ₅	d _M	j	k	n	L
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
DN 80	PN 40	24	200	90	18	138	76	72 ¹⁾	2	160	8	0, 50, 100,
DN 100	PN 16	20	220	115	18	158	94	89	2	180	8	150 or 200
	PN 40	24	235	115	22	162	94	89	2	190	8	

Connection to ASME B16.5

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

d: Internal diameter of gasket to DIN 2690

d_M: Effective diaphragm diameter

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

Transmitters for general requirements

SITRANS P DS III

Supplementary electronics for 4-wire connection

Overview



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

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

Note on ordering:

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

Technical specifications

Output	
Output signal	0 20 mA or 4 20 mA
Load	Max. 750 Ω
Voltage measurement	Linear (square-rooting in transmitter if necessary)
Electrical isolation	Between power supply and input/ output
Measuring accuracy	acc. to IEC 60770-1
Measurement deviation (in addition to transmitter)	≤ 0.15 % of set span
Influence of ambient temperature	≤ 0.1 % per 10 K
Power supply effect	≤ 0.1 % per 10 % change in voltage or frequency
Load effect	≤ 0.1 % per 100 % change
Rated conditions	
Ambient temperature	-20 +80 °C (-4 +176 °F)
Storage temperature	-50 +85 °C (-58 +185 °F)
Degree of protection	IP54 to IEC 60529
Electromagnetic compatibility (EMC)	EN 50081, EN 50082

Structural design

Dimensions (W x H x D) in mm

(inch

Electrical connection

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

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

Power supply

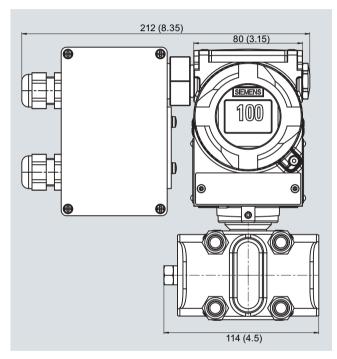
Supply voltage

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

Permissible ripple (within the specified limits)

Approx. 2.5 V pp

Dimensional drawings

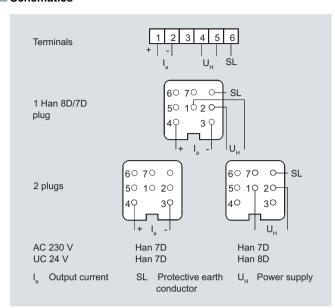


SITRANS P pressure transmitters with supplementary electronics for four-wire connection, dimension drawing, dimensions in mm

Transmitters for general requirements

SITRANS P DS III
Supplementary electronics for 4-wire connection

Schematics



Supplementary electronics for 4-wire connection, connection diagram

Selection and	Ordering data	Order code
Connection Order No. of the	y electronics for 4-wire e transmitter AB. add "-Z" and Order code.	V
Power supply	Electrical connection	
24 V AC/DC	Terminals; 2 Pg screwed glands, to left	1
	2 Han 7D/Han 8U plugs incl. mating connector, to left	3
	1 Han 7D plug incl. mating connector, angled	5
	Terminals; 1 Pg screwed gland, downwards	6
	Han 8U plug incl. mating connector, downwards (observe arrangement of plug and differential pressure line)	9
230 V AC	Terminals; 2 Pg screwed glands, to left	7
	2 Han 7D plugs incl. mating connector, to left	8
Output current	t	
0 20 mA		0
4 20 mA		1
Accessories		
Instruction Ma German/English		A5E00322799

Pressure Measurement Transmitters for general requirements

SITRANS P DS III Accessories/Spare Parts

Selection and Ord	ering data	Order No.
Replacement measure	suring cell for pressure	7MF4990-
for SITRANS P DS	III	0 - 0 DB 0
Measuring cell filli	ng Measuring cell cleaning	
Silicone oil	Normal	1
Inert liquid	grease-free to cleanliness level 2	3
Measured span (m	in max.)	
0.01 1 bar	(0.15 14.5 psi)	В
0.04 4 bar	(0.6 58 psi)	С
0.16 16 bar	(2.32 232 psi)	D
0.63 63 bar	(9.14 914 psi)	E
1.6 160 bar	(23.2 2320 psi)	F
4.0 400 bar	(58.0 5802 psi)	G
7.0 700 bar	(102.0 10153 psi)	J
Wetted parts mate	rials	
Seal diaphragm	Process connection	
Stainless steel	Stainless steel	A
Hastelloy	Stainless steel	В
Hastelloy	Hastelloy	С
Process connection	on	_
 Connection shank 	G1/2B to EN 837-1	0
• Female thread ½-	14 NPT	1
 Oval flange made 		
max. span 160 ba		
	¹⁷ / ₁₆ -20 UNF to IEC 61518	2
 Mounting thread 	M10 to DIN 19213	3
Further designs		Order code
Please add " -Z " to 0 Order code.	Order No. and specify	
Inspection certific	ate	C12
to EN 10204-3.1		

Selection and Orderi	ng data		Orde	er N	lo.
Replacement measur pressure for SITRAN pressure series)		F)			992- 0-0DC0
Measuring cell filling Silicone oil Inert liquid	Measuring cell cleaning Normal grease-free to cleanliness level 2		1 3		
Measured span (min. 8.3 250 mbar a 43 1300 mbar a 0.16 5 bar a 1 30 bar a	max.) (0.12 3.62 psia) (0.62 18.85 psia) (2.32 72.5 psia) (14.5 435 psia)		D F G H		
Wetted parts materia Seal diaphragm Stainless steel Hastelloy Hastelloy	Is Process connection Stainless steel Stainless steel Hastelloy		A B		
Process connection • Connection shank G • Female thread ½-14 • Oval flange made of max. span 160 bar (½B to EN 837-1 NPT stainless steel, 2320 psi) ₁₆ -20 UNF to IEC 61518			0 1 2 3	
Further designs Please add "-Z" to Ordor Order code.	ler No. and specify		Orde	er c	ode
Inspection certificate to EN 10204-3.1	•		C12		

F) Subject to export regulations AL: 91999, ECCN: N.

Transmitters for general requirements

SITRANS P DS III **Accessories/Spare Parts**

Selection and Order	ring data		Or	de	r No	0.	
Replacement measu	uring cell for absolute pres	• F)	7 N	۱F	4 9	93-	
SURE (from the differ	r ential pressure series) for h HART, DS III with PROFIBU	S				- 0 D C	0 (
	DUNDATION Fieldbus series	J					
Measuring cell fillin	g Measuring cell cleaning						
Silicone oil	Normal		1				
nert liquid	grease-free to		3				
	cleanliness level 2						
Measured span (mir	-						
3.3 250 mbar a 43 1300 mbar a	(0.12 3.62 psia)	E)					
13 1300 mbar a 0.16 5 bar a	(0.62 18.85 psia) (2.32 72.5 psia)	E) E)	ď				
1 30 bar a	(14.5 435 psia)	<u>_</u>)	H				
5.3 100 bar a	(76.9 1450 psia)			' (E			
Netted parts materi			Ľ	ì			
Seal diaphragm	Parts of measuring cell						
		_					
Stainless steel	Stainless steel			A B			
Hastelloy Hastelloy	Stainless steel Hastellov			C			
Tantalum	Tantalum			E			
Monel	Monel	E)		Н			
Gold	Gold	-)		L			
Process connection							
	NPT with flange connection						
	osite process connection						
- Mounting thread I					0		
	7/ ₁₆ -20 UNF to IEC 61518				2		
• Vent on side of process flange ¹⁾							
- Mounting thread I	M10 to DIN 19213				4		
- Mounting thread	⁷ / ₁₆ -20 UNF to IEC 61518				6		
Non-wetted parts m							
 Stainless steel prod 	ess flange screws				2		
Further designs			Or	de	r cc	ode	
Please add " -Z " to Or	der No. and specify						
Order code.							
O-rings for process	_						
(instead of FPM (Vito	n))						
PTFE (Teflon)			A2				
	core, approved for food)		A2				
FFPM (Kalrez, com	pouna 4079)		A2				
NBR (Buna N)			A2				
Inspection certificat	te		C1	2			
o EN 10204-3.1							
Process connection	n G½B		D1	6			
Remote seal flanges	S		D2	0			
(not together with K0							
/ent on side for gas	*		но	2			
	measurements			_			
Process flanges without			ΚO	0			
withoutwith process flange	made of		KU	U			
Hastelloy	made UI		ΚO	1			
- Monel			K0				
- Stainless steel wit	th PVDF insert		K0				
max. PN 10 (MAV				-			
max.temperature	of medium 90 °C (194 °F)						
	er process connection on the	9					
side in the middle valve not possible	e of the process flange, vent						
·	•						
1) Not for span "5.3	100 bar (76.9 1450 psi)"						

- E) Subject to the export regulations AL: 2B230, ECCN: N.
- F) Subject to export regulations AL: 91999, ECCN: N.

Calcation and C. I	ovina doto	Order Na
Selection and Ord		Order No. 7 M F 4 9 9 4 -
pressure and PN 3 SITRANS P DS III w	suring cell for differential 12/160 (MAWP 464/2320 psi) for rith HART, DS III with PROFIBUS FOUNDATION Fieldbus series	7 M F 4 9 9 4 -
	ing Measuring cell cleaning	
Silicone oil	Normal	1
Inert liquid	grease-free to cleanliness level 2	3
Measured span (m PN 32 (MAWP 464	psi)	
1 20 mbar ¹⁾	(0.4 8 inH ₂ O)	В
PN 160 (MAWP 232	20 psi)	
1 60 mbar 2.5 250 mbar	(0.4 24 inH ₂ O) (1 100 inH ₂ O)	C
6 600 mbar	(2.4 240 inH ₂ O)	E
16 1600 mbar	(6.4 642 inH ₂ O)	F
50 5000 mbar	(20 2000 inH ₂ O)	G
0.3 30 bar	(4.35 435 psi)	H
Wetted parts mate (stainless steel prod		
Seal diaphragm	Parts of measuring cell	
Stainless steel	Stainless steel	A
Hastelloy	Stainless steel	B C
Hastelloy Tantalum ²⁾	Hastelloy	C E
Monel ²⁾	Tantalum Monel	H
Gold ²⁾	Gold	Ë
 Vent on side of pr Mounting thread 	1 ⁷ / ₁₆ -20 UNF to IEC 61518 ocess flange 1 M10 to DIN 19213 1 ⁷ / ₁₆ -20 UNF to IEC 61518	2 4 6
Non-wetted parts Stainless steel prod		2
Further designs	-	Order code
	Order No. and specify Order code	
O-rings for proces (instead of FPM (Vi		
PTFE (Teflon)	(611))	A20
	core, approved for food)	A21
• FFPM (Kalrez, con	mpound 4079)	A22
 NBR (Buna N) Inspection certific 	ata	A23 C12
to EN 10204-3.1	ale	CIZ
Remote seal flang (not together with K		D20
Vent on side for ga	as measurements	H02
Stainless steel pro differential pressu	H03	
(not together with K	ku i, Kuz and KU4)	
Process flanges • without		K00
with process flang	ge made of	
- Hastelloy	K01	
- Monel	K02	
- Stainless steel v		K04
max. PN 10 (MA	WP 145 psi)	
For ½-14 NPT in	re of medium 90 °C (194 °F) nner process connection on the lle of the process flange, vent	

¹⁾ Not suitable for connection of remote seal

valve not possible

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

Pressure Measurement Transmitters for general requirements

SITRANS P DS III Accessories/Spare Parts

Selection and Ordering	ı data	Orde	r No.	
Replacement measuring cell for differential pressure and PN 420 (MAWP 6092 psi) for SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus series			7 M F 4 9 9 5 -	
Measuring cell filling Silicone oil	Measuring cell cleaning Normal	1		
Measured span (min 2.5 250 mbar 6 600 mbar 16 1600 mbar 50 5000 mbar 0.3 30 bar	. max.) (1 100 inH ₂ O) (2.4 240 inH ₂ O) (6.4 642 inH ₂ O) (20 2000 inH ₂ O) (4.35 435 psi)	D E F G H		
Wetted parts materials				
(stainless steel process Seal diaphragm	Parts of measuring cell	A		
Hastelloy Gold ¹⁾				
Process connection Female thread 1/4-18 NPT with flange connection • Sealing screw opposite process connection - Mounting thread M12 to DIN 19213 - Mounting thread ⁷ / ₁₆ -20 UNF to IEC 61518 • Vent on side of process flange - Mounting thread M12 to DIN 19213 - Mounting thread ⁷ / ₁₆ -20 UNF to IEC 61518 Non-wetted parts materials • Stainless steel process flange screws			1 3 5 7	
Further designs		Orde	Order code	
Please add "-Z" to Order No. and specify Order code.				
O-rings for process flanges (instead of FPM (Viton)) • PTFE (Teflon) • FEP (with silicone core, approved for food) • FFPM (Kalrez, compound 4079) • NBR (Buna N)				
Inspection certificate to EN 10204-3.1				
Stainless steel process flanges for vertical differential pressure lines				
without process flanges				

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

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

Selection and Odering data	Order No.	Selection and Odering data	Order No.
Spare parts/Accessories		Digital indicator	7MF4997-1BR
Mounting bracket and fastening parts for pressure transmitters SITRANS P DS III with HART, DS III with		Including mounting material for SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus	
PROFIBUS PA and DS III with FOUNDATION Fieldbus (7MF403C.) For absolute pressure transmitters SITRANS P DS III with HART, DS III with		Measuring point label • without inscription (5 units) • Printed (1 unit) Data according to Y01 or Y02, Y15 and Y16	7MF4997-1CA 7MF4997-1CB-Z Y.::
PROFIBUS PA and DS III with FOUNDATION Fieldbus		(see "Pressure transmitters") Mounting screws	
(7MF423C.)	7MF4007 4 A D	For measuring point label, grounding and con-	7MF4997-1CD
made of steel made of stainless steel	7MF4997-1AB 7MF4997-1AH	nection terminals or for display (50 units)	7 MI 4337-10D
Mounting bracket and fastening parts		Sealing screws	
for pressure transmitters SITRANS P DS III with HART, DS III with		(1 set = 2 units) for process flange	
PROFIBUS PA and DS III with FOUNDATION		made of stainless steel made of Hastelloy	7MF4997-1CG 7MF4997-1CH
Fieldbus (7MF403A.,B.,D. andF.)		Sealing screws with vent valve	71111 4337 1311
or absolute pressure transmitters SITRANS P DS III with HART, DS III with PRO-		Complete (1 set = 2 units)	
FIBUS PA and DS III with FOUNDATION Field-		made of stainless steel	7MF4997-1CP
DUS		made of Hastelloy	7MF4997-1CQ
'MF423A.,B.,D. andF.) made of steel	7MF4997-1AC	Electronics	7ME4007 4DV
made of stainless steel	7MF4997-1AJ	for SITRANS P DS III with HART for SITRANS P DS III with PROFIBUS PA	7MF4997-1DK 7MF4997-1DL
Nounting and fastening brackets		• for SITRANS P DS III with FOUNDATION	7MF4997-1DL 7MF4997-1DM
or differential pressure transmitters with		Fieldbus	
lange thread M10 SITRANS P DS III with HART, DS III with		Connection board	
PROFIBUS PA and DS III with FOUNDATION		• for SITRANS P DS III	7MF4997-1DN
Fieldbus		 for SITRANS P DS III PROFIBUS PA and FOUNDATION Fieldbus 	7MF4997-1DP
7MF433 and 7MF443) made of steel	7MF4997-1AD	O-rings for process flanges made of:	
made of stainless steel	7MF4997-1AK		7MF4997-2DA
Mounting and fastening brackets			7MF4997-2DB
or differential pressure transmitters with		,	7MF4997-2DC
lange thread M12 SITRANS P DS III with HART, DS III with		FFPM (Kalrez, compound 4079)NBR (Buna N)F)	
PROFIBUS PA and DS III with FOUNDATION			
Fieldbus 7MF453)		Sealing ring for process connection	see "Fittings"
• made of steel	7MF4997-1AE	Weldable sockets for PMC connection • PMC Style Standard: Thread 1½"	7MF4997-2HA
made of stainless steel	7MF4997-1AL	PMC Style Standard: Thread 172 PMC Style Minibolt: front-flush 1"	7MF4997-2HB
Nounting and fastening brackets		Gaskets for PMC connection	
For differential and absolute pressure transmit-		(packing unit = 5 units)	
ers with flange thread 7/16 -20 UNF SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION		PTFE seal for PMC Style Standard: Thread 1½" F)	7MF4997-2HC
Fieldbus 7MF433, 7MF443 and 7MF453)		Gasket made of Viton for PMC Style Minibolt: F) front-flush 1"	7MF4997-2HD
made of steel	7MF4997-1AF	Weldable socket for TG52/50 and TG52/150 connection	
made of stainless steel	7MF4997-1AM	• TG52/50 connection	7MF4997-2HE
Cover		• TG52/150 connection	7MF4997-2HF
made of die-cast aluminum, including gasket, for SITRANS P DS III with HART, DS III with POUNDATION		Seals for TG 52/50 and TG 52/150 made of silicone	7MF4997-2HG
Fieldbus	7ME4007 4DD	Seals for flange connection with front-flush	
without windowwith window	7MF4997-1BB 7MF4997-1BE	diaphragm Material FPM (Viton), 10 units	
F)		· //	7MF4997-2HH
Cover		• DN 25, PN 100 (M21) F)	
made of stainless steel, including gasket,		• 1", class 150 (M40) F) • 1", class 300 (M45) F)	
for SITRANS P DS III with HART, DS III with			/ WIF499/-2NL
PROFIBUS PA and DS III with FOUNDATION Fieldbus		➤ available ex stock	
		F) Subject to export regulations AL: 91999, ECCN: N	
• without window F)	7MF4997-1BC	Ty oubject to expert regulations 7 in order, not in the	

Pressure Measurement Transmitters for general requirements

SITRANS P DS III Accessories/Spare Parts

Selection and Odering data	Order No.
Operating Instructions ¹⁾	
 for SITRANS DS III with HART German English French Spanish Italian 	A5E00047090 A5E00047092 A5E00053218 A5E00053219 A5E00053220
for SITRANS DS III with PROFIBUS PA German English French Spanish Italian for SITRANS DS III with FOUNDATION Fieldbus	A5E00053275 A5E00053276 A5E00053277 A5E00053278 A5E00053279
- German - English	A5E00279629 A5E00279627
Brief instruction (Leporello) German, English • for SITRANS DS III with HART - German, English • for SITRANS DS III with PROFIBUS PA - German, English • for SITRANS DS III with FOUNDATION Fieldbus - German, English CD with documentation	A5E00047093 A5E00053274 A5E00282355
for SITRANS P, P300 series, SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus series German, English, French, Spanish, Italian Certificates (order only via SAP) instead of Internet download	
hard copy (to order)on CD (to order)	A5E03252406 A5E03252407
Operating Instructions for replacement of electronics, measuring cell and connection board (only available from the Internet) ¹⁾	A5E00078060
HART modem • with RS232 interface ▶	7MF4997-1DA
• with USB interface	7MF4997-1DB
Supplementary electronics for 4-wire connection	See page 2/151

■ available ex stock

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

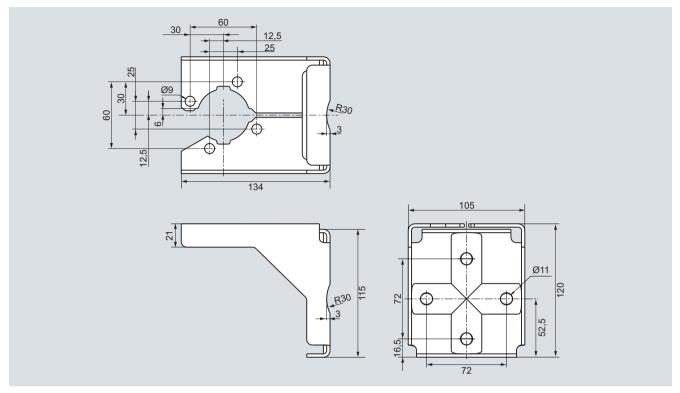
D) Subject to export regulations AL: N, ECCN: EAR99H.

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

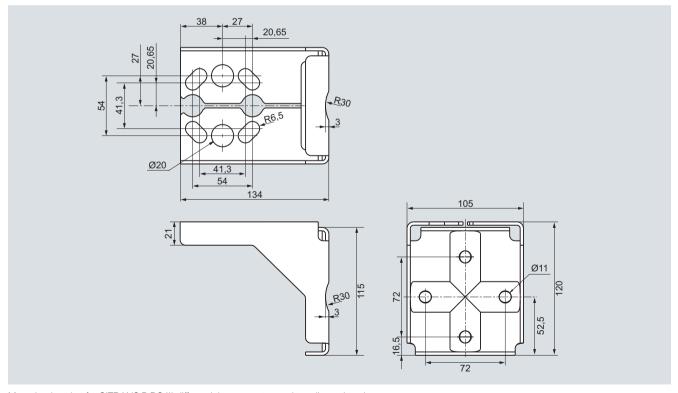
Transmitters for general requirements

SITRANS P DS III Accessories/Spare Parts

Dimensional drawings



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



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

Transmitters for general requirements

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

Overview

SITRANS P transmitters

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

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

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

Design

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

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

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

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

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

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

If you order an acceptance test certificate 3.1 to EN10204 when choosing the option "Factory mounting of valve manifolds", a separate certificate is provided for the transmitters and the valve manifolds respectively.

Selection and Ordering data

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



Add -Z to the Order No. of the transmi and add order codes	tter Order code
SITRANS P DSIII 7MF4031, 7MF4231	Т03
With process connection female thread ½-14 NPT in-sealed with PTFE sealing tape	
Delivery incl. high-pressure test certification by test report to EN10204-2.2	ed
Further designs:	
Delivery includes mounting brackets a mounting clips made of stainless steel (instead of the mounting bracket supp with the transmitter)	
Supplied acceptance test certificate to 10204- 3.1 for transmitters and mounted valve manifold	

7MF9011-4EA

valve manifold on relative and absolute pressure transmitters



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

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



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

7MF9411-5CA valve manifold on differential pressure transmitters



0	on unierential pressure transmitters				
1	Add -Z to the Order No. of the transmitter and add order codes	Order code			
	SITRANS P DSIII 7MF443 and 7MF4531 1) mounted with gaskets made of PTFE and screws made of • chromized steel • Stainless steel Delivery incl. high-pressure test certified by test report to EN 10204-2.2	U03 U04			
	Further designs:				
	Delivery includes mounting bracket and mounting clips made of • Steel • Stainless steel (instead of the mounting bracket supplied with the transmitter)	A01 A02			
	Supplied acceptance test certificate to EN 10204-3.1 for transmitters and mounted valve manifold	C12			

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

Transmitters for general requirements SITRANS P DS III Factory-mounting

of valve manifolds on transmitters

Dimensional drawings

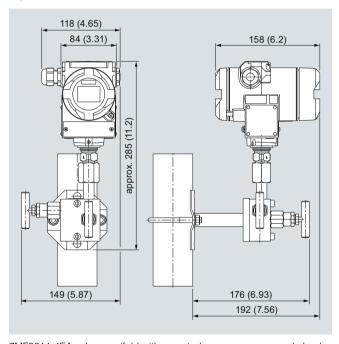
Valve manifolds mounted on SITRANS P DS III



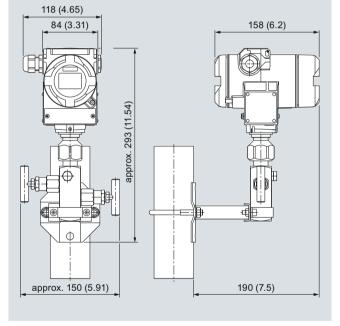
7MF9011-4EA valve manifold with mounted gauge pressure and absolute pressure transmitters



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



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



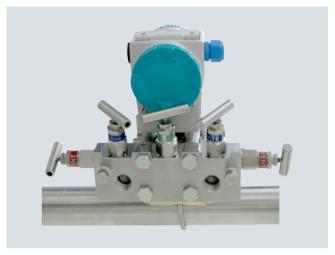
 $7MF9011\mbox{-}4FA$ valve manifold with mounted gauge pressure and absolute pressure transmitters, dimensions in mm (inch)

Transmitters for general requirements SITRANS P DS III Factory-mounting

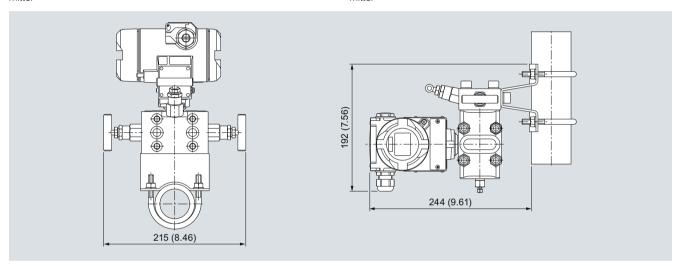
of valve manifolds on transmitters



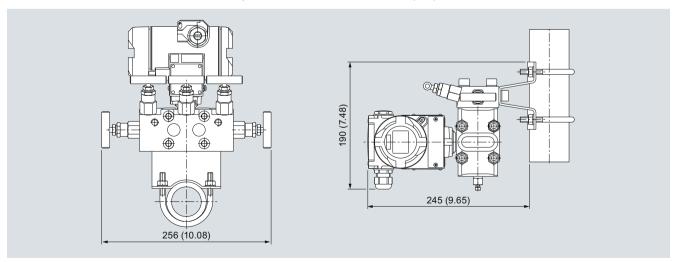
7MF9411-5BA valve manifold with mounted differential pressure trans-



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



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



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

Transmitters for High Performance requirements

SITRANS P500 Technical description

Overview



SITRANS P500 pressure transmitters are digital pressure transmitters featuring extensive user-friendliness and which fulfil the most stringent demands of accuracy, long-term stability, speed and lots more.

Extensive functionality allows you to set the pressure transmitter specifically to your own requirements. Despite their many settings options, local set-up is easy. A multi-lingual menu with clear text instructions guides you through the process. There are also help texts available.

The innovative EDD with integrated QuickStart assistance is also quick and easy to configure by computer using the HART protocol.

Extensive diagnostic functions, e.g. min/max pointer for pressure and temperature, or limit value indicator, make sure you always have the process under control. You can also display additional process values such as temperature or static pressure. The simultaneous display of mass, resulting from a volume, is also easy.

The SITRANS P500 pressure transmitters can be configured to measure:

- Differential pressure
- Level
- Volume
- Mass
- · Volume flow
- · Mass flow

Benefits

- · High measuring accuracy
- · Very fast response time
- Extremely good long-term stability
- High reliability even under extreme chemical and mechanical loads
- For aggressive and non-aggressive gases, vapors and liquids
- Extensive diagnosis and simulation functions which can be used both on site as well as via HART.
- Optional separate replacement of measuring cell and electronics without recalibration.
- · Extremely low conformity error values

- Infinitely adjustable spans of 1.25 to 1250 mbar (0.018 to 18 psi)
- Extremely good total performance and conformity error values with no loss of performance up to a turndown of 10 guaranteed.
- Additional integrated sensor for static pressure
- Parameterization via on-site control keys or HART
- Short process flanges nable space-saving installation.

Application

The SITRANS P500 pressure transmitters can be used in industrial areas with extreme chemical and mechanical loads. Electromagnetic compatibility in the range 10 kHz to 1 GHz makes them suitable for locations with high electromagnetic emissions.

Pressure transmitters with ratings "Intrinsic safety" and "Explosion-proof" may be installed within potentially explosive atmospheres (zone 1) or in zone 0. The pressure transmitter comes with a CE-declaration of conformity and fulfils the corresponding unified European directives (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".

With newly designed measuring cell, it is possible to work with process temperatures of -40 to 125 $^{\circ}$ C (-40 to +257 $^{\circ}$ F)) without having to use a remote seal.

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

The pressure transmitter can be fully parameterized locally via the three operating keys and externally via HART.

Transmitters for High Performance requirements

SITRANS P500 Technical description

Pressure transmitters for differential pressure and flow

- Measured variables:
 - Differential pressure
 - Small positive or negative pressure
 - Flow q ~ √∆p (together with a primary element (see Chapter "Flow Meters"))
- Span (freely adjustable) for SITRANS P500 HART: 1.25 to 1250 mbar (0.5 to 502 inH₂O)

Pressure transmitters for level

- Measured variable: Level of aggressive and non-aggressive liquids in open and closed vessels.
- Span (freely adjustable) for SITRANS P500: 1.25 to 1250 mbar (0.5 to 502 inH₂O)

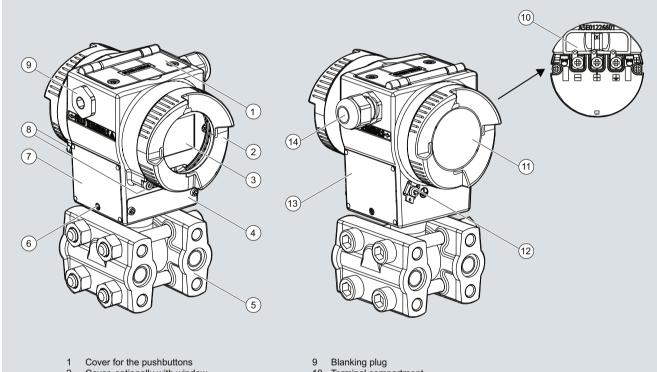
- Nominal diameter of the mounting flange
- DN 50 / PN 40
- DN 80 / PN 40
- DN 100/ PN 16, PN 40
- 2 inch/class 150, class 300
- 3 inch/class 150, class 300
- 4 inch/ class 150, class 300
- customized special version

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

In the case of measurements in closed vessels, the lower-pressure connection has to be connected to the vessel 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



- 2 Cover, optionally with window
- 3 Display (optional)
- 4 TAG plate
- 5 Process flange with process connection
- 6 Lock screws (on two sides) for the measuring cell
- 7 Approval plate
- 8 Safety catch

- 10 Terminal compartment
- 11 Cover for terminal compartment
- 12 PE/ground terminal
- 13 Nameplate
- 14 Cable inlet, optionally with cable gland or plug-in connection

View of transmitter

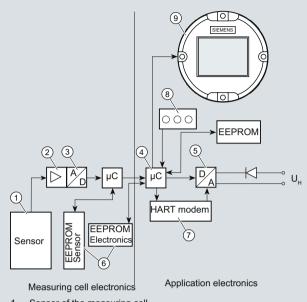
- The electronics housing is made of coated die-cast aluminum.
- The casing has round screwed covers front and back.
- Depending on the design the front cover is fitted with an inspection window. You can read off the measured value directly from the optional display through the window.
- The inlet to the terminal compartment is located either on the left or right side. The unused opening in each case is sealed by a blanking plug.
- The PE/ground terminal is on the back of the housing.
- Access to the terminal compartment for auxiliary power and shielding by unscrewing the cover.
- Beneath the electronic housing is the measuring cell with its process flanges at which the process connections are available. The modular design of the pressure transmitter lets you replace the measuring cell, electronics and connection board as required.
- On the top of the housing you can see the screwed cover of the three local pushbuttons of the transmitter.

Transmitters for High Performance requirements

SITRANS P500 **Technical description**

Function

Operation of electronics with HART communication



- Sensor of the measuring cell
- Measuring amplifier
- 3 Analog-to-digital converter
- Microcontroller
- Digital-to-analog converter
- One EEPROM each in the measuring cell and in the electronics
- HART modem
- 8 Keys (local operation)
- Digital display
- Output current
- Auxiliary power

Function diagram of electronics

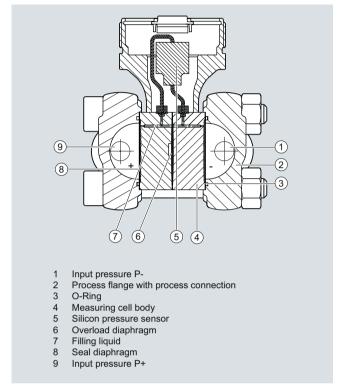
- The input pressure is converted into an electrical signal by the
- This signal is amplified by the measuring amplifier and digitalized in an analog-to-digital converter.
- The digital signal is analyzed in a microcontroller and corrected according to linearity and thermal characteristics.
- In a digital-to-analog converter it is then converted into the output current of 4 to 20 mA. When connected to supply lines, a diode circuit provides reverse polarity protection.
- The measuring cell-specific data, the electronic data and the parameterization data is held in two EEPROMs. One EEPROM is incorporated into the measuring cell electronics, the other is incorporated into the application electronics.

Operation

- The three local pushbuttons enable you both to navigate and carry out configuration and to visually track messages and process values, provided a display is available.
- If you have a device without a display, you can carry out zero adjustment using the three local pushbuttons. It is possible to retrofit a display at any time.
- You can also carry out settings by computer via a HART modem.

Mode of operation of the measuring cells

Measuring cell for differential pressure and flow



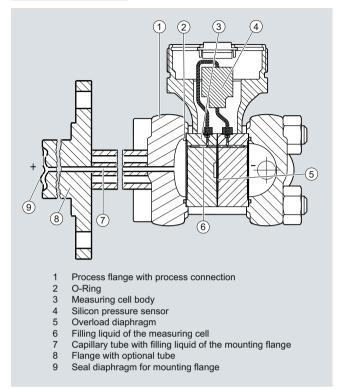
Measuring cell for differential pressure and flow, function diagram

- The differential pressure is transmitted via the seal diaphragm and the filling liquid to the silicon pressure sensor.
- If the measuring limits are exceeded, the overload diaphragm flexes until it makes contact with the body of the measuring cell. This protects the sensor model from overload.
- The differential pressure causes the measuring diaphragm of the silicon pressure sensor to flex.
- The displacement changes the resistance value of the 4 piezo resistors in the measuring diaphragm in a bridge circuit.
- The change in the resistance causes a bridge output voltage proportional to the input pressure.

Transmitters for High Performance requirements

SITRANS P500 Technical description

Measuring cell for level



Measuring cell for level, function diagram

- The input pressure (hydrostatic pressure) acts hydraulically on the measuring cell via the seal diaphragm on the mounting flance.
- The differential pressure applied to the measuring cell is transmitted via the seal diaphragm and the filling liquid to the silicon pressure sensor.
- If the measuring limits are exceeded, the overload diaphragm flexes until it makes contact with the body of the measuring cell. This protects the silicon pressure sensor from overload.
- The differential pressure causes the measuring diaphragm of the silicon pressure sensor to flex.
- The displacement changes the resistance value of the 4 piezo resistors in the measuring diaphragm in a bridge circuit.
- The change in the resistance causes a differential pressure proportional to the input pressure.

Configuration of SITRANS P500 HART

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

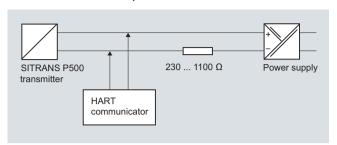
Configuration using the pushbuttons (local operation)

You can configure the transmitter in situ using the three keys provided a display is available. If you have no display, you can only carry out zero adjustment.

It is possible to retrofit a display. See accessories.

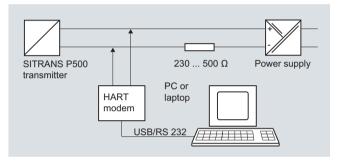
Configuration using HART

Parameterization using HART is carried out using a HART Communicator or a PC in conjunction with a HART modem.



Communication between a HART Communicator and a pressure transmitter

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



HART communication between a PC communicator and a pressure transmitter

For configuring via PC a HART modem is used which connects the transmitter to the PC.

The signals needed for communication in conformity with the HART 6.0 protocols are superimposed on the output current using the Frequency Shift Keying (FSK) method.

The necessary device files are available for download on the Internet.

SITRANS P500 configuration options

The transmission offers you full configuring options both via HART as well as in situ provided the optional display is available.

For simple parameterizing we also offer the easy to understand QuickStart function with guided commissioning.

SITRANS P500 diagnostic functions

- Maintenance timer
- Min/Max pointer (both resetable and non-resetable)
- Pressure (incl. time and temperature stamp)
- Static pressure (incl. time and temperature stamp)
- Sensor temperature (incl. time stamp)
- Electronic temperature (incl. time stamp)
- Limit monitor block
- Diagnostic warning
- Diagnostic alarm
- · Simulation functions
- Display of trends and histograms
- · Operating hours meter

Pressure Measurement Transmitters for High Performance requirements

SITRANS P500 Technical description

Physical dimensions available for the SITRANS P500 HART display

Physical variable	Physical dimensions
Pressure (setting can also be made in the factory)	Pa, MPa, kPa, bar, mbar, torr, atm, psi, g/cm², kg/cm², mm $\mathrm{H}_2\mathrm{O}$ (4 °C), in $\mathrm{H}_2\mathrm{O}$ (4 °C), in $\mathrm{H}_2\mathrm{O}$ (20 °C), mm $\mathrm{H}_2\mathrm{O}$, mm $\mathrm{H}_2\mathrm{O}$, mm $\mathrm{H}_3\mathrm{O}$, mm $\mathrm{H}_3\mathrm{O}$, mm $\mathrm{H}_3\mathrm{O}$, mm $\mathrm{H}_3\mathrm{O}$, hpA
Level	m, cm, mm, ft, in
Volume	m ³ , dm ³ , hl, yd ³ , ft ³ , in ³ , gallon, Imp. gallon, bushel, barrel, barrel liquid, I; Norm (standard) I; Norm (standard) m ³ , Norm (standard) feet ³
Mass	g, kg, t (metric), lb, Ston, Lton, oz
Volume flow	m³/d, m³/h, m³/s, l/min, l/s, ft³/d, ft³/min, ft³/s, US gallon/min, gallon/s, l/h, milL/d, gallon/d, gallon/h, milgallon/d, Imp.gallon/s, Imp.gallon/m, Imp.gallon/h, Imp.gallon/h, Norm (standard) m³/h, Norm (standard) l/h, Norm (standard) ft³/m, barrel liquid/s, barrel liquid/m, barrel liquid/h
Mass flow	t/d, t/h, t/min, kg/d, kg/h, kg/min, kg/s, g/h, g/min, g/s, lb/d, lb/min, lb/s, LTon/d, LTon/h, STon/d, STon/h, STon/min
Temperature	K, °C, °F, °R
Miscellaneous	%, mA

Pressure Measurement Transmitters for High Performance requirements SITRANS P500 for differential pressure and flow

Technical specifications			
Input		Square-rooted characteristic	
Measured variable	Differential pressure and flow	• Flow > 50%	
Span (infinitely adjustable)	Span (min max.) Maximum ope-	- r ≤ 10	≤ 0,03 %
· · · · · · · · · · · · · · · · · · ·	rating pres- sure (static	- r > 10	≤ (0,003· r) %
	pressure)	• Flow 25 % 50 %	
	1.25 250 mbar 160 bar	- r ≤ 10	≤ 0,06 %
	(0.5 100 inH ₂ O) (2320 psi)	- r > 10	≤ (0,006 · r) %
	6.25 1250 mbar (2.5 500 inH ₂ O)	Influence of ambient temperature per 28° C	≤ (0.01 x r + 0.035) %/28 °C (50 °F)
Lower range limit	100.0%	Influence of static pressure	
 Measuring cell with silicone oil filling 	30 mbar a (0.44 psia)	 On the zero point (PKN)¹⁾ 	≤ 0.007 % per 70 bar
Upper range limit	100 % of max. span	On the span (PKS)	≤ 0.03 % per 70 bar
Start of scale	Between measuring limits (freely adjustable)	Total accuracy (Total Performance) ²⁾	
Output		Linear characteristic	
Output current signal	4 20 mA	•r+5	≤ 0,09 %
Lower current limit	3.55 mA, factory setting 3.8 mA	• 5 < r ≤ 10	≤ 0,14 %
(freely adjustable)		Square-rooted characteristic	
 Upper current limit (freely adjustable) 	23 mA, factory setting 20.5 mA	• Flow > 50 %	
Ripple (without HART)	I _{DD} ≤ 0.4 % of max. output current	- r + 5	≤ 0,09 %
communication)	PP	- 5 < r ≤ 10	≤ 0,14 %
 adjustable damping 	0 100 s in steps of 0.1 s, factory-seting: 2 s	• Flow 25 % 50 %	
current transmitter	3.55 23 mA	- r + 5	≤ 0,18 %
Failure signal	adjustable within limits:	- 5 < r ≤ 10	≤ 0,28 %
, andre signal	Lower: 3.55 3.7 mA (factory setting 3.6 mA)	Step response time T ₆₃ without electrical damping	
	• Upper: 21.0 23 mA (factory setting 22.8 mA	Long-term stability	≤ 0.05 % per 5 years ≤ 0.08 % per 10 years
Load		Influence of power supply	≤ 0.005 %/1 V
Without HART communication	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0.023 \text{ A in } \Omega,$	Rated conditions	
MOULIART	U _H : Power supply in V	Mounting position	Any
With HART communication	B 000 4400 G	Ambient conditions	
- HART Communicator	$R_{\rm B} = 230 \dots 1100 \Omega$	 Ambient temperature (Note: Observe the tempera- 	
- HART modem	$R_{\rm B} = 230 \dots 500 \Omega$	ture class in areas subject to	
Characteristic curve	Linearly rising, linearly falling, square rooted characteristic rising, bidirectio-	explosion hazard.) - Total device	-40 +85 °C (-40 +185 °F)
	nal square rooted characteristic and user-specific	- Readable display	-20 +85 °C (-4 +185 °F)
Measuring accuracy	acci opeomo	- Storage temperature	-50 +90 °C (-58 +194 °F)
Reference conditions (in	Rising characteristic curve	Climatic class	
accordance with IEC 60770-1)	• Start of scale 0 bar	 Condensation 	Relative humidity 0 100 % (condensation permissible)
	 Stainless steel seal diaphragm Measuring cell with silicone oil filling 	Degree of protection (to IEC 60529)	IP66/IP 68 and NEMA 4X (with corresponding cable gland)
Formula no a service service to 100 t	• Room temperature (25 °C (77 °F))	Electromagnetic Compatibility	
Error in measurement at limit setting incl. hysteresis and reproducibility		 Emitted interference and inter- ference immunity 	Acc. to EN 61326 and NAMUR NE 21
r: Span ratio (r: Span ratio (r = max. span /		Permissible pressures	According to 97/23/EC pressure equipment directive
set span))		Temperature of medium	
Linear characteristic	0.00.04	 Measuring cell with silicone oil filling 	-40 +125 °C (-40 +257 °F)
• r ≤ 10	≤ 0,03 %	illing	
• r> 10	≤ (0,003· r) %		

Pressure Measurement Transmitters for High Performance requirements

SITRANS P500 for differential pressure and flow

Tor unicicitial pressure			
Design		• Explosion-proof "d"	BVS 09 ATEX E 027
Weight (without options)	Approx. 3.3 kg (7.3 lb)	MarkingPermissible ambient tempe-	Ex II 1/2 G Ex d IIC T4/T6 -40 +85 °C (-40 +185 °F)
Material of parts in contact with the medium	0.11	rature	temperature class T4; -40 +60 °C (-40 +140 °F)
Seal diaphragmProcess connection and	Stainless steel, mat. no. 1.4404/316L	0 "	temperature class T6
sealing screw	PN 160: stainless steel, matNo. 1.4404/316L	- Connection	To circuits with values: $U_{\rm m} = DC \ 10.5 \dots 45 \ V$
• O-Ring	Standard: Viton (FKM (FPM)) optional: NBR	 Dust explosion protection for zone 20 	PTB 09 ATEX 2004 X
Material of parts not in contact with media		- Marking	Ex II 1 D Ex iaD 20 T 120 °C -40 +85 °C (-40 +185 °F)
Electronics housing	Low copper die-cast aluminum AC-AlSi12 (Fe) or AC-AlSi 10 Mg (Fe) to DIN EN 1706	rature - Max. surface temperature	120 °C (248 °F)
	Lacquer on polyurethane base, optional epoxy-based primer	- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i} = 30 \text{ V}, I_{\rm i} = 100 \text{ mA},$
	 Stainless steel name plates (mat. no. 1.4404/316L) 	- Effective internal induc-	$P_{i} = 750 \text{ mW}, R_{i} = 300 \Omega$ $L_{i} = 400 \mu\text{H}$
Process connection screws	Stainless steel, mat. no. 1.4404/316L	tance: - Effective inner capacitance:	$C_i = 6 \text{ nF}$
Mounting bracket	Steel or stainless steel mat. no. 1.4301	 Dust explosion protection for zone 21/22 	BVS 09 ATEX E 027
Measuring cell filling	Silicone oil	- Marking	Ex II 2 D Ex tD A21 IP68 T120 °C Ex ia
Process connection	1/4-18 NPT female thread and flange connection with M10 to DIN 19213 or 7/16-20 UNF mounting thread to IEC	- Connection	D21 To circuits with values: $U_{\rm m} = 10.5 \dots 45 \text{ V DC}$; $P_{\rm max} = 1.2 \text{ W}$
	61518	• Type of protection "n" (zone 2)	
Electrical connection	Screw terminalsCable entry via the following screwed glands:	- Marking	Ex II 3 G Ex nA II T4/T6 Ex II 2/3 G Ex ib/nL IIC T4/T6 Ex II 2/3 G Ex ib/ic IIC T4/T6
	- M20 x 1.5 - ½-14 NPT	- "nA" connection	$U_{m} = 45 \text{ V DC}$
	- 72-14 NF 1 - Han 7D/Han 8D connector	- "nL, ic" connection	$U_i = 45 \text{ V}$ $L_i = 400 \mu\text{H}$
	- M12 plug	 Effective internal inductance: 	L _i = 400 μπ
Displays and controls		- Effective inner capacitance:	$C_i = 6 \text{ nF}$
Pushbuttons	3 for local programming directly on transmitter	Explosion protection for USA (to FM)	
Display	• With or without integrated display	Certificate of Compliance	No. 3033013
	Cover with or without window	 Identification (XP/DIP) or (IS) 	XP CL I, DIV 1, GP ABCDEFG T4 / T6
Auxiliary power supply	- DC 10 C 44 V		DIP CL II, III, DIV1, GP EFG T4/T6 IS CL I, II, III, DIV1, GP ABCDEFG T4
Terminal voltage on transmitter	DC 10.6 44 V With intrinsically-safe operation DC 10.6 30 V		CL I, Zone 0, AEx ia IIC T4 CL I, Zone 1, AEx ib IIC T4
Certificates and approvals	De 16.6 66 ¥	- Permissible Ambient Tem-	T _a = T4: -40 +85 °C
Classification according to PED 97/23/EC		perature	(-40 +185 °F) T _a = T6: -40 +60 °C (-40 +140 °F)
• PN 160 (MAWP 2320 psi)	For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 3, paragraph 3 (sound engineering practice)	- Entity parameters	According to "control drawing": A5E02189134N $U_m = 30 \text{ V}, I_m = 100 \text{ mA}, P_i = 750 \text{ mW}, L_i = 400 \mu\text{H}, Ci = 6 \text{ nF}$
Explosion protection		Marking (NI/NO)	NI CL I, DIV 2, GP ABCD T4/T6
Explosion protection for Europe (to ATEX)			NI CL I, Zone 2, GP IIC T4/T6 S CL II, III, GPFG T4/T6 NI CL I, DIV 2, GP ABCD T4/T6, NIFW
Intrinsic safety "i" Marking	PTB 09 ATEX 2004 X		NI CL I, Zone 2, GP IIC T4/T6, NIFW NI CLII, III, DIV 2, GP FG T4/T6, NIFW
MarkingPermissible ambient tempe-	Ex II 1/2 G Ex ia/ib IIC T4 -40 +85 °C (-40 +185 °F)	- Permissible Ambient Tem-	$T_a = T4: -40 +85 °C$
rature - Connection	To certified intrinsically-safe circuits with peak values:	perature	(-40 +185 °F) T _a = T6: -40 +60 °C (-40 +140 °F)
- Effective internal induc-	$U_{\rm i} = 30 \text{ V}, \ I_{\rm i} = 100 \text{ mA}, \ P_{\rm i} = 750 \text{ mW}; \ P_{\rm i} = 300 \ \Omega$ $L_{\rm i} = 400 \ \mu \text{H}$	- (NI/S) parameters	According to "control drawing": A5E02189134N
tance:			$U_{\rm m} = 45 \text{ V}, L_{\rm i} = 400 \mu\text{H}, C_{\rm i} = 6 \text{nF},$
- Effective inner capacitance:	$C_i = 6 \text{ nF}$		

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Pressure Measurement

Transmitters for High Performance requirements

for differential pressure and flow

Explosion protection for
Canada (to _C CSA _{US})

Certificate of Compliance No. 2280963

 Marking (XP/DIP) CL I, DIV 1, GP ABCD T4 /T6; CL II, DIV 1, GP EFG T4/T6

 $T_a = T4: -40 ... +85 °C (-40 ... +185 °F)$ - Permissible ambient tempe-

 $T_a = T6: -40 ... +60 °C (-40 ... +140 °F)$ rature - Entity parameters According to "control drawing":

A5E02189134N $U_{m} = 45 \text{ V}$

CL I, Ex ia/Ex ib IIC, T4 · Marking (ia/ib)

CL II, III, Ex ia/Ex ib, GP EFG, T4 CL I, AEx ia/AEx ib IIC, T4 CL II, III, AEx ia/ AEx ib, GP EFG, T4

- Permissible ambient tempe-

rature

 $T_a = T4: -40 \dots +85 \, ^{\circ}C$ (-40 \dots +185 \, ^{\circ})

 U_{i} = 30 V, I_{i} = 100 mA, P_{i} = 750 mW, R_{i} = 300 Ω , L_{i} = 400 $\mu H,$ C_{i} = 6 nF - Entity parameters

CL I, DIV 2, GP ABCD T4/T6 Marking (NI/n)

CL II. III. DIV 2. GP FG T4/T6

Ex nA IIC T4/T6 AEx nA IIC T4/T6 Ex nL IIC T4/T6 AFx nL IIC T4/T6

- Permissible ambient tempe-

rature

 $T_a = T4: -40 ... +85 °C (-40 ... +185 °F)$ $T_a = T6: -40 ... +60 °C (-40 ... +140 °F)$

- NI/nA parameters

According to "control drawing":

A5E02189134N $U_{m} = 45 \text{ V}$

- nL parameters

According to "control drawing": A5E02189134N

 U_i = 45 V, I_i = 100 mA, L_i = 400 μH ,

 $C_i = 6 \text{ nF}$

Explosion protection for China (acc. to NEPSI)

· Intrinsic safety "i"

- Marking

GYJ111111X Ex ia/ib IIB/IIC T4

- Perm. ambient temperature 40 ... +85 °C (-40 ... +185 °F)

- Connection

To certified intrinsically-safe circuits

with maximum values:

 $U_i = 30 \text{ V } I_i = 100 \text{ mA}, P_i = 750 \text{ mW}$

- Effective internal inductance L_i = 400 mH

- Effective inner capacitance C_i = 6 nF GYJ111112 • Explosion-proof "d"

- Marking

Ex dia IIC T4/T6

- Permissible ambient tempe-

-40 ... +85 °C (-40 ... +185 °F) temperature class T4;

-40 ... +60 °C (-40 ... +140 °F) temperature class T6

- Connection

To circuits with values: $U_{\rm m} = DC \ 10.5 \dots 45 \ V$

• Dust explosion protection for

zone 21/22

GYJ111112

DIP A21 TA,T120 °C IP68 D21 - Marking

- Connection To circuits with values:

 $U_{\rm m} = DC \ 10.5 \dots 45 \ V$

• Type of protection "n" (zone 2) GYJ1111111X

Ex nL IIB/IIC T4/T6 - Marking

Ex nA II T4/T6 $U_i = 45 \text{ V DC}$

- Connection - Effective internal inductance L_i = 400 mH - Effective inner capacitance C_i = 6 nF

If the Type "D" measuring cell is used, the error should be increased by a factor of 5. This error can be reduced to 0 by a means of a zero adjustment.

