

**Technical specifications****SITRANS P DS III series for absolute pressure (from the gauge pressure series)****Input**

Measured variable

Absolute pressure

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

**HART****PROFIBUS PA/  
FOUNDATION  
Fieldbus**

Span

Nominal measuring range

Max. operating pressure MAWP (PS)

Max. perm. test pressure

8.34 ... 250 mbar a  
0.83 ... 25 kPa a  
3.35 ... 100 inH<sub>2</sub>O a  
43.34 ... 1300 mbar a  
4.33 ... 130 kPa a  
17.42 ... 522.4 inH<sub>2</sub>O a

250 mbar a  
25 kPa a  
100 inH<sub>2</sub>O a  
1300 mbar a  
130 kPa a  
525 inH<sub>2</sub>O a

1.5 bar a  
150 kPa a  
21.8 psi a  
2.6 bar a  
260 kPa a  
37.7 psi a

6 bar a  
600 kPa a  
87 psi a  
10 bar a  
1 MPa a  
145 psi a

170 ... 5000 mbar a  
17 ... 500 kPa a  
2.43 ... 72.5 psi a

5000 mbar a  
500 kPa a  
72.5 psi a

10 bar a  
1 MPa a  
145 psi a

30 bar a  
3 MPa a  
435 psi a

1 ... 30 bar a  
0.1 ... 3 MPa a  
14.6 ... 435 psi a

30 bar a  
3 MPa a  
435 psi a

45 bar a  
4.5 MPa a  
653 psi a

100 bar a  
10 MPa a  
1450 psi a

5,34 ... 160 bar a  
0.53 ... 16 MPa a  
77.4 ... 2321 psi a

160 bar a  
16 MPa a  
2321 psi

167 bar a  
16,7 MPa a  
2422 psi

250 bar a  
25 MPa a  
3626 psi

13,34 ... 400 bar a  
1.3 ... 40 MPa a  
193.4 ... 5802 psi a

400 bar a  
40 MPa a  
5802 psi a

400 bar a  
40 MPa a  
5802 psi a

600 bar a  
60 MPa a  
8702 psi a

23,34 ... 700 bar a  
2.33 ... 70 MPa a  
338.43 ... 10153 psi a

700 bar a  
70 MPa a  
10153 psi a

800 bar a  
80 MPa a  
11603 psi a

800 bar a  
80 MPa a  
11603 psi a

Lower measuring limit

- Measuring cell with silicone oil filling

- Measuring cell with inert filling liquid

- for process temperature  $-20\text{ °C} < \vartheta \leq +60\text{ °C}$   
( $-4\text{ °F} < \vartheta \leq +140\text{ °F}$ )

- for process temperature  
 $60\text{ °C} < \