HART communication	
Load with connection of	
 HART communicator 	$R_{\rm B} = 230 \; \; 1100 \; \Omega$
HART modem	$R_{\rm B}=230~~500~\Omega$
Cable	2 wire shielded: \leq 3.0 km (1.86 miles), multiwire shielded: \leq 1.5 km (0.93 miles)
Protocol	HART Version 6.0
PC/laptop requirements	IBM compatible, RAM > 32 MByte, hard disk > 70 MByte, depending on modem type: RS 232-interface or USB connection, VGA graphics
Software for computer	SIMATIC PDM 6.0

The total performance includes the errors caused by temperature effects, static pressure effects and conformity error, including hysteresis and repeatability.

Pressure Measurement Transmitters for High Performance requirements

SITRANS P500 for differential pressure and flow

Selection and Ordering data		Order No.	
Pressure transmitters fo SITRANS P500 HART, P			D) 7MF54 - 0
Enclosure		Thread for cable gland	
Die-cast aluminum, dual	compartment	M20x1.5	0
Die-cast aluminum, dual	compartment	½-14 NPT	1
Output 4 20 mA, HART			3
Measuring cell filling	Measuring cell of	leaning	
Silicone oil	normal		1
Measuring span			
1.25 250 mbar (0.5 100.4 inH ₂ O)		20)	D
6.25 1250 mbar	(2.5 502 inH ₂ C)	E
Wetted parts materials (stainless steel process fl	anges)		
Seal diaphragm	Process connecti	on	
stainless steel	stainless steel		A
Hastelloy	stainless steel		В
Monel	stainless steel		С
Process connection			
Female thread 1/4-18 NPT			
Sealing screw oppositeMounting thread 7/16Mounting thread M10	- 20 UNF according t	o EN 61518	0 1
 Vent on side of process flange¹⁾ Mounting thread 7/16 - 20 UNF according to EN 61518 Mounting thread M10 to DIN 19213 		4 5	
1) Net in a serious sties on its or			

¹⁾ Not in conjunction with remote seals

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

Transmitters for High Performance requirements

SITRANS P500 for differential pressure and flow

Selection and Ordering data	Order code
Further designs Add "-Z" to Order No. and specify Order Code.	
Attachments	
Mounting bracket made of steel	A01
Mounting bracket made of stainless steel	A02
Display (Standard: no display, cover closed)	
With display and blanking cover	A10
With display and glass cover	A11
Special casing / cover version	
Two coats of lacquer on casing, cover (PU on epoxy)	A20
Electrical connection and cable entry (Standard: no cable gland, only dust protection caps)	
Cable gland made of plastic (IP66/68) ⁴⁾	A50
Cable glands made of metal (IP66/68)	A51
Cable glands made of stainless steel (IP66/68)	A52
M12 connectors without cable socket (IP66/67) ⁴⁾	A60
M12 connectors complete with cable socket (IP66/67) ⁴⁾	A61
Han 7D connectors, plastic, straight (with cable socket) (IP65) ⁴⁾	A71
Han 7D connectors, plastic, angled (with cable socket) (IP65) ⁴⁾	A72
Han 7D connectors, metal enclosure, straight (with cable socket) (IP65) ⁴⁾	A73
Han 7D connectors, metal enclosure, angled (with cable socket) (IP65) ⁴⁾	A74
Han 8D connectors, plastic, straight (with cable socket) (IP65) ⁴⁾⁸⁾	A75
Han 8D connectors, plastic, angled (with cable socket) (IP65) ⁴⁾⁸⁾	A76
Han 8D connectors, metal enclosure, straight (with cable socket) (IP65) ⁴⁾⁸⁾	A77
Han 8D connectors, metal enclosure, angled (with cable socket) (IP65) ⁴⁾⁸⁾	A78
PG 13.5 adapters ⁴⁾	A82
Language for labels, leporellos, menu language default ⁹⁾	
(instead of English as standard)	
German	B10
French	B12
Spanish	B13
Italian	B14
Chinese	B15
Russian	B16
Japanese	B17
English with units psi/inH ₂ O/°F	B21
Special version: Supplementary menu languages (Standard: English, German, French, Spanish, Italian)	
Asia language package (in addition: Chinese, Japanese, Russian)	B80
Certificates (available online for downloading) ¹⁾	
Quality inspection certificate (Five-step factory calibration) according to IEC 60770- 2^2)	C11
Acceptance test certificate according to EN 10204-3.13)	C12

Selection and Ordering data	Order cod
Further designs Add "-Z" to Order No. and specify Order Code.	
Degree of protection approvals: Ex ia/ib (intrinsic safety)	
Ex ia/ib protection (ATEX) (T4)	E00
Ex IS protection (FM) (T4)	E01
Ex IS protection (_C CSA _{US}) (T4)	E02
Ex ia/ib protection (NEPSI) (T4)	E06
Degree of protection approvals: Ex d (flameproof)	
Ex d explosion-proof (ATEX)(T4/T6)	E20
Ex XP explosion-proof and DIP (FM)(T4/T6)	E21
Ex XP explosion-proof and DIP (CCSA _{US})(T4/T6)	E22
Ex d explosion-proof (NEPSI)(T4/T6)	E26
Degree of protection approvals: n/NI	
Zone 2 (nA, nL, ic) (ATEX) (T4/T6)	E40
Div2 NI, Div2 NI-field wiring (FM) (T4/T6)	E41
Zone 2 (nA, nL), Div2 NI (_C CSA _{LIS}) (T4/T6)	E42
Zone 2 (nA, nL) (NEPSI) (T4/T6)	E46
Degree of protection approvals: Dust Zone 20/21/22	
Use in Zone 21/22 (Ex tD) (ATEX)	E60
Use in Zone 20/21/22 (Ex iaD) (ATEX)	E61
Use in Zone 21/22 (Ex DIP) (NEPSI)	E66
Degree of protection approvals: Combinations	
IS protection and XP and DIP (FM)	E71
IS protection and XP and DIP (cCSA _{US})	E72
IS protection and XP and DIP (FM/ _C CSA _{US})	E73
Supplementary approvals/degree of protection	
Dual Seal approval ⁵⁾	E85
Special process connection versions (diff. pressure)	
Side vents for gas measurements ⁷⁾	L32
Swap process connection: high-pressure side at front	L33
Process flanges, O-rings, special material Standard: Viton (FKM (FPM)	
Process connection sealing rings made of PTFE (Teflon), virginal	L60
Process connection sealing rings made of PTFE (Teflon), glass fiber-reinforced	L61
Process connection sealing rings made of FFPM (Kalrez)	L62
Process connection sealing rings made of NBR	L63
Drain/Vent valve (1 set = 2 units)	
2 ventilation valves 1/4- 18 NPT, in material of process flanges)	L80
Remote seals	
Transmitters with connection of remote seal ⁶⁾ (For premounted valve manifolds see page 2/188)	V00
· · · · · · · · · · · · · · · · · · ·	

1) Enclosed in print or as CD: see page 2/186.

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

When also ordering the acceptance test certificate according to EN 10204-3.1 for transmitters with mounted diaphragm seals: Order this certificate as well in addition to the respective remote seals.

⁴⁾ Not together with types of protection "Explosion-proof", "Ex nA" and "Intrinsic safety and explosion-proof"

 $^{^{5)}}$ Only in conjunction with FM and/or $_{\mbox{\scriptsize C}}\mbox{CSA}_{\mbox{\scriptsize US}}$

⁶⁾ Please select a remote seal separately. Also refer to the information under 2).

 $^{^{7)}\,}$ Only in conjunction with process connection "Vent on side".

 $^{^{8)}\,}$ The Han 8D plug is identical with the former Han 8U version.

⁹⁾ For option B15, B16 and B17 the menu language default is english. Otherwise the Option B80 (Asia language package) is necessary.

Pressure Measurement Transmitters for High Performance requirements

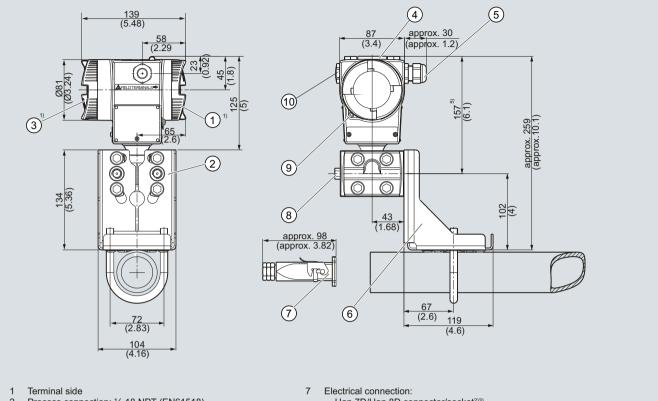
SITRANS P500 for differential pressure and flow

Selection and Ordering data	Order code
Additional data Please add "-Z" to Order No. and specify Order code(s) and plain text.	
Measuring range to be set	
Specify in plain text:	
 in the case of linear characteristic curve (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi 	Y01
 in the case of square rooted characteristic (max. 5 characters): Y02: up to mbar, bar, kPa, MPa, psi 	Y02
Measuring point number and measuring point identifier (only standard ASCII character set)	
Specify in plain text:	
Measuring point number (TAG No.), max. 16 characters	Y15
Y15:	
Measuring point text (max. 27 char.) Y16:	Y16
Entry of HART address (TAG), max. 32 characters Y17:	Y17
Setting of pressure indication in pressure units	Y21
Specify in plain text (standard setting: mbar) Y21: bar, kPa, MPa, psi,	
Note: The following pressure units are selectable: bar, mbar, mm H_2O^*), in H_2O^*), ft H_2O^*), mmHG, inHG, psi, Pa, kPa, MPa, g/cm², kg/cm², Torr, ATM, % or mA	
*) Reference temperature 20 °C	
Setting of pressure indication in non-pressure units Specify in plain text: Y22: up to I/min, m³/h, m, USgpm, (specification of measuring range in pressure units "Y01" is essential, unit with max. 5 characters)	Y22 + Y01 or Y02
Customer-specific settings	
Damping setting (range: 0 100 s) (Standard setting: 2 s)	Y30

Transmitters for High Performance requirements

for differential pressure and flow

Dimensional drawings



- Process connection: 1/4-18 NPT (EN61518)
- 3
- Electronics side, digital display
 Protective cover for the pushbuttons
- Cable entry:
 - Screwed gland M20 x 1.53)
 - Screwed gland 1/2-14 NPT
 - Han 7D/Han 8D connector²⁾³⁾
 - M12 connector
- Mounting bracket (optional)

- Han 7D/Han 8D connector/socket²⁾³⁾
- Vent valve (optional)
- Safety catch
- 10 Blanking plug
- Allow approx. 20 mm (0.79 inch) additional thread length
- Not with type of protection "Explosion-proof"
- Not with type of protection "FM + CSA_{US} [IS + XP]"

SITRANS P pressure transmitter for differential pressure and flow, P500 series, measurements in mm (inch)

for level			
Technical specifications			
Input		Influence of static pressure	
Measured variable	Level	• On the zero point (PKN) ²⁾	≤ (0.007 · r) % per 70 bar
Span (infinitely adjustable)	Span (min max.) Maximum opera-	• on the span (PKS)	≤ 0.03 % per 70 bar
Spair (illillillely adjustable)	ting pressure	Influence of power supply	≤ 0.005 %/1 V
	1.25 250 mbar See "Mounting	Rated conditions	
	(0.5 100 inH ₂ O) flange"	Mounting position	Defined by flange
	6.25 1250 mbar (2.5 500 inH ₂ O)	Ambient conditions	, G
Lower range limit	2-7	Ambient temperature	
· ·	-100 % of max. span or 30 mbar a (0.44 psia) vacuum resistance (available as an option)	(Note: Observe the temperature class in areas subject to explosion hazard.)	40 .05 90 (40 405 95)
Upper range limit	100% of max. span	total deviceReadable display	-40 +85 °C (-40 +185 °F) -20 +85 °C (-4 +185 °F)
Start of scale	Between measuring limits (freely adjus-	- Storage temperature	-50 +90 °C (-58 +194 °F)
	table)	Climatic class	
Output		 Condensation 	Relative humidity 0 100 %
Output current signal	4 20 mA		(condensation permissible)
 Lower current limit (freely adjustable) 	3.55 mA, factory setting 3.8 mA	Degree of protection to IEC 60529	IP66/IP68 and NEMA 4X (with corresponding cable gland)
 Upper current limit (freely adjustable) 	23 mA, factory setting 20.5 mA	Electromagnetic Compatibility	
 Ripple (without HART communication) 	$I_{pp} \le 0.4$ of max. output current	terference immunity	Acc. to EN 61326 and NAMUR NE 21
 adjustable damping 	0 100 s in steps of 0.1 s, factory setting 2 s	Permissible pressures	According to 97/23/EC pressure equipment directive
• current transmitter	3.55 23 mA	Medium temperature of minus side	
• Failure signal	adjustable within limits: • Lower: 3.55 3.7 mA (factory setting	oil filling	-40 +125 °C (-40 +257 °F)
	3.6 mA)	Design	
	 Upper: 21.0 23 mA (factory setting 22.8 mA) 	Weight	
Load		 To EN (pressure transmitter with mounting flange, wit- 	approx. 9.8 11.8 kg (21.6 26.0 (lb)
Without HART communica-	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0.023 \text{ A in } \Omega$	hout tube)	
tion	UH: Power supply in V	To ASME (pressure trans- mitter with mounting flange)	approx. 9.8 16.8 kg (21.6 37.0 lb)
With HART communication		mitter with mounting flange, without tube)	
- HART Communicator	$R_{\rm B} = 230 \dots 1100 \Omega$	Material of parts in contact	
- HART modem	$R_{\rm B} = 230 \dots 500 \Omega$	with the medium	
Characteristic curve	Linearly rising or linearly falling and user-specific	High-pressure side Seal diaphragm of moun-	
Measuring accuracy		ting flange	Monel 400, W-Nr. 2.4360, Hastelloy B2, mat. no. 2.4617, Hastelloy C276, mat.
Reference conditions (in accordance with IEC 60770-1)	 Rising characteristic curve Start of scale 0 bar Stainless steel seal diaphragm Measuring cell with silicone oil filling Room temperature (25 °C (77 °F)) 	- Sealing face	no. 2.4819, Hastelloy C4,mat. no. 2.4610, Tantal, PTFE, ECTFE Smooth to EN 1092-1, Form b1 and/or ASME B16.5 RF 125 250 AA for stainless steel316L, EN1092-1 Form B2 and/or ASME B16.5 RFSF in the case of other materials
Error in measurement at limit setting incl. hysteresis and reproducibility		 Sealing material in the process connections 	
r: Span ratio (r = max. span / set span)		 For standard applications For vacuum application of mounting flange 	
 Linear characteristic 		Low-pressure side	
- r ≤ 10	≤ 0.03 %	- Seal diaphragm	Stainless steel, mat. no. 1.4404/316L
r > 10Long-term stability	≤ (0.003 · r) % ≤ 0.05 % per 5 years	- Process connection and	• Stainless steel, mat. no. 1.4404/316L
g ottoty	≤ 0.08 % per 10 years	sealing screw - O-Ring	Standard: Viton (FKM(FPM))
Influence of ambient temperature per 28 °C1)	≤ (0.01 · r + 0.035) % / 28 °C		optional: NBR

Material of parts not in con-		• Explosion-proof "d"	BVS 09 ATEX E 027
tact with media	a Law as a said a saat alumaia waa A.C.	- Marking	Ex II 1/2 G Ex d IIC T4/T6
Electronics housing	 Low copper die-cast aluminum AC-AlSi12 (Fe) or AC-AlSi 10 Mg (Fe) to DIN EN 1706 Lacquer on polyurethane base, optio- 	- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperature class T4; -40 +60 °C (-40 +140 °F) temperature class T6
	nal epoxy-based primer • Stainless steel serial plate	- Connection	To circuits with values: $U_{\rm m}$ = DC 10.5 45 V
Process connection screws Measuring cell filling	Stainless steel Silicone oil	 Dust explosion protection for zone 20 	PTB 09 ATEX 2004 X
Liquid mounting flange	Silicone oil or other material	- Marking	Ex II 1 D Ex iaD 20 T 120 °C
Process connection		 Permissible ambient temperature 	-40 +85 °C (-40 +185 °F)
 High-pressure side 	Flange to EN and ASME	Max. surface temperature	120 °C (248 °E)
Low-pressure side Electrical connection	1/4-18 NPT female thread and flange connection with M10 to DIN 19213 or 7/16-20 UNF mounting thread to IEC 61518 • Screw terminals	- Connection	To certified intrinsically-safe circuits with peak values: $U_i = 30 \text{ V}$, $I_i = 100 \text{ mA}$,
Liectrical confidention	Cable entry via the following screwed glands:	- Effective internal inductance:	P_i^{\cdot} = 750 mW, R_i = 300 Ω L_i = 400 μ H
	- M20 x 1.5 - ½-14 NPT - Han 7D/Han 8D connector	- Effective inner capacitance:	C _i = 6 nF
Displays and controls	- M12 plug	 Dust explosion protection for zone 21/22 	BVS 09 ATEX E 027
Push buttons	3; for operation directly on the device	- Marking	Ex II 2 D Ex tD A21 IP68 T120 °C Ex ia D21
Display	With or without integrated displayCover with or without window	- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC; $P_{\rm max}$ = 1.2 W
Auxiliary power supply		 Type of protection "n" (zone 2) 	PTB 09 ATEX 2004 X
Terminal voltage on transmitter	DC 10,6 44 V With intrinsically-safe operation DC 10.6 30 V	- Marking	Ex II 3 G Ex nA II T4/T6 Ex II 2/3 G Ex ib/nL IIC T4/T6 Ex II 2/3 G Ex ib/ic IIC T4/T6
Certificates and approvals	DC 10.0 30 V	- "nA" connection	$U_{m} = 45 \text{ V DC}$
Classification according to		- "nL, ic" connection	$U_i = 45 \text{ V}$
PED 97/23/EC	For any of their array of and limited of	 Effective internal inductance 	$L_i = 400 \mu H$
• PN 160 (MAWP 2320 psi)	For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 3, paragraph 3 (sound	- Effective inner capacitance	$C_i = 6 \text{ nF}$
Explosion protection	engineering practice)	Explosion protection for USA (to FM)	
Explosion protection for		Certificate of Compliance	No. 3033013
Europe (to ATEX) • Intrinsic safety "i"	PTB 09 ATEX 2004 X	• Identification (XP/DIP) or	XP CL I, DIV 1, GP ABCDEFG T4 / T6
- Marking	Ex II 1/2 G Ex ia/ib IIC T4	(IS)	DIP CL II, III, DIV1, GP EFG T4/T6 IS CL I, II, III, DIV1, GP ABCDEFG T4
· ·	-40 +85 °C (-40 +185 °F)		CL I, Zone 0, AEx ia IIC T4 CL I, Zone 1, AEX ib IIC T4
- Connection	To certified intrinsically-safe circuits with peak values:	 Permissible Ambient Tem- perature 	$T_a = T4: -40 \dots +85 ^{\circ}\text{C} (-40 \dots +185 ^{\circ}\text{F})$ $T_a = T6: -40 \dots +60 ^{\circ}\text{C} (-40 \dots +140 ^{\circ}\text{F})$
-	$U_{\rm i} = 30 \text{ V}, I_{\rm i} = 100 \text{ mA}, P_{\rm i} = 750 \text{ mW};$ $R_{\rm i} = 300 \Omega$	- Entity parameters	According to "control drawing": A5E02189134N $U_{\rm m} = 30 \text{ V}, \text{ I}_{\rm m} = 100 \text{ mA},$
 Effective internal inductance: 	$L_i = 400 \mu H$		$P_i = 750 \text{ mW}, L_i = 400 \mu\text{H}, C_i = 6 \text{ nF}$
- Effective inner capacitance:	$C_i = 6 \text{ nF}$	 Marking (NI/NO) 	NI CL I, DIV 2, GP ABCD T4/T6 NI CL I, Zone 2, GP IIC T4/T6 S CL II, III, GPFG T4/T6 NI CL I, DIV 2, GP ABCD T4/T6, NIFW NI CL I, Zone 2, GP IIC T4/T6, NIFW NI CL I, III, DIV 2, GP FG T4/T6, NIFW
		 Permissible Ambient Temperature 	T _a = T4: -40 +85 °C (-40 +185 °F) T _a = T6: -40 +60 °C (-40 +140 °F)
		(1110)	A 11 . II . I I I I

- (NI/S) parameters

According to "control drawing": A5E02189134N $U_{\rm m}=45$ V, L $_{\rm i}=400$ $\mu{\rm H}$, Ci = 6 nF

for level	
Explosion protection for	
Canada	
(to _C CSA _{US})	
Certificate of Compliance	No. 2280963
Marking (XP/DIP)	CL I, DIV 1, GP ABCD T4 /T6; CL II, DIV 1, GP EFG T4/T6
 Permissible Ambient Temperature 	$T_a = T4: -40 \dots +85 ^{\circ}\text{C} (-40 \dots +185 ^{\circ}\text{F})$ $T_a = T6: -40 \dots +60 ^{\circ}\text{C} (-40 \dots +140 ^{\circ}\text{F})$
- Entity parameters	According to "control drawing": A5E02189134N, $U_m = 45 \text{ V}$
Marking (ia/ib)	CL I, Ex ia/Ex ib IIC, T4 CL II, III, Ex ia/Ex ib, GP EFG, T4 CL I, AEx ia/AEx ib IIC, T4 CL II, III, AEx ia/ AEx ib, GP EFG, T4
 Permissible Ambient Temperature 	$T_a = T4: -40 \dots +85 ^{\circ}\text{C} (-40 \dots +185 ^{\circ}\text{F})$
- Entity parameters	$\begin{array}{l} U_i = 30 \text{ V}, \ I_i = 100 \text{ mA}, \ P_i = 750 \text{ mW}, \\ R_i = 300 \ \Omega \ , \ L_i = 400 \ \mu\text{H}, \ C_i = 6 \text{ nF} \end{array}$
Marking (NI/n)	CL I, DIV2, GP ABCD T4/T6 CL II, III, DIV2, GP FG T4/T6 Ex nA IIC T4/T6 AEx nA IIC T4/T6 Ex nL IIC T4/T6 AEx nL IIC T4/T6
 Permissible Ambient Temperature 	$T_a = T4: -40 \dots +85 ^{\circ}\text{C} (-40 \dots +185 ^{\circ}\text{F})$ $T_a = T6: -40 \dots +60 ^{\circ}\text{C} (-40 \dots +140 ^{\circ}\text{F})$
- NI/nA parameters	According to "control drawing": A5E02189134N, U _m = 45 V
- nL parameters	According to "control drawing": A5E02189134N, $U_i=45$ V, $I_i=100$ mA, $L_i=400~\mu H, \ C_i=6~nF$
Explosion protection for China (acc. to NEPSI)	
Intrinsic safety "i"	GYJ111111X
- Marking	Ex ia/ib IIB/IIC T4
 Permissible ambient tem- perature 	40 +85 °C (-40 +185 °F)
- Connection	To certified intrinsically-safe circuits with maximum values: $\label{eq:ui} \textbf{U}_i = 30~\text{V I}_i = 100~\text{mA},~\textbf{P}_i = 750~\text{mW}$
- Effective internal induc-	$L_i = 400 \text{ mH}$
- Effective inner capaci-	$C_i = 6 \text{ nF}$
• Explosion-proof "d"	GYJ111112
MarkingPermissible ambient tem-	Ex dia IIC T4/T6 -40 +85 °C (-40 +185 °F) tempera-
perature	ture class T4; -40 +60 °C (-40 +140 °F) tempera-
Occurrenties	ture class T6
- Connection	To circuits with values: $U_m = DC 10.5 45 V$
 Dust explosion protection for zone 21/22 	GYJ111112
- Marking	DIP A21 TA,T120 °C IP68 D21
- Connection	To circuits with values: U _m = DC 10.5 45 V
Type of protection "n" (zone	GYJ111111X
- Marking	Ex nL IIB/IIC T4/T6 Ex nA II T4/T6
- Connection	U _i = 45 V DC
- Effective internal induc-	$L_i = 400 \text{ mH}$
- Effective inner capaci-	$C_i = 6 \text{ nF}$

$R_{\rm B} = 230 \dots 1100 \Omega$
$R_{\rm B}=230\ldots500~\Omega$
2 wire shielded: ≤ 3.0 km (1.86 miles), multiwire shielded: ≤ 1.5 km (0.93 miles)
HART Version 6.0
IBM compatible, RAM > 32 MByte, hard disk > 70 MByte, depending on modem type: RS 232-interface or USB connection, VGA graphics
SIMATIC PDM 6.0

¹⁾ Only relevant for the pressure transmitter. The temperature error of the remote seal must calculated separately.

If the Type "D" measuring cell is used, the error should be increased by a factor of 5. This error can be reduced to 0 by a means of a zero adjustment.

Selection and Ordering of	lata		Order No.	Orc	der code
Pressure transmitters for	r level, SITRANS P500 I	HART	D) 7MF56 - 0 - 0 - 1		
Enclosure Die-cast aluminum, dual c Die-cast aluminum, dual c	•	Thread for cable gland M20x1.5 ½-14 NPT	0 1		
Output					
4 20 mA, HART Measuring cell filling	Measuring cell clear	alone.	3		
Silicone oil Measuring span (min	normal	iiiig	1		
1.25 250 mbar	(0.5 100.4 inH ₂ O)		D		
6.25 1250 mbar	(2.5 502 inH ₂ O)		E		
Wetted parts of the low-p (stainless steel process fla					
Seal diaphragm	Process connection				
stainless steel	stainless steel		A		
Hastelloy Monel	stainless steel stainless steel		B C		
Process connection of Ic					
Female thread 1/4-18 NPT	w pressure side				
 Sealing screw opposite p Mounting thread 7/16 - Mounting thread M10 t 	20 UNF according to IE	C 61518	0		
 Vent on side of process t Mounting thread 7/16 - Mounting thread M10 t 	20 UNF according to IE	C 61518	4 5		
Wetted parts materials (h	nigh-pressure side)				
Stainless steel/316L Hastelloy C276 Monel Tantalum PFA coated on steel/316L PTFE on stainless steel/31 Other version Add order code and plain Material:; Extension len	text:	vith an extension)		0 1 2 3 4 5 A 9 Y	N1Y
Process connection on h	nigh-pressure side: Ext	ension length			
None 50 mm (1.97 inch) 100 mm (3.94 inch) 150 mm (5.90 inch) 200 mm (7.87 inch) Other version: See option	"9" for "Wetted parts mat	erials"		A B C D	
Process connection on h	nigh-pressure side: Nor	ninal diameter/Nominal pressure			
DN 50, PN 40 ⁶⁾ DN 80, PN 40 DN 100, PN 16 DN 100, PN 40 2", class 150 ⁶⁾ 2", class 300 ⁶⁾ 3", class 150 3", class 300 4", class 300 4", class 300 Other version, add Order Code and plain text				B G H L M Q R T U Z	Q1Y

Pressure Measurement Transmitters for High Performance requirements

SITRANS P500 for level

Selection and Ordering data		Order No.	Orde	er code
Pressure transmitters for level, SITRANS P500 HART	D	7MF56 - 0 - 0 -		
Process connection on high-pressure side: Filling liquid				
Silicone oil M5			0	
Silicone oil M50			1	
High-temperature oil			2	
Halocarbon (for oxygen measurement)			3	
FDA compliant oil			4	
Glycerin/water			5	
Other version, add Order Code and plain text: Filling liquid:			9	R1Y

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

Transmitters for High Performance requirements

SITRANS P500 for level

Selection and Ordering data	Order code
Further designs Add "-Z" to Order No. and specify Order Code.	
Display	
(Standard: no display, cover closed)	
With display and blanking cover	A10
With display and glass cover	A11
Special version: cover/casing	
Two coats of lacquer on casing, cover (PU on epoxy)	A20
Electrical connection and cable entry (Standard: no cable gland, only dust protection caps)	
Cable gland made of plastic (IP66/68) ⁴⁾	A50
Cable glands made of metal (IP66/68)	A51
Cable glands made of stainless steel (IP66/68)	A52
M12 connectors without cable socket (IP66/67) ⁴⁾	A60
M12 connectors, cable socket (IP66/67) ⁴⁾	A61
Han 7D connectors, plastic, straight (with cable socket) (IP65) ⁴⁾	A71
Han 7D connectors, plastic, angled (with cable socket) (IP65) ⁴⁾	A72
Han 7D connectors, metal enclosure, straight (with cable socket) (IP65) ⁴⁾	A73
Han 7D connectors, metal enclosure, angled (with cable socket) (IP65) ⁴⁾	A74
Han 8D connectors, plastic, straight (with cable socket) (IP65) ⁴⁾⁷⁾	A75
Han 8D connectors, plastic, angled (with cable socket) (IP65) ⁴⁾⁷⁾	A76
Han 8D connectors, metal enclosure, straight (with cable socket) (IP65) ⁴⁾⁷⁾	A77
Han 8D connectors, metal enclosure, angled (with cable socket) (IP65) ⁴⁾⁷⁾	A78
PG 13.5 adapters ⁴⁾	A82
Language for labels, leporellos and menu language default ⁶⁾	
(instead of English as standard)	D10
German	B10
French	B12
Spanish	B13
Italian	B14
Chinese	B15
Russian	B16
Japanese	B17
English with units: psi/inH ₂ O Special version: Supplementary menu languages	B21
(Standard: English, German, French, Spanish, Italian) Asia language package (in addition: Chinese, Japanese,	B80
Russian) Certificates (available online for downloading) ¹⁾	
Quality inspection certificate (Five-step factory calibration) according to IEC 60770-2 ²)	C11
Acceptance test certificate according to EN 10204-3.1 ³⁾	C12
Degree of protection approvals: Ex ia/ib (intrinsic safety)	312
Ex ia/ib protection (ATEX) (T4)	E00
Ex IS protection (FM) (T4)	E01
Ex IS protection (CCSA _{US}) (T4)	E02
Ex ia/ib protection (NEPSI) (T4)	E02
. , , , , ,	

Selection and Ordering data	Order code
Further designs Add "-Z" to Order No. and specify Order Code.	
Degree of protection approvals: Ex d (flameproof)	
Ex d explosion-proof (ATEX)(T4/T6)	E20
Ex XP explosion-proof and DIP (FM)(T4/T6)	E21
Ex XP explosion-proof and DIP (_C CSA _{US})(T4/T6) Ex d explosion-proof (NEPSI)(T4/T6)	E22 E26
Degree of protection approvals: n/NI	
Zone 2 (nA, nL, ic) (ATEX) (T4/T6)	E40
Div2 NI, Div2 NI-field wiring (FM) (T4/T6)	E41
Zone 2 (nA, nL), Div2 NI (_C CSA _{US}) (T4/T6) Zone 2 (nA, nL) (NEPSI) (T4/T6)	E42 E46
Degree of protection approvals: Zone 20/21/22	
Use in Zone 21/22 (Ex tD) (ATEX)	E60
Use in Zone 20/21/22 (Ex iaD) (ATEX)	E61
Use in Zone (Ex DIP) (ATEX)	E66
Degree of protection approvals: Combinations	
IS protection and XP and DIP (FM)	E71
IS protection and XP and DIP (CCSAUS)	E72
IS protection and XP and DIP (FM/ _C CSA _{US})	E73
Supplementary approvals / degree of protection	
Dual Seal approval ⁵⁾	E85
Special process connection versions (diff. pressure)	
Swap process connection: high-pressure side at front	L33
Process flanges, O-rings, special material Standard: Viton (FKM (FPM)	
Process connection sealing rings made of PTFE (Teflon), virginal	L60
Process connection sealing rings made of PTFE (Teflon), glass fiber-reinforced	L61
Process connection sealing rings made of FFPM (Kalrez)	L62
Process connection sealing rings made of NBR	L63
Drain/Vent valve (1 set = 2 units)	
2 ventilation valves ¼- 18 NPT, in material of process flange)	L80
Vacuum-proof design	
Vacuum service	V04
Spark arrester For mounting on zone 0 (including documentation)	V05

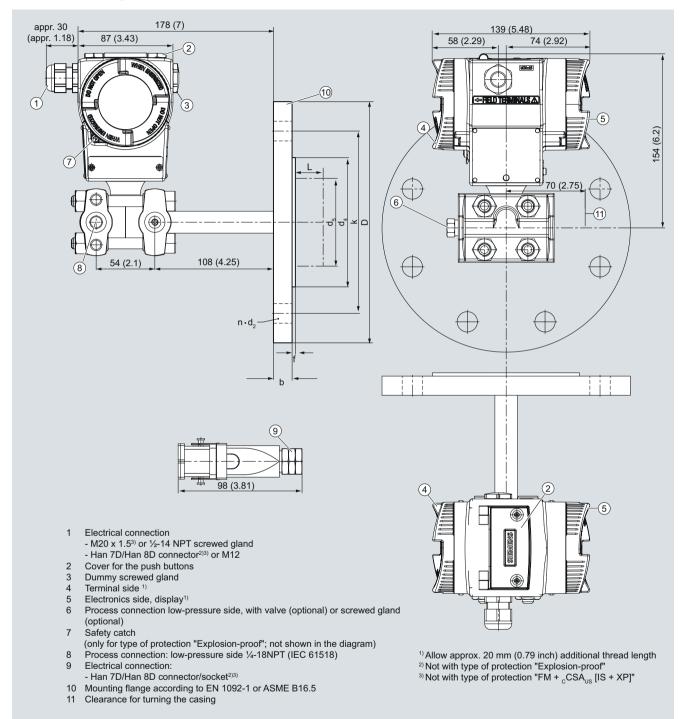
- 1) Enclosed in print or as CD: see page 2/186.
- When also ordering the quality inspection certificate (factory calibration) according to IEC 60770-2 for transmitters with mounted diaphragm seals: Order this certificate only together with the remote seals. The measuring accuracy of the total combination is certified here.
- 3) When also ordering the acceptance test certificate according to EN 10204-3.1 for transmitters with mounted diaphragm seals: Order this certificate as well in addition to the respective remote seals.
- 4) Not together with types of protection "Explosion-proof", "Ex nA" and "Intrinsic safety and explosion-proof"
- $^{5)}$ Only in conjunction with FM and/or $_{\mbox{\scriptsize C}}\mbox{CSA}_{\mbox{\scriptsize US}}$
- 6) Not recommended for Measuring span "D"
- $^{7)}\,$ The Han 8D plug is identical with the former Han 8U version.
- 8) For option B15, B16 and B17 the menu language default is english. Otherwise the Option B80 (Asia language package) is necessary.

Selection and ordering data	Order code
Additional data Please add "-2" to Order No. and specify Order code(s) and plain text.	
Measuring range to be set	
Specify in plain text:	
Linear characteristic curve (max. 5 characters): Y01: up to mbar, kPa, MPa, psi	Y01
Measuring point number and measuring point identifier (only standard ASCII character set)	
Specify in plain text:	
Measuring point number (TAG No.), max. 16 characters Y15:	Y15
Measuring point text (max. 27 char.) Y16:	Y16
Entry of HART address (TAG), max. 32 characters Y17:	Y17
Setting of pressure indication in pressure units	Y21
Specify in plain text (standard setting: mbar) Y21: bar, kPa, MPa, psi,	
Note: The following pressure units are selectable: bar, mbar, mm H ₂ O*), in H ₂ O*), ftH ₂ O*), mmHG, inHG, psi, Pa, kPa, MPa, g/cm², kg/cm², Torr, ATM, % or mA *) Reference temperature 20 °C	
,	V00 .
Setting of pressure indication in non-pressure units Specify in plain text: Y22: up to I/min, m ³ /h, m, USapm,	Y22 + Y01
(specification of measuring range in pressure units "Y01" is essential, unit with max. 5 characters)	
Customer-specific settings	
Damping setting (range: 0 100 s) (Standard setting: 2 s)	Y30

Transmitters for High Performance requirements

SITRANS P500 for level

Dimensional drawings



SITRANS P pressure transmitter for filling level, P500 series, measurements in mm (inch)

SITRANS P500 for level

Connection to EN 1092-1

	Nominal pressure		D	d	d ₂	d ₄	d ₅	d _M	f	k	n	L
		mm	mm	mm	mm	mm	mm	mm	mm	mm		mm
DN50	PN 40	20	165	61	18	102	48.3	47 ²⁾	2	125	4	
DN 80	PN 40	24	200	90	18	138	76	72 ¹⁾	2	160	8	0, 50, 100,
DN 100	PN 16	20	220	115	18	158	94	89	2	180	8	150 or 200
	PN 40	24	235	115	22	162	94	89	2	190	8	

Connection to ASME B16.5

Nominal diameter	Nominal pressure	b	D	d ₂	d ₄	d ₅	d _M	f	k	n	L
	lb/sq.in.	inch (mm)	inch (mm)	inch (mm)	inch (mm)	inch (mm)	inch (mm)	inch (mm)	inch (mm)		inch (mm)
2 inch	Class 150	0.77 (19.5)	5.91 (150)	0.75(19.0)	3.62(92)	1.9(48.3)	2.32(59.0)	0.079 (2.0)	4.75 (120.7)	4	0, 2, 3.94,
	Class 300	0.89 (22.7)	6.49(165)	0.75(19.0)	3.62(92)	1.9(48.3)	2.32(59.0)	0.079 (2.0)	5.0 (127)	8	5.94 or 7.87
3 inch	Class 150	0.96 (24.3)	7.5 (190.5)	0.75 (19.0)	5 (127)	3.0 (76)	2.83 ¹⁾ (72)	0.079 (2.0)	6 (152.4)	4	(0, 50, 100, 150
	Class 300	1.14 (29.0)	8.27 (210)	0.87 (22.2)	5 (127)	3.0 (76)	2.83 ¹⁾ (72)	0.079 (2.0)	6.69 (168.3)	8	or 200)
4 inch	Class 150	0.96 (24.3)	9.06 (230)	0.75 (19.0)	6.19 (157.2)	3.69 (94)	3.5 (89)	0.079 (2.0)	7.5 (190.5)	8	_
	Class 300	1.27 (32.2)	10.04 (255)	0.87 (22.2)	6.19 (157.2)	3.69 (94)	3.5 (89)	0.079 (2.0)	7.88 (200)	8	

Explanations of tables:

d: Internal diameter of gasket to DIN 2690

 d_{M} : Effective diaphragm diameter

d₅: Diameter of extension

f: Milling edge

L: Extension length

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

2) 59 mm with tube length L=0.

Transmitters for High Performance requirements

Supplementary electronics for 4-wire connection

Overview



SITRANS P pressure transmitter with supplementary electronics for 4-wire connection

Direct connection of the supplementary electronics to a SITRANS P pressure transmitter from the P500 series produces a transmitter for four-wire connection.

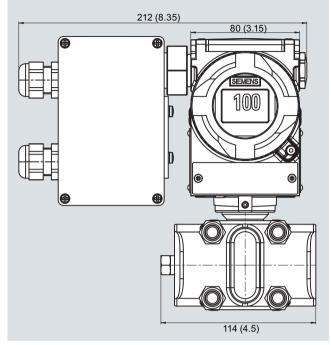
The supplementary electronics cannot be attached to explosionprotected pressure transmitters. The supplementary electronics is fitted in a light metal housing which is mounted on the left side of the pressure transmitter.

Note on ordering:

fied limits)

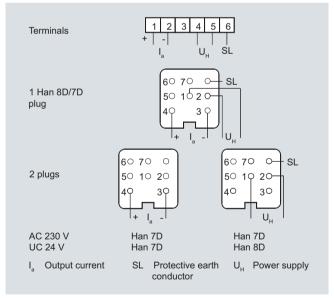
The supplementary electronics has to be be ordered through the **supplementary options** of the pressure transmitter in question.

Dimensional drawings



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

Schematics



Supplementary electronics for 4-wire connection, connection diagram (the HAN 8D conector is identical to the previous version of the HAN 8U)

Technical specifications	
Output Output signal Load Voltage measurement Electrical isolation	0 20 mA or 4 20 mA Max. 750 Ω Linear (square-rooting in transmitter if necessary) Between power supply and input/output
Measuring accuracy Conformity error (in addition to transmitter) Influence of ambient temperature Power supply effect Load effect	According to IEC 60770-1 ≤ 0.15 % of set span ≤ 0.1 % per 10 K ≤ 0.1 % per 10 % change in voltage or frequency ≤ 0.1 % per 100 % change
Rated conditions Ambient temperature Storage temperature Degree of protection Electromagnetic compatibility (EMC)	-20 +80 °C (-4 +176 °F) -50 +85 °C (-58 +185 °F) IP54 to IEC 60529 EN 50081, EN 50082
Structural design Dimensions (W x H x D) in mm (inch) Electrical connection	80 x 120 x 60 (3.15 x 4.72 x 2.36) Screw terminals (Pg 13.5 cable inlet) or Han 7D / Han 8D plug
Power supply Supply voltage Permissible ripple (within the specified limits)	230 V AC (-10 +6 %, 47 63 Hz, approx. 6 VA) or 24 V AC/DC (24 V AC ± 10 %, 47 63 Hz, approx. 3 VA) Approx. 2.5 V pp

SITRANS P500
Supplementary electronics for 4-wire connection

Selection and	Ord	Order code			
Supplementary connection Order No. of the 7MF54and Order code	V				
Power supply 24 V AC/DC	Electrical connection Terminals; 2 Pg screwed glands, to left 2 Han 7D/Han 8U plugs incl. mating connector, to left 1 Han 7D plug incl. mating connector, angled Terminals; 1 Pg screwed gland, downwards 1 Han 8U plug incl. mating connector, downwards (observe arrangement of plug and differential pressure line)	1 3 5 6			
230 V AC	Terminals; 2 Pg screwed glands, to left 2 Han 7D plugs incl. mating connector, to left	8			
Output current 0 20 mA 4 20 mA	t		0		
Accessories	Ord	de	r No.		
Instruction Ma German/English	A 5	EC	00322799		

SITRANS P500 - Accessories/Spare parts

Selection and ordering	Order No.				
Replacement measuring pressure SITRANS P pressure tra	ng cells for differential	D)	7 M F 5 9 9 4 -		
pressure and flow, P500 (MAWP 2320 psi)	1				
Measuring cell filling Silicone oil	1				
Measuring span (min.					
1.25 250 mbar 6.25 1250 mbar	(0.5 100.4 inH ₂ O) (2.5 502 inH ₂ O)		D E		
Wetted parts materials (stainless steel process					
Seal diaphragm					
stainless steel	stainless steel		Α		
Hastelloy	stainless steel		В		
Monel	stainless steel		С		
 Mounting thread M1 Vent on side of proces Mounting thread ⁷/₁₆ Mounting thread M1 	ss flange ₃ -20 UNF to IEC 61518		1 4 5		
Further designs			Order code		
Add "-Z" to Order No. ar	nd specify Order Code.				
Acceptance test certification Acc. to EN 10204-3.1	icate		C12		
Without process flanges	3		K00		
Vent on side for gas me	asurements1)		L32		
Process flanges, O-rin Standard: Viton (FKM	g, special material (FPM))				
Process connection sea (Teflon), virginal	L60				
Process connection sea (Teflon), glass fiber-rein	L61				
Process connection sea (Kalrez)	L62				
Process flanges, O-ring	s made of NBR		L63		
1) Only in conjugation wit			_		

¹⁾ Only in conjunction with process connection code 4 or 5.

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

SITRANS P500 - Accessories/Spare parts

Selection and Ordering data	
-	Order No.
Mounting brackets For differential pressure transmitters with flange thread M10 (7MF5410 and 7MF5450)	
made of steelmade of stainless steel	7MF5987-1AA 7MF5987-1AD
Mounting brackets for differential pressure transmitter with flange thread 7/16-20 UNF (7MF5400 and 7MF5440) • made of steel • made of stainless steel	7MF5987-1AC 7MF5987-1AF
Cover	
Made of die-cast aluminum, including O-ring • without window • with window	7MF5987-1BE 7MF5987-1BF
Digital indicator Including mounting material	7MF5987-1BR
TAG plate (incl. fastening material)	
without inscription (5 pcs.)	7MF5987-1CA
Printed (1 pc.) C) Data according to Y01 or Y02, Y15 and Y16 (see "SITRANS P transmitters")	7MF5987-1CB-Z Y:
Mounting screws	
For TAG plate, grounding and connection C) terminals and securing and locking screws (30 units)	7MF5987-1CC
Sealing plugs for process flange (1 set = 2 units) • made of stainless steel • made of Hastelloy	7MF4997-1CG 7MF4997-1CH
Vent valve Complete (1 set = 2 units) • made of stainless steel • made of Hastelloy	7MF4997-1CP 7MF4997-1CQ
Electronics module	
HART, intrinsically safe Ex ia C) for installation in transmitter casing (observe warranty conditions)	7MF5987-1DC
Connection board (incl. fastening material)	
HART, intrinsically safe Ex ia for installation in transmitter casing (observe warranty conditions)	7MF5987-1DM
O-rings for process flanges made of: • Viton (FKM (FPM)) (10 pcs.) F) • NBR (Buna N) (10 pcs.) F)	7MF5987-2DA 7MF5987-2DE
Push buttons assembly (incl. fastening material)	7MF5987-2AF
For replacement of operating keys for on- site operation of the transmitter	
Sealing ring for	Con cotale :: Flod
 Process connection NBR sealing ring for screw cover (10 pcs.) NBR sealing ring for interface measuring F) cell/housing (10 pcs.) 	See catalog Fl01, "Fittings" 7MF4997-2EA 7MF5987-2EB

Selection	and	Ordering	data
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	Order No.
Operating Instructions ¹⁾	
German	A5E02344527
English	A5E02344528
French	A5E02344529
Italian	A5E02344530
Spanish	A5E02344531
Compact operating instructions ¹⁾	
English, German, Spanish, French, Italian, Dutch	A5E02344532
English, Estonian, Latviaan, Lithuanian, Polish, Romanian	A5E02307339
English, Bulgarian, Czech, Finnish, Slovakian, Slovenian	A5E02307340
English, Danish, Greek, Portuguese, Swedish, Hungarian	A5E02307341
Russian	A5E02307338
Brief instructions (Leporello)	
German, English	A5E02344536
French, English	A5E02344537
Italian, English	A5E02344538
Spanish, English	A5E02344539
Chinese, English	A5E02344540
Russian, English	A5E02556625
CD with documentation	
German, English, French, Spanish, Italian	A5E02344535
Service Instructions ¹⁾ for replacement of electronics, measuring cell and terminal board	
• german	A5E02822443
• english	A5E02344534
HART modem	
• with RS232 interface ▶D)	7MF4997-1DA
• with USB interface ▶D)	7MF4997-1DB
Supplementary electronics for 4-wire connection	A5E00322799
Certificates (order only via SAP) additional to internet download	
hard copy (to order)	A5E03252406
• on CD (to order)	A5E03252407
1) You can download those appreting instructions	from of oborgo from our

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

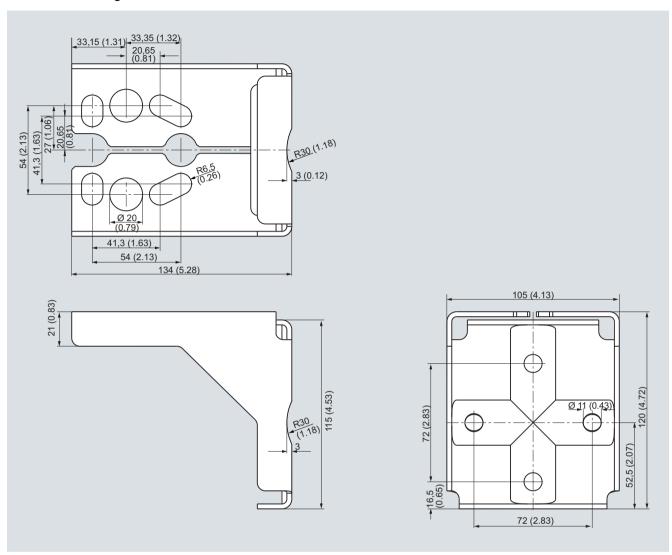
- C) Subject to export regulations AL: N, ECCN: EAR99.
- D) Subject to export regulations AL: N, ECCN: EAR99H.
- F) Subject to export regulations AL: 91999, ECCN: N.
- Available ex stock.

For power supply units, see catalog FI01 "Supplementary Compontents".

Transmitters for High Performance requirements

SITRANS P500 - Accessories/Spare parts

Dimensional drawings



Mounting bracket for SITRANS P pressure transmitter, P500 series, measurements in mm (inch) Mounting bracket material: Sheet-steel Mat. No. 1.0330, chrome-plated, or stainless steel Mat. No. 1.4301 (304)

Transmitters for High Performance requirements

SITRANS P500 Factory-mounting of valve manifolds on transmitters

Overview

The SITRANS P500 transmitter can be delivered factory-fitted with the following manifolds:

- Valve manifolds 7MF9411-5BA: Three valve manifold for differential pressure transmitter
- Valve manifolds 7MF9411-5CA: Three valve manifold for differential pressure transmitter

Design

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

Once installed, the complete unit is checked under pressure for leaks (compressed air 6 bar ($2411 \text{ inH}_2\text{O}$)) and is certified leak-proof with a factory certificate to EN 10204 - 2.2.

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

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

If you order an acceptance test certificate 3.1 to EN10204 when choosing the option "Factory mounting of manifolds", a separate certificate is provided for the transmitters and the manifolds respectively.

Selection and ordering Data

Manifold 7MF9411-5BA on SITRANS P pressure transmitter P500 for differential pressure and flow



	Add -Z to the Order No. of the transmitter and add order codes	Order Code
l	SITRANS P500 7MF54	
	mounted with gaskets made of PTFE and screws made of	
	• chromized steel	U01
	• stainless steel	U02
	Delivery incl. high-pressure test certified by factory certificate to EN10204-2.2	
	Further designs:	
	Delivery includes mounting bracket and mounting clips made of	
	• steel	A01
	• stainless steel	A02
	(instead of the mounting bracket supplied with the transmitter)	
	Supplied acceptance test certificate to EN10204-3.1 for transmitters and mounted valve manifold	C12

Manifold 7MF9411-5CA on SITRANS P500 pressure transmitter for differential pressure and flow



and add order codes SITRANS P500 7MF54 mounted with gaskets made of PTFE and screws made of • chromized steel • stainless steel Delivery incl. high-pressure test certified by factory certificate to EN10204-2.2 Further designs: Delivery includes mounting bracket and mounting clips made of • steel • stainless steel (instead of the mounting bracket supplied with the transmitter)		
mounted with gaskets made of PTFE and screws made of • chromized steel • stainless steel Delivery incl. high-pressure test certified by factory certificate to EN10204-2.2 Further designs: Delivery includes mounting bracket and mounting clips made of • steel • stainless steel (instead of the mounting bracket supplied with the transmitter) Supplied acceptance test certificate to EN10204-3.1 for transmitters and moun-		Order Code
screws made of chromized steel stainless steel Delivery incl. high-pressure test certified by factory certificate to EN10204-2.2 Further designs: Delivery includes mounting bracket and mounting clips made of steel stainless steel (instead of the mounting bracket supplied with the transmitter) Supplied acceptance test certificate to EN10204-3.1 for transmitters and moun-	SITRANS P500 7MF54	
stainless steel Delivery incl. high-pressure test certified by factory certificate to EN10204-2.2 Further designs: Delivery includes mounting bracket and mounting clips made of steel stainless steel (instead of the mounting bracket supplied with the transmitter) Supplied acceptance test certificate to EN10204-3.1 for transmitters and moun-		
Delivery incl. high-pressure test certified by factory certificate to EN10204-2.2 Further designs: Delivery includes mounting bracket and mounting clips made of • steel • stainless steel (instead of the mounting bracket supplied with the transmitter) Supplied acceptance test certificate to EN10204-3.1 for transmitters and moun-	chromized steel	U03
by factory certificate to EN10204-2.2 Further designs: Delivery includes mounting bracket and mounting clips made of • steel • stainless steel (instead of the mounting bracket supplied with the transmitter) Supplied acceptance test certificate to EN10204-3.1 for transmitters and moun-	stainless steel	U04
Delivery includes mounting bracket and mounting clips made of • steel • stainless steel (instead of the mounting bracket supplied with the transmitter) Supplied acceptance test certificate to EN10204-3.1 for transmitters and moun-		
mounting clips made of • steel • stainless steel (instead of the mounting bracket supplied with the transmitter) Supplied acceptance test certificate to EN10204-3.1 for transmitters and moun-	Further designs:	
• stainless steel (instead of the mounting bracket supplied with the transmitter) Supplied acceptance test certificate to EN10204-3.1 for transmitters and moun-		
(instead of the mounting bracket supplied with the transmitter) Supplied acceptance test certificate to EN10204-3.1 for transmitters and moun-	• steel	A01
plied with the transmitter) Supplied acceptance test certificate to EN10204-3.1 for transmitters and moun-	stainless steel	A02
EN10204-3.1 for transmitters and moun-		
	EN10204-3.1 for transmitters and moun-	C12

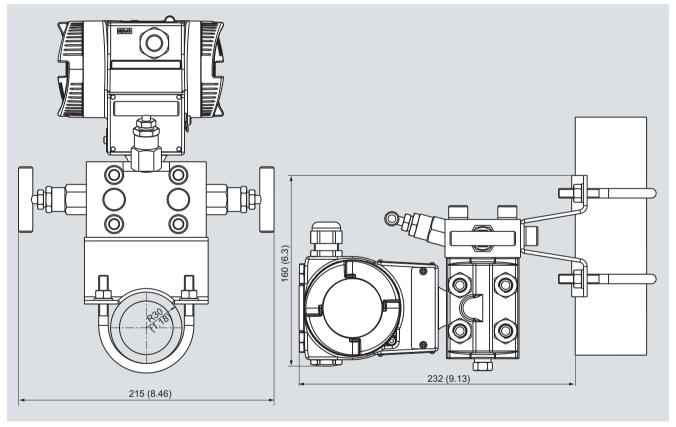
Transmitters for High Performance requirements

SITRANS P500 Factory-mounting of valve manifolds on transmitters

Dimensional drawings

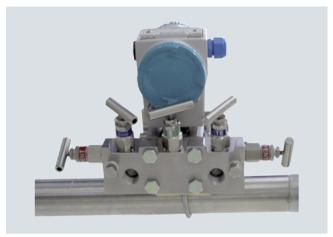


Manifold 7MF9411-5BA with attached SITRANS P500 pressure transmitter for differential pressure and flow (incl. mounting bracket)

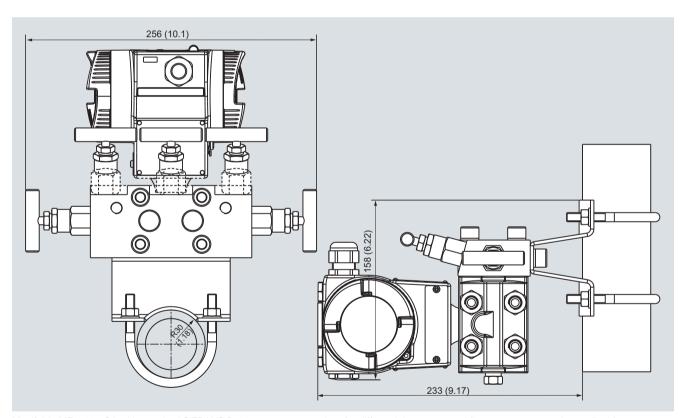


Manifold 7MF9411-5BA with attached SITRANS P500 pressure transmitter for differential pressure and flow, measurements in mm (inch)

Pressure Measurement Transmitters for High Performance requirements SITRANS P500 Factory-mounting of valve manifolds on transmitters



Manifold 7MF9411-5CA with attached SITRANS P500 pressure transmitter for differential pressure and flow (incl. mounting bracket)



Manifold 7MF9411-5CA with attached SITRANS P500 pressure transmitter for differential pressure and flow, measurements in mm (inch)

Remote seals for transmitters and pressure gauges

Overview

In many cases the pressure transmitter and the measured medium have to be physically separated. It is then necessary to use a remote seal.

The remote seals can be used with the following SITRANS P pressure transmitter series:

- Pressure (P300, DS III with HART, DS III with PROFIBUS PA, DS III with FOUNDATION Fieldbus)
- Absolute pressure (P300, DS III with HART, DS III with PROFI-BUS PA, DS III with FOUNDATION Fieldbus)
- Differential pressure and flow (P500, DS III with HART, DS III with PROFIBUS PA, DS III with FOUNDATION Fieldbus)

Note

When configuring your remote seal, be sure to read the information about transmission response, temperature error and response time to be found in the sections "Function" and "Technical data". Only then will the remote seal work to optimum effect.

Benefits

- No direct contact between the pressure transmitter and the medium
- Individual configuration of the pressure transmitter for perfect adaptation to the operating conditions
- Available in many versions
- Specially designed for difficult operating conditions
- · Quick-release versions available for the food industry

Application

Remote seal systems should be used if a separation between the measured medium and the measuring instrument is essential or appropriate.

Examples of such cases:

- The temperature of the medium is outside the limits specified for the pressure transmitter.
- The medium is corrosive and requires diaphragm materials which are not available for the pressure transmitter.
- The medium is highly viscous or contains solids which would block the measuring chambers of the pressure transmitter.
- The medium may freeze in the measuring chambers or pulse line.
- The medium is heterogeneous or fibrous.
- The medium tends towards polymerization or crystallization.
- The process requires quick-release remote seals, as necessary e.g. in the food industry for fast cleaning.
- The process requires cleaning of the measuring point, e.g. in a batch process.

Design

A remote seal system consists of the following components.

- · Pressure transmitter
- · One or two remote seals
- · Filling liquid
- Connection between pressure transmitter and remote seal (direct mounting or by means of capillary)

The volume in contact with the measured medium is terminated by a flat elastic diaphragm lying in a bed. Between the diaphragm and the pressure transmitter is the filling liquid.

In many cases, a capillary has to be connected between the remote seal and the pressure transmitter in order e.g. to minimize temperature effects on the latter when hot media are involved.

Technical description

However, the capillary influences the response time and the temperature response of the complete remote seal system. Two capillaries of equal length must always be used to connect a remote seal to a pressure transmitter for differential pressure.

The remote seal can be optionally equipped with a projecting diaphragm (tube).

Remote seals of sandwich design are fitted with a dummy flange.

Designs

Diaphragm seal

With diaphragm seals, the pressure is measured by means of a flat diaphragm which rests in a bed.

The following types of diaphragm seals exist:



Diaphragm seal of sandwich design without (left) and with a projecting diaphragm (tube)

- Sandwich design
- Sandwich design with projecting diaphragm (tube) to DIN or ASME which are secured using a dummy flange.



Diaphragm seal of flange design without (left) and with a projecting diaphragm (tube)

- Flange design
- Flange design with projecting diaphragm (tube) to DIN or ASME, secured using holes in the flange.



Quick-release diaphragm seal

- Quick-release remote seals, e.g. to DIN 11851, SMS standard, IDF standard, APV RJT standard, clamp connection, etc.
- Miniature diaphragm seal with male thread for screwing into tapped holes
- Remote seals with customer-specific process connections

Remote seals for transmitters and pressure gauges

Technical description



Miniature diaphragm seal with diaphragm flush with front

Miniature diaphragm seals

The quick-release remote seals are used above all in the food industry. Their design means that the measured medium cannot accumulate in dead volumes. The quick-release clamp present on the remote seal means that quick dismounting is possible for cleaning.

Clamp-on seal



Clamp-on seal with quick-release design (left) and for flange mounting

With clamp-on seals, the pressure is first measured using a cylindrical diaphragm positioned in a pipe, and then transmitted to the pressure transmitter by means of the filling liquid.

The clamp-on seal is a special design for flowing media. It consists of a cylindrical pipe in which a cylindrical diaphragm is embedded. Since it is completely integrated in the process pipe, no turbulences, dead volumes or other obstructions to the flow occur. Furthermore, the clamp-on seal can be cleaned by a pig.

The following types of clamp-on seals exist:

- Quick-release clamp-on seals, e.g. to DIN 11851, SMS standard, IDF standard, APV/RJT standard, clamp connection etc.
 The quick-release facility attached to the remote seal enables the seal to be removed quickly for cleaning purposes.
- Clamp-on seals for flanging to EN or ASME.
- Clamp-on seals with customer-specific process connections.

Note:

The pressure data on the transmitter and the remote seal must be observed with regard to pressure/temperature behavior.

Function

The measured pressure is transferred from the diaphragm to the filling liquid and passes through the capillary to the measuring chamber of the pressure transmitter. The interior of the diaphragm seal and of the capillary, as well as the measuring chamber of the transmitter, are filled gas-free by the filling liquid.

Transmission response

The transmission response of a remote seal is characterized by the following variables:

- Temperature error
- Adjustment time

Temperature error

Temperature errors are caused by the change of volume of the filling liquid due to temperature variations. To select the right remote seal you must calculate the temperature error.

Below you will find an overview of the factors which influence the size of the temperature error, as well as information on how to calculate the temperature error.

The temperature error is dependent on the following variables:

- · Rigidity of the diaphragm used
- Filling liquid used
- Influence of the filling liquid underneath the process flanges or in the connection shank of the pressure transmitter
- Internal diameter of the capillary: The bigger the internal diameter, the bigger the temperature error
- Length of the capillary: The longer the capillary, the bigger the temperature error

Diaphragm rigidity

The rigidity of the diaphragm is of decisive importance. The bigger the diameter of the diaphragm, the softer the diaphragm and the more sensitively it reacts to temperature-induced changes in volume of the filling liquid.

The result is that small measuring ranges are only possible with large diaphragm diameters.

Other factors apart from diaphragm rigidity which also play a role:

- Diaphragm thickness
- Diaphragm material
- · Coatings if present

Filling liquid

Every filling liquid reacts to temperature variations with a change of volume. Temperature errors can be minimized by selecting a suitable filling liquid, but the filling liquid must also be appropriate for the temperature limits and operating pressure. Furthermore, the filling liquid must also be physiologically harmless.

Since the filling liquid is present under the diaphragm, in the capillary and under the process flange of the pressure transmitter (or in the connection shank), the temperature error must be calculated separately for each combination.

Note:

When operating in the low-pressure range, also during commissioning, it is recommended to use a vacuum-proof remote seal (see Selection and Ordering data).

An example of a temperature error calculation can be found in the section "Technical Specifications".

Remote seals for transmitters and pressure gauges

Technical description

Response time

The response time is dependent on the following factors:

- Internal diameter of the capillary: The bigger the internal diameter, the shorter the response time
- Viscosity of the filling liquid The greater the viscosity, the longer the response time
- Length of the capillary: The longer the capillary, the longer the response time
- Pressure in the pressure measuring system: The higher the pressure, the shorter the response time

Recommendations

The following should be observed to obtain an optimum combination of transmitter and remote seal:

- Choose the biggest possible diameter for the remote seal. The
 effective diameter of the seal diaphragm is then bigger and
 the temperature error smaller.
- Choose the shortest possible capillary. The response time is then shorter and the temperature error smaller
- Choose the filling liquid with the least viscosity and the smallest coefficient of expansion. Make sure, however, that the filling liquid meets the process requirements with regard to pressure, vacuum and temperature. And ensure that the filling liquid and the medium are compatible with one another.
- Note the following points for use in the vacuum range:
 - The pressure transmitter must always be positioned below the lowest spigot.
 - The operating range of some filling liquids is very limited with regard to the permissible temperature of the medium.
 - A vacuum-proof seal is necessary for continuous operation in the low-pressure range.
- Recommendations for the minimum span can be found in the section "Technical data".

Note

The remote seals listed here are a selection of the most common designs. On account of the large variety of process connections, certain remote seals which are not listed here may be available nevertheless

Other versions can be:

- · Other process connections, standards
- · Aseptic or sterile connections
- · Other dimensions
- Other nominal pressures
- · Special diaphragm materials, including coatings
- Other sealing faces
- Other filling liquids
- Other capillary lengths
- · Sheathing of capillaries with protective hose
- Calibration at higher/lower temperatures etc.

Please contact your Siemens Regional Office for more information.

Remote seals for transmitters and pressure gauges

Technical description

Technical specifications

Temperature error Diaphragm seals

Temperature errors of diaphragm seals when connected to pressure transmitters for pressure, absolute pressure, differential pressure (single-sided) and level

	Nominal diameter/ design	Diaphragm diameter				Temperature error of capillary		Temperature error of process flange/connec- tion spigot		Recommended min. spans (guidance value observe temp. error)	
		mm	(inch)	mbar/ 10 K	(psi/ 10 K)	mbar/ (10 K ⋅ m _{Kap})	(psi/ (10 K · m _{Kap)})	mbar/ 10 K	(psi/ 10 K)	mbar	(psi)
Sandwich	DN 50 without tube	59	(2.32)	1.5	(0.022)	2	(0.029)	2	(0.029)	200	(2.90)
design or with flange to	DN 50 with tube	48	(1.89)	5	(0.073)	10	(0.145)	10	(0.145)	500	(7.25)
EN 1092-1	DN 80 without tube	89	(3.50)	0.2	(0.003)	0.2	(0.003)	0.2	(0.003)	100	(1.45)
	DN 80 with tube	72	(2.83)	1	(0.015)	1	(1.015)	1	(1.015)	250	(3.63)
	DN 100 without tube	89	(3.50)	0.2	(0.003)	0.4	(0.006)	0.4	(0.006)	100	(1.45)
	DN 100 with tube	89	(3.50)		(0.006)	0.4	(0.006)	0.4	(0.006)	100	(1.45)
	DN 125 without tube	124	(4.88)		(0.003)	0.1	(0.002)	0.1	(0.002)	20	(0.29)
	DN 125 with tube	124	(4.88)		(0.003)	0.1	(0.002)	0.1	(0.002)	20	(0.29)
Sandwich	2 inch without tube	59	(2.32)		(0.022)	2	(0.029)	2	(0.029)	200	(2.90)
design or with	2 inch with tube	48	(1.89)		(0.073)	10	(0.145)	10	(0.145)	500	(7.25)
lange to ASME B16.5	3 inch without tube	89	(3.50)	0.2	(0.003)	0.2	(0.003)	0.2	(0.003)	100	(1.45)
TOIVIL B 10.0	3 inch with tube	72	(2.83)		(0.015)	1	(1.015)	1	(1.015)	250	(3.63)
	4 inch without tube	89	(3.50)		(0.003)	0.4	(0.006)	0.4	(0.006)	100	(1.45)
	4 inch with tube	89	(3.50)	0.4	(0.006)	0.4	(0.006)	0.4	(0.006)	100	(1.45)
	5 inch without tube	124	(4.88)	0.2	(0.003)	0.1	(0.002)	0.1	(0.002)	20	(0.29)
	5 inch with tube	124	(4.88)	0.2	(0.003)	0.1	(0.002)	0.1	(0.002)	20	(0.29)
Remote seal	DN 25	25	(0.98)	20	(0.290)	60	(0.870)	60	(0.870)	6000	(87)
vith union nut to DIN 11851	DN 32	32	(1.26)	8	(0.116)	25	(0.363)	25	(0.363)	4000	(58)
311 11001	DN 40	40	(1.57)	4	(0.058)	10	(0.145)	10	(0.145)	2000	(29)
	DN 50	52	(2.05)	4	(0.058)	5	(0.073)	5	(0.073)	500	(7.25)
	DN 65	59	(2.32)	3	(0.044)	4	(0.058)	4	(0.058)	500	(7.25)
	DN 80	72	(2.83)	1	(0.015)	1	(0.015)	1	(0.015)	250	(3.63)
Remote seal, screwed gland design	DN 50	52	(2.05)	4	(0.058)	5	(0.073)	5	(0.073)	500	(7.25)
Remote seal	DN 25	25	(0.98)	20	(0.290)	60	(0.870)	60	(0.870)	6000	(87)
vith threaded socket to	DN 32	32	(1.26)	8	(0.116)	25	(0.363)	25	(0.363)	4000	(58)
DIN 11851	DN 40	40	(1.57)	4	(0.058)	10	(0.145)	10	(0.145)	2000	(29)
	DN 50	52	(2.05)	4	(0.058)	5	(0.073)	5	(0.073)	500	(7.25)
	DN 65	59	(2.32)	3	(0.044)	4	(0.058)	4	(0.058)	500	(7.25)
	DN 80	72	(2.83)	1	(0.015)	1	(0.015)	1	(0.015)	250	(3.63)
Clamp connec-	1½ inch	32	(1.26)	8	(0.116)	25	(0.363)	25	(0.363)	4000	(58)
ion	2 inch	40	(1.57)	4	(0.058)	10	(0.145)	10	(0.145)	2000	(29)
	2½ inch	59	(2.32)	3	(0.044)	5	(0.073)	5	(0.073)	500	(7.25)
	3 inch	72	(2.83)	1	(0.015)	1	(0.015)	1	(0.015)	250	(3.63)
Miniature dia-	G1B	25	(0.98)	20	(0.290)	60	(0.870)	60	(0.870)	6000	(87)
ohragm seal	G11/2B	40	(1.57)	4	(0.058)	10	(0.145)	10	(0.145)	2000	(29)
	G2B	52	(2.05)	4	(0.058)	5	(0.073)	5	(0.073)	500	(7.25)

Remarks

- Values apply for the filling liquids silicone oil M5, silicone oil M50, high-temperature oil, halocarbon oil and food oil (FDA listed).
- Half the values apply to glycerin/water mixture as the filling liquid.
- Values apply to stainless steel as the diaphragm material.

Remote seals for transmitters and pressure gauges

Technical description

Temperature errors of diaphragm seals with connection to differential pressure transmitters (double-sided)

	Nominal diameter/ design	Diaphra diamete				Temperature error of capillary		Temperature error of process flange/connection spigot		Recommended min. spans (guidance values, observe temperature error)	
		mm	(inch)	mbar/ 10 K	(psi/ 10 K)	mbar/ (10 K · m _{Kap})	(psi/ (10 K · m _{Kap}))	mbar/ 10 K	(psi/ 10 K)	mbar	(psi)
Sandwich	DN 50 without tube	59	(2.32)	0.3	(0.0043)	0.3	(0.0045)	0.3	(0.0045)	250	(3.626)
design or with flange to	DN 50 with tube	48	(1.89)	1.26	(0.018)	1.7	(0.025)	1.7	(0.025)	250	(3.626)
EN 1092-1	DN 80 without tube	89	(3.50)	0.05	(0.001)	0.05	(0.001)	0.05	(0.0007)	50	(0.725)
	DN 80 with tube	72	(2.83)	0.24	(0.004)	0.17	(0.003)	0.17	(0.003)	100	(1.45)
	DN 100 without tube	89	(3.50)	0.05	(0.001)	0.07	(0.001)	0.07	(0.001)	50	(0.725)
	DN 100 with tube	89	(3.50)	0.1	(0.002)	0.07	(0.001)	0.07	(0.001)	50	(0.725)
	DN 125 without tube	124	(4.88)	0.05	(0.001)	0.03	(0.0004)	0.03	(0.0004)	20	(0.29)
	DN 125 with tube	124	(4.88)	0.05	(0.001)	0.03	(0.0004)	0.03	(0.0004)	20	(0.29)
Sandwich	2 inch without tube	59	(2.32)	0.3	(0.0043)	0.3	(0.0043)	0.3	(0.0045)	250	(3.626)
design with flange to	2 inch with tube	48	(1.89)	1.26	(0.018)	1.7	(0.025)	1.7	(0.025)	250	(3.626)
ASME B16.5	3 inch without tube	89	(3.50)	0.05	(0.001)	0.05	(0.0007)	0.05	(0.0007)	50	(0.725)
	3 inch with tube	72	(2.83)	0.24	(0.004)	0.17	(0.003)	0.17	(0.003)	100	(1.45)
	4 inch without tube	89	(3.50)	0.05	(0.001)	0.07	(0.001)	0.07	(0.001)	50	(0.725)
	4 inch with tube	89	(3.50)	0.1	(0.002)	0.07	(0.001)	0.07	(0.001)	50	(0.725)
	5 inch without tube	124	(4.88)	0.05	(0.001)	0.03	(0.0004)	0.03	(0.0004)	20	(0.29)
	5 inch with tube	124	(4.88)	0.05	(0.001)	0.03	(0.0004)	0.03	(0.0004)	20	(0.29)
Remote seal, screwed gland design	DN 50	52	(2.05)	1	(0.015)	0.83	(0.012)	0.83	(0.012)	250	(3.626)
Remote seal	DN 50	52	(2.05)	1	(0.015)	0.83	(0.012)	0.83	(0.012)	250	(3.626)
with union nut to DIN 11851	DN 65	59	(2.32)	0.7	(0.010)	0.67	(0.010)	0.67	(0.010)	250	(3.626)
	DN 80	72	(2.83)	0.24	(0.004)	0.17	(0.003)	0.17	(0.003)	100	(1.450)
Remote seal	DN 50	52	(2.05)	1	(0.015)	0.83	(0.012)	0.83	(0.012)	250	(3.626)
with threaded socket to	DN 65	59	(2.32)	0.7	(0.010)	0.67	(0.010)	0.67	(0.010)	250	(3.626)
DIN 11851	DN 80	72	(2.83)	0.24	(0.004)	0.17	(0.003)	0.17	(0.003)	100	(1.450)
Clamp connec-	2 inch	40	(1.57)	1	(0.015)	2.5	(0.036)	2.5	(0.036)	2000	(29.01)
tion	2½ inch	59	(2.32)	0.7	(0.010)	0.67	(0.010)	0.67	(0.010)	250	(3.626)
	3 inch	72	(2.83)	0.24	(0.004)	0.17	(0.003)	0.17	(0.003)	100	(1.450)

Remarks:

- Values apply for the filling liquids silicone oil M5, silicone oil M50, high-temperature oil, halocarbon oil and food oil (FDA listed)
- Half the values apply to glycerin/water mixture as the filling liquid
- Values apply to stainless steel as the diaphragm material.

Remote seals for transmitters and pressure gauges

Technical description

Temperature error Clamp-on seals

Temperature errors of clamp-on seals when connected to pressure transmitters for gauge pressure and absolute pressure, and with single-sided connection to pressure transmitters for differential pressure

Nominal diameter/ design	Temperature error of remote seal		Temperature e capillary			Temperature error of process flange/connection spigot		Recommended min. spans (guidance values, observe temperature error)	
	mbar/10 K	(psi/10 K)	mbar/10 K	(psi/10 K)	mbar/10 K	(psi/10 K)	mbar	(psi)	
DN 25 (1 inch)	6.0	(0.0870)	8.5	(0.123)	8.5	(0.123)	1000	(14.5)	
DN 40 (1½ inch)	4.5	(0.065)	4.5	(0.065)	4.5	(0.065)	250	(3.63)	
DN 50 (2 inch)	4.0	(0.058)	3.0	(0.044)	3.0	(0.044)	100	(1.45)	
DN 80 (3 inch)	9.5	(0.138)	5.0	(0.073)	5.0	(0.073)	100	(1.45)	
DN 100 (4 inch)	8.0	(0.012)	3.0	(0.044)	3.0	(0.044)	100	(1.45)	

Temperature errors of clamp-on seals with double-sided connection to pressure transmitters for differential pressure

Nominal diameter/ design	Temperature error of remote seal		Temperature el capillary	error of Temperature e cess flange/co got		•	Recommended min. spar (guidance values, observ temperature error)	
	mbar/10 K	(psi/10 K)	mbar/10 K	(psi/10 K)	mbar/10 K	(psi/10 K)	mbar	(psi)
DN 25 (1 inch)	2.3	(0.033)	1.8	(0.026)	1.8	(0.026)	1000	(14.5)
DN 40 (1½ inch)	0.8	(0.012)	0.3	(0.004)	0.3	(0.004)	250	(3.63)
DN 50 (2 inch)	0.3	(0.004)	0.1	(0.002)	0.1	(0.002)	100	(1.45)
DN 80 (3 inch)	3.0	(0.044)	0.5	(0.007)	0.5	(0.007)	100	(1.45)
DN 100 (4 inch)	1.0	(0.015)	0.1	(0.002)	0.1	(0.002)	100	(1.45)

Remarks:

- Values apply for the filling liquids silicone oil M5, silicone oil M50, high-temperature oil, halocarbon oil and food oil (FDA listed).
- Half the values apply to glycerin/water mixture as the filling liquid.
- Values apply to stainless steel as the diaphragm material.
- Diaphragm thickness 0.05 mm (0.002 inch) for DN 25/DN 40/DN 50 and 0.1 mm (0.004 inch) for DN 80/DN 100

Remote seals for transmitters and pressure gauges

Technical description

Calculation of the temperature error

The following equation is used to calculate the temperature error:

$\text{dp} = (9_{\text{RS}} - 9_{\text{Cal}}) \cdot f_{\text{RS}} + (9_{\text{Cap}} - 9_{\text{Cal}}) \cdot I_{\text{Cap}} \cdot f_{\text{Cap}} + (9_{\text{TR}} - 9_{\text{Cal}}) \cdot f_{\text{PF}}$						
dp	Additional temperature error (mbar)					
9 _{RS}	Temperature on remote seal diaphragm (generally corresponds to temperature of medium)					
9 _{Cal}	Calibration (reference) temperature (20 °C (68 °F))					
f _{RS}	Temperature error of remote seal					
9 _{Cap}	Ambient temperature on the capillaries					
9 _{Cap}	Capillary length					
f _{Cap}	Temperature error of capillaries					
9_{TR}	Ambient temperature on pressure transmitter					
f _{PF}	Temperature error of the oil filling in the process flanges of the pressure transmitter					

Example of temperature error calculation

Existing conditions:

Existing conditions:						
SITRANS P pressure transmitter for differential pressure, 250 mbar, set to 0 100 mbar, with DN 100 remote seal diaphragms without tube, diaphragm made of stainless steel, mat. No. 1.4404/316L	$f_{RS} = 0.05 \text{ mbar/10 K}$ (0.039 inH ₂ O/10 K)					
Capillary length	$I_{Cap} = 6 \text{ m (19.7 ft)}$					
Capillaries fitted on both sides	$f_{Cap} = 0.07 \text{ mbar/(10 K} \cdot \text{m}_{Cap})$ (0.028 inH ₂ O/(10 K · m _{Cap}))					
Filling liquid silicone M5	f _{PF} = 0.07 mbar/10 K (0.028 inH ₂ O/10 K)					
Process temperature	θ _{RS} = 100 °C (212 °F)					
Temperature on the capillaries	θ _{Cap} = 50 °C (122 °F)					
Temperature on pressure transmitter	θ _{TR} = 50 °C (122 °F)					
Calibration temperature	9 _{Cal} = 20 °C (68 °F)					

Required:

Additional temperature error of remote seals: dp

Calculation:

in mbai	r

 $dp = (100\ ^{\circ}C - 20\ ^{\circ}C) \cdot 0.05\ mbar/10\ K + (50\ ^{\circ}C - 20\ ^{\circ}C) \cdot 6\ m \cdot 0.07\ mbar/(10\ K \cdot m) + (50\ ^{\circ}C - 20\ ^{\circ}C) \cdot 0.07\ mbar/10\ K$ $dp = 0.8\ mbar + 1.26\ mbar + 0.21\ mbar$

in inH₂O

 $\begin{aligned} &\text{dp} = (212\ ^\circ\text{F} - 68\ ^\circ\text{F}) \cdot 0.039\ \text{inH}_2\text{O}/10\ \text{K} + (112\ ^\circ\text{F} - 68\ ^\circ\text{F}) \cdot 19.7\ \text{ft} \cdot \\ &0.028\ \text{inH}_2\text{O}/(10\ \text{K} \cdot 3.28\ \text{ft}) + (112\ ^\circ\text{F} - 68\ ^\circ\text{F}) \cdot (0.028\ \text{inH}_2\text{O}/10\ \text{K}) \\ &\text{dp} = 0.32\ \text{inH}_2\text{O} + 0.51\ \text{inH}_2\text{O} + 0.08\ \text{inH}_2\text{O} \end{aligned}$

Result:

$dp = 2.27 \text{ mbar } (0.91 \text{ inH}_2\text{O})$

(corresponds to 2.27% of set span)

Note

The determined temperature error only applies to the error resulting from connection of the remote seal.

The transmission response of the respective transmitter is $\underline{\text{not}}$ included in this consideration.

It must be calculated separately, and the resulting error $\underline{added}\ to$ the error determined above from connection of the remote seal.

Dependence of temperature error on diaphragm material

The temperature errors listed in the previous table are based on the use of stainless steel as the diaphragm material. If other diaphragm materials are used, the temperature errors change as follows:

Diaphragm material	Change in temperature error of remote seal				
	Increase in values by				
Stainless steel	See previous tables				
Hastelloy C4, mat. No. 2.4610	50 %				
Hastelloy C276, mat. No. 2.4819	50 %				
Monel 400, mat. No. 2.4360	60 %				
Tantalum	50 %				
Titanium	50 %				
PTFE coating on stainless steel diaphragm	80 %				
ECTFE coating or PFA coating on stainless steel diaphragm	100 %				
Gold coating on stainless steel dia- phragm	- 40 %				

Maximum temperature of medium

The following maximum temperatures of the medium apply depending on the material of the wetted parts:

, ,		•			
Material	p _{abs} < 1 k (402 inH ₂	oar O)	p _{abs} > 1 bar (402 inH ₂ O)		
	°C	(°F)	°C	(°F)	
Stainless steel, 316L	200	(392)	400	(662)	
PTFE coating	200	(392)	260	(500)	
ECTFE coating	100	(212)	150	(302)	
PFA coating	200	(392)	260	(500)	
Hastelloy C4, mat. No. 2.4610	200	(392)	260	(500)	
Hastelloy C276, mat. No. 2.4819	200	(392)	400	(662)	
Monel 400, mat. No. 2.4360	200	(392)	400	(662)	
Tantalum	200	(392)	300	(572)	

Maximum capillary length for diaphragm seals (guidance values)

Nom. diam	١.	Max. length of capillary						
		Diaphragi	m seal	Clamp-on	Clamp-on seal			
		m	(ft)	m	(ft)			
DN 25	(1 inch)	2.5	(8.2)	2.5	(8.2)			
DN 32	(11/4 inch)	2.5	(8.2)	2.5	(8.2)			
DN 40	(1½ inch)	4	(13.1)	6	(19.7)			
DN 50	(2 inch)	6	(19.7)	10	(32.8)			
DN 65	(2½ inch)	8	(26.2)	10	(32.8)			
DN 80	(3 inch)	10	(32.8)	10	(32.8)			
DN 100	(4 inch)	10	(32.8)	10	(32.8)			
DN 125	(5 inch)	10	(32.8)	-	-			

Remote seals for transmitters and pressure gauges

Technical description

Response times

The values listed in the following table are the response times (in seconds per meter of capillary) for a change in pressure which corresponds to the set span.

The listed values must be multiplied by the respective length of the capillary, or with transmitters for differential pressure and flow by the total length of both capillaries.

The response times are independent of the set span within the range of the respective transmitter. The response times are of insignificant importance for spans above 10 bar (145 psi). The response times of the pressure transmitters are not considered in the table.

Filling liquid	Density		Tempe on cap		Response time in s/m (s/ft) with max. span of pressure transmitter						
	kg/dm ³	(lb/in ³)	°C	(°F)	250 mbar	(101 inH ₂ O)	600 mbar	(241 inH ₂ O)	1600 mbar	(643 inH ₂ O)	
Silicone oil M5	0.914	(0.033)	+60	(140)	0.06	(0.018)	0.02	(0.006)	0.01	(0.003)	
			+20	(68)	0.11	(0.034)	0.02	(0.006)	0.02	(0.006)	
			- 20	(-4)	0.3	(0.091)	0.12	(0.037)	0.05	(0.015)	
Silicone oil M50	0.966	(0.035)	+60	(140)	0.6	(0.183)	0.25	(0.076)	0.09	(0.027)	
			+20	(68)	0.61	(0.186)	0.26	(0.079)	0.1	(0.030)	
			- 20	(-4)	1.69	(0.515)	0.71	(0.216)	0.27	(0.082)	
High-temperature oil	1.070	(0.039)	+60	(140)	0.14	(0.043)	0.06	(0.018)	0.02	(0.006)	
			+20	(68)	0.65	(0.198)	0.27	(0.082)	0.1	(0.030)	
			-10	(14)	3.96	(1.207)	1.65	(0.503)	0.62	(0.189)	
Halocarbon oil	1.968	(0.071)	+60	(140)	0.07	(0.021)	0.03	(0.009)	0.01	(0.003)	
			+20	(68)	0.29	(0.088)	0.12	(0.037)	0.05	(0.015)	
			- 20	(-4)	2.88	(0.878)	1.2	(0.366)	0.45	(0.137)	
Food oil (FDA listed)	0.920	(0.033)	+60	(140)	0.75	(0.229)	0.33	(0.101)	0.17	(0.052)	
			+20	(68)	4	(1.220)	1.75	(0.534)	0.67	(0.204)	
			- 20	(-4)	20	(6.100)	8.5	(2.593)	3.25	(0.991)	
Glycerin/water	1.220	(0.044)	+60	(140)	0.13	(0.040)	0.05	(0.015)	0.02	(0.006)	
			+20	(68)	0.76	(0.232)	0.32	(0.098)	0.12	(0.037)	
			0	(32)	9.72	(2.963)	4.05	(1.234)	1.51	(0.460)	

Technical data of filling liquids

When selecting the filling liquid, check that it is suitable with respect to the permissible temperature of the medium and the process pressure.

Also check the compatibility of the filling liquid with the measured medium. For example, only physiologically harmless filling liquids may be used in the food industry.

Oxygen and chlorine are special cases of measured medium. The liquid must not react with either of these two media or a leaking remote seal may lead to an explosion or fire.

Filling liquid	Digit in Order No.						at 8 °F)	Viscosity 20 °C (68		Coefficien expansion	
		p _{abs} < 1 bar	(p _{abs} < 402 inH ₂ O)	p _{abs} > 1 bar	(p _{abs} > 402 inH ₂ O)						
		°C	(°F)	°C	(°F)	kg/dm ³	(lb/in ³)	m ² /s·10 ⁶	$(\mathrm{ft}^2/\mathrm{s}\!\cdot\!10^6)$	1/°C	(1/°F)
Silicone oil M5	1	-60 +80	(-76 +176)	-90 +180	(-130 +356)	0.914	(0.03)	4	(43)	0.00108	(0.00060)
Silicone oil M50	2	-40 +150	(-40 +302)	-40 +250	(-40 +482)	0.96	(0.03)	50	(538)	0.00104	(0.00058)
High-tempera- ture oil	3	-10 +200	(+14 +392)	-10 +400	(+14 +752)	1.07	(0.04)	39	(420)	0.00080	(0.00044)
Halocarbon oil	4	-40 +80	(-40 +176)	-40 +175	(-40 +347)	1.968	(0.07)	14	(151)	0.00086	(0.00048)
Glycerin/water	6	Not possi- ble	Not possible	-10 +120	(+14 +248)	1.22	(0.04)	88	(947)	0.00050	(0.00028)
Food oil (FDA listed)	7	-20 +160	(-4 +320)	-20 +200	(-4 +392)	0.92	(0.03)	10	(107)	0.00080	(0.00044)

Remote seals for transmitters and pressure gauges Diaphragm seals of sandwich design with flexible capillary

Overview



Diaphragm seals of sandwich design

Technical specifications

Diaphragm seals of sandwich design							
Nominal diameter	Nominal pressure						
• DN 50	PN 16 PN 100						
• DN 80	PN 16 PN 100						
• DN 100	PN 16 PN 100						
• DN 125	PN 16 PN 100						
• 2 inch	Class 150 class 2500						
• 3 inch	Class 150 class 2500						
• 4 inch	Class 150 class 2500						
• 5 inch	Class 150 class 2500						
Sealing face							
• For stainless steel, mat. No. 1.4404/316L	To EN 1092-1, form B1 or ASME B16.5 RF 125 250 AA						
• For the other materials	To EN 1092-1, form B2 or ASME B16.5 RFSF						
Materials							
Main body	Stainless steel mat. no. 1.4404/316L						
Wetted parts	Stainless steel mat. no. 1.4404/316L						
	 Without coating 						
	 PTFE coating (for vacuum on request) 						
	 ECTFE coating (for vacuum on request) 						
	 PFA coating (for vacuum on request) 						
	Monel 400, mat. No. 2.4360						
	Hastelloy C276, mat. No. 2.4819						
	Hastelloy C4, mat. No. 2.4610						
	Tantalum						
Capillary	Stainless steel, mat. No. 1.4571/316Ti						
• Sheath	Spiral hose made of stainless steel, mat. No. 1.4301/316						

Sealing material in the process flanges	
For pressure transmitters, absolute pressure transmitters and low- pressure applications	Copper
• For other applications	Viton
Maximum pressure	See above and the technical data of the pressure transmitters
Tube length	Without tube as standard (tube available on request)
Capillary	
• Length	Max. 10 m (32.8 ft), longer lengths on request
Internal diameter	max. 2 mm (0.079 inch)
Minimum bending radius	150 mm (5.9 inch)
Filling liquid	Silicone oil M5
	Silicone oil M50
	High-temperature oil
	Halocarbon oil (for measuring O2)
	Food oil (FDA listed)
	Glycerine/water (not suitable for use in low-pressure range)
Permissible ambient temperature	Dependent on the pressure trans- mitter and the filling liquid of the remote seal
	More information can be found in the technical data of the pressure transmitters and in the section "Technical data of filling liquid" in the Technical description to the remote seals
Weight	Approx. 4 kg (8.82 lb)
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)

Remote seals for transmitters and pressure gauges

Diaphragm seals of sandwich design with flexible capillary

Selection and Or	dering data		Order No	. Ord.code
Diaphragm seal				
	esign, with flexible capillary ITRANS P transmitter):			
for pressure 7MF together with Ord design) and 7MF Scope of delivery	F403 and 7MF423 er code "V01" (vacuum-proof 802 ¹⁾ ; (1 off)	D)	7MF49(0 -
for absolute pres Scope of delivery	ssure 7MF433; (1 off)	D)	7MF490	1 -
	ressure and flow 7MF443 cope of delivery 2 off	. D)	7MF490	3 -
			1====	В
Nominal diamete	er and nominal pressure			
• DN 50	PN 16 100		Α	
(recommended o for pressure)	nly for pressure transmitters			
• DN 80	PN 16 100		В	
• DN 100	PN 16 100		C	
• DN 125	PN 16 100		D	
• 2 inch	Class 150 2500		E	
	nly for pressure transmitters			
• 3 inch	Class 150 2500		н	
• 4 inch	Class 150 2500		L.	
• 5 inch	Class 150 2500		N	
Smooth sealing fa	ace to EN 1092-1, form B1 or			
to ASME B16.5 R	F 125 250 AA			
Other version			Z	J 1 Y
Add Order code a Nominal diameter Sealing face: see	:; Nominal pressure:			
Wetted parts ma	terials			
• Stainless steel 3	316L			
- without coating	g		Α	
 with PTFE coa 	ting		E 0	
- with ECTFE co	pating ²⁾		F	
 with PFA coati 	ng		D	
• Monel 400, mat			G	
 Hastelloy C276, 			J	
Hastelloy C4, m	at. No. 2.4610		U	
• Tantalum			K	
Other version Add Order code a	and plain text:		Z	K 1 Y
Wetted parts mat				
Tube length				
 without tube 			0	
Other version:	and all all also have h		9	L 1 Y
Add Order code a Tube length:	ana piain text:			
Filling liquid				
• Silicone oil M5			1	
Silicone oil M50			2	
High-temperatu			3	
	for measuring O ₂) ³⁾		4	
• Glycerin/water ⁴)		6	
• Food oil (FDA lis			7	
Other version	,		9	M 1 Y
Add Order code a	and plain text:			
Filling liquid:				
41				

1)	With 7MF802 and the measuring cells Q, S, T and U also order the	е
	acuum-tight version.	

²⁾ For vacuum on request

Selection and O	rdering data	Order No. Ord.cod
Diaphragm seal		
Sandwich-type d connected to a S separately):	esign, with flexible capillary ITRANS P transmitter (order	
for pressure 7Ml together with Ord design) and 7MF Scope of delivery	F403and 7MF423 der code "V01" (vacuum-proof 802 ¹); / (1 off)	D) 7MF4900-
	ssure 7MF433;	D) 7MF4901-
for differential p	ressure and flow 7MF443 scope of delivery 2 off	. D) 7MF4903-
		1 - B
Length of capilla	arv ²⁾	
• 1.0 m	(3.28 ft)	2
• 1.6 m	(5.25 ft)	3
• 2.5 m	(8.20 ft)	4
• 4.0 m	(13.1 ft)	5
• 6.0 m	(19.7 ft)	6
• 8.0 m	(26.25 ft)	7
• 10.0 m	(32.8 ft)	8
Other version	(32.0 11)	9 N 1
Add Order code	and plain text:	9 N I
Length of capillar		
Further designs		Order code
_		
Please add " -Z " to code.	o Order No. and specify Orde	r
Spark arrestor With spark arrest (including docum	or for mounting on zone 0	
 Pressure and al 	•	A01
	pressure transmitters	A02
Certificate to EN		E10
For certification of and packed vers applications in wh	of oil - and grease-free cleaner ion for oxygen and summer hich only inert filling liquid ma conjunction with halocarbon	d
oil fill fluid)	denjanetien with halocarben	
	on certificate (Five-step on) to IEC 60770-2	C11
Inspection certif	•	C12
to EN 10204, sec		CIZ
Functional safet IEC 61508	y certificate ("SIL 2") to	C20
(Only in conjuncti the case of SITR	ion with the order code "C20" i ANS P DSIII transmitter)	n
Functional safet IEC 61508	y certificate ("SIL 2/3") to	C23
	ion with the order code "C23" i ANS P DSIII transmitter)	n
Vacuum-proof d	esign	
		or .
•	ssure range for transmitters for)I
•	ssure range for transmitters ic	V01
for use in low-pre • Pressure	oressure transmitters	

With 7MF802.-... and the measuring cells Q, S, T and U also order the vacuum-tight version.

³⁾ Oil- and grease- free cleaning to DIN 25410, level 2 and packaging included in the scope of delivery.

⁴⁾ Not suitable for use in low-pressure range.

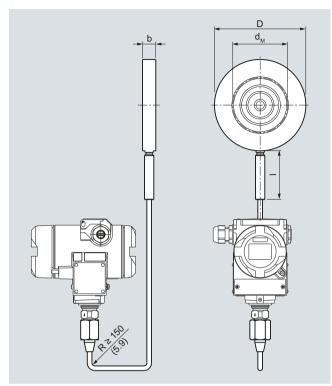
²⁾ Max. capillary length, see section "Technical description".

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

Remote seals for transmitters and pressure gauges

Diaphragm seals of sandwich design with flexible capillary

Dimensional drawings



Diaphragm seals of sandwich design with flexible capillary for connection to SITRANS P pressure transmitters for pressure, dimensions in mm (inch)

Connection to EN 1092-1

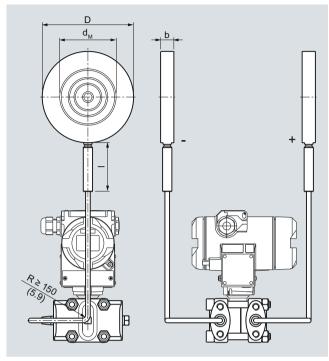
Nom. diam.	Nom. press.	b	D	d _M	I		
		mm	mm	mm	mm		
DN 50	PN 16 PN 100	20	102	59	100		
DN 80	_	20	138	89	100		
DN 100	_	20	158	89	100		
DN 125	_	22	188	124	100		

Connection to ASME B16.5

Nom. diam.	Nom. press.	b	D	d _M	I
	lb/sq.in.	mm	mm	mm	mm
		(inch)	(inch)	(inch)	(inch)
2 inch	150 2500	20	100	59	100
		(0.79)	(3.94)	(2.32)	(3.94)
3 inch		20	134	89	100
		(0.79)	(5.28)	(2.32)	(3.94)
4 inch		20	158	89	100
		(0.79)	(6.22)	(2.32)	(3.94)
5 inch		22	186	124	100
		(0.87)	(7.32)	(4.88)	(3.94)

d: Inside diameter of gasket according to EN 1092-1 / ASME B16.5 $\,$

 d_{M} : Effective diaphragm diameter



Diaphragm seals of sandwich design (without flange) with flexible capillary for connection to SITRANS P pressure transmitters for absolute pressure or differential pressure and flow, dimensions in mm (inch)

Connection to EN 1092-1

Nom. diam.	Nom. press.	b	D	d _M	I
		mm	mm	mm	mm
DN 50	PN 16 PN 100	20	102	59	100
DN 80		20	138	89	100
DN 100	-	20	158	89	100
DN 125	-	22	188	124	100

Connection to ASME B16.5

Nom. diam.	Nom. press.	b	D	d _M	I
	lb/sq.in.	mm	mm	mm	mm
		(inch)	(inch)	(inch)	(inch)
2 inch	150 2500	20	100	59	100
		(0.79)	(3.94)	(2.32)	(3.94)
3 inch	_	20	134	89	100
		(0.79)	(5.28)	(2.32)	(3.94)
4 inch	_	20	158	89	100
		(0.79)	(6.22)	(2.32)	(3.94)
5 inch		22	186	124	100
		(0.87)	(7.32)	(4.88)	(3.94)

d: Inside diameter of gasket according to EN 1092-1 / ASME B16.5 $\,$

 d_M : Effective diaphragm diameter

Remote seals for transmitters and pressure gauges

Diaphragm seals of flange design with flexible capillary

Overview



Technical specifications			
Diaphragm seals of flange design	with flexible capillary	Sealing material in the process flan-	
Nominal diameter	Nominal pressure	ges	
DN 50 (recommendable only for pressure transmitters for pressure)	PN 10 PN 40, PN 100	 For pressure transmitters, absolute pressure transmitters and low- pressure applications 	Copper
• DN 80	PN 10 PN 40, PN 100	For other applications	Viton
• DN 100	PN 16, PN 40	Maximum pressure	See above and the technical data
• DN 125	PN 16, PN 40	·	of the pressure transmitter
• 2 inch (recommendable only for pressure transmitters for pressure)	Class 150, class 300, class 600, class 1500	Tube length	Without tube as standard (tube available on request)
• 3 inch	Class 150, class 300, class 600	Capillary	
• 4 inch	Class 150, class 300, class 400	• Length	Max. 10 m (32.8 ft), longer
• 5 inch	Class 150, class 300, class 400	- laka aa al alka aa aka a	lengths on request
Sealing face		Internal diameter Minimum Is an elimented discourse lines.	2 mm (0.079 inch)
• For stainless steel, mat.	To EN 1092-1, form B1 or	Minimum bending radius Filia a liquid.	150 mm (5.9 inch)
No. 1.4404/316L	ASMR B16.5 RF 125 250 AA	Filling liquid	011
For the other materials	To EN 1092-1, form B2 or	(for remote seals of sandwich and flange design)	Silicone oil M5
	ASME B16.5 RFSF		Silicone oil M50
Materials			High-temperature oil
Main body	Stainless steel mat. no. 1.4404/316L		Halocarbon oil (for measuring O2)
Wetted parts	Stainless steel		Food oil (FDA listed)
	mat. no. 1.4404/316L		Glycerine/water (not for use in
	 Without coating 	5	low-pressure range)
	 PTFE coating (for vacuum on request) 	Permissible ambient temperature	Dependent on the pressure trans- mitter and the filling liquid of the remote seal
	 ECTFE coating (for vacuum on request) 		More information can be found in the technical data of the pressure
	 PFA coating (for vacuum on request) 		transmitters and in the section "Technical data of filling liquid" in
	Monel 400, mat. No. 2.4360		the Technical description to the remote seals
	Hastelloy C276, mat. No. 2.4819	Weight	Approx. 4 kg (8.82 lb)
	Hastelloy C4, mat. No. 2.4610	Certificate and approvals	
	Tantalum	Classification according to pressure	For gases of fluid group 1 and
Capillary	Stainless steel, mat. No. 1.4571/316Ti	equipment directive (DRGL 97/23/EC)	liquids of fluid group 1; complies with requirements of article 3, paragraph 3 (sound engineering
• Sheath	Spiral hose made of stainless steel, mat. No. 1,4404/316L		practice)

Spiral hose made of stainless steel, mat. No. 1.4404/316L

Remote seals for transmitters and pressure gauges Diaphragm seals of flange design with flexible capillary

Selection and Or	dering data	Order No.	Ord. code	Selection and Ordering d
Diaphragm seal				Diaphragm seal
Flange design, wit to a pressure trans SITRANS P (order				Flange design, with flexible to a pressure transmitter SITRANS P (order separate
for pressure 7MF4 together with Order design) and 7MF80	103 and 7MF423 r code "V01" (vacuum-proof 02 ¹⁾ ; scope of delivery: 1 off	D) 7MF492	! 0 -	for pressure 7MF403 ar together with Order code "V design) and 7MF802 ¹⁾ ; s
for absolute pres scope of delivery:		D) 7MF492	!1-	for absolute pressure 7M scope of delivery: 1 off
	essure and flow 7MF443 cope of delivery: 2 off	D) 7MF492	! 3 -	for differential pressure a and 7MF54; scope of o
		1	■B ■■■	
Nominal diamete	r and nominal pressure			Filling liquid
• DN 50	PN 10 40 PN 100	A B		Silicone oil M5Silicone oil M50High-temperature oil
transmitters for pre				 Halocarbon oil (for meas Glycerin/water⁴⁾
• DN 80	PN 10 40 PN 100	D E		 Food oil (FDA listed) Other version
• DN 100	PN 16 PN 40	G H		Add Order code and plain Filling liquid:
• DN 125	PN 16 PN 40	J K		Length of capillary ⁵⁾ • 1.0 m (3.2)
• 2 inch	Class 150	Ĺ		• 1.6 m (5.2 • 2.5 m (8.2
2 111011	Class 300	M		• 4.0 m (13
	Class 600	N		• 6.0 m (19 • 8.0 m (26
(2 inch recommen	Class 1500 ded only for pressure	Р		• 10.0 m (32
transmitters for pre		Q		Other version Add Order code and plain
- 0 111011	Class 300 Class 600	R S		Length of capillary: Further designs Please add "-Z" to Order N
• 4 inch	Class 150 Class 300	T U		code.
	Class 400	V		Spark arrestor With spark arrestor for mou
• 5 inch	Class 150	w		(including documentation)
	Class 300	X		pressure and absolute pdifferential pressure
Cmooth applies for	Class 400	Y		Certificate to EN 10204-2
to ASME B16.5 RF	ce to EN 1092-1, form B1 or 125 250 AA			For certification of oil - and g and packed version for oxyg
Other version Add Order code a Nominal diameter:	nd plain text: :; Nominal pressure:	Z	J1Y	cations in which only inert filli (Only in conjunction with hal
Sealing face: See Wetted parts mat	"Technical data"			Quality inspection certification factory calibration to IEC
 Stainless steel 3 without coating 	16L	A		Inspection certificate to EN 10204, section 3.1
 with PTFE coat with ECTFE coat 	ing	E O		Functional safety certific
 with PFA coatir Monel 400, mat. 	ng	D G		(Only in conjunction with the case of SITRANS P DS
Hastelloy C276,Hastelloy C4, ma		N N		Functional safety certific IEC 61508
Tantalum Other version		K Z	K 1 Y	(Only in conjunction with the the case of SITRANS P DS
Add Order code a Wetted parts mate				Vacuum-proof design for use in low-pressure ran
Tube length				pressuredifferential pressure
 without tube Other version: Add Order code a 	nd plain text:	9	L 1 Y	1) With 7MF802 and the
Tube length:	,			vacuum-tight version. 2) For vacuum on request. 3) Oil- and grease- free clea

Selection and Ordering data	Order	No. Or	d. code
Diaphragm seal			
Flange design, with flexible capillary, connected to a pressure transmitter SITRANS P (order separately):			
for pressure 7MF403 and 7MF423 D) together with Order code "V01" (vacuum-proof design) and 7MF802 ¹⁾ ; scope of delivery: 1 off	7MF4	920-	
for absolute pressure 7MF433; D) scope of delivery: 1 off	7MF4	921-	
for differential pressure and flow 7MF443 D) and 7MF54; scope of delivery: 2 off	7MF4	923-	
	1	- B	
Filling liquid Silicone oil M5 Silicone oil M50 High-temperature oil Halocarbon oil (for measuring O ₂) ³⁾ Glycerin/water ⁴⁾ Food oil (FDA listed) Other version Add Order code and plain text: Filling liquid:		1 2 3 4 6 7 9	M 1 Y
Length of capillary ⁵⁾	_		
 1.0 m (3.28 ft) 1.6 m (5.25 ft) 2.5 m (8.20 ft) 4.0 m (13.1 ft) 6.0 m (19.7 ft) 8.0 m (26.25 ft) 10.0 m (32.8 ft) Other version Add Order code and plain text: 		2 3 4 5 6 7 8 9	N 1 Y
Length of capillary: Further designs Please add "-2" to Order No. and specify Order code.	Order	code	
Spark arrestor With spark arrestor for mounting on zone 0 (including documentation) for transmitters for • pressure and absolute pressure • differential pressure	A01 A02		
· · · · · · · · · · · · · · · · · · ·			
Certificate to EN 10204-2.2 For certification of oil - and grease-free cleaned and packed version for oxygen and summer applications in which only inert filling liquid may be used. (Only in conjunction with halocarbon oil fill fluid)	E10		
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2	C11		
Inspection certificate to EN 10204, section 3.1	C12		
Functional safety certificate ("SIL 2") to IEC 61508	C20		
(Only in conjunction with the order code "C20" in the case of SITRANS P DSIII transmitter)			
Functional safety certificate ("SIL 2/3") to IEC 61508	C23		
(Only in conjunction with the order code "C23" in the case of SITRANS P DSIII transmitter)			
Vacuum-proof design for use in low-pressure range for transmitters for • pressure • differential pressure	V01 V03		
1) With 7MF802 and the measuring cells Q, S, T a	and U al	so orde	r the

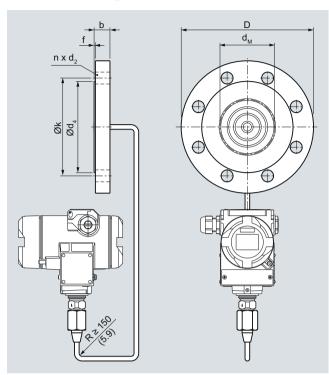
- ase- free cleaning to DIN 25410, level 2 and packaging included in the scope of delivery.
- 4) Not suitable for use in low-pressure range.

 5) Max. capillary length, see section "Technical description".
- D) Subject to export regulations AL: N, ECCN: EAR99H.

Remote seals for transmitters and pressure gauges

Diaphragm seals of flange design with flexible capillary

Dimensional drawings



Diaphragm seals of flange design with flexible capillary for connection to SITRANS P pressure transmitters for pressure, dimensions in mm (inch)

Connection to EN 1092-1

	lom. liam.	Nom. press.	b mm	D mm	d ₂ mm	d ₄ mm	d _M mm	f mm	k mm	n
Е	N 50	PN 40	20	165	18	102	59	2	125	4
		PN 100	28	195	26	102	59	2	145	4
	08 MC	PN 40	24	200	18	138	89	2	160	8
		PN 100	32	230	26	138	89	2	180	8
Е	N 100	PN 16	20	220	18	158	89	2	180	8
		PN 40	24	235	22	162	89	2	190	8
Е	N 125	PN 16	22	250	18	188	124	2	210	8
		PN 40	26	270	26	188	124	2	220	8

Connection to ASME B16.5

Nom. diam.	Nom. press.	b	D	d ₂	d ₄	d _M	f	k	n
	lb/sq.in.	mm	mm	mm	mm	mm	mm	mm	
		(inch)	(inch)	(inch)	(inch)	(inch)	(inch)	(inch)	
2 inch	150	19,5	150	20	92	59	2	120.5	4
		(0.77)	(5.80)	(0.79)	(3.62)	(2.32)	(0.08)	(4.74)	
	300	22.7	165	20	92	59	2	127	8
		(0.89)	(6.50)	(0.79)	(3.62)	(2.32)	(0.08)	(5)	
	600	32,4	165	20	92	59	2	127	8
		(1.28)	(6.50)	(0.79)	(3.62)	(2.32)	(0.08)	(5)	
3 inch	150	24,3	190	20	127	89	2	152.5	4
		(0.96)	(7.48)	(0.79)	(5)	(3.50)	(0.08)	(6)	
	300	29	210	22	127	89	2	168.5	8
		(1.14)	(8.27)	(0.87)	(5)	(3.50)	(0.08)	(6.63)	
	400	38.8	210	22	127	89	7	168.5	8
		(1.53)	(8.27)	(0.87)	(5)	(3.50)	(0.28)	(6.63)	
4 inch	150	24,3	230	20	158	89	2	190.5	4
		(0.96)	(9.06)	(0.79)	(6.22)	(3.50)	(0.08)	(7.5)	
	300	32,2	255	22	158	89	2	200	8
		(1.27)	(10.04)	(0.87)	(6.22)	(3.50)	(0.08)	(7.87)	
	400	42	255	26	158	89	7	200	8
		(1.65)	(10.04)	(1.02)	(6.22)	(3.50)	(0.28)	(7.87)	
5 inch	150	24,3	255	22	186	124	2	216	4
		(0.96)	(10.04)	(0.87)	(7.32)	(4.88)	(0.08)	(8.50)	
	300	35,8	280	22	186	124	2	235	8
		(1.41)	(11.02)	(0.87)	(7.32)	(4.88)	(0.08)	(9.25)	
	400	45,1	280	26	186	124	7	235	8
		(1.79)	(11.02)	(1.02)	(7.32)	(4.88)	(0.28)	(9.25)	

d: Inside diameter of gasket according to EN 1092-1 / ASME B16.5 $\rm d_{M^{\!\circ}}$ Effective diaphragm diameter

Remote seals for transmitters and pressure gauges Diaphragm seals of flange design

with flexible capillary

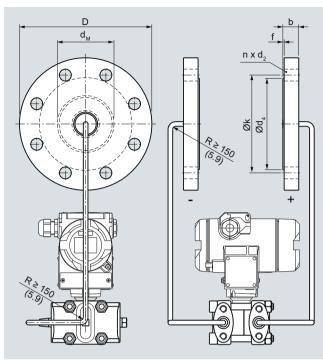
Connection to EN 1092-1

Nom. diam.	Nom. press.	b mm	D mm	d ₂ mm	d ₄ mm	d _M mm	f mm	k mm	n
DN 80	PN 40	24	200	18	138	89	2	160	8
	PN 100	32	230	26	138	89	2	180	8
DN 100	PN 16	20	220	18	158	89	2	180	8
	PN 40	24	235	22	162	89	2	190	8
DN 125	PN 16	22	250	18	188	124	2	210	8
	PN 40	26	270	26	188	124	2	220	8

Connection to ASME B16.5

Nom. diam.	Nom. press.	b	D	d ₂	d ₄	d _M	f	k	n
	lb/sq.in	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	
	150	24,3 (0.96)	190 (7.48)	20 (0.79)	127 (5)	89 (3.50)	2 (0.08)	152.5 (6)	4
3 inch	300	29 (1.14)	210 (8.27)	22 (0.87)	127 (5)	89 (3.50)	2 (0.08)	168.5 (6.63)	8
	600	38,8 (1.52)	210 (8.27)	22 (0.87)	127 (5)	89 (3.50)	7 (0.28)	168.5 (6.63)	8
	150	24,3 (0.96)	230 (9.06)	20 (0.79)	158 (6.22)	89 (3.50)	2 (0.08)	190.5 (7.5)	4
4 inch	300	32,2 (1.27)	255 (10.04)	22 (0.87)	158 (6.22)	89 (3.50)	2 (0.08)	200 (7.87)	8
	400	42 (1.65)	255 (10.04)	26 (1.02)	158 (6.22)	89 (3.50)	7 (0.28)	200 (7.87)	8
	150	24,3 (0.96)	255 (10.04)	22 (0.87)	186 (7.32)	124 (4.88)	2 (0.08)	216 (8.50)	4
5 inch	300	35,8 (1.41)	280 (11.02)	22 (0.87)	186 (7.32)	124 (4.88)	2 (0.08)	235 (9.25)	8
	400	45,1 (1.79)	280 (11.02)	26 (1.02)	186 (7.32)	124 (4.88)	7 (0.28)	235 (9.25)	8

d: Inside diameter of gasket according to EN 1092-1 / ASME B16.5 d_M: Effective diaphragm diameter



Diaphragm seals of flange design with flexible capillary for connection to SITRANS P pressure transmitters for absolute pressure or for differential pressure and flow, dimensions in mm (inch)

Remote seals for transmitters and pressure gauges

Diaphragm seals of flange design directly fitted on transmitter

Overview



Diaphragm seals of flange design, directly fitted on a pressure transmitter for pressure

Technical specifications

Diaphragm seals (flange design) for pressure and absolute pres	s-
sure, directly fitted on a transmitter	

٨	Jominal	diameter
Ι.	won nin iai	diameter

- DN 50
- DN 80
- DN 100
- 2 inch
- 3 inch
- 4 inch

Sealing face

- For stainless steel, mat. No. 1.4404/316L
- For the other materials

Materials

- Main body
- · Wetted parts

- Nominal pressure
- PN 40, PN 100
- PN 40, PN 100
- PN 16, PN 40
- Class 150, class 300, class 600, class 1500
- Class 150, class 300, class 600
- Class 150, class 300, class 400

To EN 1092-1, form B1 or ASME B16.5 RF 125 ... 250 AA

Smooth to EN 1092-1, form B2 or ASME B16.5 RFSF

Stainless steel mat. no. 1.4404/316L

Stainless steel mat. no. 1.4404/316L

- Without coating
- PTFE coating (for vacuum on request)
- ECTFE coating (for vacuum on request)
- PFA coating (for vacuum on request)

Monel 400, mat. No. 2.4360 Hastelloy C276, mat. No. 2.4819

Hastelloy C4, mat. No. 2.4610

Tantalum

Stainless steel, 1.4571/316Ti

Copper

Maximum pressure

Tube length

Capillary

- Length
- Internal diameter
- Minimum bending radius

Filling liquid

See above and the technical data of the transmitter

- Without tube
- 50 mm (1.97 inch)
- 100 mm (3.94 inch)
- 150 mm (5.91 inch)
- 200 mm (7.87 inch)

Max. 10 m (32.8 ft), longer lengths on request

2 mm (0.079 inch)

150 mm (5.9 inch)

- Silicone oil M5
- Silicone oil M50
- High-temperature oil
- Halocarbon oil (for measuring O_2
- Food oil (FDA listed)
- Glycerine/water (not suitable for use in low-pressure range)

170 °C (338 °F)

Max. recommended process temperature

Permissible ambient temperature

Dependent on the pressure transmitter and the filling liquid of the

More information can be found in the technical data of the pressure transmitters and in the section "Technical data of filling liquid" in the Technical description to the remote seals.

Approx. 4 kg (8.82 lb)

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,

- Capillary
- · Sealing material on the process connection

paragraph 3 (sound engineering practice)

Remote seals for transmitters and pressure gauges Diaphragm seals of flange design directly fitted on transmitter

Selection and Or	dering data	0	rder N	lo. Orc	l.co	de
Diaphragm seal		D) 7	MF 4 9	910-		
SITRANS P for pre	pressure transmitter essure 7MF403 and her with Order code "V01" sign) and 7MF802 ¹⁾ ; must ately				ľ	ı
Process connect	ion					
 Vertical (pressur 	e transmitter upright)	0				
 Horizontal 		2				
Nominal diamete	r and nominal pressure	_				
• DN 50	PN 40 PN 100		A B			
• DN 80	PN 40 PN 100		D E			
• DN 100	PN 16 PN 40		G H			
• 2 inch	Class 150 Class 300 Class 600 Class 1500		L M N P			
• 3 inch	Class 150 Class 300 Class 600		Q R S			
• 4 inch	Class 150 Class 300 Class 400		T U V			
B2, or to ASME B	ce to DIN 1092-01, form B1 or 16.5 125 250 AA or RFSF	r				
Other version Add Order code a Nominal diameter	and plain text: :; Nominal pressure:		Z		J	1 Y
Wetted parts mat						
Stainless steel 3 without coating			Α			
 without coating with PTFE coat 	•		E O			
- with ECTFE co			F			
- with PFA coating	0		D			
 Monel 400, mat. 	· ·		G			
 Hastelloy C276, 	mat. No. 2.4819		J			
Hastelloy C4, ma	at. No. 2.4610		U			
Tantalum Other version			K		ν.	4 1/
Other version Add Order code a Wetted parts mate	and plain text: erials:		Z		٨	1 Y
Tube length						
Without tube			0			
• 50 mm	• (1.97 inch)		1			
	 (3.94 inch) 		2			
• 100 mm	• (E 00 inch)		2			
• 150 mm	• (5.90 inch) • (7.87 inch)		3			
	(5.90 inch)(7.87 inch)		3 4 9		L	1 Y

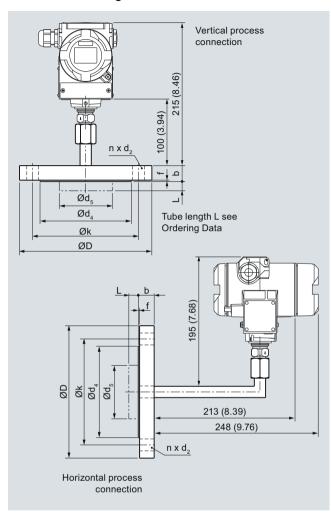
Salaatian and Ordaring data	Order N	do Oro	d oodo
Selection and Ordering data			i.code
Diaphragm seal	7MF4	910-	
Directly fitted to a pressure transmitter SITRANS P for pressure 7MF403 and 7MF423 together with Order code "V01" (vacuum-proof design) and 7MF802 ¹⁾ ; must be ordered separately			"
Filling liquid			
 Silicone oil M5 Silicone oil M50 High-temperature oil Halocarbon oil (for measuring O₂)³⁾ Glycerin/water⁴⁾ Food oil (FDA listed) Other version Add Order code and plain text: Filling liquid: 		1 2 3 4 6 7 9	M 1 Y
Further designs	Order o	code	
Please add "-Z" to Order No. and specify Order code.	0,40,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Spark arrestor	A01		
With spark arrestor for mounting on zone 0 (including documentation) for transmitters for gauge pressure and absolute pressure			
Certificate to EN 10204-2.2 For certification of oil - and grease-free cleaned and packed version for oxygen and summer applications in which only inert filling liquid may be used. (Only in conjunction with halocarbon	E10		
oil fill fluid)			
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2	C11		
Inspection certificate to EN 10204, section 3.1	C12		
Functional safety certificate ("SIL 2") to IEC 61508	C20		
(Only in conjunction with the order code "C20" in the case of SITRANS P DSIII transmitter)			
Functional safety certificate ("SIL 2/3") to IEC 61508	C23		
(Only in conjunction with the order code "C23" in the case of SITRANS P DSIII transmitter)			
Vacuum-proof design	V01		
for use in low-pressure range for transmitters for gauge pressure			
1) With 7MF802 and the measuring cells Q, S, T a	and U als	o order	the

- vacuum-tight version.
- 2) For vacuum on request.
- 3) Oil- and grease- free cleaning to DIN 25410, level 2 and packaging included in the scope of delivery.
- 4) Not suitable for use in low-pressure range.
- D) Subject to export regulations AL: N, ECCN: EAR99H.

Remote seals for transmitters and pressure gauges

Diaphragm seals of flange design directly fitted on transmitter

Dimensional drawings



Diaphragm seals of flange design, direct connection to a SITRANS P pressure transmitter (process connection vertical (top) and horizontal (bottom)), dimensions in mm (inch)

Connection to EN 1092-1

Nom. diam.	Nom. press.	b	D	d ₂	d ₄	d ₅	d _M	f	k	n
		mm	mm	mm	mm	mm	mm	mm	mm	
DN 50	PN 40	20	165	18	102	48.3	59	2	125	4
	PN 100	28	195	26	102	48.3	59	2	145	4
DN 80	PN 40	24	200	18	138	76	89	2	160	8
	PN 100	32	230	26	138	76	89	2	180	8
DN 100	PN 16	20	220	18	158	94	89-2	2	180	8
	PN 40	24	235	22	162	94	89	2	190	8

Connection to ASME B16.5

Nom. press.	b	D	d ₂	d ₄	d ₅	d _M	f	k	n
lb/	mm	mm	mm	mm	mm	mm	mm	mm	
sq.ın.	(inch)	(inch)	(inch)	(inch)	(inch)	(inch)	(inch)	(inch)	
150	19,5	150	20	92	48.3	59	2	120.5	4
	(0.77)	(5.91)	(0.79)	(3.62)	(1.9)	(2.32)	(80.0)	(4.74)	•
300	22,7	165	20	92	48.3	59	2	127	8
	(0.89)	(6.5)	(0.79)	(3.62)	(1.9)	(2.32)	(0.08)	(5)	Ī
600	32,4	165	20	92	48.3	59	7	127	8
	(1.28)	(6.5)	(0.79)	(3.62)	(1.9)	(2.32)	(0.28)	(5)	Ī
1500	45,1	215	26	92	48.3	59	7	165	8
	(1.78)	(8.46)	(1.02)	(3.62)	(1.9)	(2.32)	(0.28)	(6.5)	
150	24,3	190	20	127	76	89	2	152.5	4
	(0.96)	(7.48)	(0.79)	(5)	(3)	(3.50)	(80.0)	(6)	
300	29	210	22	127	76	89	2	168.5	8
	(1.14)	(8.27)	(0.87)	(5)	(3)	(3.50)	(0.08)	(6.63)	Ī
600	38,8	210	22	127	76	89	7	168.5	8
	(1.53)	(8.27)	(0.87)	(5)	(3)	(3.50)	(0.28)	(6.63)	
150	24,3	230	20	158	94	89	2	190.5	8
	(0.96)	(9.06)	(0.79)	(6.22)	(3.69)	(3.50)	(80.0)	(7.5)	Ī
300	32,2	255	22	158	94	89	2	200	8
	(1.27)	(10.04)	(0.79)	(6.22)	(3.69)	(3.50)	(0.08)	(7.87)	Ī
400	42	255	26	158	94	89	7	200	8
	(1.65)	(10.04)	(1.02)	(6.22)	(3.60)	(3.50)	(0.28)	(7.97)	
	press. lb/ sq.in. 150 300 600 150 300 600 150 300	press. Ib/seq.in. mm (inch) 150 19,5 (0.77) 300 22,7 (0.89) (1.28) 1500 45,1 (1.78) 150 24,3 (0.96) 300 29 (1.14) 600 38,8 (1.53) 150 24,3 (0.96) 300 24,3 (0.96) 300 32,2 (1.27) 400 42 (4.20)	press. Ib/sq.in. mm (inch) (inch) (inch) 150 19,5 150 (0.77) (5.91) 300 22,7 165 (0.89) (6.5) 600 32,4 165 (1.28) (6.5) 1500 45,1 215 (1.78) (8.46) 150 24,3 190 (0.96) (7.48) 300 29 210 (1.14) (8.27) 600 38,8 210 (1.53) (8.27) 150 24,3 230 (0.96) (9.06) 300 24,3 230 (0.96) (9.06) 300 24,3 255 (1.27) (10.04) 400 42 255	Press. Ib/seq.in. mm (inch) (inch) (inch) (inch) mm (inch) (inch) (inch) (inch) 150 19,5 150 20 (0.79) (5.91) (0.79) 300 22,7 165 20 (0.79) (0.79) 600 32,4 165 20 (0.79) (0.79) 1500 45,1 215 26 (1.02) (1.02) (1.02) 1500 24,3 190 20 (0.99) (0.99) (0.99) (0.87) 300 29 210 22 (0.87) (0.87) (0.87) (0.87) 600 38,8 210 22 (0.87) (0.87) (0.87) (0.87) (0.87) (0.87) 150 24,3 230 20 (0.99) (0.99) (0.99) (0.79) (0.99) (0.99) (0.79) 300 24,3 230 20 (0.99) (Ib/sq. in. mm mm <th< td=""><td>bress. Ib/sq.in. mm m</td><td>ress. Telephones Ib/sq.in. mm (inch) call pm (inch) (inch)</td><td>Press. Ib/sq.fin. mm mm</td><td>Press. Ib/sq.in. mm m</td></th<>	bress. Ib/sq.in. mm m	ress. Telephones Ib/sq.in. mm (inch) call pm (inch) (inch)	Press. Ib/sq.fin. mm mm	Press. Ib/sq.in. mm m

d: Inside diameter of gasket according to EN 1092-1/ ASME B16.5

 d_M : Effective diaphragm diameter

,

Remote seals for transmitters and pressure gauges Diaphragm seals of flange design fixed connection and with capillary

Without tube

Overview



Diaphragm seals of screwed design for pressure transmitters for differential pressure, fixed connection and with flexible capillary

Technical specifications		
Diaphragm seals of screwed desig differential pressure, fixed connect		Tube length
Nominal diameter	Nominal pressure	
• DN 80	PN 40	
• DN 100	PN 16, PN 40	
• 3 inch	Class 150, class 300	Capillary
• 4 inch	Class 150, class 300	• Length
Sealing face		20119111
• For stainless steel, mat.	To EN 1092-1, form B1 or	 Internal diameter
No. 1.4404/316L	ASME B16.5 RF 125 250 AA	 Minimum bending radius
For the other materials	To EN 1092-1, form B2 or ASME B16.5 RFSF	Filling liquid
Materials		
Main body	Stainless steel mat. no. 1.4404/316L	
Wetted parts	Stainless steel mat. no. 1.4404/316L	
	 Without coating 	
	 PTFE coating (for vacuum on request) 	Max. recommended process temperature
	 ECTFE coating (for vacuum on request) 	Permissible ambient temperature
	 PFA coating (for vacuum on request) 	
	Monel 400, mat. No. 2.4360	
	Hastelloy C276, mat. No. 2.4819	
	Hastelloy C4, mat. No. 2.4610	
	Tantalum	Weight
Capillary	Stainless steel, mat. No. 1.4571/316Ti	Certificate and approvals Classification according to pressure
• Sheath	Spiral hose made of stainless steel, mat. No. 1.4301/316	equipment directive (DRGL 97/23/EC)
Sealing material in the process flanges		
For pressure transmitters, absolute pressure transmitters and low- pressure applications	Copper	
• For other applications	Viton	
Maximum pressure	See above and the technical data of the pressure transmitter	

of the pressure transmitter

	50 mm (1.97 inch)
	100 mm (3.94 inch)
	150 mm (5.91 inch)
	200 mm (7.87 inch)
Capillary	
• Length	Max. 10 m (32.8 ft), longer lengths on request
Internal diameter	2 mm (0.079 inch)
 Minimum bending radius 	150 mm (5.9 inch)
Filling liquid	Silicone oil M5
	Silicone oil M50
	High-temperature oil
	Halocarbon oil (for measuring O ₂)
	Food oil (FDA listed)
	Glycerine/water (not suitable for use in low-pressure range)
Max. recommended process temperature	170 °C (338 °F)
Permissible ambient temperature	Dependent on the pressure trans- mitter and the filling liquid of the remote seal
	More information can be found in the technical data of the pressure transmitters and in the section "Technical data of filling liquid" in the Technical description to the remote seals
Weight	Approx. 4 kg (8.82 lb)
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)

Remote seals for transmitters and pressure gauges

Diaphragm seals of flange design fixed connection and with capillary

Selection and Orde	ering data). O	-	. C	ЭC	le
direct mounting to h	vith tube as option) for nigh-pressure side and flan-	-	7 N			1 3 - -			1	
of capillary to low-p	ithout tube, fitted by means ressure side of SITRANS Pure, DS III series (7MF443500 (7MF54)									
Flange, connection										
Nom. diam. • DN 80	Nom. press.		_							
• DN 80 • DN 100	PN 40 PN 16		G							
- DIN 100	PN 40		Н							
Flange, connection	n to ASME B16.5									
Nom. diam.	Nom. press.									
• 3 inch	Class 150		G)						
	Class 300		R	ł						
• 4 inch	Class 150		T							
	Class 300		U							
Other version	al calladia was w		Z					J	1 '	Y
Add Order code an Flange: Nominal	diameter:; Nominal									
pressure:										
Wetted parts mate	rials									
	e to EN 1092-1, form B1 or	_								
 Stainless steel 316 	i.5 RF 125 250 AA or RFS	F								
 stairliess steel 3 it without coating 	OL.			Α						
- with PTFE coating	na			E)					
- with ECTFE coat	-			F						
- with PFA coating	-			D						
Monel 400, mat. N	lo. 2.4360			G						
 Hastelloy C276, m 				J						
 Hastelloy C4, mat 	. No. 2.4610			U						
Tantalum				K						
Other version Add Order code an	d nlain text:			Z				K	1	Y
Wetted parts materi										
Tube length										
-	e on high-pressure side)									
Without tube	,			()					
• 50 mm	(1.97 inch)			•						
• 100 mm	(3.94 inch)			2						
• 150 mm	(5.90 inch)			•						
• 200 mm	(7.87 inch)								.,	,
Other version: Add Order code an	d plain text:			,	'			L	'	ĭ
Tube length:										
Filling liquid										
 Silicone oil M5 					1					
• Silicone oil M50					2					
High-temperature Halasarban sil (fa					3					
 Halocarbon oil (fo Glycerin/water³⁾ 	r measuring $O_2)^{-r}$				4					
 Glycerin/water Food oil (FDA liste 	ed)				6 7					
Other version	,				9			М	1 '	Y
Add Order code an	d plain text:									
Filling liquid:										

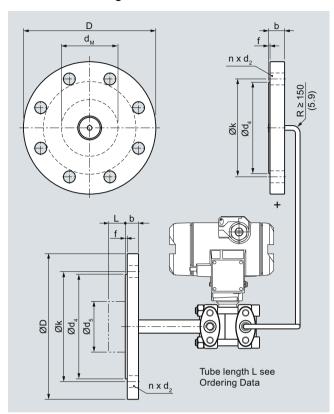
Selection and Ordering data	Order No. Ord. code					
Diaphragm seal	7MF4913-					
Mounting flange (with tube as option) for direct mounting to high-pressure side and flanged remote seal without tube, fitted by means of capillary to low-pressure side of SITRANS P for differential pressure, DS III series (7MF443) and SITRANS P500 (7MF54)	1 B					
Length of capillary ⁴⁾						
 1.0 m (3.28 ft) 1.6 m (5.25 ft) 2.5 m (8.20 ft) 4.0 m (13.1 ft) 6.0 m (19.7 ft) 8.0 m (26.25 ft) 10.0 m (32.8 ft) Other version Add Order code and plain text: Length of capillary: 	2 3 4 5 6 7 8 9 N1Y					
Further designs	Order code					
Please add "-Z" to Order No. and specify Order code.						
Spark arrestor With spark arrestor for mounting on zone 0 (including documentation)	A02					
Certificate to EN 10204-2.2 For certification of oil - and grease-free cleaned and packed version for oxygen and summer applications in which only inert filling liquid may be used. (Only in conjunction with halocarbon oil fill fluid)	E10					
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2	C11					
Inspection certificate to EN 10204, section 3.1	C12					
Functional safety certificate ("SIL 2") to IEC 61508	C20					
(Only in conjunction with the order code "C20" in the case of SITRANS P DSIII transmitter)						
Functional safety certificate ("SIL 2/3") to IEC 61508	C23					
(Only in conjunction with the order code "C23" in the case of SITRANS P DSIII transmitter)						
Vacuum-proof design for use in low-pressure range	V03					

- For vacuum on request.
 Oil- and grease- free cleaning to DIN 25410, level 2 and packaging included in the scope of delivery.
 Not suitable for use in low-pressure range.
- 4) Max. capillary length, see section "Technical description".
- D) Subject to export regulations AL: N, ECCN: EAR99H.

Remote seals for transmitters and pressure gauges

Diaphragm seals of flange design fixed connection and with capillary

Dimensional drawings



Diaphragm seals of screwed design with flexible capillary, fixed connection, for connection to a SITRANS P pressure transmitter for differential pressure, dimensions in mm (inch)

Connection to EN 1092-1

Nom. diam.	Nom. press.	b	D	d ₂	d ₄	d ₅	d _M	f	k	n
		mm	mm	mm	mm	mm	mm	mm	mm	
DN 80	PN 40	24	200	18	138	76	89	2	160	8
DN 100	PN 16	20	200	18	158	94	89	2	180	8
	PN 40	24	235	22	162	94	89	2	190	8

Connection to ASME B16.5

	Nom. press.	b	D	d ₂	d ₄	d ₅	d _M	f	k	n
	lb/	mm	mm	mm	mm	mm	mm	mm mm		
	sq.in.	(inch)	(inch)	(inch)	(inch)	(inch)	(inch)	(inch) (inch)		
3 inch	150	24,3	190	20	127	76	89	2	152,5	4
		(0.96)	(7.48)	(0.79)	(5)	(3)	(3.50)	(80.0)	(6)	
	300	29	210	22	127	76	89	2	168,5	8
		(1.14)	(8.27)	(0.87)	(5)	(3)	(3.50)	(80.0)	(6.63)	
4 inch	150	24,3	230	20	158	94	89	2	190,5	4
		(0.96)	(9.06)	(0.79)	(6.22)	(3.69)	(3.50)	(80.0)	(7)	
	300	32,2	255	22	158	94	89	2	200	8
		(1.27)	(10.04)	(0.87)	(6.22)	(3.69)	(3.50)	(80.0)	(7.87)	

d: Inside diameter of gasket according to EN 1092-1 / ASME B16.5 $\,$

d_M: Effective diaphragm diameter

Remote seals for transmitters and pressure gauges

Diaphragm seal, screwed design directly mounted or/and with capillary

Overview



Diaphragm seal, screwed gland design with inside diaphragm for gauge,

absolute and differential pressure fo	r direct mounting						
Technical specifications							
Diaphragm seal, screwed gland w	ith inside diaphragm	Capillary					
Process connection	Nominal pressure	• Length	Max. 10 m (32.8 ft)				
 Male thread G½B to EN 837-1 	PN 100, PN 250	 Internal diameter 	2 mm (0.079 inch)				
 External thread ½-14" NPT-M 	PN 100, PN 250	 Minimum bending radius 	150 mm (5.9 inch)				
 open measurement flange 		Filling liquid	• Silicone oil M5				
- DN 25	PN 10 PN 40		• Silicone oil M50				
- 1 inch	class 150, class 300		High-temperature oil				
Sealing face for open measurement flange			 Halocarbon oil (for measuring O₂) 				
 For stainless steel, mat. no. 	To EN 1092-1, form B1 or		 Food oil (FDA listed) 				
1.4404/316L	ASME B16.5 RF 125 250 AA	Max. recommended process tem- perature	170 °C (338 °F)				
Materials	Permissible ambient tempe		Dependent on the pressure				
 Lower section (in the case of process connection thread) 	Stainless steel, Mat. no. 1.4404/316L	r ormissible ambient temperature	transmitter and the filling liquid of the remote seal				
Diaphragm	Stainless steel, Mat. no. 1.4404/316L		More information can be found in the technical specifications of the				
	 No coating 		pressure transmitters and in the section "Technical data of filling				
	 With PTFE coating 		liquid" in the introduction to the remote seals				
	Monel 400, mat. no. 2.4360	Weight	Approx. 1.5 kg (3.3 lb)				
	Hastelloy C276, mat. no. 2.4819		Approx. 1.5 kg (5.5 lb)				
	Hastelloy C4, mat. no. 2.4610	Certificates and approvals	For some of floid some done				
	Tantal	Classification according to pressure equipment directive	For gases of fluid group 1 and liquids of fluid group 1; complies				
Top section (process connection in the case of an open measure- ment flange)	Stainless steel, mat. no. 1.4404/316L	(PED 97/23/EĆ)	with requirements of article 3, paragraph 3 (sound engineering practice)				
 Capillary 	Stainless steel 1.4571/316Ti						
Sealing material on the process connection	Viton or copper (in the case of vacuum-free version)						

Viton (FKM) (standard) Teflon (PTFE) metal spring ring (silver-coated)

• Sealing material between top and

bottom section

Remote seals for transmitters and pressure gauges

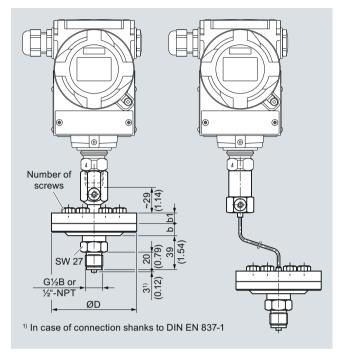
Diaphragm seal, screwed design directly mounted or/and with capillary

					directly mounted or/a	ma with C	а р іііаі <u>ў</u>	
Selection and	Ordering data		Order No.Ord	er Code	Selection and Ordering data	Order No.C	Order Code	
Remote seal, diaphragm	screwed gland	with inside			Remote seal, screwed gland with inside diaphragm			
Mounted on S	ITRANS P press	sure transmitter D	7MF4930-		Mounted on SITRANS P pressure transmitter [for	7MF493	0 -	
• absolute pre 7MF423 a	and SITRANS P3	00, 7MF802			 gauge pressure 7MF403 and SITRANS P300, 7MF802 absolute pressure 7MF423 and SITRANS P300, 7MF802 In conjunction with order code "V01" (vacuum-proof design) 			
Mounted on e pressure trans	ither side of SIT smitter for pressure 7MF44		7MF4933-			O) 7MF493		
			- В				В	
	hole 1x 1/8 NPT connection 316l		1 2 9	H1Y	Filling liquid Silicone oil M5 Silicone oil M50 High-temperature oil	1 2 3		
Order Code ar Version:			9		 Halocarbon oil (for measuring O₂)¹⁾ Food oil (FDA-listed) 	4 7		
Process conn	ection version				Other version, add Order Code and plain text:	9	M 1 Y	
	Process con-	Nominal dia-			filling liquid:			
material 316L/1.4404	nection Thread	meter and pressure level G½B/PN100	В		Capillary length • none, direct mounting • none, direct mounting with cooling element		0	
316L/1.4404 316L/1.4404	Thread Thread	G½B/PN250 ½NPT-M/PN100	C E		(not in conjunction with transmitter for differential pressure)			
316L/1.4404	Thread	½NPT-M/PN250	F		• 1 m • 1.6 m		2 3	
316L/1.4404 316L/1.4404	Thread Thread	½NPT-F/PN100 ½NPT-F/PN250	H J		• 2.5 m		4	
316L/1.4404	open measure-	- DN 25/	М		• 4 m		5	
2161/1/4/04	ment flange open measure-	PN 10 40	Р		• 6 m • 8 m		6	
316L/1.4404	ment flange	- 1/Class 150	r		• 10 m		7 8	
316L/1.4404 PTFE	open measure- ment flange Thread	- 1"/Class 300 G½B/PN100	Q T		Other version, add Order Code and plain text: Capillary length:		9 N 1 Y	
PTFE	open measure-	- DN 25/	Ü		Further designs	Order cod	e	
PTFE	ment flange open measure-	PN 10 40 - 1"/Class 150	v		Add "-Z" to Order No. and specify Order Code.	Craci cca	O .	
PTFE	ment flange open measure-	,	c		Certificate to EN 10204-2.2	E10		
Other version, Order Code ar Lower flange	ment flange add nd plain text:	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Z	J 1 Y	For certification of oil - and grease-free cleaned and packed version for oxygen and summer applications in which only inert filling liquid may be used. (Only in conjunction with halocarbon oil fill fluid)			
Process conne Nominal diame	ection:; eter/pressure leve	el:			Quality inspection certificate (Five-step factory calibration) to IEC 60770-2	C11		
Diaphragm ma Stainless steel			A		Inspection certificate to EN 10204, section 3.1	C12		
	steel with PTFE	film	E J		Functional safety certificate ("SIL 2") to IEC 61508	C20		
Hastelloy C4 Tantalum			U K		(Only in conjunction with the order code "C20" in the case of SITRANS P DSIII transmitter)			
Other version, add Order Code and plain text: Diaphragm material:		Z	K 1 Y	Functional safety certificate ("SIL 2/3") to IEC 61508 (Only in conjunction with the order code "C23" in the case of SITRANS P DSIII transmitter)	C23			
Sealing mater section	ial between top	and bottom			Vacuum-proof design			
FKM (standard with diaphragm and 316L process connection)		1		for use in low-pressure range for tranmitters for • gauge pressure • differential pressure	V01 V03			
260 °C)		aterial with max. or >260 °C) incl.	3		 Oil- and grease- free cleaning to DIN 25410, level ded in the scope of delivery. 	2 and packag	ging inclu-	
	ure-resistant scre				D) Subject to export regulations AL: N, ECCN: EAR99	9H.		

Remote seals for transmitters and pressure gauges

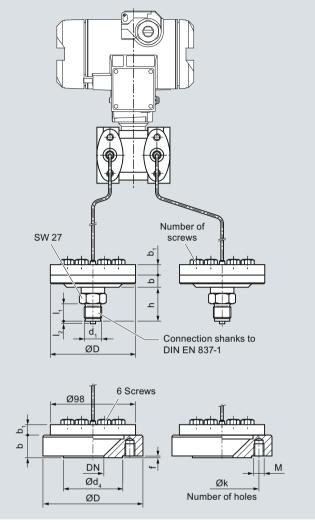
Diaphragm seal, screwed design directly mounted or/and with capillary

Dimensional drawings



Diaphragm seal, screwed gland with inside diaphragm, for gauge and absolute pressure, direct and attached directly to the transmitter with with capillaries, dimensions in mm (inch)

Range	D mm	b mm	b ₁ mm	Number of screws
bis 100 bar	98	14	16	6
bis 250 bar	98	14	20	12



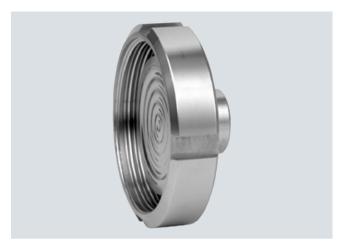
Diaphragm seal, screwed gland with inside diaphragm, for differential pressure, direct and attached directly to the transmitter with with capillaries, dimensions in mm (inch)

Nomi- nal dia- meter	Nomi- nal pres- sure	D mm	d ₄ mm	k mm	M	Number of holes	b mm	b ₁ mm	f mm
DN 25	PN 10 40	115	68	85	M12	4	26	12	2
1 inch	150 lb/sq.in	108	50.8	79.2	M12	4	22	12	1.6
1 inch	300 lb/sq.in	124	50.8	88.9	M16	4	22	12	1.6

Remote seals for transmitters and pressure gauges

Quick-release diaphragm seals

Overview



Quick-release diaphragm seals, to DIN 11851 with slotted union nut



Quick-release diaphragm seals, with clamp connection

Quick-release diaphragm seals are available for the following SITRANS P pressure transmitter series:

- For pressure: P300, DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus
- For differential pressure and flow: P500, DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus
- The quick-release remote seals are common designs in the food industry. Their design means that the measured medium cannot accumulate in dead volumes. The quick-release clamp present on the remote seal means that quick dismounting is possible for cleaning.

Technical specifications

Quick-release diaphragm seal								
Connection, nominal diameter	Nominal pressure							
For pressure								
• To DIN 11851 with slotted union nut								
- DN 25	PN 40							
- DN 32	PN 40							
- DN 40	PN 40							
- DN 50	PN 25							
- DN 65	PN 25							
- DN 80	PN 25							
• To DIN 11851 with threaded socket								
- DN 25	PN 40							
- DN 32	PN 40							
- DN 40	PN 40							
- DN 50	PN 25							
- DN 65	PN 25							
- DN 80	PN 25							

Clamp connection	
- 1½ inch	PN 40
- 2 inch	PN 40
- 21/2 inch	PN 25
- 3 inch	PN 25

For differential pressure and flow

• To DIN 11851 with slotted union nut

- DN 50	PN 25
- DN 65	PN 25
- DN 80	PN 25

• To DIN 11851 with threaded socket

- DN 65	PN 25
- DN 80	PN 25
Clamp connection	
- 2 inch	PN 40

- 2½ inch - 3 inch

- DN 50

Sealing face

- For stainless steel, mat. No. 1.4404/316L
- For the other materials

Materials

- Main body
- Wetted parts
- Capillary
- Sheath

Maximum pressure

Tube length

Capillary

- Length
- Internal diameter
- Minimum bending radius

Filling liquid

Permissible ambient temperature

Weight

Certificates and approvals

Classification according to pressure equipment directive (DRGL 97/23/EC)

PN 25 PN 25 PN 25 PN 25 PN 25 PN 25

To EN 1092-1, form B1 or ASME B 16.5RF 125 ... 250 AA

To EN 1092-1, form B2 or ASME B16.5 RFSF

Stainless steel 316L

PN 25 PN 25

Stainless steel 316L

Stainless steel, mat. No. 1.4571/316Ti

Spiral hose made of stainless steel, mat. No. 1.4301/316

See above and the technical data of the pressure transmitter

Without tube

Max. 10 m (32.8 ft), longer lengths on request

2 mm (0.079 inch)

150 mm (5.9 inch)

Food oil (FDA listed)

Glycerin/water (not suitable for use in low-pressure range)

Dependent on the pressure transmitter and the filling liquid of the remote seal

More information can be found in the technical data of the pressure transmitters and in the section "Technical data of filling liquid" in the Technical description to the remote seals

Approx. 4 kg (8.82 lb)

For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 3, paragraph 3 (sound engineering practice)

Pressure Measurement Remote seals for transmitters and pressure gauges

Quick-release diaphragm seals

Quick-release diaphragm seal D) 7 M F 4 9 4 0 - for SITRANS P pressure transmitters for pressure 7MF403 and 7MF423 together with Order code "VOI" (vacuum-proof design) and 7MF802!"; must be ordered separately Filling liquid: Food oil (FDA listed) ■ A 0 ■ - ■ B Nom. 4MF802!"; must be ordered separately Filling liquid: Food oil (FDA listed) Nom. diam. Nom. press. • Connection to DIN 11851 with slotted union nut - DN 25 PN 40 1 B - DN 25 PN 40 1 D 1 D - DN 32 PN 40 1 D 1 D - DN 40 PN 25 1 E 1 G - DN 80 PN 25 1 F 1 G • Connection to DIN 11851 with screw necks - DN 80 PN 25 1 F 1 G • DN 80 PN 25 1 F 1 G 2 E 2 D 3 In the NA 3 In the NA </th <th colspan="3">Selection and Ordering data</th> <th>0</th> <th>rd</th> <th>er l</th> <th>Vo</th> <th>. Oı</th> <th>rd.</th> <th>СО</th> <th>de</th>	Selection and Ordering data			0	rd	er l	Vo	. Oı	rd.	СО	de
pressure 7MF403 and 7MF423 together with Order code "V01" (vacuum-proof design) and 7MF802)* must be ordered separately Filling liquid: Food oil (FDA listed) Material: Stainless steel, mat. No. 1.4435 Nom. diam.	Quick-release diaphragm seal				M	F 4	9 4	0 •			
• Connection to DIN 11851 with slotted union nut - DN 25	pressure 7MF403 with Order code "V0 and 7MF8021); m Filling liquid: Food o	and 7MF423 together 1" (vacuum-proof design) just be ordered separately il (FDA listed)				A 0			В	1	
- DN 25	Nom. diam.	Nom. press.		П	П			Ī			
- DN 32	• Connection to DIN	11851 with slotted union nut	t								
- DN 40	- DN 25	PN 40		1	В						
- DN 50	- DN 32	PN 40		1	С						
- DN 65	- DN 40	PN 40		1	D						
- DN 80 PN 25 1 G				1	E						
• Connection to DIN 11851 with screw necks - DN 25 PN 40 2 C - DN 32 PN 40 2 C - DN 40 PN 40 2 D - DN 50 PN 25 2 E - DN 65 PN 25 2 F - DN 80 PN 25 2 G • Clamp connection - 1½ inch PN 40 4 L - 2 inch PN 40 4 M - 2½ inch PN 40 4 M - 3 inch PN 40 4 P Other version Add Order codes and plain text: Nominal diameter: 9 H1 Y Nominal pressure: 9 H1 Y Filling liquid • Glycerin/water²) 6 • Food oil (FDA listed) Other version Add Order code and plain text: Filling liquid: Connection to pressure transmitter • direct 0 through capillary, length:³) • 1.0 m (3.28 ft) 2 • 1.6 m (5.25 ft) 3 • 2.5 m (8.20 ft) 4 • 4.0 m (13.1 ft) 5 • 6.0 m (19.7 ft) 6 • 8.0 m (26.25 ft) 7	- DN 65			1	F						
- DN 25				1	G						
- DN 32											
- DN 40 PN 40 - DN 50 PN 25 - DN 65 PN 25 - DN 80 PN 25 - DN 80 PN 25 - Clamp connection - 1½ inch PN 40 - 2 inch PN 40 - 2½ inch PN 40 - 3 inch PN 40 - 3 inch PN 40 - 3 inch PN 40 - 3 inch PN 40 - 3 inch PN 40 - 3 inch PN 40 - 3 inch PN 40 - 3 inch PN 40 - 3 inch PN 40 - 3 inch PN 40 - 3 inch PN 40 - 3 inch PN 40 - 3 inch PN 40 - 3 inch PN 40 - 3 inch PN 40 - 3 inch PN 40 - 3 inch PN 40 - 3 inch PN 40 - 4 P Other version Add Order codes and plain text: Nominal pressure: Filling liquid • Glycerin/water²) • Food oil (FDA listed) Other version Add Order code and plain text: Filling liquid: Connection to pressure transmitter • direct through capillary, length: 3) • 1.0 m (3.28 ft) • 1.6 m (5.25 ft) • 2.5 m (8.20 ft) • 4.0 m (13.1 ft) • 6.0 m (19.7 ft) • 8.0 m (26.25 ft)											
- DN 50 PN 25 2E - DN 65 PN 25 2F - DN 80 PN 25 2G • Clamp connection - 1½ inch PN 40 4M - 2 inch PN 40 4M - 3 inch PN 40 4P Other version Add Order codes and plain text: Nominal diameter: Nominal pressure: Filling liquid • Glycerin/water² • Food oil (FDA listed) Other version Add Order code and plain text: Filling liquid: Connection to pressure transmitter • direct through capillary, length: 3) • 1.0 m (3.28 ft) • 1.6 m (5.25 ft) • 2.5 m (8.20 ft) • 4.0 m (13.1 ft) • 6.0 m (19.7 ft) • 8.0 m (26.25 ft)											
- DN 65 PN 25 2 G - DN 80 PN 25 2 G - Clamp connection - 1½ inch PN 40 4L - 2 inch PN 40 4M - 2½ inch PN 40 4N - 3 inch PN 40 4P Other version Add Order codes and plain text: Nominal diameter: 99 H1 Y Filling liquid - Glycerin/water²) - Food oil (FDA listed) Other version Add Order code and plain text: Filling liquid: Connection to pressure transmitter - direct - direct through capillary, length: 3) - 1.0 m (3.28 ft) - 1.6 m (5.25 ft) - 2.5 m (8.20 ft) - 4.0 m (13.1 ft) - 6.0 m (19.7 ft) - 8.0 m (26.25 ft) - 7				-	- 1						
- DN 80 PN 25 • Clamp connection - 1½ inch PN 40 - 2 inch PN 40 - 3 inch PN 40 - 3 inch PN 40 - 3 inch PN 40 - 3 inch PN 40 - 3 inch PN 40 Cother version Add Order codes and plain text: Nominal diameter: Nominal pressure: Filling liquid • Glycerin/water² • Food oil (FDA listed) Other version Add Order code and plain text: Filling liquid: Connection to pressure transmitter • direct through capillary, length:³ • 1.0 m (3.28 ft) • 1.6 m (5.25 ft) • 2.5 m (8.20 ft) • 4.0 m (13.1 ft) • 6.0 m (19.7 ft) • 8.0 m (26.25 ft) • 8.0 m (26.25 ft)					-1						
• Clamp connection - 1½ inch PN 40 - 2 inch PN 40 - 2½ inch PN 40 - 3 inch PN 40 - 3 inch PN 40 - 3 inch PN 40 Other version Add Order codes and plain text: Nominal diameter: Nominal pressure: Filling liquid • Glycerin/water² • Food oil (FDA listed) Other version Add Order code and plain text: Filling liquid: Connection to pressure transmitter • direct through capillary, length:³) • 1.0 m (3.28 ft) • 1.6 m (5.25 ft) • 2.5 m (8.20 ft) • 4.0 m (13.1 ft) • 6.0 m (19.7 ft) • 8.0 m (26.25 ft)											
- 1½ inch PN 40 - 2 inch PN 40 - 2½ inch PN 40 - 3½ inch PN 40 - 3 inch PN 40 - 3 inch PN 40 - 3 inch PN 40 Other version Add Order codes and plain text: Nominal diameter: Nominal pressure: Filling liquid • Glycerin/water² • Food oil (FDA listed) Other version Add Order code and plain text: Filling liquid: Connection to pressure transmitter • direct through capillary, length: 3) • 1.0 m (3.28 ft) • 1.6 m (5.25 ft) • 2.5 m (8.20 ft) • 4.0 m (13.1 ft) • 6.0 m (19.7 ft) • 8.0 m (26.25 ft)		PN 25		2	G						
- 2 inch PN 40 - 2½ inch PN 40 - 3 inch PN 40 - 3 inch PN 40 Other version Add Order codes and plain text: Nominal diameter: Nominal pressure: Filling liquid • Glycerin/water²) • Food oil (FDA listed) Other version Add Order code and plain text: Filling liquid: Connection to pressure transmitter • direct through capillary, length: 3) • 1.0 m (3.28 ft) • 1.6 m (5.25 ft) • 2.5 m (8.20 ft) • 4.0 m (13.1 ft) • 6.0 m (19.7 ft) • 8.0 m (26.25 ft)	•	D11 40			.						
- 2½ inch PN 40 - 3 inch PN 40 Other version Add Order codes and plain text: Nominal diameter: Nominal pressure: Filling liquid • Glycerin/water²) • Food oil (FDA listed) Other version Add Order code and plain text: Filling liquid: Connection to pressure transmitter • direct through capillary, length: ³) • 1.0 m (3.28 ft) • 1.6 m (5.25 ft) • 2.5 m (8.20 ft) • 4.0 m (13.1 ft) • 6.0 m (19.7 ft) • 8.0 m (26.25 ft)											
- 3 inch PN 40 Other version Add Order codes and plain text: Nominal diameter: Nominal pressure: Filling liquid • Glycerin/water²) • Food oil (FDA listed) Other version Add Order code and plain text: Filling liquid: Connection to pressure transmitter • direct through capillary, length: 3) • 1.0 m (3.28 ft) • 1.6 m (5.25 ft) • 2.5 m (8.20 ft) • 4.0 m (13.1 ft) • 6.0 m (19.7 ft) • 8.0 m (26.25 ft)											
Other version Add Order codes and plain text: Nominal diameter: Nominal pressure: Filling liquid Glycerin/water ²) Food oil (FDA listed) Other version Add Order code and plain text: Filling liquid: Connection to pressure transmitter direct through capillary, length: 3) 1.0 m (3.28 ft) 1.6 m (5.25 ft) 2.5 m (8.20 ft) 4.0 m (13.1 ft) 6.0 m (19.7 ft) 8.0 m (26.25 ft) 7					1						
Add Order codes and plain text: Nominal diameter: Nominal pressure: Filling liquid Glycerin/water ²⁾ Food oil (FDA listed) Other version Add Order code and plain text: Filling liquid: Connection to pressure transmitter direct through capillary, length: 3) 1.0 m (3.28 ft) 1.6 m (5.25 ft) 2.5 m (8.20 ft) 4.0 m (13.1 ft) 6.0 m (19.7 ft) 8.0 m (26.25 ft) 7	- 3 inch	PN 40		4	۲						
Nominal diameter: Nominal pressure: Filling liquid Glycerin/water ²) Food oil (FDA listed) Other version Add Order code and plain text: Filling liquid: Connection to pressure transmitter direct through capillary, length: 3) 1.0 m (3.28 ft) 1.6 m (5.25 ft) 2.5 m (8.20 ft) 4.0 m (13.1 ft) 6.0 m (19.7 ft) 8.0 m (26.25 ft) 7		al actains Associa									
Nominal pressure: Z		•								ш 4	v
Filling liquid • Glycerin/water ²⁾ • Food oil (FDA listed) Other version Add Order code and plain text: Filling liquid: Connection to pressure transmitter • direct through capillary, length: ³⁾ • 1.0 m (3.28 ft) • 1.6 m (5.25 ft) • 2.5 m (8.20 ft) • 4.0 m (13.1 ft) • 6.0 m (19.7 ft) • 8.0 m (26.25 ft) • 10 m (26.25 ft) • 10 m (19.7 ft) • 10 m (19.7 ft) • 10 m (10 m (10 m m m) • 10 m (10 m m) • 10 m (10 m m) • 10 m (10 m m) • 10 m (10 m m) • 10 m m					,						
• Glycerin/water ²⁾ • Food oil (FDA listed) Other version Add Order code and plain text: Filling liquid: Connection to pressure transmitter • direct through capillary, length: ³⁾ • 1.0 m (3.28 ft) • 1.6 m (5.25 ft) • 2.5 m (8.20 ft) • 4.0 m (13.1 ft) • 6.0 m (19.7 ft) • 8.0 m (26.25 ft)					4					JI	T
• Food oil (FDA listed) Other version Add Order code and plain text: Filling liquid: Connection to pressure transmitter • direct through capillary, length: 3) • 1.0 m (3.28 ft) • 1.6 m (5.25 ft) • 2.5 m (8.20 ft) • 4.0 m (13.1 ft) • 6.0 m (19.7 ft) • 8.0 m (26.25 ft) 7											
Other version Add Order code and plain text: Filling liquid: Connection to pressure transmitter • direct through capillary, length: 3) • 1.0 m (3.28 ft) • 1.6 m (5.25 ft) • 2.5 m (8.20 ft) • 4.0 m (13.1 ft) • 6.0 m (19.7 ft) • 8.0 m (26.25 ft) 9 M1 Y		0									
Add Order code and plain text: Filling liquid: Connection to pressure transmitter • direct through capillary, length: 3) • 1.0 m (3.28 ft) 2 • 1.6 m (5.25 ft) 3 • 2.5 m (8.20 ft) 4 • 4.0 m (13.1 ft) 5 • 6.0 m (19.7 ft) 6 • 8.0 m (26.25 ft) 7	,	d)									
Filling liquid: Connection to pressure transmitter • direct • through capillary, length: 3) • 1.0 m (3.28 ft) 2 • 1.6 m (5.25 ft) 3 • 2.5 m (8.20 ft) 4 • 4.0 m (13.1 ft) 5 • 6.0 m (19.7 ft) 6 • 8.0 m (26.25 ft) 7		I nlain text:					9			IVI 1	Y
Connection to pressure transmitter • direct • through capillary, length: 3) • 1.0 m (3.28 ft) • 1.6 m (5.25 ft) • 2.5 m (8.20 ft) • 4.0 m (13.1 ft) • 6.0 m (19.7 ft) • 8.0 m (26.25 ft) 7		plantiext.									
 direct through capillary, length:³⁾ 1.0 m (3.28 ft) 1.6 m (5.25 ft) 2.5 m (8.20 ft) 4.0 m (13.1 ft) 6.0 m (19.7 ft) 8.0 m (26.25 ft) 		eura transmittar									
through capillary, length: ³⁾ • 1.0 m (3.28 ft) 2 • 1.6 m (5.25 ft) 3 • 2.5 m (8.20 ft) 4 • 4.0 m (13.1 ft) 5 • 6.0 m (19.7 ft) 6 • 8.0 m (26.25 ft) 7	•	sure transmitter						0			
 1.0 m (3.28 ft) 1.6 m (5.25 ft) 2.5 m (8.20 ft) 4.0 m (13.1 ft) 6.0 m (19.7 ft) 8.0 m (26.25 ft) 		3)						ŭ			
 1.6 m (5.25 ft) 2.5 m (8.20 ft) 4.0 m (13.1 ft) 6.0 m (19.7 ft) 8.0 m (26.25 ft) 								•			
• 2.5 m (8.20 ft) 4 • 4.0 m (13.1 ft) 5 • 6.0 m (19.7 ft) 6 • 8.0 m (26.25 ft) 7		, ,									
• 4.0 m (13.1 ft) 5 • 6.0 m (19.7 ft) 6 • 8.0 m (26.25 ft) 7		, ,									
• 6.0 m (19.7 ft) 6 • 8.0 m (26.25 ft) 7		,						-			
• 8.0 m (26.25 ft) 7		, ,									
		, ,									
10.0 111		, ,									
Other version 9 N1Y		(02.0 11)								N 1	v
Add Order code and plain text:		l plain text:						J			
Length of capillary:	Length of capillary: .										

Selection and Ordering data		Order No. Ord. code					
Quick-release diaphragm seal	D)	7 M F 4 9 4 0 -					
for SITRANS P pressure transmitters for pressure 7MF403 and 7MF423 together with Order code "V01" (vacuum-proof design) and 7MF802 ¹⁾ ; must be ordered separately Filling liquid: Food oil (FDA listed) Material: Stainless steel, mat. No. 1.4435		A 0 - B					
Further designs		Order code					
Please add "- \mathbf{Z} " to Order No. and specify Order code.							
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2		C11					
Inspection certificate		C12					
to EN 10204, section 3.1							
Functional safety certificate ("SIL 2") to IEC 61508 (Only in conjunction with the order code "C20" in the case of SITRANS P DSIII transmitter)		C20					
Functional safety certificate ("SIL 2/3") to IEC 61508		C23					
(Only in conjunction with the order code "C23" in the case of SITRANS P DSIII transmitter)							
Vacuum-proof design for use in low-pressure range		V01					

With 7MF802.-... and the measuring cells Q, S, T and U also order the vacuum-tight version.
 Not suitable for use in low-pressure range.
 Max. capillary length, see section "Technical description"
 Subject to export regulations AL: N, ECCN: EAR99H.

Pressure Measurement Remote seals for transmitters and pressure gauges

Quick-release diaphragm seals

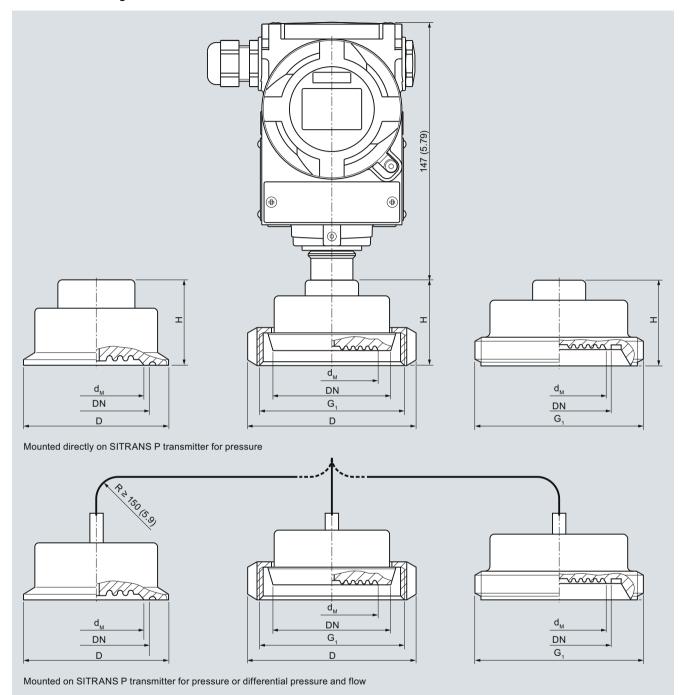
Selection and Or	dering data	C	rc	lei	r N	lo	. C	rd.	СС	d
Quick-release dia	7	M	F	4 9) 4	1 3	-			
for SITRANS P presure for differentia 7MF443 and 7I Filling liquid: Food Material: Stainless Rollingry upits 2 of	•		Α	0			В			
Delivery unit: 2 off										
Nom. diam.	Nom. press.									
	N 11851 with slotted union nut		Ļ							
- DN 50	PN 25 PN 25	-	E							
- DN 65 - DN 80	PN 25 PN 25		G							
	IN 11851 with threaded	ľ	u							
socket										
- DN 50	PN 25		E							
- DN 65	PN 25		F							
- DN 80	PN 25	2	G							
 Clamp connection 2 inch 	PN 40	1	м							
- 21/2 inch	PN 40		N							
- 3 inch	PN 40		P							
Other version										
Add Order codes	and plain text:									
Nominal diameter:		9							H	
Nominal pressure:			Z						J.	1 ۱
Filling liquid										
 Glycerin/water¹⁾ 					6	6				
 Food oil (FDA lis 	ted)				7					
Other version	and aloin tout				9)			M.	۱ ۱
Add Order code a Filling liquid:	ina piain text:									
Connection to tra	enemitter	-								
through capillary,	-1									
• 1.0 m	(3.28 ft)						2			
• 1.6 m	(5.25 ft)						3			
• 2.5 m	(8.20 ft)						4			
• 4.0 m	(13.1 ft)						5			
• 6.0 m	(19.7 ft)						6			
• 8.0 m	(26.25 ft)						7			
• 10.0 m	(32.8 ft)						8			
Other version	,						9		N ·	۱ ۱
Add Order code a Length of capillary										
Further designs	/· ···)rc	اما	r c	00	10			
	Order No. and specify Order	C	/I C	101		00	JC.			
code.	Order No. and specify Order									
	n certificate (Five-step	C	11	ı						
tactory calibratio	n) to IEC 60770-2									
Inspection certificate				C12						
to EN 10204, section 3.1 Functional safety certificate ("SIL 2") to										
Functional safety IEC 61508	certificate ("SIL 2") to	C	20	,						
	on with the order code "C20" in NS P DSIII transmitter)									
	certificate ("SIL 2/3") to	C	23	3						
IEC 61508	on with the order code "C23" in									
	NS P DSIII transmitter)									
Vacuum-proof de	sign	٧	03	3						
for use in low-pres	sure range									
proc										

Not suitable for use in low-pressure range.
 Max. capillary length, see section "Technical description"
 Subject to export regulations AL: N, ECCN: EAR99H.

Remote seals for transmitters and pressure gauges

Quick-release diaphragm seals

Dimensional drawings



Clamp connection (left)
--------------------	-------

DN	Ø d _l	и	ØΒ		Н	
(1½ inch)	32	(1.26)	50,5	(2)	35	(1.38)
(2 inch)	40	(1.57)	64	(2.52)	35	(1.38)
(2½ inch)	52	(2.05)	77,5	(3.05)	35	(1.38)
(3 inch)	72	(2.83)	91	(3.58)	35	(1.38)

on to DIN 11851 with slotted
(center)

DN	$Ød_{M}$	ØD	Н	G₁
25	25	63	36	Rd 52x1/6
32	32	70	36	Rd 52x1/6
40	40	78	36	Rd 65x1/6
50	52	112	36	Rd 78x1/6
65	65	112	36	Rd 95x1/6
80	72	127	36	Rd 110x1/6
25	25	63	36	Rd 52x1/6

Connection to DIN 11851 with threa- ded socket (right)									
DN	$Ød_{M}$	Н	G ₁						
~-	0.5		D 1 50 1/0						

DN	$Ød_{M}$	Н	G ₁
25	25	36	Rd 52x1/6
32	32	36	Rd 52x1/6
40	40	36	Rd 65x1/6
50	52	36	Rd 78x1/6
65	65	36	Rd 95x1/6
80	72	36	Rd 110x1/6

d_M Effective diaphragm diameter

Quick-release diaphragm seal, dimensions in mm (inch)

Remote seals for transmitters and pressure gauges

Miniature diaphragm seals

Overview



Miniature diaphragm seals

The miniature diaphragm seals are available for the following SITRANS P pressure transmitter series for pressure:

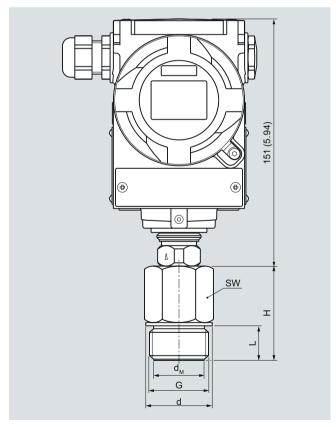
 P300, DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus

Suitable for high pressures, contaminated, fibrous and viscous media in the chemical, paper, food and drink industries.

Design

- Flush-mounted diaphragm
- No dead spaces
- Fixed threaded stems

Dimensional drawings



Miniature diaphragm seal, dimensions in mm (inch)

G	$\emptyset d_{M}$		sw		Ød		L		Н	
	mm	(inch)	mm	(inch)	mm	(inch)	mm	(inch)	mm	(inch)
G1B	25	(0.98)	41	(1.61)	39	(1.53)	28	(1.1)	56	(2.21)
G11/2B	40	(1.57)	55	(2.17)	60	(2.36)	30	(1.18)	50	(1.97)
G2B	50	(1.97)	60	(2.36)	70	(2.76)	30	(1.18)	63	(2.48)

d_M: Effective diaphragm diameter

Technical specifications

Miniature diaphragm seals

Span with

- G1B
- G11/2B
- G2B

Filling liquid

- Material
- Main body Diaphragm

Maximum pressure

Temperature of use

Temperature range of medium

Max. recommended process temperature

Weight

- G1B
- G11/2B • G2B

Certificate and approvals

Classification according to pressure equipment directive (DRGL 97/23/EC)

- > 6 bar (> 87 psi) > 2 bar (> 29 psi)
- > 600 mbar (> 8.7 psi)

Silicone oil M5 or food oil (FDA listed)

Stainl. steel mat No. 1.4404/316L Stainl. steel mat No. 1.4404 / 316L

100% of nominal pressure of pressure transmitter, up to maximum of PN 400 (5802 psi) (depending on the seal

Same as pressure transmitter Same as pressure transmitter 150 °C (302 °F)

Approx. 0.3 kg (approx. 0.66 lb) Approx. 0.5 kg (approx. 1.10 lb) Approx. 0.8 kg (approx. 1.76 lb)

For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 3, para-graph 3 (sound engineering practice)

Pressure Measurement Remote seals for transmitters and pressure gauges

Miniature diaphragm seals

Selection and Ordering data	Order No.	Ord. code
Miniature diaphragm seals	7MF496	0 -
directly fitted to SITRANS P pressure transmitters for pressure; type, 7MF403 and 7MF423 together with Order code "V01" (vacuum-proof design) and 7MF802 ¹⁾ ; must be ordered separately Material: Stainless steel, mat. No. 1.4404/316L Nominal pressure, see "Pressure transmitters"	1 0	ï
Process connection		
 G1B G1½B G2B 1" - NPT 1½" - NPT 2" - NPT Other version, add Order code and plain text: Process connection: 	C D E K L M	J 1 Y
Wetted parts materials		
• Stainless steel 316L Other version, add Order code and plain text: Wetted parts materials:	A Z	K 1 Y
Filling liquid Silicone oil M5 Food oil (FDA listed) Other version, add Order code and plain text: Filling liquid:	1 7 9	M 1 Y
Further designs Please add "-2" to Order No. and specify Order code.	Order coo	de
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2	C11	
Inspection certificate to EN 10204, section 3.1	C12	
Functional safety certificate ("SIL 2") to IEC 61508	C20	
(Only in conjunction with the order code "C20" in the case of SITRANS P DSIII transmitter)		
Functional safety certificate ("SIL 2/3") to IEC 61508	C23	
(Only in conjunction with the order code "C23" in the case of SITRANS P DSIII transmitter)		
Vacuum-proof design for use in low-pressure range	V01	

¹⁾ With 7MF802.-... and the measuring cells Q, S, T and U also order the vacuum-tight version.

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

Remote seals for transmitters and pressure gauges

Flushing ring for diaphragm seals

Overview



Flushing ring

Flushing rings are required for flange-mounted and sandwichtype remote seals (Order No. 7MF4900 ... 7MF4923) if the danger exists that the process conditions and the geometry of the connection could cause the medium to form deposits or blockages.

The flushing ring is clamped between the process flange and the remote seal.

Deposits can be flushed away from the diaphragm through the holes in the side, or the pressure volume can be vented. Different nominal diameters and forms permit adaptation to the respective process flange.

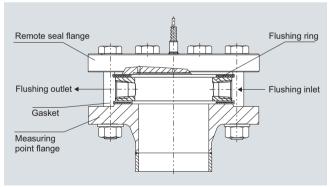
Process connection

For flanges to EN and ASME: DN 50, 80, 100, 125; PN 16 ... 100 or DN 2 inch, 3 inch, 4 inch, 5 inch; Class 150 ... 600

Standard design

Material: CrNi-Stahl, mat. No. 1.4404/316L Sealing faces and flushing holes: See Selection and Ordering data

Design



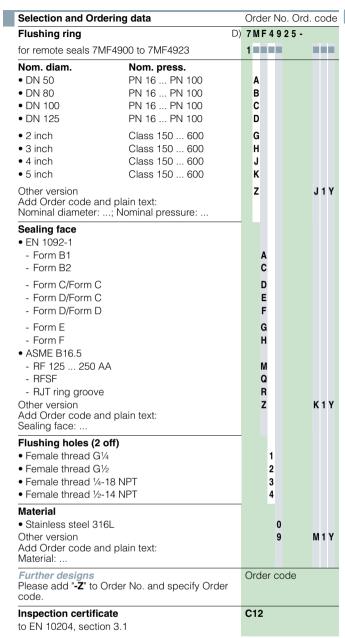
Installation example

Technical specifications

Flushing ring for remote seals of sandwich and flange design						
Nominal diameter	Nominal pressure					
• DN 50	PN 16 PN 100					
• DN 80	PN 16 PN 100					
• DN 100	PN 16 PN 100					
• DN 125	PN 16 PN 100					
• 2 inch	Class 150 class 600					
• 3 inch	Class 150 class 600					
• 4 inch	Class 150 class 600					
• 5 inch	Class 150 class 600					
Sealing face						
• To EN 1092-1	Form B1					
	Form B2					
	Form D/Form D					
	Form C/Form C					
	Form C/Form C					
	Form E					
	Form F					
• To ASME B16.5	RF 125 250 AA					
	RFSF					
	RJT ring groove					
Flushing holes (2 off), female	• G¹⁄₄					
thread	• G½					
	• 1/4-18 NPT					
	• ½-14 NPT					
Material	Stainless steel 1.4404/316L					

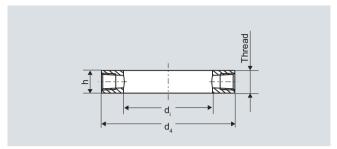
Remote seals for transmitters and pressure gauges

Flushing ring for diaphragm seals



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

Order No. Ord. code Dimensional drawings



Flushing ring, dimension drawing

Connection to EN 1092-1

DN	PN	d_4	d _i	h	Weight
(mm)	(bar)	(mm)	(mm)	(mm)	(kg)
50	16 100	102	62	30	1.10
80	16 100	138	92	30	1.90
100	16 100	162	92	30	3.15
125	16 100	188	126	30	3.50

Connection to ASME B 16.5

DN	Class	d_4		$\mathbf{d_{i}}$		h		Weight	
inch		mm	nm (in.)		mm (in.)		(in.)	kg	(lb)
2	150 600	92	(3.62)	62	(2.44)	30	(1.18)	0.60	(1.32)
3	150 600	127	(5)	92	(3.62)	30	(1.18)	1.05	(2.31)
4	150 600	157	(6.18)	92	(3.62)	30	(1.18)	2.85	(6.28)
5	150 600	185.5	(7.3)	126	(4.96)	30	(1.18)	3.30	(7.28)

Remote seals for transmitters and pressure gauges

Inline seals for flange-mounting

Overview



Inline seals for flange-mounting

The inline seal is completely integrated in the process line. It is particularly suitable for flowing and highly viscous media.

The inline remote seal consists of a cylindrical jacket into which a thin-walled pipe is welded. It is clamped directly between two flanges in the pipeline.

Design

- Inline seals for flange-mounting (flange design) to EN/ASME for SITRANS P pressure transmitters
 - For pressure: P300, DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus
 - For differential pressure and flow: DS III with HART, DS III with PROFIBUS PA, DS III with FOUNDATION Fieldbus and P500
- Sealing face to EN 1092-1 or ASME B16.5
- Connection to the transmitter directly or by means of a flexible capillary (max. 10 m long)
- See Technical data for details of materials used for the wetted parts
- Material used for the capillary, the guard sleeve, the seal's main body and the measuring cell: Stainless steel, mat.-No. 1.4571
- Filling liquid: Silicone oil, high-temperature oil, halocarbon oil, food oil (FDA listed) or glycerin/water (not suitable for uses in low-pressure range)

Function

The measured pressure is transferred from the diaphragm to the filling liquid and passes either directly or through the capillary to the measuring chamber of the pressure transmitter. The interior of the diaphragm seal and of the capillary, as well as the measuring chamber of the pressure transmitter, are filled gas-free by the filling liquid.

Note:

When operating in the low-pressure range, also during commissioning, it is recommended to use a vacuum-proof remote seal (see Selection and Ordering data).

Technical specifications

Inline seals for flange-mounting	
Nominal diameter	Nominal pressure
• DN 25	PN 6 PN 100
• DN 40	PN 6 PN 100
• DN 50	PN 6 PN 100
• DN 80	PN 6 PN 100
• DN 100	PN 6 PN 100
• 1 inch	Class 150 class 2500
• 1½ inch	Class 150 class 2500
• 2 inch	Class 150 class 2500
• 3 inch	Class 150 class 2500
• 4 inch	Class 150 class 2500
Process connection	Flange to EN 1092-1 or ASME B 16.5
Sealing face	To EN 1092-1, form B1 or to ASME B16.5 RF 125 250 A or RFSF
Materials	
Main body	Stainless steel 1.4404/316L
Diaphragm	Stainless steel 1.4404/316L
 Wetted parts 	Stainless steel 1.4404/316L
	 Without coating
	 ECTFE coating
	 PFA coating (for vacuum on request)
	Monel 400, mat. No. 2.4360
	Hastelloy C276, mat. No. 2.4819
	Hastelloy C4, mat. No. 2.4610
	Tantalum
Capillary	Stainless steel, mat. No. 1.4571/316Ti
Sheath	Spiral hose made of stainless steel, mat. No. 1.4301/316
Capillary	
• Length	Max. 10 m (32.8 ft)
 Internal diameter 	2 mm (0.079 inch)
 Minimum bending radius 	150 mm (5.9 inch)
Filling liquid	Silicone oil M5
	Silicone oil M50
	High-temperature oil
	Halocarbon oil
	Food oil (FDA listed)
	Glycerin/water (not suitable for uses in low-pressure range)
Permissible ambient temperature	See pressure transmitters, see fil ling liquid

Certificates 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 the requirements of article 3, paragraph 1 (appendix 1); assigned to category III, conformity evaluation module H by the TÜV Nord

Pressure Measurement Remote seals for transmitters and pressure gauges

Inline seals for flange-mounting

Selection and Ord	Selection and Ordering data				
Inline seal for flar SITRANS P press					
7MF403 and 7N code "V01" (vacuu 7MF802 ¹⁾ ; mus	for gauge pressure D) 7MF403 and 7MF423 together with Order code "V01" (vacuum-proof design) and 7MF802 ¹⁾ ; must be ordered separately, scope of delivery: 1 off				
of delivery: 1 pair (stainless steel, ma Process connection	4; order separately, scope (set); Material: Completely of it. No. 1.4404/316L; nr to EN 1092-1 or ASME e to EN 1092-1, form B1,			4983	
Naminal diameter	r and nominal pressure		=	0 -	D
DN 25DN 40DN 50DN 80DN 100	PN 6 100 PN 6 100 PN 6 100 PN 6 100 PN 6 100		B D E G		
1 inch1½ inch2 inch3 inch4 inch	Class 150 2500 Class 150 2500 Class 150 2500 Class 150 2500 Class 150 2500		L M N P Q		
Other version Add Order code a Nominal diameter:	nd plain text: ; Nominal pressure:		Z		J 1 Y
Wetted parts mat Stainless steel 3' - Without coating - With PFA coatin - With ECTFE co Monel 400, mat. Hastelloy C276, Hastelloy C4, ma Tantalum Other version Add Order code a Wetted parts mate	16L g ng ating ²⁾ No. 2.4360 mat. No. 2.4819 at. No. 2.4610 nd plain text:		A D F G J U K Z		K 1 Y
Silicone oil M5Silicone oil M50High-temperatur	or measuring O ₂) ³⁾ ted)			1 2 3 4 6 7 9	M 1 Y

Selection and Ordering data	Order No. Ord. code
Inline seal for flange-mounting for	01401110. 014. 0040
SITRANS P pressure transmitters	
for gauge pressure	7MF4980-
7ME403 - and 7ME423 - together with Order	
code "V01" (vacuum-proof design) and 7MF802); must be ordered separately,	
scope of delivery: 1 off	
	7 M F 4 9 8 3 -
7MF4433 or 7MF54; order separately, scope	,
of delivery: 1 pair (set); Material: Completely of	
stainless steel, mat. No. 1.4404/316L; Process connection to EN 1092-1 or ASME	
B16.5; sealing face to EN 1092-1, form B1,	
or to ASME B16.5 RF 125 250 AA	
	1 = 0 - B
Connection to transmitter	
• direct (only for 7MF4980)	0
through capillary, length: ⁵⁾	
• 1.0 m (3.28 ft)	2
• 1.6 m (5.25 ft)	3
• 2.5 m (8.20 ft)	4 5
• 4.0 m (13.1 ft) • 6.0 m (19.7 ft)	6
• 8.0 m (26.25 ft)	7
• 10.0 m (32.8 ft)	8
Other version	9 N1Y
Add Order code and plain text:	
Length of capillary:	
Further designs	Order code
Please add "-Z" to Order No. and specify Order code.	
Spark arrestor With spark arrestor for mounting on zone 0 (including documentation)	
Pressure and absolute pressure	A01
• for differential pressure transmitters	A02
Certificate to EN 10204-2.2	E10
For certification of oil - and grease-free cleaned and packed version for oxygen and summer applications in which only inert filling liquid may be used. (Only in conjunction with halocarbon oil fill fluid)	
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2	C11
Inspection certificate to EN 10204, section 3.1	C12
Functional safety certificate ("SIL 2") to IEC 61508	C20
(Only in conjunction with the order code "C20" in the case of SITRANS P DSIII transmitter)	
Functional safety certificate ("SIL 2/3") to	C23
IEC 61508 (Only in conjunction with the order code "C23" in the case of SITRANS P DSIII transmitter)	
Vacuum-proof design for use in low-pressure range	
• for transmitters for gauge pressure	V01
for transmitters for differential pressure	V03
Note:	
Suffix "Y01" required with pressure transmitter	

¹⁾ With 7MF802.-... and the measuring cells Q, S, T and U also order the vacuum-tight version.

²⁾ For vacuum on request.

³⁾ Oil- and grease- free cleaning to DIN 25410, level 2 and packaging included in the scope of delivery.

⁴⁾ Not suitable for use in low-pressure range.

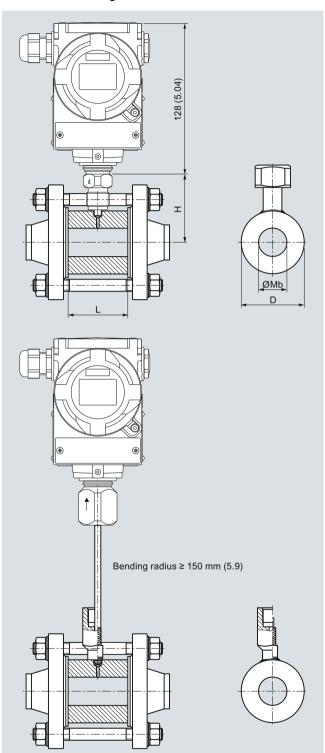
⁵⁾ Max. capillary length, see section "Technical description"

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

Remote seals for transmitters and pressure gauges

Inline seals for flange-mounting

Dimensional drawings



Inline seal for flange-mounting, connected to SITRANS P pressure transmitter, dimensions in mm (inch) $\,$

Connection to EN 1092-1

DN	PN	D	Mb	L	Н
mm	bar	mm	mm	mm	mm
25	6 100	63	28,5	60	78.5
40	6 100	85	43	60	89.5
50	6 100	95	54.5	60	92.5
80	6 100	130	82.5	60	112
100	6 100	150	107	60	122

Connection to ASME B16.5

DN	Class	D	Mb	L	Н
(inch)		mm	mm	mm	mm
		(inch)	(inch)	(inch)	(inch)
1	150 2500	63	28.5	60	78.5
		(2.48)	(1.12)	(2.36)	(3.1)
11/2	150 2500	85	43	60	86
		(3.35)	(1.69)	(2.36)	(3.4)
2	150 2500	95	54.5	60	94.5
		(3.74)	(2.15)	(2.36)	(3.72)
3	150 2500	130	82.5	60	112
		(5.12)	(3.25)	(2.36)	(4.4)
4	150 2500	150	107	60	122
		(5.9)	(4.21)	(2.36)	(4.8)

Remote seals for transmitters and pressure gauges

Quick-release inline seals

Overview



Quick-release inline seals, to DIN 11851 with threaded socket



Quick-release inline seals, with clamp connection

Quick-release inline seals for pressure are available for the following SITRANS P pressure transmitter series:

- P300
- DS III with HART
- DS III with PROFIBUS PA
- DS III with FOUNDATION Fieldbus

Application

The quick-release inline seal is a special design for flowing media and high-viscosity media. Since it is completely integrated in the process pipe, no turbulences, dead volumes or other obstructions to the flow occur. The measured medium flows unhindered through the inline seal and results in self-cleaning of the measuring chamber. Furthermore, the inline seal can be cleaned by a pig.

Design

The quick-release clamp is available in two versions:

- DIN 11851 with threaded socket
- Clamp connection

The inline seal is connected to the pressure transmitter either directly or by way of a capillary.

Function

The measured pressure is transferred from the diaphragm, mounted on the inner circumference of the inline seal, to the filling liquid and then passes through the capillary to the measuring chamber of the pressure transmitter. The interior of the inline seal and of the capillary, as well as the measuring chamber of the pressure transmitter, are filled gas-free by the filling liquid.

Note

When operating in the low-pressure range, also during commissioning, it is recommended to use a vacuum-proof pressure transmitter (see Selection and Ordering data).

Technical specifications

Inline seals of quick-release designation	gn for pressure			
Connection	Nominal	Nominal		
T BW (1951 W)	diameter	pressure		
 To DIN 11851 with threaded socket 	DN 25	PN 40		
	DN 40	PN 40		
	DN 50 PN 25			
	DN 65	PN 25		
	DN 80	PN 25		
	DN 100	PN 25		
Clamp connection	1½ inch	PN 40		
	2 inch	PN 40		
	2½ inch	PN 40		
	3 inch	PN 40		
Material		Г		
Main body	Stainless steel 1.4404/316L			
• Diaphragm	Stainless steel 1.4	4404/316L		
Capillary				
• Length	Max. 10 m (32.8 ft)			
• Internal diameter	2 mm (0.079 inch)			
Minimum bending radius	150 mm (5.9 inch)			
Filling liquid	• Food oil (FDA listed)			
	Glycerin/water (use in low-press			
Permissible ambient temperature	Dependent on the pressure transmitter and the filling liquid of the remote seal More information can be found in the technical data of the pressure transmitters and in the section "Technical data of filling liquid" in the Technical description to the remote seals			
Weight	Approx. 4 kg (app	prox. 8.82 lb)		

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 the requirements of article 3, paragraph 1 (appendix 1); assigned to category III, conformity evaluation module H by the TÜV Nord

Pressure Measurement Remote seals for transmitters and pressure gauges

Quick-release inline seals

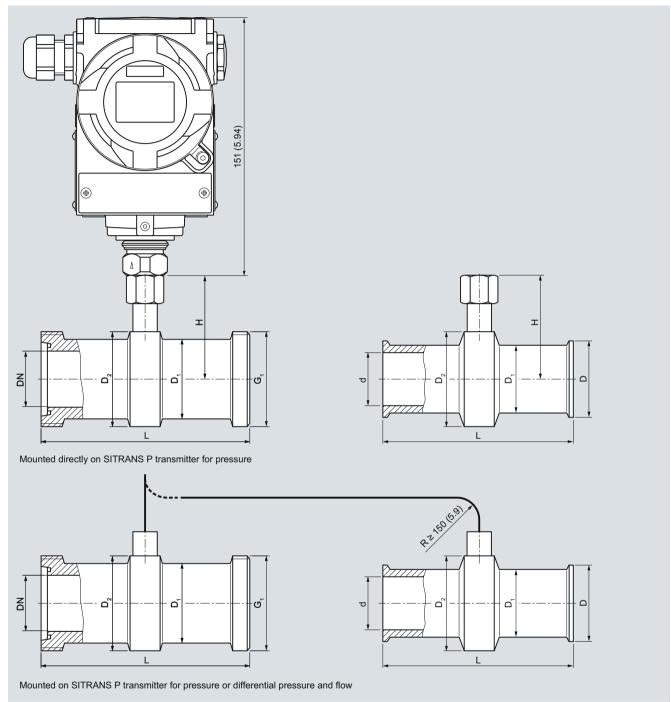
Selection and Orde	<u> </u>	()rc	der	Nc). (Ord.	CC	od	9
Quick-release inlin	e seal	D) 7	M	F 4	9	5 () -			
for SITRANS P press	sure transmitters for			A 0		-	В			ı
pressure	TADO togothor with Order									
code "V01" (vacuum	F423 together with Order									
code "V01" (vacuum 7MF802 ¹⁾ ; must	be ordered									
separately										
Filling liquid: Food o										
Material: Stainless s										
Nom. diam.	Nom. press.									
	I 11851 with screw necks		_							
- DN 25	PN 40		2 B							
- DN 40	PN 40		2 D							
- DN 50	PN 25		2 E							
- DN 65	PN 25		2 F							
- DN 80	PN 25		2 G							
- DN 100	PN 25	4	2 H							
Clamp connection										
- 1½ inch	PN 40		l L							
- 2 inch	PN 40		I M							
- 2½ inch	PN 40		IN							
- 3 inch	PN 40	4	ΙP							
Other version										
Add Order codes ar	•									
Nominal diameter:		9)						1 ۱	
Nominal pressure:			Z					J	1 ۱	•
Filling liquid										
 Glycerin/water²⁾ 					6					
 Food oil (FDA liste 	ed)				7					
Other version					9			M	1 ١	,
Add Order code and	d plain text:									
Filling liquid:										
Connection to tran	smitter									
 Direct 						()			
Through capillary, le	enath: ³⁾									
• 1.0 m	(3.28 ft)					:	2			
• 1.6 m	(5.25 ft)						3			
• 2.5 m	(8.20 ft)						4			
• 4.0 m	(13.1 ft)						5			
• 6.0 m	(19.7 ft)						6			
• 8.0 m	(26.25 ft)						7			
• 10.0 m	(32.8 ft)						3			
Other version	(02.0 11)						9	N	1 \	,
Add Order code and	d plain text:					ľ			•	
Length of capillary:										
Further designs		()rc	der	<u></u>	de	2			-
			<i>)</i> ()	101	00	ac	,			
Please add "-Z" to C code.	order No. and specify Order									
Quality inspection	certificate (Five-step	()1	1						
factory calibration)	to IEC 60770-2									
Inspection certification	ate	(212	2						
to EN 10204, section	n 3.1									
Functional safety of	ertificate ("SIL 2") to	(20)						
IEC 61508	, , , , ,									
	with the order code "C20" in									
the case of SITRANS	S P DSIII transmitter)									
Functional safety of	ertificate ("SIL 2/3") to	(2:	3						
IEC 61508	, , , , , ,									
	with the order code "C23" in									
the case of SITRANS	S P DSIII transmitter)									
Vacuum-proof desi		1	/ 01	ī						Ī
for use in low-pressi										

With 7MF802.-... and the measuring cells Q, S, T and U also order the vacuum-tight version.
 Not suitable for use in low-pressure range.
 Max. capillary length, see section "Technical description"
 D) Subject to export regulations AL: N, ECCN: EAR99H.

Pressure Measurement Remote seals for transmitters and pressure gauges

Quick-release inline seals

Dimensional drawings



Connection to DIN 11851 with screw necks									
DN	Ø D ₁	$Ø$ D_2	Н	L	G ₁				
25	38	52	68	128	Rd 52x1/6				
40	55	65	74.5	160	Rd 65x1/6				
50	68	78	81	170	Rd 78x1/6				
65	85	95	89.5	182	Rd 95x1/6				
80	110	110	97	182	Rd 110x1/4				
100	130	130	107	182	Rd 110x1/4				

Clam	Clamp connection for pipes to BS 4825/3 and o.D. tubes										
d		$Ø$ D_1		$Ø$ D_2		н		L		D	
mm	(inch)	mm	(inch)	mm	(inch)	mm	(inch)	mm	(inch)	mm	(inch)
22.2	(1)	38	(1.5)	50	(1.97)	67	(2.64)	114	(4.49)	50.5	(1.98)
34.9	(11/2)	43	(1.69)	65	(2.56)	74.5	(2.93)	146	(5.75)	50.5	(1.98)
47.6	(2)	56	(2.2)	75	(2.95)	79.5	(3.13)	156	(6.14)	64	(2.52)
60.3	(21/2)	68	(2.68)	77	(3.03)	80.5	(3.17)	156	(6.14)	77.5	(3.05)
73.0	(3)	82	(3.23)	91	(3.58)	87.5	(3.44)	156	(6.14)	91	(3.58)

Remote seals for transmitters and pressure gauges

Measuring setups

Overview

This section shows examples of typical measuring setups for using SITRANS P pressure transmitters with and without remote seals

Equations for calculating start of scale and full scale are provided for each example.

Questionnaires are included to help you select the right combination of remote seal and pressure transmitter.

Inetallation

Remote seals of sandwich design are fitted between the connection flange of the measuring point and a dummy flange. Remote seals of flange design are fitted directly on the connection flange of the measuring point. The respective pressure rating of the dummy flange or the flanged remote seal must be observed.

The pressure transmitter should be installed below the connection flange (and below the lower connection flange in the case of differential pressure transmitters). This arrangement <u>must</u> be used in the low-pressure range.

When measuring at pressures above atmospheric, the pressure transmitter can also be installed above the connection flange.

The capillaries between the remote seal and the pressure transmitter should be as short as possible to obtain a good transmission response.

Offset of measuring range

If there is a difference in height between the two connection flanges when measuring with two remote seals, an additional differential pressure will result from the oil filling of the remote seal capillaries. This results in a measuring range offset which has to be taken into account when you set the pressure transmitter.

An offset in the measuring range also occurs when combining a remote seal with a transmitter if the remote seal is not installed at the same height as the transmitter.

Pressure transmitter output

If the level, separation layer or density increase in closed vessels, the differential pressure and hence the output signal of the pressure transmitter also increase.

For an inverted relationship between the differential pressure and the output signal, the start-of-scale and full-scale values of the SITRANS P must be interchanged.

With open vessels, a rising pressure is usually assigned to an increasing level, separation layer or density.

Influence of ambient temperature

Temperature differences between the individual capillaries and between the individual remote seals should be avoided.

Temperature variations in the area of the measuring setup cause a change in volume of the filling liquid and hence measuring errors

Notes

- For the separation layer measurement, the separation layer has to be positioned between the two spigots. Also you must make sure that the level in the container is always above the top spigot.
- When measuring density, make sure that the level of the medium remains constant. The level should be above the top spigot.

Possible combinations of pressure transmitters and remote seals

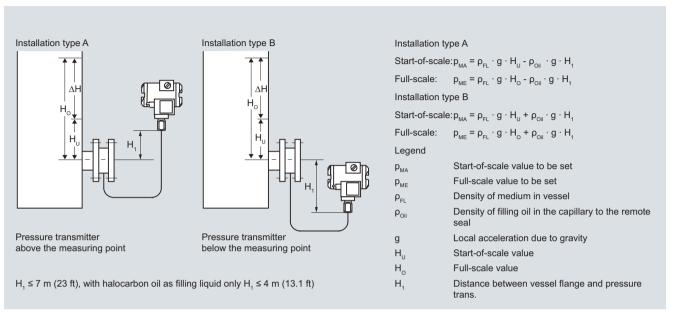
Type of installation	Pressure transmit- ters	Remote seals
A/B	7MF4033 7MF4034 7MF4035 7MF8023 7MF8024 7MF8025	7MF4900 7MF4910 7MF4920
C ₁ and C ₂	7MF4233 7MF4234 7MF4235	7MF4900 7MF4910 7MF4920 (vacuum-proof design in each case)
	7MF4333 7MF4334 7MF4335	7MF4901 7MF4921
D	7MF4433 7MF4434 7MF4435 7MF5403 7MF5413	7MF4903 7MF4923
E	7MF4433 7MF4434 7MF4435 7MF5403 7MF5413	7MF4913
G, H and J	7MF4433 7MF4434 7MF4435 7MF5403 7MF5413	7MF4903 7MF4923

Remote seals for transmitters and pressure gauges

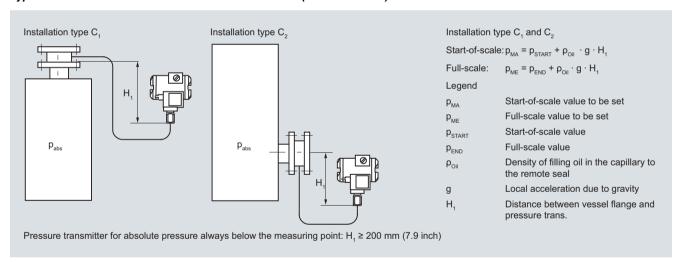
Measuring setups with remote seals

Dimensional drawings

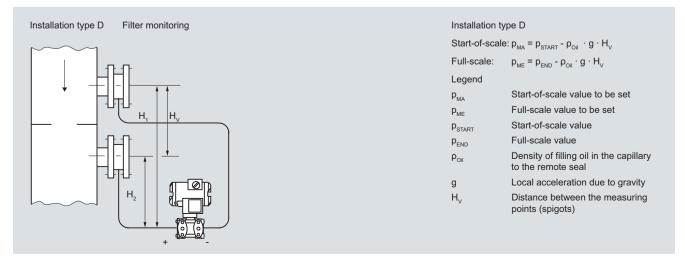
Types of installation for pressure and level measurements (open vessels)



Types of installation for absolute level measurements (closed vessels)



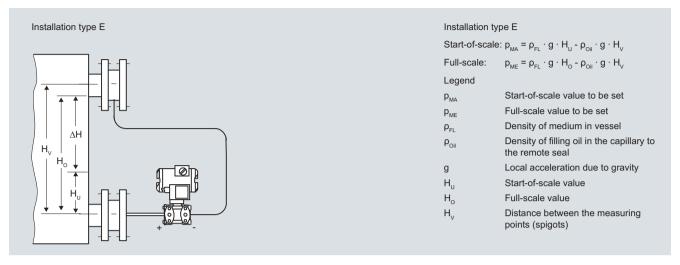
Type of installation for differential pressure and flow measurements

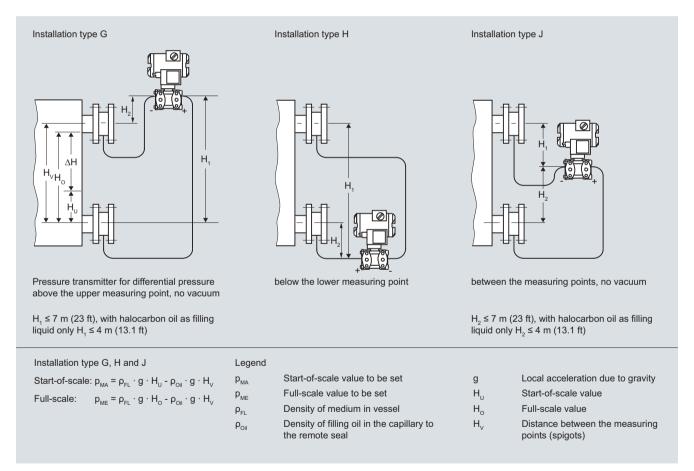


Remote seals for transmitters and pressure gauges

Measuring setups with remote seals

Types of installation for level measurements (closed vessels)





Remote seals for transmitters and pressure gauges

Measuring setups without remote seals

Overview

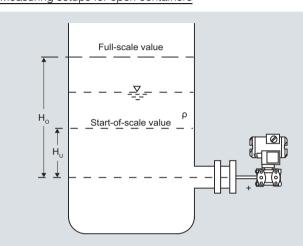
Notes

- For the separation layer measurement, the separation layer has to be positioned between the two spigots.
- Also you must make sure that the level in the container is always above the top spigot.
- When measuring density, make sure that the level of the medium remains constant. The level should be above the top spigot

Dimensional drawings

Pressure transmitters for differential pressure, for flanging

Measuring setups for open containers



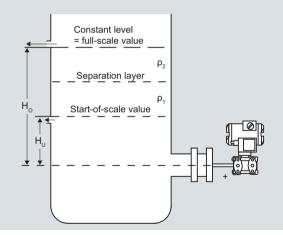
Level measurement

Start-of-scale: $p_{MA} = \rho \cdot g \cdot H_{U}$ Full-scale: $p_{ME} = \rho \cdot g \cdot H_{O}$

Legend

 $\begin{array}{ll} p_{\text{MA}} & \text{Start-of-scale value to be set} \\ p_{\text{ME}} & \text{Full-scale value to be set} \\ \rho & \text{Density of medium in vessel} \\ g & \text{Local acceleration due to gravity} \end{array}$

H_U Start-of-scale value H_O Full-scale value



Separation layer measurement

Start-of-scale: $p_{MA} = g \cdot (H_{U} \cdot \rho_{1} + (H_{O} - H_{U}) \cdot \rho_{2})$

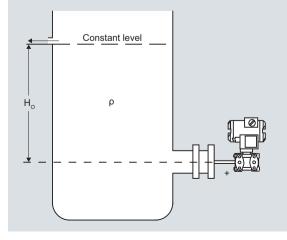
Full-scale: $p_{ME} = \rho_1 \cdot g \cdot H_0$

Legend

 $\begin{array}{ll} {\rm p_{MA}} & {\rm Start}\text{-of-scale value to be set} \\ {\rm p_{ME}} & {\rm Full\text{-scale value to be set}} \\ {\rm \rho_1} & {\rm Density \ of \ heavier \ liquid} \\ {\rm \rho_2} & {\rm Density \ of \ lighter \ liquid} \end{array}$

g Local acceleration due to gravity

 $H_{_{\mathrm{U}}}$ Start-of-scale value $H_{_{\mathrm{O}}}$ Full-scale value



Density measurement

Start-of-scale: $p_{MA} = p_{MIN} \cdot g \cdot H_{O}$

Full-scale: $p_{\text{ME}} = \rho_{\text{MAX}} \cdot g \cdot H_{\text{O}}$

Legende

 $\begin{array}{ll} {\rm p_{{\rm MA}}} & {\rm Start}\mbox{-of}\mbox{-scale} \ \mbox{value} \ \mbox{to} \ \mbox{be} \ \mbox{set} \\ {\rm p_{{\rm ME}}} & {\rm Full}\mbox{-scale} \ \mbox{value} \ \mbox{to} \ \mbox{be} \ \mbox{set} \end{array}$

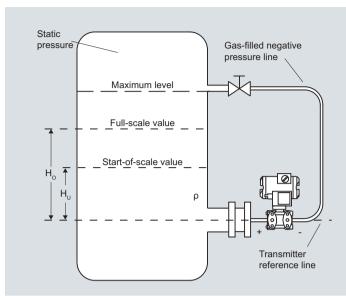
 $\begin{array}{ll} \rho_{\text{MIN}} & \text{Minimum density of medium in vessel} \\ \rho_{\text{MAX}} & \text{Maximum density of medium in vessel} \\ g & \text{Local acceleration due to gravity} \end{array}$

H_o Full-scale value in m

Remote seals for transmitters and pressure gauges

Measuring setups without remote seals

Measuring setups for closed containers

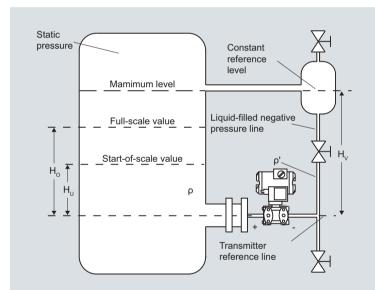


Level measurement, Version 1 $Start\text{-of-scale: }\Delta p_{MA} = \rho \cdot g \cdot H_{_U}$ $Full\text{-scale: }\Delta pME = \rho \cdot g \cdot H_{_D}$

Legend

 $\begin{array}{lll} \Delta p_{\text{MA}} & \text{Start-of-scale value to be set} \\ \Delta p_{\text{ME}} & \text{Full-scale value to be set} \\ \rho & \text{Density of medium in vessel} \\ g & \text{Local acceleration due to gravity} \end{array}$

 $H_{_{\mathrm{U}}}$ Start-of-scale value $H_{_{\mathrm{O}}}$ Full-scale value



Level measurement, Version 2

Start-of-scale: $\Delta p_{MA} = g \cdot (H_{U} \cdot \rho - H_{V} \cdot \rho')$ Full-scale: $\Delta p_{ME} = g \cdot (H_{O} \cdot \rho - H_{V} \cdot \rho')$

Legend

 $\begin{array}{lll} \Delta p_{\text{MA}} & \text{Start-of-scale value to be set} \\ \Delta p_{\text{ME}} & \text{Full-scale value to be set} \\ \rho & \text{Density of medium in vessel} \end{array}$

ρ' Density of liquid in the negative pressure line (corresponding to the temperature

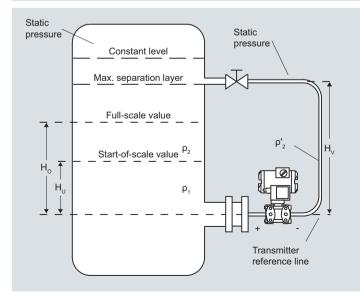
existing there)

g Local acceleration due to gravity

 $H_{_{\mathrm{U}}}$ Start-of-scale value $H_{_{\mathrm{O}}}$ Full-scale value

H_v Distance between the measuring points

(spigots)



Separation layer measurement

Start-of-scale: $\Delta p_{MA} = g \cdot (H_U \cdot \rho_1 + (H_O - H_U) \cdot \rho_2 - H_V \cdot \rho_2')$

Full-scale: $\Delta p_{MF} = g \cdot (H_O \cdot \rho_1 - H_V \cdot \rho_2)$

Legend

 Δp_{MA} Start-of-scale value to be set Δp_{ME} Full-scale value to be set

 ρ_1 Density of heavier liquid with separation layer

in vessel

ρ₂ Density of lighter liquid with separation layer
 ρ'₂ Density of liquid in the negative pressure line (corresponding to the temperature existing

there)

g Local acceleration due to gravity

 ${
m H_{u}}$ Start-of-scale value ${
m H_{o}}$ Full-scale value

 ${\rm H}_{\rm V}$ Distance between the measuring points

(spigots)

SIEMENS

Questionnaire

Checking of transmitter/remote seal combinations

* Customer:_	Ta	g. No.:	
* Plant:	Ite	em No.:	
* Ordering co	ode:Pe	erson responsible:	
* Ordering de	epartment: Ph	none:	
* Transmitte	r Order No.: 7MF	1	
	Order No. of dia	phragm seal known?	
Yes		No	
			_
* Order No. of remote seal:		* Or without Order No.: Proc	ess connection
7MF 4 9	-Z	* Standard:	
Suffixes		* Nominal diameter: * Nominal pressure:	
Suffixes		* Constructional design:	Sandwich-type rem. seal
		Constructional design.	Flanged remote seal
			Quick-release
			remote seal
			Clamp-on seal
			Other.:
		* Connection:	Direct connection
			Capillary on one side;
			connection to:
			🗌 + side 🔲 - side
			Capillaries on both sides;
			Capillary length: m
		* Vacuum-proof design	☐ Yes ☐ No
		* Wetted parts materials:	
		* Tube:	☐ No ☐ Yes,mm long
		* Filling liquid	
		* Miscellaneous	
	Calculation of measur	ing range necessary?	
No		Yes	7
		<u> </u>	
* Range to be set:	Medium _		
(without calculation)		medium:	kg/m ³
Start-of-scale: mbar (4	mA) * Temperatu	re of medium:	Normal°C
Full-scale: mbar (20	mA)		Minimum°C Maximum°C
* Required measuring accuracy:	* Amhient te	emperature on capillaries:	Normal °C
Error: < . % of set spa	n per	omporatore on outmanes.	Minimum°C
10 V chan			Maximum°C
temperati	* Ambient te	emperature on transmitter:	Normal°C
			Minimum°C Maximum °C
	* Operating	pressure referred to absolute zero:	bar a
		cuum occur during startup?	□ No □ Yes
Please fill in this questionnaire		associated temperature of medium:	°C
and enclose with every order!	•	n type, see pages 2/230 and 2/231	A B C ₁ C ₂ D
			E G H J
	* Measuring	With install, types A, B, C_1 , C_2 and	
	range	With install. types A, B, G, H and J:	
	* Dimension	is: With install, types A, B, C ₁ and C ₂ :	
		With install. types D, G, H and J:	
		cale value following calculation:	
	Full-scale	value following calculation:	_ mbar (20 mA)
Charled Name:	Associated	•	
Checked: Name: Department:	Error to be	e expected: < . % of set	
·		chang	ge in temperature
Date:		·	

SIEMENS

Questionnaire for hydrostatic level measurements

Order date:		**************************************
Processing date:	-	324
Ordering code (customer):		
Ordering code (supplier):	י חנ	
Customer reference:		
Measuring point:		1×1
Position:		
Dimensions:	_	
Pressure: ar		\$# ``````\\$
Temperature: K C		ÄΥ
Measuring range: ☐ cm ☐ m (please mark with cross)		
Order No. of transmitter 1):		L-##-3
_7_M_F_4		
Y01		K7

The different pressures and temperatures (densities) in the vessel and in the reference column result in an offset in the start-of-scale and full-scale values.

The calibration data are determined in addition.

It is also checked whether – as a result of the range offset – the ordered transmitter is suitable for this measurement.

Please supply the following characteristic data so that we can calculate the measuring range, start-of-scale value, full-scale value and calibration data:

Please mark type of boiler with a cross:	Closed ¹⁾		
	Open or not under pres	sure ²⁾	
Medium			
Licensed boiler pressure (absolute)			bar
Operating pressure (absolute)	Lowest		bar
	Normal ³⁾		bar
	Highest		bar
Temperature of reference column (cold)			K
Distance between measuring points (din	nension according to sket	tch) H _V =	m
Measuring range ⁴⁾ = start-of-scale value	e to full-scale value		
	Start-of-scale value	H _U =	m
	Full-scale value	H _O =	m
Position of equalizing vessel above botto point if different from H _V	om measuring		_ m
Please mark pressure correction of level	with a cross: No Yes ⁴ /		

¹⁾ Reference line filled with condensation! Falling differential pressure with increasing level.

²⁾ Reference line without gas or filled with gas (air). Rising differential pressure with increasing level.

³⁾ If not specified otherwise, this value is assumed as the calculation pressure of the level meter.

The input signal (differential pressure) depends on the density (pressure and temperature).

The influence is practically negligible for a lowest liquid level of 20 to 30% of the distance between the measuring points.

⁴⁾ If a pressure correction of the level is required, the measuring range must be the same as the distance between the measuring points, and the transmitter is designed for the calculation pressure of 1 bar (absolute).

Pressure correction means: the static pressure and the temperature are measured separately and calculated by a correction computer or measured-value computer.

SIEMENS

Questionnaire (suitable for US market) Checking of transmitter/remote seal combinations

* Ordering department	Item No.: Person responsible: Phone: P	
* Transmitter Order N	o.: 7MF	
	der No. of diaphragm seal known?	No
* Order No. of remote seal: 7MF 4 9	* Or without Order No.: P * Standard: * Nominal diameter: * Nominal pressure: * Constructional design: * Connection:	rocess connection Sandwich-type rem. seal Flanged remote seal Quick-release remote seal Clamp-on seal Other.: Direct connection Capillary on one side; connection to: + side - side Capillaries on both sides; Capillary length: ft
Calculat	* Vacuum-proof design * Wetted parts materials: * Tube: * Filling liquid * Miscellaneous ion of measuring range necessary?	T T
No	Ye	es
* Range to be set: (without calculation) Start-of-scale: psi (4 mA) Full-scale: psi (20 mA) * Required measuring accuracy: Error: < % of set span per	Medium Density of medium: * Temperature of medium: * Ambient temperature on capillaries: * Ambient temperature on transmitter:	kg/m ³ Normal °F Minimum °F Maximum °F Normal °F Minimum °F Normal °F Normal °F Minimum °F Maximum °F
Please fill in this questionnaire and enclose with every order!	* Dimensions: With install. types A, B, C ₁ and 0 With install. types D, G, H and J * Start-of-scale value following calculation: Full-scale value following calculation:	Po: psi _{abs} No Yes °F
Checked: Name: Department: Date:	Error to be expected: < . % of	psi set span per 18 °F ange in temperature

Pressure MeasurementFittings

Technical description

Overview

All shut-off fittings can be secured onto walls, racks (72 mm grid) and vertical and horizontal pipes.

This offers the advantage when assembling a plant that the shutoff fittings can be secured first and the lines for the medium and differential pressure connected to them. It is then possible to check all connections for leaks and to blow out or flush the pipes in order to remove dirt (welding residues, shavings etc.).

The measuring instruments can be screwed onto the shut-off fittings right at the end when all piping has been completed.

If an instrument has to be removed for maintenance, the fittings and pipes remain as they are. It is only necessary to close the valves – the instrument can then be removed, and refitted following maintenance.

Classification according to pressure equipment directive (DGRL 97/23/EC):

For gases of fluid group 1 and liquids of fluid group 1; compliance with requirements of article 3, paragraph 3 (sound engineering practice).

New standard IEC 61518

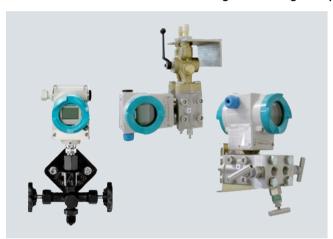
The flange connection between transmitter and valve manifold was modified in the new standard IEC 61518. The only connection thread approved for use in the process flanges of the pressure transmitter is $^7/_{16}$ -20 UNF.

The valve manifolds for M12 screws, including the accessory sets, have therefore been deleted.

Material acceptance test certificate to EN 10204-3.1

If a material acceptance test certificate to EN 10204-3.1 is required when ordering valve manifolds or shut-off fittings, please note that a single certificate is sufficient for each ordered item type. This means that you will only be charged for one certificate in the cost calculations.

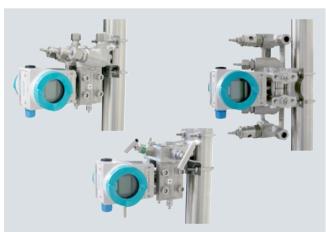
Pressure transmitters with shut-off fittings - mounting examples



SITRANS P transmitter for gauge pressure with double shut-off valve, SITRANS P pressure transmitter with multiway cock or 3-spindle valve manifold



SITRANS P pressure transmitter for differential pressure, mounted in protective box (available on request)



SITRANS P transmitter for differential pressure with 3-way valve manifold, 3-spindle valve manifold or valve manifold combination DN 5/DN 8



SITRANS P pressure transmitter mounted on valve combination "Monoflange" for direct connection to flanges (available on request)

Fittings

Selection aid

Selection of available shut-off valves

Transmitters	Shut-off valves for general applications	Page		Shut-off valves for special applications	Page	
Relative and absolute pressure transmitters with process connection G½" male thread e.g.	Shut-off valves/double shut- off valves to DIN 16270, DIN 16271 and DIN 16272	2/240		Double shut-off valve DN 5 for crossover ½-NPT-F to G½ nipple connection 7MF9011-4EA	2/243	
• SITRANS P200 7MF1565			1-4-1			
• SITRANS P210 7MF1566				2-spindle valve manifold	2/260	(24)
• SITRANS P220 7MF1567				DN 5 for installation in protective boxes		
• SITRANS P300 7MF8020				7MF9412-1B		
• SITRANS P DS III series 7MF4030 and 7MF4230						
Relative and absolute pressure transmitter with ½"-14 NPT female thread	Double shut-off valve DN 5 7MF9011-4FA and 7MF9011-4GA	2/243		Double shut-off valve DN 5 for process connection	2/243	
e.g. • SITRANS P200 7MF1565			400	½-NPT 7MF9011-4DA		
• SITRANS P210 7MF1566			7MF9011-4FA			
• SITRANS P220 7MF1567						
• SITRANS P300 7MF8021						
• SITRANS P DS III series 7MF4031 and 7MF4231						
			7MF9011-4GA			
with process connection to IEC 61518 e.g.	2-spindle valve manifold DN 5 7MF9411-5A.	2/245	him & carl	2-spindle valve manifold DN 5 for installation in pro- tective boxes 7MF9412-1C.	2/260	
SITRANS P DS III series 7MF433						

Pressure Measurement Fittings

Selection aid

						ocicotion ala
Transmitters	Shut-off valves for general applications	Page		Shut-off valves for special applications	Page	
Differential pressure transmitter with process connection to IEC 61518 e.g. SITRANS P DS III series 7MF443 and 7MF453	For 3/5-spindle valve manifold DN 5 7MF9411-5B. and 7MF9411-5C.	2/245	la se sul	3-way valve manifolds, DN 5, forged version 7MF9410-1	2/250	
SITRANS P500 7MF54			10000	5-way valve manifolds, DN 5, forged version 7MF9410-3	2/250	
	PN 100 multiway cocks 7MF9004	2/248	04	3-way valve manifolds, DN 8, forged version 7MF9416-1 and 7MF9416-2	2/253	
				Valve manifold combination DN 5/DN 8 for vapor measurement 7MF9416-6	2/256	
				Valve manifold combination DN 8 for vapor measurement 7MF9416-4	2/258	
				3- and 5-spindle valve manifolds for DN 5 for ins- tallation in protective boxes 7MF9412-1D. and 7MF9412-1E.	2/260	
						The same of the sa
			3- and 5-spindle valve manifolds for vertical differential pressure lines 7MF9413-1	2/264	-	
				Low-pressure multiway cock 7MF9004-4	2/267	

Selection and Ordering data

Pressure Measurement

Fittlings - Shut-off valves for gauge and absolute pressure transmitters

Shut-off valves to DIN 16270, DIN 16271 and DIN 16272

Overview



Transmitter for pressure with double shut-off valve 7MF9401-...

The shut-off valves for pressure gauges are used to shut off the line of the measured medium when dealing with aggressive and non-aggressive gases, vapors and liquids.

Design

A water trap must be connected upstream of the shut-off valve in the case of temperatures of the medium above 120 °C. The shut-off valves form B have a shaft with which they can be secured on an instrument bracket. An adapter is therefore not required to secure these valves. The vent/test connection can be shut off separately with the double shut-off valves DN 5. This permits checking of the zero on the pressure gauge. In addition, the characteristic of the pressure gauge can be checked using an external pressure source.

Selection and Orderi	Order No.			
Shut-off valves, form				
without test collar, cor without certificate	without test collar, connection shank, without certificate			
Material Valve housing	Maximum permissible working pressure			
CW614N (CuZn39Pb3 (mat. No. 2.0402)	3)250 bar (3626 psi)	7MF9401-7AA		
P250GH (mat. No. 1.0460)	400 bar (5800 psi)	7MF9401-7AB		
X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316T		7MF9401-7AC		
Shut-off valves, form	B, DIN 16271			
with test collar, conne without certificate	ction shank,			
Material Valve housing	Maximum permissible working pressure			
CW614N (CuZn39Pb3 (mat. No. 2.0402)	3)250 bar (3626 psi)	7MF9401-7BA		
P250GH (mat. No. 1.0460)	400 bar (5800 psi)	7MF9401-7BB		
X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316T		7MF9401-7BC		

	J		
Shut-off valves, form	B, DIN 16270		
without test collar, pipe 12 S DIN EN ISO 8484	e union with ferrule 1-1, without certificate		
Material Valve housing	Maximum permissible working pressure		
P250GH (mat. No. 1.0460)	400 bar (5800 psi)	7MF9401-8AB	
X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti		7MF9401-8AC	
Shut-off valves, form	B, DIN 16271		
with test collar, pipe un 12 S DIN EN ISO 8484			
Material Valve housing	Maximum permissible working pressure		
P250GH (mat. No. 1.0460)	400 bar (5800 psi)	7MF9401-8BB	
X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti	400 bar (5800 psi) i)	7MF9401-8BC	
Double shut-off valve	es, form B, DIN 16272		
with test collar, connect without certificate	ction shank,		
Material Valve housing	Maximum permissible working pressure		
CW614N (CuZn39Pb3 (mat. No. 2.0402)	s)250 bar (3626 psi)	7MF9401-7DA	
P250GH (mat. No. 1.0460)	400 bar (5800 psi)	7MF9401-7DB	
X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti	400 bar (5800 psi) i)	7MF9401-7DC	
Double shut-off valve	es, form B, DIN 16272		
with test collar, pipe un 12 S DIN EN ISO 8484			
Material Valve housing	Maximum permissible working pressure		
P250GH (mat. No. 1.0460)	400 bar (5800 psi)	7MF9401-8DB	
X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti	400 bar (5800 psi) i)	7MF9401-8DC	
Accessories			
Factory test certificate	EN 10204-2.2	7MF9000-8AB	
Material acceptance to EN 10204-3.1	7MF9000-8AD		
Instrument bracket, see page 2/244.			

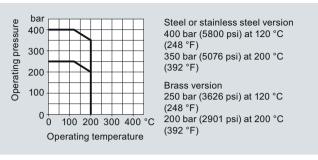
Order No.

AC

Fittlings - Shut-off valves for gauge and absolute pressure transmitters

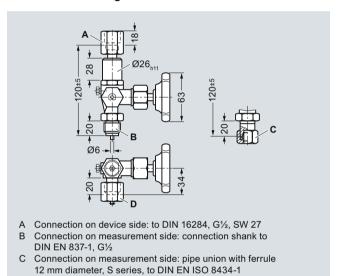
Shut-off valves to DIN 16270, DIN 16271 and DIN 16272

Characteristic curves



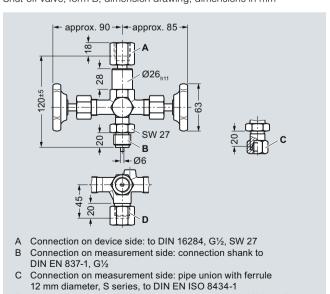
Permissible operating pressure as a function of the permissible operating temperature

Dimensional drawings



Shut-off valve, form B, dimension drawing, dimensions in mm

D Connection on test collar (with sealing cap): thread M20 x 1,5



Double shut-off valve, form B, dimension drawing, dimensions in mm

D Connection on test collar (with sealing cap): thread M20 x 1,5

Fittlings - Shut-off valves for gauge and absolute pressure transmitters

Angle adapter

Overview

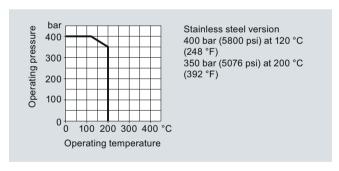


P300 pressure transmitter with shut-off valve and angle adapter

The angle adapter enables pressure transmitters with top displays to be read from the front.

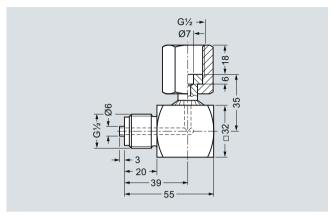
Selection and Ordering data Order No. Angle adapters Material: X 12 CrNiMoTi 17 12 2 (mat. No. 1.45714/316Ti), max. permissible operating pressure 400 bar (5800 psi) Accessories Factory test certificate EN 10204–2.2 Material acceptance test certificate EN 10204-3.1 Order No. 7MF9401-7WA 7MF9000-8AB 7MF9000-8AB

Characteristic curves



Permissible operating overpressure as a function of the permissible operating temperature

Dimensional drawings



Angle adapter, dimensions in mm

Fittlings - Shut-off valves for gauge and absolute pressure transmitters

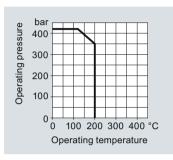
Double shut-off valves

Overview

The double shut-off valves DN 5 are suitable for pressure gauges and pressure transmitters and available in 4 versions:

- Sleeve-collar
- Sleeve-sleeve
- Sleeve-nipple
- Collar-collar

Characteristic curves

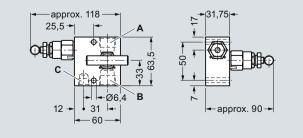


420 bar (6092 psi) at 120 °C 350 bar (5076 psi) at 200 °C (392 °F)

Permissible operating pressure as a function of the permissible operating

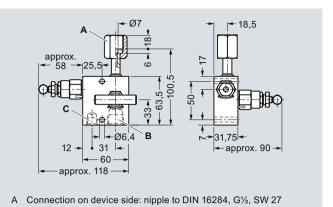
Selection and Ordering data Order No. Double shut-off valves DN 5 Material: X 6 CrNiMoTi 17 13 2 (mat. No. 1.4404/316L), max. permissible working pressure 420 bar (6092 psi); • Sleeve-sleeve 7MF9011-4DA • Sleeve-nipple connection 7MF9011-4EA • Sleeve-collar 7MF9011-4FA Collar-collar 7MF9011-4GA Accessories 7MF9000-8AB Factory test certificate EN 10204-2.2 Material acceptance test certificate EN 10204-3.1 7MF9000-8AD Further designs Order code Add "-Z" to Order No. and specify Order Code. Oil- and grease-free cleaning for oxygen applications, max. pressure PN 100 (1450 psi) **S12** and max. temperature 60 °C (140 °F)

Dimensional drawings



- Connection on device side: 1/2-14 NPT
- Connection on measurement side: 1/2-14 NPT
- Vent and test connection: 1/4-18 NPT

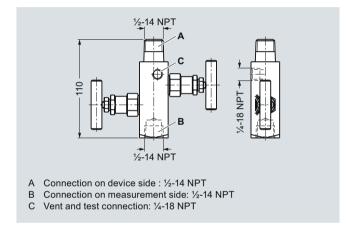
Double shut-off valve DN 5 (sleeve-sleeve) 7MF9011-4DA, dimensions in mm



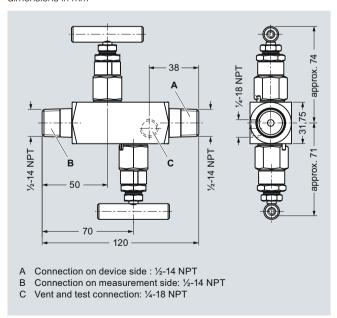
Connection on measurement side: 1/2-14 NPT

Vent and test connection: 1/4-18 NPT

Double shut-off valve DN 5 (sleeve-nipple) 7MF9011-4EA, dimensions in mm



Double shut-off valve DN 5 (sleeve-collar) 7MF9011-4FA, dimensions in mm



Double shut-off valve DN 5 (collar-collar) 7MF9011-4GA,

Fittlings - Shut-off valves for gauge and absolute pressure transmitters

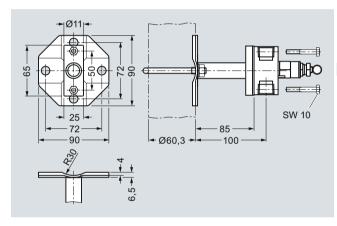
Accessories for shut-off valves/double shut-off valves

Overview

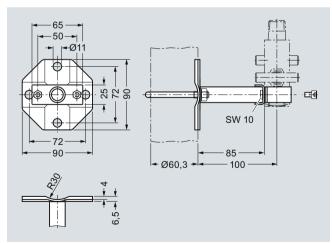
The mounting set is suitable for the double shut-off valves 7MF9011-4.A and for wall, rack and pipe mounting.

Selection and Ordering data	Order No.
Mounting set for shut-off valves	
• 7MF9011-4DA und -4EA	7MF9011-8AB
made of stainless steel, scope of delivery: 1x mounting bracket, 2x hexagon screws M6x40, 1x mounting clip, 2x washers 8.4 to DIN 125; 2x hexagon nuts 8.4 to DIN EN 24032	
• 7MF9011-4FA und -4GA	7MF9011-8AC
made of stainless steel, scope of delivery: 1x mounting bracket, 2x hexagon screws M6x10, 1x mounting clip, 2x washers 8.4 to DIN 125; 2x hexagon nuts 8.4 to DIN EN 24032	

Dimensional drawings



Mounting bracket (7MF9011-8AB) for shut-off valves 7MF9011-4DA and 7MF9011-4EA for wall, rack or pipe mounting, dimensions in mm



Mounting bracket (7MF9011-8AC) for shut-off valves 7MF9011-4FA and 7MF9011-4GA for wall, rack or pipe mounting, dimensions in mm

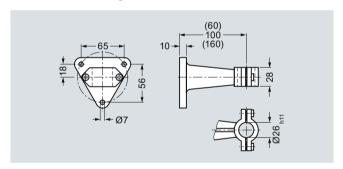
Overview

The instrument brackets are needed to mount the following units:

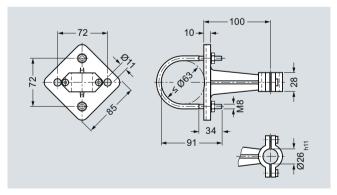
- Pressure gauges with threaded connection at the bottom
- Shut-off valves to DIN 16270, DIN 16271 and DIN 16272 (7MF9401-7.. and 7MF9401-8..)

Selection and Ordering data	Order No.
Instrument bracket, form H, DIN 16281	
(e.g. for gauge) made of aluminium alloy, painted black, for wall mounting, screw-type bracket cover • Projection length 60 mm • Projection length 100 mm	M56340-A0046 M56340-A0047
Instrument bracket, form A, DIN 16281	
(e.g. for transmitter) made of annealed cast iron, galvanized and primed for mounting on a wall or rack or or on a sectional rail (horizontal/vertical); Screw-type bracket cover	M56340-A0053
Instrument bracket, form A, DIN 16281	
(e.g. for transmitter) made of annealed cast iron, galvanized and primed with pipe clamp for wall and pipe mounting (horizotal/vertical) Screw-type bracket cover	M56340-A0079

Dimensional drawings



Instrument bracket form H, for wall mounting, M56340-A0046/-A0047, dimensions in mm



Instrument bracket form A, wall or pipe mounting, M56340-A0053/-A0079, dimensions in mm

Fittlings - Shut-off valves for differential pressure transmitters

2-, 3- and 5-spindle valve manifolds DN 5

Overview



The 2-spindle, 3-spindle and 5-spindle valve manifolds 7MF9411-5.. are for pressure transmitters for absolute pressure or differential pressure.

The valve manifolds are used to shut off the differential pressure lines and to check the pressure transmitter zero.

The 2-spindle and the 5-spindle valve manifold enable in addition venting on the transmitter side and checking of the pressure transmitter characteristic.

Benefits

- Max. working pressure 420 bar (6092 psi)
- Each available in version for oxygen

Application

The spindle valve manifolds DN 5 are designed for liquids and gases.

Each is available in a version for oxygen on request.

Design

All versions of the valve manifolds have a process connection $\frac{1}{2}$ -14 NPT. The connection for the pressure transmitter is always designed as a flange connection to IEC 61518, form B . The 2-spindle and the 5-spindle valve manifold have in addition a vent and test connection $\frac{1}{4}$ -18 NPT.

The valves have an external spindle thread.

Materials used

Component	Material	Mat. No.
Housing	X 2 CrNiMo 17 13 2	1.4404/316L
Cones	X 6 CrNiMoTi 17 12 2	1.4571/316Ti
Spindles	X 2 CrNiMo 18 10	1.4404/316L
Head parts	X 5 CrNiMo 18 10	1.4401/316
Packings	PTFE	-

Function

Functions of all valve manifolds:

- Shutting off the differential pressure lines
- Checking the pressure transmitter zero

Additional functions of the 2-spindle and 5-spindle valve manifolds through the vent and test connection:

- · Venting on the transmitter side
- · Checking the pressure transmitter characteristic

Selection and Ordering data	Order No.	
Valve manifolds DN 5	7MF9411-	
for liquids and gases, for flanging to pressure transmitters for absolute and differential pressure, max. working pressure 420 bar (order accessory set with Order code), without certificate		
• 2-spindle valve manifold	5 A	
• 3-spindle valve manifold	5 B	
• 5-spindle valve manifold	5 C	
Accessories		
Factory test certificate EN 10204–2.2	7MF9000-8AB	
Material acceptance test certificate EN 10204-3.1	7MF9000-8AD	

Selection and Ordering data	Order code	Order No.
Further designs ¹⁾ Please add "-Z" to Order No. and		
specify Order code.		
Accessory set to EN (connection between valve manifold and pressure transmitter)		
for valve manifold 7MF9411-5A.		
2x screws ⁷ / ₁₆ -20 UNF x 1¾ inch to ASME B18.2.1; chromized steel	K35	7MF9411-7DB
1x gasket made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F)		
2x screws ⁷ / ₁₆ -20 UNF x 1¾ inch to ASME B18.2.1; stainless steel	K45	7MF9411-7DC
1x gasket made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F)		
for valve manifold 7MF9411-5B. and -5C.		
4x screws $^7/_{16}$ -20 UNF x 13 4 inch to ASME B18.2.1; chromized steel 2x flat gaskets made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F)	K36	7MF9411-5DB
4x screws ⁷ / ₁₆ -20 UNF x 1¾ inch to ASME B18.2.1; stainless steel 2x flat gaskets made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F)	K46	7MF9411-5DC
Accessory set to DIN ²⁾		
(connection between valve manifold and pressure transmitter)		
for valve manifold 7MF9411-5A.		
2x screws M10x45 to DIN EN 24014; chromized steel 2x washers \varnothing 10.5 mm to DIN 125; 1x gasket made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F)	K15	7MF9411-7BB
2x screws M10x45 to DIN EN 24014; stainless steel 2x washers Ø 10.5 mm to DIN 125, stainless steel; 1x gasket made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F)	K25	7MF9411-7BC

Fittlings - Shut-off valves for differential pressure transmitters

2-, 3- and 5-spindle valve manifolds DN 5

Selection and Ordering data	Order code	Order No.
Further designs ¹⁾ Please add "-Z" to Order No. and specify Order code.		
for valve manifolds 7MF9411-5B. and -5C.		
4x screws M10x45 to DIN EN 24014; chromized steel 4x washers Ø 10.5 mm to DIN 125; 2x flat gaskets made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F) Flange connection with M10 screws only permissible up to PN 160.	K16	7MF9411-6BB
4x screws M10x45 to DIN EN 24014; stainless steel 4x washers Ø 10.5 mm to DIN 125, stainless steel; 2x flat gaskets made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F) Flange connection with M10 screws only permissible up to PN 160.	K26	7MF9411-6BC
Mounting plate		
for valve manifold, made of electrogalvanized sheet-steel for wall mounting or for securing on rack (72 mm grid), weight 0.5 kg Scope of delivery: 1 mounting plate with bolts for mounting on valve manifold for pipe mounting, weight 0.7 kg Scope of delivery: 1x mounting plate M11, 2x pipe	M11	7MF9006-6EA 7MF9006-6GA
1x mounting plate M11, 2x pipe brackets with nuts and washers (for pipe with max. Ø 60.3 mm) • for valve manifold, made of		
stainless steel - for wall mounting or for securing on rack (72 mm grid), weight 0.5 kg Scope of delivery: 1 mounting plate with bolts for	M21	7MF9006-6EC
mounting on valve manifold - for pipe mounting, weight 0.7 kg Scope of delivery: 1x mounting plate M11, 2x pipe brackets with nuts and washers (for pipe with max. Ø 60.3 mm)	M22	7MF9006-6GC
Valve manifold 100 bar		
Oil- and grease-free cleaning for oxygen applications, max. pressure PN 100 (1450 psi) and max. temperature 60 °C (140 °F) • for 7MF9411-5A. • for 7MF9411-5B. • for 7MF9411-5C.	S12 S13 S14	

¹⁾When ordering accessory set or mounting together with the valve manifolds, please use Order code; otherwise use Order No.

Accessories

Accessory set for 2-, 3- and 5-spindle valve manifolds

2-spindle valve manifold DN 5

- K35: 2 screws ⁷/₁₆-20 UNF x 1³/₄ inch to ASME B18.2.1, 1 flat gasket
- K15: 2 screws M10x45 to DIN EN 24014, 2 washers, 1 flat gasket

3-spindle and 5-way valve manifold DN 5

- K36: 4 screws ⁷/₁₆-20 UNF x 1¾ inch to ASME B18.2.1, 2 flat gaskets
- K16: 4 screws M10x45 to DIN EN 24014, 4 washers, 2 flat gaskets

Washers Ø 10.5 to DIN 125

Flat gaskets made of PTFE, max. 420 bar (6092 psi), 80 °C (176 °F)

Note: Flange connection with M10 screws only permissible up to PN 160!

Mounting plate

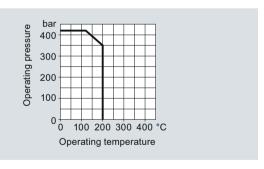
Made of electrogalvanized sheet-steel

- M11: For wall mounting or for securing on rack (72 mm grid)
 Scope of delivery:
 - 1 mounting plate with bolts for mounting on valve manifold
- M12: For pipe mounting Scope of delivery:
 - 1 mounting plate M11
 - 2 pipe brackets with nuts and washers for pipes with max. Ø 60.3 mm

Valve manifold 100 bar, suitable for oxygen

- S12: For 2-way valve manifold
- S13: For 3-way valve manifold
- S14: For 5-way valve manifold

Characteristic curves



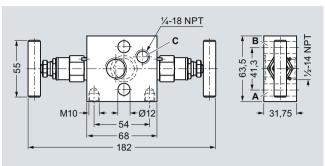
Valve manifolds PN 5 (7MF9411-5..), permissible working pressure as a function of the permissible working temperature

²⁾Flange connections to DIN 19213 only permissible up to PN 160 (2321 psi)!

Fittlings - Shut-off valves for differential pressure transmitters

2-, 3- and 5-spindle valve manifolds DN 5

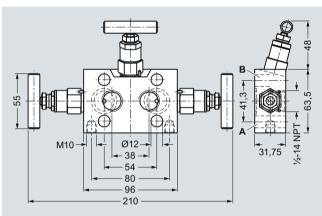
Dimensional drawings



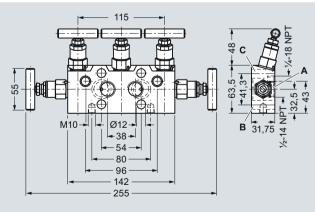
- A Process connection: ½-14 NPT
- B Transmitter connection: Flange connection to EN 61518, form B
- C Vent / test connection: 1/4-18 NPT

Valve design: external spindle thread

2-spindle valve manifold DN 5 (7MF9411-5A.), dimensions in mm

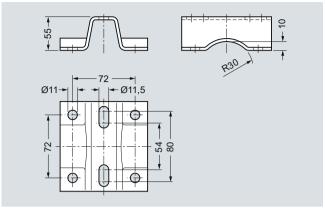


- A Process connection: ½-14 NPT
- B Transmitter connection: Flange connection to EN 61518, form B Valve design: external spindle thread
- 3-spindle valve manifold DN 5 (7MF9411-5B.), dimensions in mm



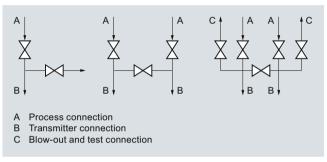
- A Process connection: ½-14 NPT
- B Transmitter connection: Flange connection to EN 61518, form B
- C Vent / test connection: 1/4-18 NPT Valve design: external spindle thread

5-spindle valve manifold DN 5 (7MF9411-5C.), dimensions in mm $\,$



Mounting plate 7MF9006-6.. (M11, M12) for valve manifold, dimensions in mm

Schematics



2-spindle, 3-spindle and 5-spindle valve manifold DN 5, connections

Fittlings - Shut-off valves for differential pressure transmitters

Multiway cocks PN 100

Overview



Multiway cock PN 100 (1450 psi) (7MF9004-1P.) for differential pressure transmitters

The multiway cock PN 100 (1450 psi) can be flanged to pressure transmitters for differential pressure.

Benefits

- · Version available for aggressive liquids, gases and vapors
- · Robust design
- Oil-free and grease-free version possible
- One-hand operation

Application

The PN 100 (1450 psi) multiway cock is available in versions for aggressive and non-aggressive liquids, gases and vapors.

Design

The multiway cock can be flanged with four screws to pressure transmitters for differential pressure.

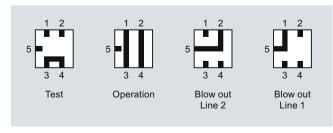
The PN 100 (1450 psi) has 2 process connections and one blowout connection. A steel version of the multiway cock is available for non-aggressive media, and a stainless steel version for aggressive media. The housing is forged in one piece. The switching lever is removable.

Sealing can be improved during operation.

Note: An accessory set is always required for flanging of the multiway cock to a differential pressure transmitter.

Function

- Shutting off the differential pressure lines
- Blowing out the differential pressure lines
- Testing the pressure transmitter zero



Cock positions; the symbols are printed on the cock

Technical specifications

Multiway cocks PN 100		
Measured medium	Water, non-aggres- sive liquids and gases	Aggressive liquids, gases and vapors
Material	P250GH, mat. No.: 1.0460	X 6 CrNiMoTi 17 12 2, mat. No. 1.4571/316Ti
Connections	Steel, for pipe Ø 12 mm, L series	Stainless steel, for pipe Ø 12 mm, L series
Process connectionConnection for blowing out	2 bulkhead glands Pipe union with ferrule	
Max. permissible working temperature	200 °C (392 °F)	
Max. permissible working pressure	100 bar (1450 psi) (up to max. 60 °C (140 °F))	
Weight	2.5 kg	

Selection and Ordering data	Order No.
Multiway cock PN 100 (1450 psi) for flanging to pressure transmitters, weight 2.5 kg (without accessory set), without certificate	7 M F 9 0 0 4 -
For water and non-aggressive gases and vapors	1 P
For aggressive liquids, gases and vapors	1 Q
Accessories	
Factory test certificate EN 10204–2.2 Material acceptance test certificate EN 10204-3.1	7MF9000-8AB 7MF9000-8AD

Selection and Ordering data	Order code	Order No.
Further designs ¹⁾ Please add "- Z " to Order No. and specify Order code.		
Accessory set to EN (required for flanging, weight 0.2 kg) 4x screws ⁷ / ₁₆ -20 UNF x 1 inch to ASME B18.2.1; chromized steel 2x gaskets made of PTFE, max. permissible temperature 80 °C (176 °F)	L31	7MF9004-5CC
Accessory set to DIN (required for flanging, weight 0.2 kg) 4x screws M10x25 to DIN EN 24017; chromized steel 4x washers Ø 10.5 mm to DIN 125; 2x gaskets made of PTFE, max. permissible temperature 80 °C (176 °F)		
Standard design Version for oxygen (together with Order code S11	L11 L15	7MF9004-6AD 7MF9004-6AE
Multiway cock in oil-free and gre- ase-free design		
Oil- and grease-free cleaning for oxygen applications, max. pressure PN 100 (1450 psi) and max. temperature 60 °C (140 °F), BAM-tested lubricant, gasket suitable for oxygen measurement (only with Order No. 7MF9004–1Q.Z)	S11	
Mounting bracket Required for wall mounting or for securing on rack (72 mm grid), made of electrogalvanized sheet- steel, weight 0.85 kg	M13	7MF9004-6AA

When ordering accessory set or mounting together with the multiway cock, please use Order code; otherwise use Order No.

Fittlings - Shut-off valves for differential pressure transmitters

Multiway cocks PN 100

Accessories

Accessory set for multiway cock PN 100

- L31: 4 screws ⁷/₁₆-20 UNF x 1 inch, 2 flat gaskets
- L11: 4 screws M10x25 to DIN EN 24017, 4 washers, 2 flat gaskets
- L15 (suitable for oxygen): 4 screws M10x25 to DIN EN 24017, 4 washers, 2 flat gaskets

Washers Ø 10.5 to DIN 125

Flat gaskets made of PTFE, max. permissible temperature 80 °C (176 °F)

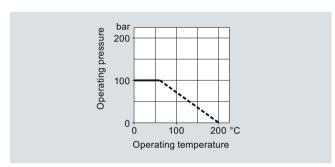
Multiway cock in oil-free and grease-free design

 S11 (only for aggressive liquids, gases and vapors (7MF9004-1Q.)): Max. PN 63 (914 psi) (instead of PN 100 (1450 psi)), BAM-tested lubricant, gasket suitable for oxygen

Mounting brackets

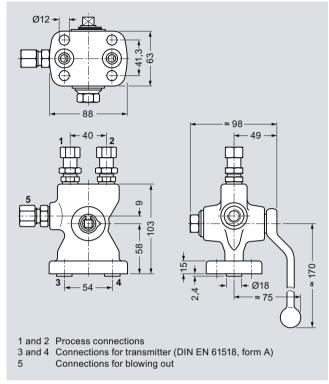
 M13: Required for wall mounting or for securing on rack (72 mm grid); made of electrogalvanized sheet-steel

Characteristic curves

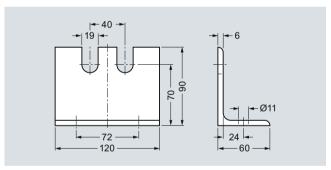


Multiway cock PN 100 (1450 psi), permissible operating pressure as a function of the permissible operating temperature

Dimensional drawings



Multiway cock 7MF9004-1P. for flanging to pressure transmitters for differential pressure, dimensions in mm



Mounting bracket 7MF9004-6AA (M13), dimensions in mm

Fittlings - Shut-off valves for differential pressure transmitters

3-way and 5-way valve manifolds DN 5

Overview



The three-spindle and five-spindle valve manifolds DN 5 (7MF9410-1../-3..) are used to shut off the differential pressure lines and to check the transmitter zero.

In addition, the five-way valve manifold permits blowing out of the differential pressure lines.

Benefits

- Available for aggressive and non-aggressive liquids and gases
- Max. working pressure 420 bar (6092 psi), with version for oxygen max. 100 bar (1450 psi)

Application

The 3-way and 5-way valve manifolds are available in versions for aggressive and non-aggressive liquids and gases.

Mounting plates are available for wall mounting, for securing to mounting racks or for pipe mounting.

Design

The process connection of the 3-way and 5-way valve manifolds is a pipe union with ferrule.

Both valve manifolds have 2 flange connections for connecting a pressure transmitter.

In addition, the five-way valve manifold has 2 blow-out connections.

Depending on the version the valve manifold has either 3 or 5 valves, each with an internal spindle thread.

Materials used

	For non-aggressive liquids and gases		For aggressive liquids and gases	
Component	Material	Mat. No.	Material	Mat. No.
Housing	P250GH	1.0460	X 6	1.4571/
Head parts	C 35	1.0501	CrNiMoTi 17 12 2	31611
Spindles	X 12 CrMoS 17	1.4104		
Cones	X 35 CrMo 17 hardened and tempered	1.4122		
Valve seats	X 6 CrNiMoTi 17 12 2	1.4571/ 316Ti		
Packings	PTFE	-	PTFE	-

Function

- Shutting off the differential pressure lines
- Checking the pressure transmitter zero
- In addition, the five-way valve manifold permits blowing out of the differential pressure lines.

Selection and Ordering data	Order No.
3-way valve manifold DN 5 For flanging to pressure transmitters for differential pressure, process connection: Pipe union with ferrule, max. working pressure 420 bar (6092 psi), weight 2.9 kg (order accessory set and mounting plate with Order code), without certificate	7 M F 9 4 1 0 - ■■A
 for non-aggressive liquids and gases 	1 E
 for aggressive liquids and gases 	1 F
5-way valve manifold DN 5 For flanging to pressure transmitters for differential pressure, process connection: Pipe union with ferrule, max. working pressure 420 bar (6092 psi), weight 4.4 kg (order accessory set and mounting plate with Order code), without certificate	
 for non-aggressive liquids and gases 	3 E
 for aggressive liquids and gases 	3 F
Accessories	
Factory test certificate EN 10204–2.2	7MF9000-8AB
Material acceptance test certificate EN 10204-3.1	7MF9000-8AD

Fittlings - Shut-off valves for differential pressure transmitters

3-way and 5-way valve manifolds DN 5

Selection and Ordering data	Order code	Order No.
Further designs ¹⁾	Craci coac	01401140.
Please add "-Z" to Order No. and specify Order code.		
Accessory set to EN (required for flanging, weight 0.2 kg)		
4x screws ⁷ / ₁₆ -20 UNF x 2 ¹ / ₈ inch to ASME B18.2; chromized steel 2x flat gaskets made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F)	B31 F	7) 7MF9010-5CC
4x screws ⁷ / ₁₆ -20 UNF x 2 ¹ / ₈ inch to ASME B18.2; chromized steel 2x O-rings to DIN 3771, 20 x 2.65 - S - FPM90, max. permissble 420 bar (6092 psi), 120 °C (248 °F)	B34	7MF9410-5CA
Accessory set to DIN ²) (required for flanging, weight 0.2 kg)		
4x screws M10x55 to DIN EN 24014; chromized steel 4x washers Ø 10.5 mm to DIN 125; 2x flat gaskets made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F)		
 Standard design 	B11	7MF9010-6AD
 Version for oxygen 	B15	7MF9010-6AE
4x screws M10x55 to DIN EN 24014; chromized steel 4x washers Ø 10.5 mm to DIN 125; 2x O-rings to DIN 3771, 20 x 2.65 - S - FPM90, max. permissble 420 bar (6092 psi), 120 °C (248 °F)	B16	7MF9010-6CC
Mounting plate		
for valve manifold, made of electrogalvanized sheet-steel for wall mounting or for securing on rack (72 mm grid), weight 0.5 kg Scope of delivery: 1 mounting plate with bolts for mounting on valve manifold	M11	7MF9006-6EA
for pipe mounting, weight 0.7 kg Scope of delivery: 1x mounting plate M11, 2x pipe brackets with nuts and washers (for pipe with max. Ø 60.3 mm)	M12	7MF9006-6GA
Valve manifold 100 bar		
suitable for oxygen		
for 7MF9410-1F	S13	
for 7MF9410-3F	S14	

When ordering accessory set or mounting together with the valve manifolds, please use Order code; otherwise use Order No.

F)Subject to export regulations AL: 91999, ECCN: N.

Accessories

Accessory set for 3-way and 5-way valve manifold DN 5 for flanging

- B31: 4 screws ⁷/₁₆-20 UNF x 2¹/₈ inch to ASME B18.2.1, 2 flat gaskets
- \bullet B34: 4 screws $^7\!/_{16}\text{-}20$ UNF x $2^1\!/_8$ inch to ASME B18.2.1, 2 O-rings (FPM 90)
- B11: 4 screws M10x55 to DIN EN 24014, 4 washers, 2 flat gaskets
- B15 (suitable for oxygen): 4 screws M10x55 to DIN EN 24014, 4 washers, 2 flat gaskets
- B16: 4 screws M10x55 to DIN EN 24014, 4 washers, 2 O-rings (FPM 90)

Washers Ø 10.5 to DIN 125

Flat gaskets made of PTFE, max. 420 bar (6092 psi), 80 $^{\circ}$ C (176 $^{\circ}$ F)

O-ring to DIN 3771, $20 \times 2.65 - S - FPM90$, max. 420 bar (6092 psi), $120 \, ^{\circ}\text{C}$ (248 $^{\circ}\text{F}$)

Note: M10 screws only permissible up to PN 160 (2320 psi)!

Mounting plate

Made of electrogalvanized sheet-steel

- M11: For wall mounting or for securing on rack (72 mm grid) Scope of delivery:
 - 1 mounting plate 7MF9006-6EA with bolts for mounting on valve manifold
- M12: For pipe mounting Scope of delivery:
 - 1 mounting plate M11
 - 2 pipe brackets with nuts and washers for pipes with max.
 Ø 60.3 mm

Valve manifold 100 bar, suitable for oxygen

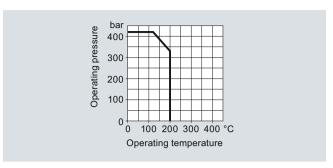
S12: Only in combination with versions for aggressive liquids and gases

²⁾ Flange connections to DIN 19213 only permissible up to PN 160 (2321 psi)

Fittlings - Shut-off valves for differential pressure transmitters

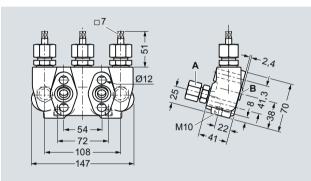
3-way and 5-way valve manifolds DN 5

Characteristic curves



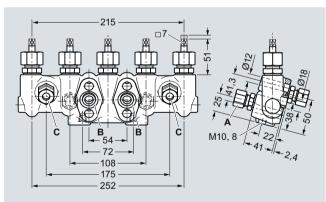
Permissible operating pressure as a function of the permissible operating temperature

Dimensional drawings



- A Process connection (e.g. on primary device): Pipe union with ferrule, diameter 12 mm, S series to DIN 2353
- B Transmitter connection: Flange connection to EN 61518, form A Valve design: internal spindle thread

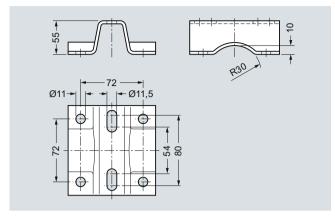
3-way valve manifold DN 5 (7MF9410-1..), dimensions in mm



- A Process connection (e.g. on primary device): Pipe union with ferrule, diameter 12 mm, S series to DIN 2353
- B Transmitter connection: Flange connection to EN 61518, form A
- C Blow-out connection: Pipe union with ferrule, diameter 12 mm, S series to DIN 2353

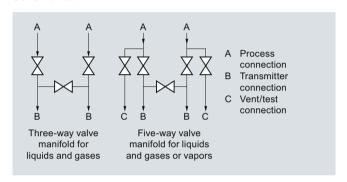
Valve design: internal spindle thread

5-way valve manifold DN 5 (7MF9410-3..), dimensions in mm



Mounting plate 7MF9006-6.. (M11, M12) for valve manifold, dimensions in mm

Schematics



3-way and 5-way valve manifolds, connections

Fittlings - Shut-off valves for differential pressure transmitters

3-way valve manifold DN 8

Overview



The 3-way valve manifold DN 8 (7MF9416-1../-2..) is for pressure transmitters for differential pressure. It is used to shut off and blow out differential pressure lines and to test the pressure transmitter zero.

In the designs with a test connection, a test device can be connected to test the pressure transmitter characteristic.

Benefits

- For aggressive and non-aggressive liquids and gases
- The maximum working pressure is 420 bar (6092 psi).

Application

The 3-way valve manifold is available in versions for aggressive and non-aggressive liquids and gases.

Mounting plates are available for wall mounting, for securing to mounting racks or for pipe mounting.

Design

For the process connection on the version for non-aggressive media it is possible to choose between a pipe union with ferrule and welding pins.

The version for aggressive media always has a pipe union with

Both versions are available optionally with a test connection M20x1.5.

The valves have an internal spindle thread.

Materials used

	For non-aggressive liquids and gases		For aggressive liquids and gases	
Component	Material	Mat. No.	Material	Mat. No.
Housing	P250GH	1.0460	X 6	1.4571/
Head parts	C 35	1.0501	CrNiMoTi 17 12 2	31611
Spindles	X 12 CrMoS 17	1.4104		
Cones	X 35 CrMo 17 hardened and tempered	1.4122		
Valve seats	X 6 CrNiMoTi 17 12 2	1.4571/316Ti		
Packings	PTFE	-	PTFE	-

Function

The 3-way valve manifold DN 8 performs two functions as standard:

- Shutting off the differential pressure lines
- Checking the pressure transmitter zero

All versions are also available with a test connection, to which a test device for checking the pressure transmitter characteristic can be connected.

Selection and Ordering data	Order No.
3-way valve manifold DN 8 For flanging to pressure transmitters for differential pressure, max. working pressure 420 bar (6092 psi), (order accessory set and mounting plate with Order code), without certificate	7 M F 9 4 1 6 A
For non-aggressive liquids and gases procedss connection: Pipe union with ferrule Ø 12 mm	
 without test connection 	1 B
 with test connection 	1 C
For non-aggressive liquids and gases procedss connection: Welding pin Ø 14 x 2.5	
 without test connection 	2 C
 with test connection 	2 D
For aggressive liquids and gases process connection: Pipe union with ferrule Ø 12 mm	
 without test connection 	1 D
• with test connection	1 E
Accessories	
Factory test certificate EN 10204–2.2	7MF9000-8AB
Material acceptance test certificate EN 10204-3.1	7MF9000-8AD

Fittlings - Shut-off valves for differential pressure transmitters

3-way valve manifold DN 8

Selection and Ordering data	Order code	Order No.
Further designs ¹⁾	0.40. 0040	0.40.110.
Please add "-Z" to Order No. and specify Order code.		
Accessory set to EN (required for flanging, weight 0.2 kg)		
4x screws ⁷ / ₁₆ -20 UNF x 2 ¹ / ₈ inch to ASME B18.2; chromized steel 2x flat gaskets made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F)	B31 F	F) 7MF9010-5CC
4x screws $^7/_{16}$ -20 UNF x $2^1/_8$ inch to ASME B18.2; chromized steel 2x O-rings to DIN 3771, 20 x 2.65 - S - FPM90, max. permissble 420 bar (6092 psi), 120 °C (248 °F)	В34	7MF9410-5CA
Accessory set to DIN ²⁾		
(required for flanging, weight 0.2 kg)		
4x screws M10x55 to DIN EN 24014; chromized steel 4x washers Ø 10.5 mm to DIN 125; 2x flat gaskets made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F)	B11	7MF9010-6AD
4x screws M10x55 to DIN EN 24014; chromized steel 4x washers Ø 10.5 mm to DIN 125; 2x O-rings to DIN 3771, 20 x 2.65 - S - FPM90, max. permissble 420 bar (6092 psi), 120 °C (248 °F)	B16	7MF9010-6CC
Mounting plate		
For valve manifold, made of electrogalvanized sheet-steel		
for wall mounting or for securing on rack (72 mm grid), weight 0.5 kg Scope of delivery: 1 mounting plate with bolts for mounting on valve manifold	M11	7MF9006-6EA
for pipe mounting, weight 0.7 kg Scope of delivery: 1x mounting plate M11, 2x pipe brackets with nuts and washers (for pipe with max. Ø 60.3 mm)	M12	7MF9006-6GA

When ordering accessory set or mounting together with the valve manifold, please use Order code; otherwise use Order No.

F)Subject to export regulations AL: 91999, ECCN: N.

Accessories

Accessory set for 3-way valve manifold DN 8 for flanging

- B31: 4 screws ⁷/₁₆-20 UNF x 2¹/₈ inch to ASME B18.2.1, 2 flat gaskets
- \bullet B34: 4 screws $^7\!/_{16}$ -20 UNF x $2^1\!/_{8}$ inch to ASME B18.2.1, 2 O-rings (FPM 90)
- B11: 4 screws M10x55 to DIN EN 24014, 4 washers, 2 flat gaskets
- B16: 4 screws M10x55 to DIN EN 24014, 4 washers, 2 O-rings (FPM 90)

Washers Ø 10.5 to DIN 125

Flat gaskets made of PTFE, max. 420 bar (6092 psi), 80 $^{\circ}$ C (176 $^{\circ}$ F)

O-ring to DIN 3771, 20 x 2.65 – S – FPM90, max. 420 bar (6092 psi), 120 °C (248 °F)

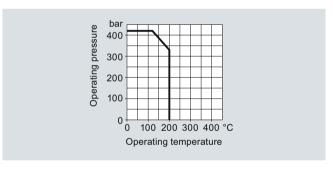
Note: M10 screws only permissible up to PN 160 (2320 psi)!

Mounting plate

Made of electrogalvanized sheet-steel

- M11: For wall mounting or for securing on rack (72 mm grid) Scope of delivery:
 - 1 mounting plate with bolts for mounting on valve manifold
- M12: For pipe mounting Scope of delivery:
 - 1 mounting plate M11
 - 2 pipe brackets with nuts and washers for pipes with max.
 Ø 60.3 mm

Characteristic curves



3-way valve manifold DN 8, permissible working pressure as a function of the permissible working temperature ${\sf N}$

²⁾ Flange connections to DIN 19213 only permissible up to PN 160 (2321 psi)!

Fittlings - Shut-off valves for differential pressure transmitters

3-way valve manifold DN 8

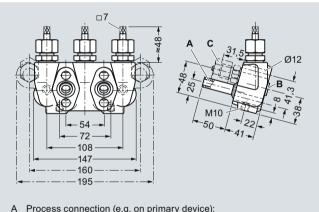
Dimensional drawings

M10 22 41 - 160 - 195 - 195

- A Process connection (e.g. on primary device): Pipe union with ferrule, diameter 12 mm, S series to DIN 2353
- B Transmitter connection: Flange connection to EN 61518, form A
- C Test connection: M20 x 1,5

Valve design: internal spindle thread

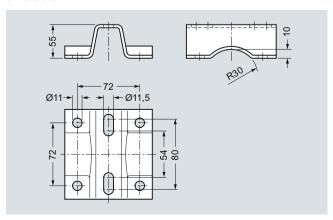
3-way valve manifold DN 8 (7MF9416-1..) with pipe union, dimensions in mm



- A Process connection (e.g. on primary device): Welding pin, diameter 14 x 2,5
- B Transmitter connection: Flange connection to EN 61518, form A
- C Test connection: M20 x 1,5

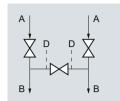
Valve design: internal spindle thread

3-way valve manifold DN 8 (7MF9416-2..) with welding pin, dimensions in mm $\,$



Mounting plate 7MF9006-6.. (M11, M12) for valve manifold, dimensions in mm

Schematics



- A Process connection
- 3 Transmitter connection
- D Vent/test connection

Three-way valve manifold for liquids and gases

3-way valve manifold DN 8, connections

Fittlings - Shut-off valves for differential pressure transmitters

Valve manifold combination DN 5/DN 8

Overview



The valve manifold combination DN 5/DN 8 (7MF9416-6..) is for pressure transmitters for differential pressure.

The combination is used to shut off and blow out differential pressure lines and to test the pressure transmitter zero.

In the designs with a test connection, a test device can be connected to test the pressure transmitter characteristic.

Benefits

• Max. working pressure 420 bar (6092 psi)

Application

The valve manifold combination DN 5/DN 8 is designed for vapors.

Design

The valve manifold combination DN 5/DN 8 has a process connection with welding pins.

The connection for the pressure transmitter is designed as as flange connection, while the blow-out connection is designed as a pipe union with ferrule.

The manifold valves have an internal spindle thread, while the blow-out valves have an external spindle thread.

The optional test connections are M20x1.5.

Materials used

	Valve manifold DN 5		Blow-out valves DN 8	
Component	Material	Mat. No.	Material	Mat. No.
Housing	P250GH	1.0460	16 Mo 3	1.5415
Head parts	C 35	1.0501	21 CrMo V57	1.7709
Spindles	X 12 CrMoS 17	1.4104	X 20 Cr 13	1.4021
Cones	X 35 CrMo 17	1.4122	X 35 CrMo 17 har- dened and tempered	1.4122
Valve seats	X 6 CrNiMoTi	1.4571/316Ti	X 20 Cr 13	1.4021
Packings	PTFE	-	Pure graphite	-
Welding pins	-	-	16 Mo 3	1.5415

Function

- Shutting off the differential pressure lines
- Blowing out the differential pressure lines
- Checking the pressure transmitter zero

As an option it is possible to order a version with a test connection, to which a test device for checking the transmitter characteristic can be connected.

Selection and Ordering data	Order No.
Valve manifold combination DN 5/DN 8 for vapors	7 M F 9 4 1 6 - 6 A
For flanging to pressure transmitters for differential pressure, max. working pressure 420 bar (6092 psi), also available in stainless steel on request (order accessory set with Order code), without certificate	
• without test connection	С
• with test connection M20 × 1.5	D
Accessories	
Factory test certificate EN 10204–2.2	7MF9000-8AB
Material acceptance test certificate EN 10204-3.1	7MF9000-8AD

Selection and Ordering data	Order code	Order No.
Further designs ¹⁾		
Please add "-Z" to Order No. and specify Order code.		
Accessory set to EN (required for flanging, weight 0.2 kg)		
4x screws ⁷ / ₁₆ -20 UNF x 2 ¹ / ₈ inch to ASME B18.2; chromized steel 2x O-rings to DIN 3771, 20 x 2.65 - S - FPM90, max. permiss-ble 420 bar (6092 psi), 120 °C (248 °F)	B34	7MF9410-5CA
Accessory set to DIN ²) (required for flanging, weight 0.2 kg)		
4x screws M10x55 to DIN EN 24014; chromized steel 4x washers Ø 10.5 mm to DIN 125; 2x O-rings to DIN 3771, 20 x 2.65 - S - FPM90, max. permissble 420 bar (6092 psi), 120 °C (248 °F); Flange connection to DIN 19213 only permissible up to PN 160!	B16	7MF9010-6CC

When ordering accessory set together with the valve manifold combination, please use Order code; otherwise use Order No.

²⁾ Flange connections to DIN 19213 only permissible up to PN 160 (2321 psi)

Fittlings - Shut-off valves for differential pressure transmitters

Valve manifold combination DN 5/DN 8

Accessories

Accessory set for valve manifold combination DN 5/DN 8 for flanging

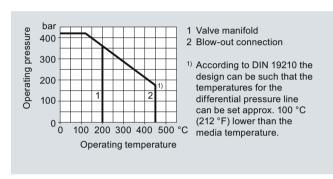
- B34: 4 screws ⁷/₁₆-20 UNF x 2¹/₈ inch to ASME B18.2.1, 2 O-rings (FPM 90)
- B16: 4 screws M10x55 to DIN EN 24014, 4 washers, 2 O-rings (FPM 90)

Washers Ø 10.5 to DIN 125

O-ring to DIN 3771, 20 x 2.65 - S – FPM90, max. 420 bar (6092 psi), 120 °C (248 °F)

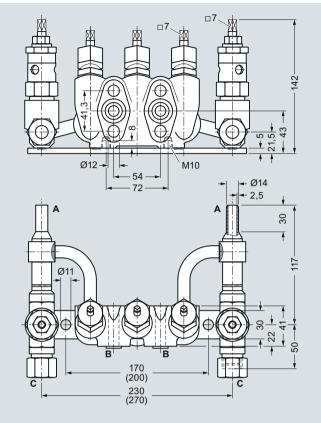
Note: M10 screws only permissible up to PN 160 (2321 psi)!

Characteristic curves



Permissible operating pressure as a function of the permissible operating temperature

Dimensional drawings



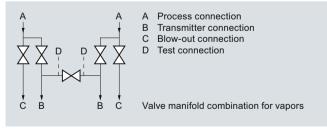
- A Process connection (e.g. on primary device): Welding pin
- B Transmitter connection: Flange connection to EN 61518, form A
- C Blow-out connection: Pipe union with ferrule, diameter 14 mm, S series to DIN 2353

Valve design:

- Manifold valves: internal spindle thread
- Blow-out valves: external spindle thread

Valve manifold combination DN 5/DN 8 (7MF9416-6C.), dimensions in mm (deviating dimensions for 7MF9416-6D. shown in brackets)

Schematics



Valve manifold combination DN 5/DN 8, connections

Fittlings - Shut-off valves for differential pressure transmitters

Valve manifold combination DN 8

Overview



The valve manifold combination DN 8 (7MF9416-4..) is for pressure transmitters for differential pressure.

It is used to shut off and blow out the differential pressure lines and to check the pressure transmitter zero.

In the designs with a test connection, a test device can be connected to check the pressure transmitter characteristic.

Benefits

• Max. working pressure 420 bar (6092 psi)

Application

The valve manifold combination DN 8 is designed for vapors.

Design

The valve manifold combination DN 8 has a process connection with welding pins.

The connection for the pressure transmitter is designed as as flange connection, while the blow-out connection is designed as a pipe union with ferrule.

The manifold valves have an internal spindle thread, while the blow-out valves have an external spindle thread.

The optional test connection is M20x1.5.

The valve manifold combination DN 8 is supplied with a mounting plate.

Materials used

	Valve manifold		Blow-out val	ves
Component	Material	Mat. No.	Material	Mat. No.
Housing	P250GH	1.0460	16 Mo 3	1.5415
Head parts	C 35	1.0501	21 CrMo V57	1.7709
Spindles	X 12 CrMoS 17	1.4104	X 20 Cr 13	1.4021
Cones	X 35 CrMo 17	1.4122	X 35 CrMo 17 har- dened and tempered	1.4122
Valve seats	X 6 CrNiMoTi	1.4571/316Ti	X 20 Cr 13	1.4021
Packings	PTFE	-	Pure graphite	-
Welding pins	-	-	16 Mo 3	1.5415

Function

- Shutting off the differential pressure lines
- · Blowing out the differential pressure lines
- Checking the pressure transmitter zero

As an option it is possible to order a version with a test connection, to which a test device for checking the pressure transmitter characteristic can be connected.

Selection and Ordering data	Order No.
Valve manifold combination DN 8 for vapors	7 M F 9 4 1 6 -
for flanging to pressure transmitters for differential pressure, with mounting plate, max. working pressure 420 bar (6092 psi), also available in stainless steel on request (order accessory set with Order code), without certificate	
• without test connection	4 C
• with test connection M20 × 1.5	4 D
Accessories	
Factory test certificate EN 10204-2.2	7MF9000-8AB
Material acceptance test certificate EN 10204-3.1	7MF9000-8AD

Selection and Ordering data	Order code	Order No.
Further designs ¹⁾		
Please add "-Z" to Order No. and specify Order code.		
Accessory set to EN (required for flanging, weight 0.2 kg)		
4x screws ⁷ / ₁₆ -20 UNF x 2 ¹ / ₈ inch to ASME B18.2; chromized steel	B34	7MF9410-5CA
2x O-rings to DIN 3771, 20 x 2.65 - S - FPM90, max. permissble 420 bar (6092 psi), 120 °C (248 °F)		
Accessory set to DIN ²⁾		
(required for flanging, weight 0.2 kg)		
4x screws M10x55 to DIN EN 24014; chromized steel 4x washers Ø 10.5 mm to DIN 125; 2x O-rings to DIN 3771, 20 x 2.65 - S - FPM90, max. permissble 420 bar (6092 psi), 120 °C (248 °F) Flange connection to DIN 19 213 only permissible up to PN 160!	B16	7MF9010-6CC

- 1) When ordering accessory set together with the valve manifold combination, please use Order code; otherwise use Order No.
- 2) Flange connections to DIN 19213 only permissible up to PN 160 (2321 psi)

Accessories

Accessory set for valve manifold combination DN 8 for flanging

- \bullet B34: 4 screws $^7\!/_{16}$ -20 UNF x $2^1\!/_{8}$ inch to ASME B 18.2.1, 2 O-rings (FPM 90)
- B16: 4 screws M10x55 to DIN EN 24014, 4 washers, 2 O-rings (FPM 90)

Washers Ø 10.5 to DIN 125

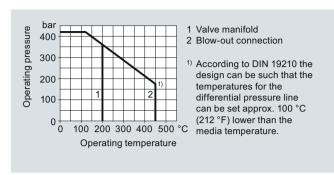
O-ring to DIN 3771, 20 x 2.65 – S – FPM90, max. 420 bar (6092 psi), 120 $^{\circ}$ C (248 $^{\circ}$ F)

Note: M10 screws only permissible up to PN 160 (2321 psi)!

Fittlings - Shut-off valves for differential pressure transmitters

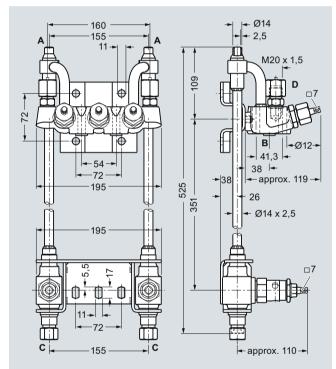
Valve manifold combination DN 8

Characteristic curves



Permissible operating pressure as a function of the permissible operating temperature

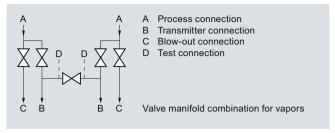
Dimensional drawings



- A Process connection (e.g. on primary device): Welding pin
- B Transmitter connection: Flange connection to EN 61518, form A
- C Blow-out connection: Pipe union with ferrule, diameter 14 mm, S series to DIN 2353
- D Test connection (only with Order No. 7MF9416-4D.): M20 x 1,5 Valve design:
- Manifold valves: internal spindle thread
- Blow-out valves: external spindle thread

Valve manifold combination DN 8 (7MF9416-4..), dimensions in mm

Schematics

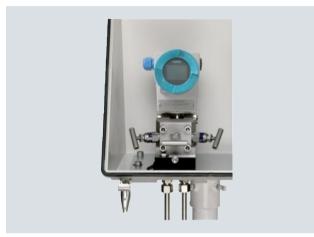


Valve manifold combination DN 8, connections

Fittlings - Shut-off valves for differential pressure transmitters

2-, 3- and 5-spindle valve manifolds for installing in protective boxes

Overview



The 2-spindle, 3-spindle and 5-spindle valve manifolds (7MF9412-1..) are used to shut off the differential pressure lines and to check the transmitter zero.

The five-spindle valve manifold permits venting on the transmitter side and checking of the transmitter characteristic.

These valve manifolds are preferentially used when mounting in protective boxes. In addition, they can also be used for wall, frame or pipe mounting together with the mounting bracket.

Transmitters of the DS series can be operated and read from the front when using these valve manifolds.

Application

The valve manifolds DN 5 are designed for liquids and vapors and for installing in protective boxes.

Each is available in a version for oxygen on request

Design

All versions of the spindle manifolds have a process connection $\frac{1}{2}$ -14 NPT.

The connection for the pressure transmitter is always designed as a flange connection to IEC 61518. Form A.

The 2-spindle and the 5-spindle valve manifold have in addition a vent and test connection 1/4-18 NPT.

The valves have an external spindle thread.

Materials used

Components	Material	Mat. No.
Housing	X 2 CrNiMo 17 13 2	1.4404/316L
Cones	X 6 CrNiMoTi 17 12 2	1.4571/316Ti
Spindles	X 2 CrNiMo 18 10	1.4404/316L
Head parts	X 5 CrNiMo 18 10	1.4401/316
Packings	PTFE	-

Functions

Functions of all valve manifolds:

- Shutting off the differential pressure lines
- · Checking the pressure transmitter zero

Additional functions of the 2-spindle and 5-spindle valve manifolds through the vent and test connection:

- Venting on the transmitter side
- Checking the pressure transmitter characteristic

Selection and Ordering data	Order No.	
Valve manifolds DN 5 for mounting in protective boxes	7 M F 9 4 1 2 -	
for liquids and gases for flanging to pressure transmitters for absolute and differential pressure Material: stainless steel, mat. No: 1.4404/316L max. working pressure 420 bar (6092 psi) (order accessory set with Order code), without certificate		
\bullet 2-spindle valve manifold with rotatng sleeve $G \slash\hspace{-0.6em} \%$	1 B	
 2-spindle valve manifold with flange connection 	1 C	
3-spindle valve manifold	1 D	
• 5-spindle valve manifold	1 E	
Accessories		
Factory test certificate EN 10204–2.2	7MF9000-8AB	
Material acceptance test certificate EN 10204-3.1	7MF9000-8AD	

Selection and Ordering data	Order code	Order No.
Further designs ¹⁾		
Please add "-Z" to Order No. and specify Order code.		
Accessory set to EN (connection between valve manifold and pressure transmitter)		
for valve manifold 7MF9412-1C.		
2x screws ⁷ / ₁₆ -20 UNF x 2 inch to ASME B18.2.1; chromized steel 1x O-ring to DIN 3771, 20 x 2.65 - S - FPM90, max. permissble 420 bar (6092 psi), 120 °C (248 °F)	F32	7MF9412-6CA
2x screws ⁷ / ₁₆ -20 UNF x 2 inch to ASME B18.2.1; chromized steel 1x gasket made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F) ²⁾	F35	7MF9412-6DA
for valve manifold 7MF9412–1D and -1E.		
4x screws ⁷ / ₁₆ -20 UNF x 2 inch to ASME B18.2.1; chromized steel 2x O-rings to DIN 3771, 20 x 2.65 - S - FPM90, max. permissble 420 bar (6092 psi), 120 °C (248 °F) ²⁾	F34	7MF9412-6GA
4x screws ⁷ / ₁₆ -20 UNF x 2 inch to ASME B18.2.1; chromized steel 2x flat gaskets made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F) ²⁾	F36	7MF9412-6HA

Fittlings - Shut-off valves for differential pressure transmitters

2-, 3- and 5-spindle valve manifolds for installing in protective boxes

Selection and Ordering data	Order code	Order No.
Further designs ¹⁾		
Please add "-Z" to Order No. and specify Order code.		
Accessory set to DIN (connection between valve manifold and pressure transmitter) For valve manifold 7MF9412–1C.		
2x screws M10x50 to DIN EN 24014; chromized steel 2x washers Ø 10.5 mm to DIN 125; 1x O-ring to DIN 3771, 20 x 2.65 - S - FPM90, max. permissble 420 bar (6092 psi), 120 °C (248 °F) ²⁾	F12	7MF9412-6AA
2x screws M10x50 to DIN EN 24014; chromized steel 2x washers Ø 10.5 mm to DIN 125; 1x gasket made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F) ²) For valve manifold 7MF9412–1D and -1E.	F15	7MF9412-6BA
4x screws M10x50 to DIN EN 24014; chromized steel 4x washers Ø 10.5 mm to DIN 125; 2x O-rings to DIN 3771, 20 x 2.65 - S - FPM90, max. permissble 420 bar (6092 psi), 120 °C (248 °F) ²⁾	F14	7MF9412-6EA
4x screws M10x50 to DIN EN 24014; chromized steel 4x washers Ø 10.5 mm to DIN 125; 2x flat gaskets made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F) ²⁾	F16	7MF9412-6FA
Mounting bracket		
required for wall mounting or for securing to mounting rack, with bolts for mounting on valve manifold		
• for valve manifolds 7MF9412-1B. and -1C.	M14	7MF9006-6LA
• for valve manifold 7MF9412-1D.	M17	7MF9006-6NA
• for valve manifold 7MF9412-1E.	M18	7MF9006-6PA
Mounting clip		
2 off, to secure mounting bracket to pipe	M16	7MF9006-6KA
Valve manifold 100 bar		
Oil- and grease-free cleaning for oxygen applications, max. pressure PN 100 (1450 psi) and max. temperature 60 °C (140 °F)		
• for valve manifolds 7MF9412-1B. and -1C.	S12	
• for valve manifold 7MF9412-1D.	S13	
• for valve manifold 7MF9412-1E.	S14	

When ordering accessory set or mounting together with the valve manifolds, please use Order code; otherwise use Order No.

Accessories

Accessory set for 2-, 3- and 5-spindle valve manifolds (Connection between manifold and transmitter)

2-spindle valve manifold DN 5 with flange connection

- F32: 2 screws 7/16 20 UNF x 2 inch to ASME B 18.2.1, 1 O Ring (FPM90)
- F35: 2 screws 7/16 20 UNF x 2 inch to ASME B 18.2.1, 1 flat-gasket
- F12: 2 screws M10x50 to DIN EN 24014, 2 washers, 1 O-ring (FPM90)
- F15: 2 screws M10x50 to DIN EN 24014, 2 washers, 1 flat gasket

3-spindle and 5-way valve manifold DN 5

- F34: 4 screws 7/16 20 UNF x 2 inch to ASME B 18.2.1, 2 O-rings (FPM90)
- F36: 4 screws 7/16 20 UNF x 2 inch to ASME B 18.2.1, 2 flat-gaskets
- F14: 4 screws M10x50 to DIN EN 24014, 4 washers, 2 O-rings (FPM90)
- F16: 4 screws M10x50 to DIN EN 24014, 4 washers, 2 flat-gaskets

Washers Ø 10,5 to DIN 125

Flat-gaskets made of PTFE, max. 420 bar (6092 psi), 80 $^{\circ}$ C (176 $^{\circ}$ F)

O-ring to DIN 3771, 20 x 2,65 - S - FPM90; max.420 bar (6092 psi), 120 °C (248 °F)

Note:

Flange connections with M10 screws only permissible up to PN 160 (2321 psi)!

Mounting bracket for wall mounting or for securing to mounting rack

With bolds for mounting on valve manifold

- M14: For 2-spindle valve manifold DN 5
- M17: For 3-spindle valve manifold DN 5
- M18: For 5-spindle valve manifold DN 5

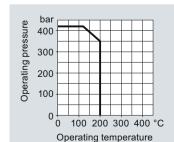
Mounting clips (2 off)

 M16: For securing the mounting brackets M14, M17 and M18 to pipe

Valve manifold 100 bar, suitable for oxygen

- S12: For 2-spindle valve manifold DN 5
- S13: For 3-spindle valve manifold DN 5
- S14: For 5-spindle valve manifold DN 5

Characteristic curves



420 bar (6092 psi) at 120 °C (248 °F) 350 bar (5076 psi) at 200 °C (392 °F)

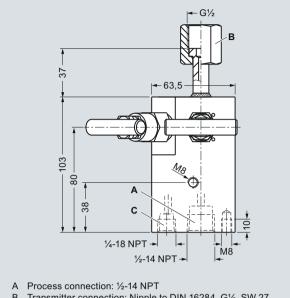
Permissible operating pressure as a function of the permissible operating temperature

²⁾ Flange connections with M10 screws only permissible up to PN 160 (2321 psi)!

Fittlings - Shut-off valves for differential pressure transmitters

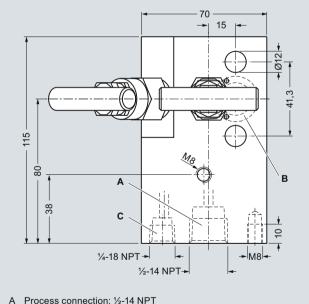
2-, 3- and 5-spindle valve manifolds for installing in protective boxes

Dimensional drawings



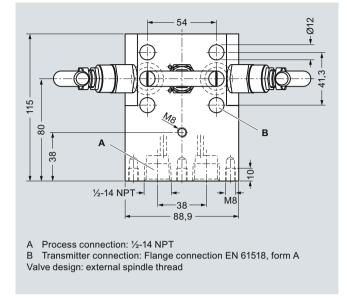
- Transmitter connection: Nipple to DIN 16284, G1/2, SW 27
- Vent / test connection: 1/4-18 NPT

2-spindle valve manifold DN 5 (7MF9412-1B..) with rotating sleeve, dimensions in mm

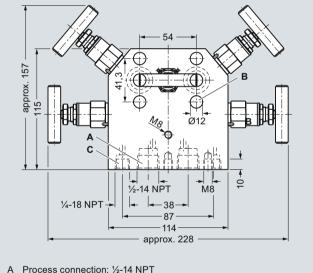


- A Process connection: 1/2-14 NPT
- Transmitter connection: Flange connection to EN 61518, form A
- Vent / test connection: 1/4-18 NPT Valve design: external spindle thread

2-spindle valve manifold DN 5 (7MF9412-1C..), dimensions in mm



3-spindle valve manifold DN 5 (7MF9412-1D..), dimensions in mm

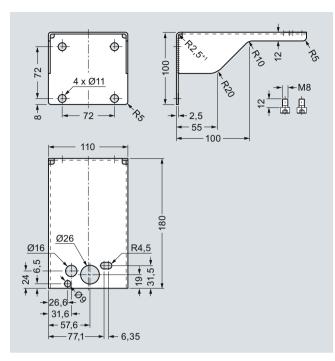


- Process connection: ½-14 NPT
- Transmitter connection: Flange connection to EN 61518, form A
- Vent / test connection: 1/4-18 NPT Valve design: external spindle thread

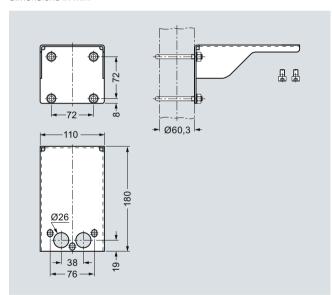
5-spindle valve manifold DN 5 (7MF9412-1E..), dimensions in mm

Fittlings - Shut-off valves for differential pressure transmitters

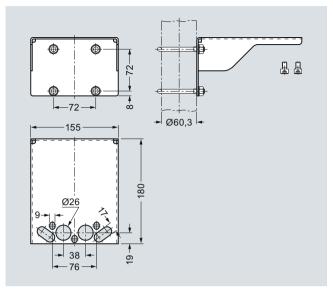
2-, 3- and 5-spindle valve manifolds for installing in protective boxes



Mounting bracket (7MF9006-6LA)/(M14) for 2-spindle valve manifolds, dimensions in mm

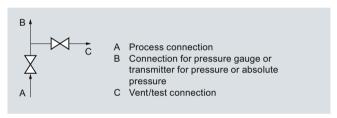


Mounting bracket (7MF9006-6NA)/(M17) for 3-spindle valve manifolds, dimensions in \mbox{mm}

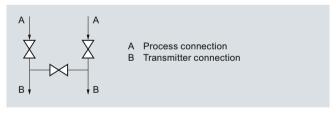


Mounting bracket (7MF9006-6PA)/(M18) for 5-spindle valve manifolds, dimensions in mm

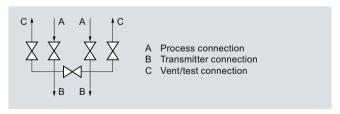
Schematics



2-spindle valve manifold DN 5 (with rotating sleeve $G\ensuremath{\mathbb{Z}}_2$ or flange connection), connections



3-spindle valve manifold DN 5, connections



5-spindle valve manifold DN 5, connections

Fittlings - Shut-off valves for differential pressure transmitters

3- and 5-spindle valve manifolds for vertical angular differential pressure lines

Overview



These 3-spindle and 5-spindle valve manifolds 7MF9413-1.. were developed specially for vertical differential pressure lines.

The valve manifolds are used to shut off the differential pressure lines and to check the pressure transmitter zero.

The 5-spindle valve manifold permits venting on the transmitter side and checking of the pressure transmitter characteristic.

Benefits

- For vertical differential pressure lines
- Max. operating pressure 420 bar (6092 psi)
- Transmitters of the DS series can be operated and read from the front.

Application

The 3-spindle and 5-spindle valve manifolds for vertical differential pressure lines are for liquids and gases. The valve manifolds are flanged on the pressure transmitter.

Design

All versions of the spindle valve manifolds have a process connection $\frac{1}{2}\text{-}14$ NPT.

The connection for the pressure transmitter is always designed as a flange connection to IEC 61518, form B .

The 2-spindle and the 5-spindle valve manifold have in addition a vent and test connection 1/4-18 NPT.

Materials used:

Component	Material	Mat. No.
Housing	X 2 CrNiMo 17 13 2	1.4404/316L
Cones	X 6 CrNiMoTi 17 12 2	1.4571/316Ti
Spindles	X 2 CrNiMo 18 10	1.4404/316L
Head parts	X 5 CrNiMo 18 10	1.4401/316
Packings	PTFE	-

Function

Functions of all valve manifolds:

- Shutting off the differential pressure lines
- Checking the pressure transmitter zero

Additional functions of the 2-spindle and 5-spindle valve manifolds through the vent and test connection:

- · Venting on the transmitter side
- · Checking the pressure transmitter characteristic

Selection and Ordering data	Order No.
Valve manifolds for vertical differential pressure lines	7 M F 9 4 1 3 - ■ A
for liquids and gases for flanging to pressure transmitters for abso- lute and differential pressure Material: stainless steel, mat. No: 1.4404/316L max. working pressure 420 bar (6092 psi) (order accessory set with Order code), without certificate	
3-spindle valve manifold	1 D
• 5-spindle valve manifold	1 E
Accessories	
Factory test certificate EN 10204–2.2	7MF9000-8AB
Material acceptance test certificate EN 10204-3.1	7MF9000-8AD

Selection and Ordering data	Order code	Order No.
Further designs ¹⁾		
Please add " -Z " to Order No. and specify Order code.		
Accessory set to EN		
(connection between valve manifold and pressure transmitter)		
4x screws ⁷ / ₁₆ -20 UNF x 1¾ inch to ASME B18.2.1; chro- mized steel 2x flat gaskets made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F)	K36	7MF9411-5DB
Accessory set to DIN ²⁾		
(connection between valve manifold and pressure transmitter)		
4x screws M10x45 to DIN EN 24014; chromized steel 4x washers Ø 10.5 mm to DIN 125; 2x flat gaskets made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F); Flange connection with M10 screws only permissible up to PN 160 (2321 psi).	K16	7MF9411-6BB
Mounting bracket		
required for wall mounting or for securing to mounting rack, with bolts for mounting on valve manifold		
• for valve manifold 7MF9413-1D.	M17	7MF9006-6NA
• for valve manifold 7MF9413-1E.	M18	7MF9006-6PA
required for mounting on 2" standpipe, with bolts for mounting on valve manifold		
• for valve manifold 7MF9413-1D.	M19	7MF9006-6QA
Mounting clip		
2 off, to secure mounting bracket to pipe	M16	7MF9006-6KA
Valve manifold 100 bar (1450 psi)		
suitable for oxygen		
• for valve manifold 7MF9413-1D.	S13	
• for valve manifold 7MF9413-1E.	S14	

- 1) When ordering accessory set or mounting together with the multiway cock, please use Order code; otherwise use Order No.
- 2) Flange connections to DIN 19213 only permissible up to PN 160 (2321 psi)!

Fittlings - Shut-off valves for differential pressure transmitters

3- and 5-spindle valve manifolds for vertical angular differential pressure lines

Accessories

Accessory set (connection between manifold and transmitter)

- K36: 4 screws ⁷/₁₆-20 UNF x 1¾ inch to ASME B18.2.1, 2 flat gaskets
- K16: 4 screws M10x45 to DIN EN 24014, 4 washers, 2 flat gaskets

Washers Ø 10.5 to DIN 125

Flat gaskets made of PTFE, max. 420 bar (6092 psi), 80 °C (176 °F)

Note: Flange connection with M10 screws only permissible up to PN 160 (2321 psi)!

Mounting bracket for wall mounting or for securing to mounting rack

With bolts for mounting on valve manifold

- M17: For 3-spindle valve manifold
- M18: For 5-spindle valve manifold

Mounting bracket for mounting on 2" standpipe

With bolts for mounting on valve manifold

• M19: For 3-spindle valve manifold

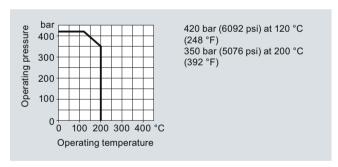
Mounting clips (2 off)

For securing the mounting brackets M17, M18 and M19 to pipe

Valve manifold 100 bar, suitable for oxygen

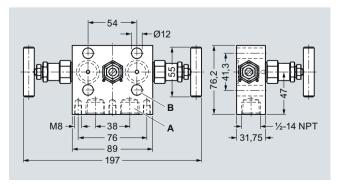
- For 3-spindle valve manifold
- For 5-spindle valve manifold

Characteristic curves

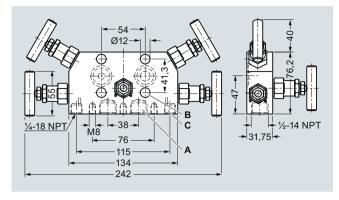


Permissible operating pressure as a function of the permissible operating temperature

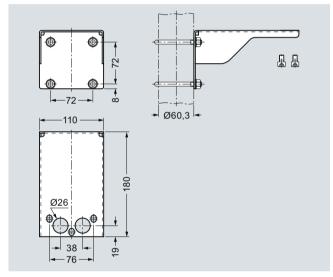
Dimensional drawings



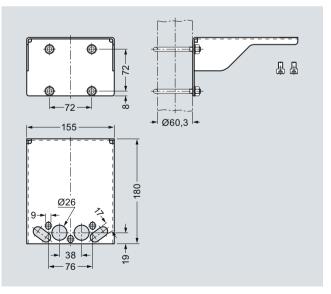
3-spindle valve manifold 7MF9413-1D. for vertical differential pressure lines, dimensions in \mbox{mm}



5-spindle valve manifold 7MF9413-1E. for vertical differential pressure lines, dimensions in mm



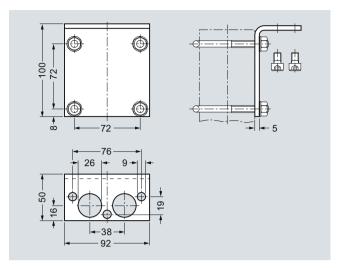
Mounting bracket (7MF9006-6NA)/(M17) for 3-spindle valve manifolds, dimensions in mm



Mounting bracket (7MF9006-6PA)/(M18) for 5-spindle valve manifolds, dimensions in mm

Fittlings - Shut-off valves for differential pressure transmitters

3- and 5-spindle valve manifolds for vertical angular differential pressure lines

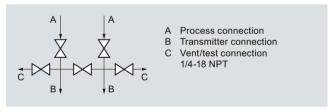


Mounting bracket (7MF9006-6QA)/(M19) for 3-spindle valve manifolds, dimensions in mm $\,$

Schematics



3-spindle valve manifold for vertical differential pressure lines, connections



5-spindle valve manifold for vertical differential pressure lines, connections

Fittlings - Shut-off valves for differential pressure transmitters

Low-pressure multiway cock

Overview



The low-pressure multiway cock 7MF9004-4CA/-4DA can be flanged to pressure transmitters for differential pressure.

Benefits

- · Robust design
- · For liquids and gases
- One-hand operation

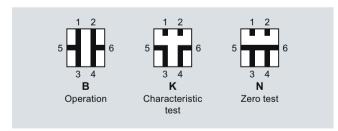
Design

The multiway cock has 2 process connections and 2 test connections, which are available in 2 versions (with sealing screws $G^3/_8$ or quick-release couplings). The housing is made of hotpressed brass CuZn39Pb3, CW 614N. Test connections with sealing screws or with self-sealing quick-release couplings.

Note: An accessory set is always required for flanging of the multiway cock to a differential pressure transmitter.

Function

- Shutting off the differential pressure lines
- · Testing the pressure transmitter zero
- · Testing the pressure transmitter characteristic



Cock positions; the symbols are printed on the cock

Selection and Ordering data	Order No.
Low-pressure multiway cock	
for liquids and gases, for flanging to pressure transmitters, max. working pressure 25 bar (363 psi), max. working temperature 60 °C (140 °F) (up to 80 °C (176 °F) for a short time), weight 1.75 kg (without accessory set)	
Test connections	
2x sealing screws G ³ / ₈	7MF9004-4CA
2x quick-release couplings	7MF9004-4DA
Accessories	
Test report to EN 10204-3.1	7MF9000-8AB
Material acceptance test certificate to EN 10204-3.1	7MF9000-8AD

Selection and Ordering data	Order code	Order No.
Further designs ¹⁾		
Please add "-Z" to Order No. and specify Order code.		
Accessory set to EN (required for flanging, weight 0.2 kg)		
4x screws ⁷ / ₁₆ -20 UNF x 1 inch to ASME B18.2.1; chromized steel 2x gaskets made of PTFE, max. permissible temperature 80 °C (176 °F)	L31	7MF9004-5CC
Accessory set to DIN (required for flanging, weight 0.2 kg)		
4x screws M10x25 to DIN EN 24017; chromized steel 4x washers Ø 10.5 mm to DIN 125; 2x gaskets made of PTFE, max. permissible temperature 80 °C (176 °F)		
Standard design	L11	7MF9004-6AD
 Version for oxygen 	L15	7MF9004-6AE
Multiway cock in oil-free and		
grease-free design BAM-tested lubricant, gasket suitable for oxygen	S11	
Mounting bracket required for wall mounting or for securing on rack (72 mm grid), made of electrogalvanized sheet- steel, weight 0.85 kg	M13	7MF9004-6AA

¹⁾ When ordering accessory set or mounting together with the multiway cock, please use Order code; otherwise use Order No.

Accessories

Accessory set for low-pressure multiway cock

- L31: 4 screws ⁷/₁₆-20 UNF x 1 inch, 2 flat gaskets
- L11: 4 screws M10x25 to DIN EN 24017, 4 washers, 2 flat gaskets
- L15 (suitable for oxygen): 4 screws M10x25 to DIN EN 24017, 4 washers, 2 flat gaskets

Washers Ø 10.5 to DIN 125

Flat gaskets made of PTFE, max. permissible temperature 80 °C (176 °F)

Multiway cock in oil-free and grease-free design

• S11: BAM-tested lubricant, gasket suitable for oxygen

Mounting brackets

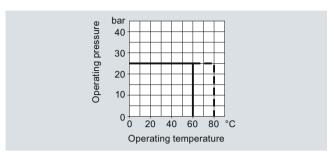
 M13: Required for wall mounting or for securing on rack (72 mm grid); made of electrogalvanized sheet-steel

Options

Test connections

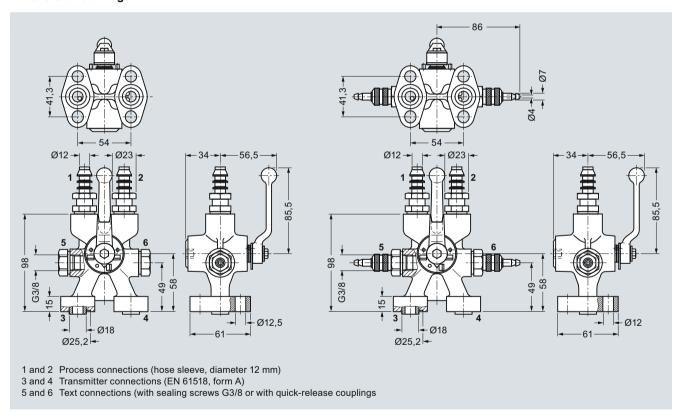
- 2 sealing screws G³/₈
- 2 quick-release couplings

Characteristic curves

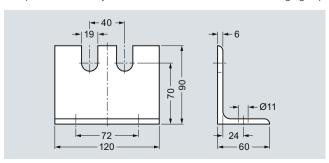


Low-pressure multiway cock, permissible operating pressure as a function of the permissible operating temperature

Dimensional drawings



Low-pressure multiway cock 7MF9004-4CA/-4DA for direct flanging to pressure transmitters for differential pressure, dimensions in mm



Mounting bracket 7MF9004-6AA (M13), dimensions in mm

Fittings - Accessories

Oval flange

Overview



The oval flange 7MF9408-2C. for pressure transmitters for absolute pressure and differential pressure has a $\frac{1}{2}$ -14 NPT female thread and is designed for max. operating pressure 400 bar (5800 psi).

Accessories

Accessory set for oval flange

- E36: 2 screws ⁷/₁₆-20 UNF x 1½ inch to ASME B18.2.1, 1 flat gasket
- \bullet E34: 2 screws $^7\!/_{16}$ -20 UNF x 1½ inch to ASME B18.3, 1 O-ring (FPM 90)
- E13: 2 screws M10x40 to DIN EN 4762, 2 washers, 1 O-ring (FPM 90)
- E16: 2 screws M10x40 to DIN EN ISO 4762, 2 washers, 1 flat gasket

Washers Ø 10.5 to DIN 125

Flat gaskets made of PTFE, max. 420 bar (6092 psi), 80 °C (176 °F)

O-ring to DIN 3771, 20 x 2.65 – S – FPM90, max. 420 bar (6092 psi), 120 °C (248 °F)

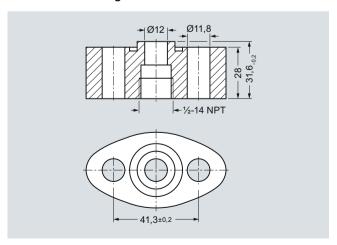
Note: M10 screws only permissible up to PN 160 (2321 psi)!

Selection and Ordering data	Order No.
Oval flange with female thread ½-14 NPT, max. working pressure 420 bar (6092 psi), flange connection to IEC 61518, form A	
Material	
P250GH, mat. No.: 1.0460	7MF9408-2CE
X 2 CrNiMo 17 13 2, mat. No. 1.4404/316L	7MF9408-2CL

Selection and Ordering data	Order code	Order No.
Further designs ¹⁾		
Please add " -Z " to Order No. and specify Order code.		
Accessory set to EN		
2x screws ⁷ / ₁₆ -20 UNF x 1½ inch to ASME B 18.2.3; chro- mized steel 1x flat gasket made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F)	E36	7MF9408-5DA
2x screws $^7/_{16}$ -20 UNF x 1½ inch to ASME B 18.2.3; chromized steel 1x O-ring to DIN 3771, 20 x 2.65 - S - FPM90, max. permissble 420 bar (6092 psi), 120 °C (248 °F)	E34	7MF9408-5CA
Accessory set to DIN		
2x screws M10x40 to DIN EN ISO 4762; chromized steel 2x washers Ø 10.5 mm to DIN 125; 1x O-ring to DIN 3771, 20 x 2.65 - S - FPM90, max. permissble 420 bar (6092 psi), 120 °C (248 °F) ²⁾	E13	7MF9408-6AA
2x screws M10x40 to DIN EN ISO 4762; chromized steel 2x washers Ø 10.5 mm to DIN 125; 1x flat gasket made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F) ²⁾	E16	7MF9408-6BA

- 1) When ordering accessory set together with the oval flange, please use Order code; otherwise use Order No.
- ²⁾ Flange connections with M10 screws only permissible up to PN 160 (2321 psi)

Dimensional drawings



Oval flange 7MF9408-2C., dimensions in mm

Fittings - Accessories

<u>Adapters</u>

Overview

Adapters enable e.g. a transition from medium connections with NPT thread to shut-off valves to DIN 16270 ... 16272 or pipes in conjunction with a connection gland (e.g. 7MF9008).

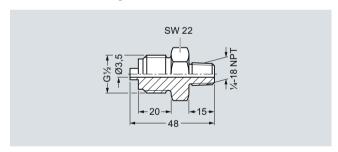
Design

The connection pieces are made of X 6 CrNiMoTi 17 12 2, mat. No. 1.4571 and available in 3 versions

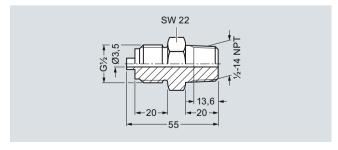
- Thread 1/4-18 NPT and connection shank G1/2 to DIN EN 837-1
- Thread ½-14 NPT and connection shank G½ to DIN EN 837-1
- Thread ½-14 NPT and thread ½-14 NPT

_		
	Selection and Ordering data	Order No.
	Adapter	
	(weight 0.2 kg)	
	with thread 1/4-18 NPT - G1/2	7MF9001-1AA
	with thread ½-14 NPT – G½	7MF9001-1CA
	with thread ½-14 NPT – ½-14 NPT	7MF9001-1DA
	with thread ½-14 NPT - M20 x 1.5	7MF9001-1EA
	with pipe union with ferrule 12 S, \varnothing 12 mm – ½-14 NPT	
	• 9 SMnPb 28, mat. No. 1.0718	7MF9008-1CA
	• X 6 CrNiMoTi 17 122, mat. No. 1.4571	7MF9008-1CB
	with pipe union with ferrule 14 S, \varnothing 14 mm – ½-14 NPT	
	• 9 SMnPb 28, mat. No. 1.0718	7MF9008-1CC
	• X 6 CrNiMoTi 17 122, mat. No. 1.4571	7MF9008-1CD

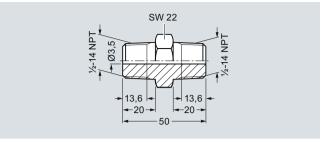
Dimensional drawings



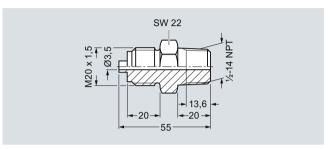
Connection piece with thread $1\!\!4\text{--}18$ NPT and connection shank $G1\!\!/\!\!2$ 7MF9001-1AA, dimensions in mm



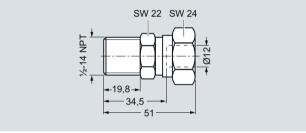
Connection piece with thread $\frac{1}{2}$ --14 NPT and connection shank G $\frac{1}{2}$ 7MF9001-1CA, dimensions in mm



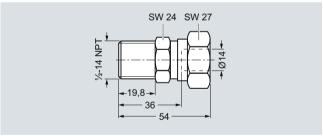
Connection piece with thread $\frac{1}{2}$ -14 NPT and thread $\frac{1}{2}$ -14 NPT 7MF9001-1DA, dimensions in mm



Connection piece with thread $\frac{1}{2}$ -14 NPT and thread M20 x 1.5 7MF9001-1EA, dimensions in mm



Connection piece with pipe union with ferrul 12 S, \varnothing 12 mm and thread ½-14 NPT 7MF9001-1FA, dimensions in mm



Connection piece with pipe union with ferrul 14 S, \varnothing 14 mm and thread ½-14 NPT 7MF9001-1GA, dimensions in mm

Fittings - Accessories

Connection glands

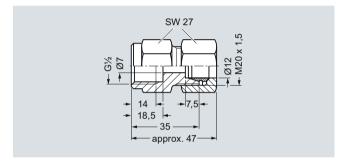
Overview

Connection glands to connect medium or differential pressure lines to collars $G1\!\!\!/\!_2$ to DIN EN 837-1

- For rated pressures up to PN 630 (9137psi)
- For oxygen only up to PN 250 (3626 psi)

Selection and Ordering	g data	Order No.
Connection screwed g for pipelines (weight 0.2 kg)	land	
Material	<u>Design</u>	
11SMn30 (mat. No. 1.0715)	Standard	7MF9008-1GA
X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti)	Standard	7MF9008-1GB
X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti)	Grease-free	7MF9008-1GC

Dimensional drawings



Connection gland 7MF9008-1G., dimensions in mm

Fittings - Accessories

Connection parts G 1/2

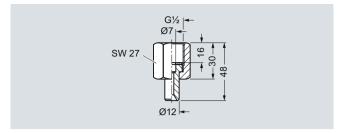
Overview

Connection parts $G \ensuremath{\%}\xspace_2$ for pressure gauges and shut-off fittings are available in 3 versions:

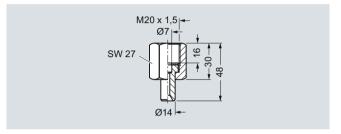
- Nipple connection
- Clamping sleeve
- Collar connection piece

	Selection and Ordering data		Order No.
	Adapters G½ for pressure gauges a		
Nipple connection G½ to DIN 16284 (union nut with nipple and gasket); max. working pressure 400 bar (5802 psi); weight 0.1 kg; connection: G½ to DIN EN 837-1; Female thread G½			
	Material	Mat. No.	
	CuZn39Pb3	CW 614N	M56340-A0001
	Union nut 9 SMn 28 k Nipple: RSt 37-2	1.0715 1.0037	M56340-A0002
	Union nut X 8 CrNiS 18 9 Nipple: X 6 CrNiMoTi 17 12 2	1.4305 1.4571/316Ti	M56340-A0003
	Mipple connection M20 x 1.5 to DIN 16284 (union nut with nipple and gasket); max. working pressure 400 bar (5802 psi); weight 0.1 kg; connection: G½ to DIN EN 837-1; Female thread G½ Material Mat. No.		M56340-40008
	Union nut X 8 CrNiS 18 9 Nipple: X 6 CrNiMoTi 17 12 2	1.4305 1.4571/316Ti	M56340-A0008
	Clamping sleeve G½ to DIN 16283; max 400 bar (5802 psi); we Connections: G½ to D Female thread: G½ rig	eight 0.1 kg; IN EN 837-1;	
	Material	Mat. No.	
	CuZn39Pb3	CW614N	M56340-A0004
	9 SMn 28 k	1.0715	M56340-A0005
	Collar-adapter		
	max. working pressure Connections: $G\frac{1}{2}$ to D Male thread: $G\frac{1}{2}$, $G\frac{1}{2}$		
	Material	Mat. No.	
	CuZn39Pb3	CW614N	M56340-A0006
	9 SMn 28 k	1.0715	M56340-A0007

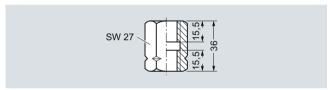
Dimensional drawings



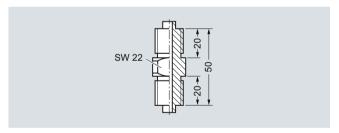
Nipple connection $G\frac{1}{2}$ (M56340-A0001 to -A0003), dimensions in mm



Nipple connection M20 \times 1,5 (M56340-A0008), dimensions in mm



Clamping sleeve (M56340-A0004/-A0005), dimensions in mm



Collar connection piece (M56340-A0006/-A0007), dimensions in mm

Fittings - Accessories

Water traps, Sealing rings to EN 837-1

Overview

Water traps protect pressure gauges and shut-off fittings from heating up (e.g. by steam) by the water column produced by the water trap.

The max. working temperature is 120 °C (248 °F) at 100 bar (1450 psi), 300 °C (572 °F) at 80 bar (1160 psi) or 400 °C (752 °F) at 63 bar (914 psi). If the temperature of the measured medium is higher, a sufficiently long line has to be connected upstream of the trap to enable heat dissipation.

Design

The water traps are available in U shape (type B) or circular shape (type D) to DIN 16282. They have a weld-on end Ø 20 mm × 2.6 mm on the measurement side. The connection on the device side is a clamping sleeve G½ to DIN 16283.

The water traps are made of steel (P250GH) or stainless steel (X 6 CrNiMoTi 17 12 2)

Water traps are designed as standard for max. operating temperature 120 °C (248 °F) at max. operating pressure 100 bar (1450 psi) (300 °C (572 °F) at 80 bar (1160 psi), 400 °C (752 °F) at 63 bar (914 psi). Water traps for higher operating pressures and temperatures are available on request.

Order No.

M56340-A0045

M56340-A0063

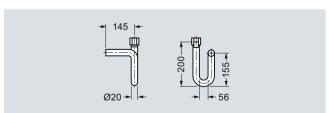
Selection and Ordering data Water traps for pressure gauges and pressure transmitters, max. working temperature 120 °C (248 °F), max. working terniperature 120 °C (248 °F), max. working pressure 100 bar (1450 psi) (or 300 °C (572 °F) at 80 bar (1160 psi), or 400 °C (752 °F) at 63 bar (914 psi)), weight 0.7 kg Water trap B to DIN 16282 Material Mat. No. P235GH 1.0345 M56340-A0043 X 6 CrNiMoTi 17 12 2 1.4571/316Ti M56340-A0061 Water trap D to DIN 16282 Material Mat. No.

1.0345

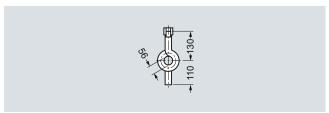
Dimensional drawings

X 6 CrNiMoTi 17 12 2 1.4571/316Ti

P235GH



Water traps, type B, M56340-A0043/-A0061, dimensions in mm

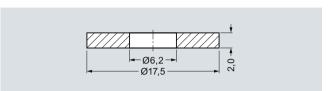


Water traps, type D, M56340-A0045/-A0063, dimensions in mm

Overview

The sealing rings to EN 837-1 are required to seal measuring instruments for pressure with the process connection G½B.

Dimensional drawings



Sealing ring 7MF9007-7A. to EN 837-1, dimensions in mm

Selection and Ordering data	Order No.
Sealing ring to EN 837-1 for thread G½ made of (packing unit 100 pcs)	
• Copper F	7MF9007-7AA
• Soft iron	7MF9007-7AB
• Stainless steel, matNo. 1.4571	7MF9007-7AC
• PTFE	7MF9007-7AD
Accessories	
Test report to EN 10204-3.1	7MF9000-8AB
Material acceptance test certificate to EN 10204-3.1	7MF9000-8AD

F) Subject to export regulations AL: 91999, ECCN: N.

Fittings - Accessories

Pressure surge reducers

Overview

The pressure surge reducer protects the pressure gauge against damage, premature wear and tear and inaccurate/fluctuating indications.

Application

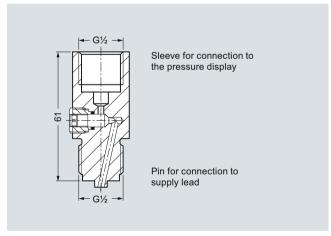
The pressure reducer is used when pulsations occur in the measured medium (e.g. in slow-running vapor engines, piston pumps and compressors), or if drastic fluctuations are likely to occur in the measured medium (e.g. in hydraulic presses and tensile testing machines).

Design

- Enclosure made of brass or stainless steel (mat. no. 1.4571)
- Adjustable nozzle
- Sleeve for connection to the measuring instrument
- Pin for connection to supply lead

Selection ar	nd Ordering data	Order No.	
Pressure su Weight appr	i rge reducer ox. 0.21 kg		
Material	Full-scale value	Weight approx. in kg	
Brass	250 bar (3626 psi)	0.21	M56340-A54
Stainless steel	600 bar (8702 psi)	0.21	M56340-A59

Dimensional drawings



Pressure surge reducer, dimensions in mm

Fittings - Accessories

Primary shut-off valves

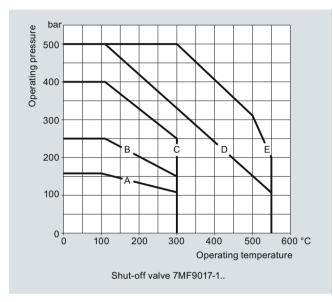
Overview

Primary shut-off valves are available in the following versions:

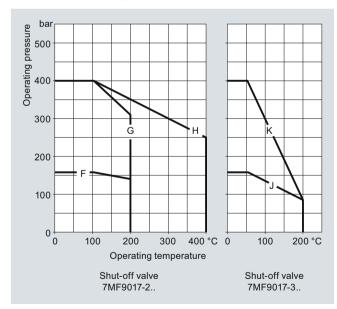
- For non-corrosive liquids, gases and vapors
- For corrosive liquids and gases
- Grease-free for oxygen

The shut-off valves are available in various materials and with various connections (see Selection and Ordering data)

Characteristic curves

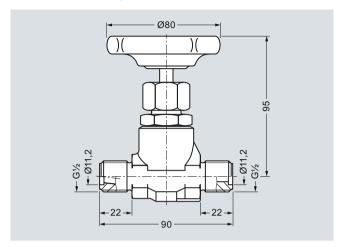


Shut-off valve 7MF9017-1.., permissible working pressure as a function of the permissible working temperature

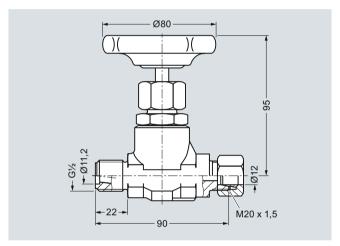


Shut-off valve 7MF9017-2.. and -3.., permissible working pressure as a function of the permissible working temperature

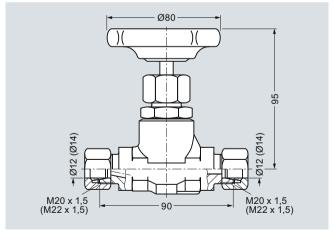
Dimensional drawings



Shut-off valve 7MF9017-1A., dimensions in mm



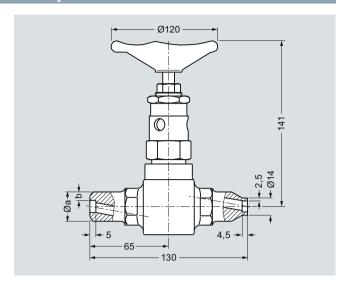
Shut-off valve 7MF9017-1B. and -2B., dimensions in mm



Shut-off valves 7MF9017-1C., -1D. and -2C., dimensions in mm

Pressure Measurement Fittings - Accessories

Primary shut-off valves



Shut-off valves 7MF9017-, dimensions in mm

Ø A x b	7MF9017-
14 mm x 2.5 mm	1F. and 1G.
21.3 mm x 6.3 mm	1H. and 2H.
24 mm x 7.1 mm	1J., 1K. and 2J.

Selection and	Ordering data

Primary shut-off v	,						
Max. working pressure	Charac- teristic ¹⁾	Material	Mat. No.	Spindle thread	Connections	Approx. weight kg	Order No.
Shut-off valve for	non-aggi	ressive liquids, gases	and vapo	ors			7MF9017-1
160 bar (2321 psi)	Α	P250GH	1.0460	Internal	Threaded socket G½ form R, DIN 19207	0.8	A
160 bar (2321 psi)	Α	P250GH	1.0460	Internal	Threaded socket G½ form R, DIN 19207 DIN 19207 and pipe union with ferrule for pipe Ø 12 mm, S series	0.8	В
400 bar (5800 psi)	С	P250GH	1.0460	Internal	Pipe union with ferrule for pipe Ø 12 mm, S series	1	С
400 bar (5800 psi)	С	P250GH	1.0460	Internal	Pipe union with ferrule for pipe Ø 14 mm, S series	1	D
500 bar (7252 psi)	D	16 Mo 3	1.5415	External	Welding sleeves Ø 14 mm x 2.5 mm	1.6	F
500 bar (7252 psi)	E	11 CrMo 9 10	1.7383	External	Welding sleeves Ø 14 mm x 2.5 mm	1.6	G
500 bar (7252 psi)	D	16 Mo 3	1.5415	External	Welding sleeves \varnothing 21.3 mm \times 6.3 mm and \varnothing 14 mm \times 2.5 mm	1.6	Н
500 bar (7252 psi)	D	16 Mo 3	1.5415	External	Welding sleeves \varnothing 24 mm \times 7.1 mm and \varnothing 14 mm \times 2.5 mm	1.6	J
500 bar (7252 psi)	E	11 CrMo 9 10	1.7383	External	Welding sleeves \varnothing 24 mm \times 7.1 mm and \varnothing 14 mm \times 2.5 mm	1.6	K
Shut-off valve for	aggressi	ve liquids and gases					7MF9017-2
160 bar (2321psi)	F	X 6 CrNiMoTi 17 12 2	1.4571/ 316Ti	Internal	Threaded socket G½ form R, DIN 19207 DIN 19207 and pipe union with ferrule for pipe Ø 12 mm, S series	0.8	В
400 bar (5800 psi)	G	X 6 CrNiMoTi 17 12 2	1.4571/ 316Ti	Internal	Pipe union with ferrule for pipe Ø 12 mm, S series	1	С
400 bar (5800 psi)	Н	X 6 CrNiMoTi 17 12 2	1.4571/ 316Ti	External	Welding sleeves \varnothing 21.3 mm \times 6.3 mm and \varnothing 14 mm \times 2.5 mm	1.6	Н
400 bar (5800 psi)	Н	X 6 CrNiMoTi 17 12 2	1.4571/ 316Ti	External	Welding sleeves \varnothing 24 mm \times 7.1 mm and \varnothing 14 mm \times 2.5 mm	1.6	J
Accessories							
Factory test certific	ate EN 10	0204–2.2					7MF9000-8AB
Material acceptance test certificate EN 10204-3.1						7MF9000-8AD	

 $^{^{1)}\,}$ See Figure "Permissible working pressure as a function of the permissible working temperature"

Fittings - Accessories

Compensation vessels

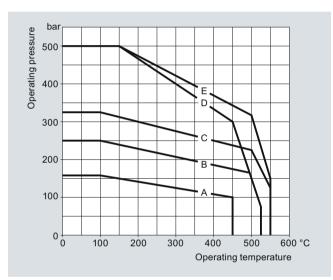
Overview

The compensation vessels prevent the level difference which occurs with pressure changes in the pressure lines and which falsifies the measurement.

According to DIN 19211, the temperature in the compensation vessel must be assumed to be 50 K less than the steam temperature in the pipe when calculating the wall thicknesses. This is because the temperature in the compensation vessel during operation can only rise up to the saturated steam temperature.

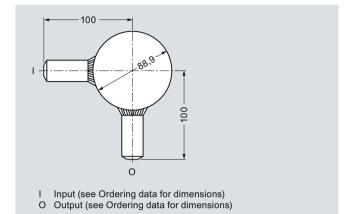
A material acceptance test certificate A to EN 10204-3.1 is available for the materials from which the compensation vessels are made.

Characteristic curves

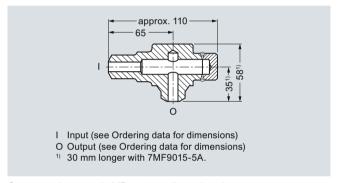


Permissible operating pressure as a function of the permissible operating temperature

Dimensional drawings



Compensation vessel 7MF9015-1.., dimensions in mm



Compensation vessel 7MF9015-5.., dimensions in mm

Selection and Ordering data

Compensation ves	ssel, witho	out certificate						
Max. working pressure	Charac- teristic ¹⁾	Material	Mat. No.	Connections Input	Output	Approx. contents cm ³	Approx. weight kg	Order No.
								7MF9015-
160 bar (2321 psi)	Α	16 Mo 3	1.5415	Threaded socket G½, form R, DIN 19207	Threaded socket G½, form V, DIN 19207	250	0.8	1 A
250 bar (3626 psi)	В	16 Mo 3	1.5415	Welding sleeve Ø 21.3 mm × 6.3 mm	Welding sleeve \varnothing 21.3 mm \times 6.3 mm	250	0.8	1 B
250 bar (3626 psi)	В	16 Mo 3	1.5415	Welding sleeve Ø 24 mm × 7.1 mm	Welding sleeve \emptyset 24 mm \times 7.1 mm	250	1	1 C
250 bar (3626 psi)	В	11 CrMo 9 10	1.7383	Welding sleeve Ø 24 mm × 7.1 mm	Welding sleeve Ø 24 mm × 7.1 mm	250	1	1 D
250 bar (3626 psi)	В	16 Mo 3	1.5415	Welding sleeve Ø 33.7 mm × 4.5 mm	Welding sleeve Ø 24 mm × 7.1 mm	250	0.7	1 E
160 bar (2321 psi)	Α	16 Mo 3	1.5415	Threaded socket G½, form R, DIN 19207	Threaded socket G½, form V, DIN 19207	20	1.6	5 A
500 bar (7252 psi)	D	16 Mo 3	1.5415	Welding sleeve Ø 21.3 mm × 6.3 mm	Welding sleeve Ø 21.3 mm × 6.3 mm	20	1.6	5 B
500 bar (7252 psi)	D	16 Mo 3	1.5415	Welding sleeve Ø 24 mm × 7.1 mm	Welding sleeve Ø 24 mm × 7.1 mm	20	1.6	5 C
500 bar (7252 psi)	Е	11 CrMo 9 10	1.7383	Welding sleeve Ø 24 mm × 7.1 mm	Welding sleeve Ø 24 mm × 7.1 mm	20	1.6	5 D

Accessories

Factory test certificate EN 10204-2.2

Material acceptance test certificate EN 10204-3.1

7MF9000-8AB 7MF9000-8AD

¹⁾ See Figure "Permissible working pressure as a function of the permissible working temperature"

Fittings - Accessories

Connection parts

Overview

Connection parts are available in the following versions:

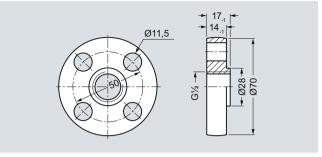
- Threaded flange pair G½ with stainless steel gasket
- Nipple G½ form V to DIN 19207
- Union nut G½ made of C 35 to DIN 16284
- Gasket B½ (grooved) to DIN 19207

All connection parts are also available grease-free for oxygen.

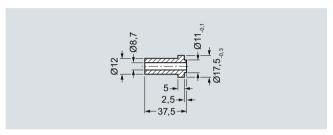
Selection and Ordering data Threaded flange pair G½ • with stainless steel gasket • grease-free for oxygen, with stainless steel gasket Scope of delivery: 2x threaded flanges G½ to DIN 19207; material: P250GH (mat. No. 1.0460) 4x hexagon screws M10x45 to DIN EN 24014; Material: C35E (mat. No. 1.1181) 4x hexagon screws M10x50 to DIN EN 24032 1x gasket G½ (7MF9007-6BA) grooved, to DIN 19207; Material: X 6 CrNilMoTi 17 12 2 (mat. No. 1.4571/316Ti) Only for 7MF9007-4CA! 1x gasket G½ (7MF9k007-6CA), grease-free for oxygen, grooved, to DIN 19207; Material: X 6 CrNilMoTi 17 12 2 (mat. No. 1.4571/316Ti) Only for 7MF9007-4DA! Nipple G½ to DIN 19207 • Material: 16 Mo 3 (mat. No. 1.5415) • grease-free for oxygen, Material: X 6 CrNilMoTi 17 12 2 (mat. No. 1.4571/316Ti) Union nut G½ to DIN 16284 • Material: C35E (mat. No. 1.1181) • grease-free for oxygen, Material: X 6 CrNilMoTi 17 12 2 (mat. No. 1.4571/316Ti) Gasket G½ to DIN 19207, grooved • Material: X 6 CrNilMoTi 17 12 2 (mat. No. 1.4571/316Ti)		
• with stainless steel gasket • grease-free for oxygen, with stainless steel gasket Scope of delivery: 2x threaded flanges G½ to DIN 19207; material: P250GH (mat. No. 1.0460) 4x hexagon screws M10x45 to DIN EN 24014; Material: C35E (mat. No. 1.1181) 4x hexagon screws M10x50 to DIN EN 24032 1x gasket G½ (7MF9007-6BA) grooved, to DIN 19207; Material: X 6 CrNiMoTi 17 12 2 (mat. No. 14571/316Ti) Only for 7MF9007-4CA! 1x gasket G½ (7MF9k007-6CA), grease-free for oxygen, grooved, to DIN 19207; Material: X 6 CrNiMoTi 17 12 2 (mat. No. 14571/316Ti) Only for 7MF9007-4DA! Nipple G½ to DIN 19207 • Material: 16 Mo 3 (mat. No. 1.5415) • grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Union nut G½ to DIN 16284 • Material: C35E (mat. No. 1.1181) • grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Gasket G½ to DIN 19207, grooved • Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Gasket G½ to DIN 19207, grooved	Selection and Ordering data	Order No.
• grease-free for oxygen, with stainless steel gasket Scope of delivery: 2x threaded flanges G½ to DIN 19207; material: P250GH (mat. No. 1.0460) 4x hexagon screws M10x45 to DIN EN 24014; Material: C35E (mat. No. 1.1181) 4x hexagon screws M10x50 to DIN EN 24032 1x gasket G½ (7MF9007-6BA) grooved, to DIN 19207; Material: X 6 CrNiMoTi 17 12 2 (mat. No. 14571/316Ti) Only for 7MF9007-4CA! 1x gasket G½ (7MF9k007-6CA), grease-free for oxygen, grooved, to DIN 19207; Material: X 6 CrNiMoTi 17 12 2 (mat. No. 14571/316Ti) Only for 7MF9007-4DA! Nipple G½ to DIN 19207 • Material: 16 Mo 3 (mat. No. 1.5415) • grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Union nut G½ to DIN 16284 • Material: C35E (mat. No. 1.1181) • grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Gasket G½ to DIN 19207, grooved • Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti)	Threaded flange pair G½	
Steel gasket Scope of delivery: 2x threaded flanges G½ to DIN 19207; material: P250GH (mat. No. 1.0460) 4x hexagon screws M10x45 to DIN EN 24014; Material: C35E (mat. No. 1.1181) 4x hexagon screws M10x50 to DIN EN 24032 1x gasket G½ (7MF9007-6BA) grooved, to DIN 19207; Material: X 6 CrNiMoTi 17 12 2 (mat. No. 14571/316Ti) Only for 7MF9007-4CA! 1x gasket G½ (7MF9k007-6CA), grease-free for oxygen, grooved, to DIN 19207; Material: X 6 CrNiMoTi 17 12 2 (mat. No. 14571/316Ti) Only for 7MF9007-4DA! Nipple G½ to DIN 19207 • Material: 16 Mo 3 (mat. No. 1.5415) • grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Union nut G½ to DIN 16284 • Material: C35E (mat. No. 1.1181) • grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Gasket G½ to DIN 19207, grooved • Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) F) 7MF9007-6BA	• with stainless steel gasket	7MF9007-4CA
2x threaded flanges G½ to DIN 19207; material: P250GH (mat. No. 1.0460) 4x hexagon screws M10x45 to DIN EN 24014; Material: C35E (mat. No. 1.1181) 4x hexagon screws M10x50 to DIN EN 24032 1x gasket G½ (7MF9007-6BA) grooved, to DIN 19207; Material: X 6 CrNiMoTi 17 12 2 (mat. No. 14571/316Ti) Only for 7MF9007-4CA! 1x gasket G½ (7MF9k007-6CA), grease-free for oxygen, grooved, to DIN 19207; Material: X 6 CrNiMoTi 17 12 2 (mat. No. 14571/316Ti) Only for 7MF9007-4DA! Nipple G½ to DIN 19207 • Material: 16 Mo 3 (mat. No. 1.5415) • grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Union nut G½ to DIN 16284 • Material: C35E (mat. No. 1.1181) • grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Gasket G½ to DIN 19207, grooved • Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti)		7MF9007-4DA
P250GH (mat. No. 1.0460) 4x hexagon screws M10x45 to DIN EN 24014; Material: C35E (mat. No. 1.1181) 4x hexagon screws M10x50 to DIN EN 24032 1x gasket G½ (7MF9007-6BA) grooved, to DIN 19207; Material: X 6 CrNiMoTi 17 12 2 (mat. No. 14571/316Ti) Only for 7MF9007-4CA! 1x gasket G½ (7MF9k007-6CA), grease-free for oxygen, grooved, to DIN 19207; Material: X 6 CrNiMoTi 17 12 2 (mat. No. 14571/316Ti) Only for 7MF9007-4DA! Nipple G½ to DIN 19207 • Material: 16 Mo 3 (mat. No. 1.5415) • grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Union nut G½ to DIN 16284 • Material: C35E (mat. No. 1.1181) • grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Gasket G½ to DIN 19207, grooved • Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) F) 7MF9007-6BA	Scope of delivery:	
Material: C35E (mat. No. 1.1181) 4x hexagon screws M10x50 to DIN EN 24032 1x gasket G½ (7MF9007-6BA) grooved, to DIN 19207; Material: X 6 CrNiMoTi 17 12 2 (mat. No. 14571/316Ti) Only for 7MF9007-4CA! 1x gasket G½ (7MF9k007-6CA), grease-free for oxygen, grooved, to DIN 19207; Material: X 6 CrNiMoTi 17 12 2 (mat. No. 14571/316Ti) Only for 7MF9007-4DA! Nipple G½ to DIN 19207 • Material: 16 Mo 3 (mat. No. 1.5415) • grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Union nut G½ to DIN 16284 • Material: C35E (mat. No. 1.1181) • grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Gasket G½ to DIN 19207, grooved • Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti)		
1x gasket G½ (7MF9007-6BA) grooved, to DIN 19207; Material: X 6 CrNiMoTi 17 12 2 (mat. No. 14571/316Ti) Only for 7MF9007-4CA! 1x gasket G½ (7MF9k007-6CA), grease-free for oxygen, grooved, to DIN 19207; Material: X 6 CrNiMoTi 17 12 2 (mat. No. 14571/316Ti) Only for 7MF9007-4DA! Nipple G½ to DIN 19207 • Material: 16 Mo 3 (mat. No. 1.5415) • grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Union nut G½ to DIN 16284 • Material: C35E (mat. No. 1.1181) • grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Gasket G½ to DIN 19207, grooved • Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti)		
to DIN 19207; Material: X 6 CrNiMoTi 17 12 2 (mat. No. 14571/316Ti) Only for 7MF9007-4CA! 1x gasket G½ (7MF9k007-6CA), grease-free for oxygen, grooved, to DIN 19207; Material: X 6 CrNiMoTi 17 12 2 (mat. No. 14571/316Ti) Only for 7MF9007-4DA! Nipple G½ to DIN 19207 • Material: 16 Mo 3 (mat. No. 1.5415) • grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Union nut G½ to DIN 16284 • Material: C35E (mat. No. 1.1181) • grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Gasket G½ to DIN 19207, grooved • Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti)	4x hexagon screws M10x50 to DIN EN 24032	
oxygen, grooved, to DIN 19207; Material: X 6 CrNiMoTi 17 12 2 (mat. No. 14571/316Ti) Only for 7MF9007-4DA! Nipple G½ to DIN 19207 • Material: 16 Mo 3 (mat. No. 1.5415) • grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Union nut G½ to DIN 16284 • Material: C35E (mat. No. 1.1181) • grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Gasket G½ to DIN 19207, grooved • Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) F) 7MF9007-6BA	to ĎIN 19207; Material: X 6 CrNiMoTi 17 12 2 (mat. No. 14571/316Ti)	
Nipple G½ to DIN 19207 • Material: 16 Mo 3 (mat. No. 1.5415) • grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Union nut G½ to DIN 16284 • Material: C35E (mat. No. 1.1181) • grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Gasket G½ to DIN 19207, grooved • Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) F) 7MF9007-6BA	oxygen, grooved, to DIN 19207; Material: X 6 CrNiMoTi 17 12 2 (mat. No. 14571/316Ti)	
to DIN 19207 • Material: 16 Mo 3 (mat. No. 1.5415) • grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Union nut G½ to DIN 16284 • Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) • grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Gasket G½ to DIN 19207, grooved • Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) F) 7MF9007-6BA		
 Material: 16 Mo 3 (mat. No. 1.5415) grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Union nut G½ to DIN 16284 Material: C35E (mat. No. 1.1181) grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Gasket G½ to DIN 19207, grooved Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) F) 7MF9007-6BA 	••	
• grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Union nut G½ to DIN 16284 • Material: C35E (mat. No. 1.1181) • grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Gasket G½ to DIN 19207, grooved • Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) F) 7MF9007-6BA		7MF9007-4KA
to DIN 16284 • Material: C35E (mat. No. 1.1181) • grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Gasket G½ to DIN 19207, grooved • Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) F) 7MF9007-6BA	• grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2	7MF9007-4LA
• Material: C35E (mat. No. 1.1181) • grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Gasket G½ to DIN 19207, grooved • Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) F) 7MF9007-6BA	Union nut G½	
• grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Gasket G½ to DIN 19207, grooved • Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) F) 7MF9007-6BA	to DIN 16284	
Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) Gasket G½ to DIN 19207, grooved • Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) F) 7MF9007-6BA	• Material: C35E (mat. No. 1.1181)	7MF9007-4MA
to DIN 19207, grooved • Material: X 6 CrNiMoTi 17 12 2 F) 7MF9007-6BA (mat. No. 1.4571/316Ti)	Material: X 6 CrNiMoTi 17 12 2	7MF9007-4NA
• Material: X 6 CrNiMoTi 17 12 2 F) 7MF9007-6BA (mat. No. 1.4571/316Ti)	Gasket G½	
(mat. No. 1.4571/316Ti)	to DIN 19207, grooved	
		7MF9007-6BA
grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti) F) 7MF9007-6CA F) 7MF9007-6CA	Material: X 6 CrNiMoTi 17 12 2	7MF9007-6CA

F) Subject to export regulations AL: 91999, ECCN: N.

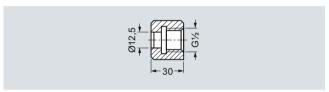
Dimensional drawings



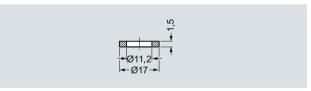
Threaded flange 7MF9007-4CA/-4DA, dimensions in mm



Nipple G½ 7MF9007-4KA/-4LA, dimensions in mm



Union nut G½ 7MF9007-4MA/-4NA, dimensions in mm



Gasket 7MF9007-6BA/-6CA, dimensions in mm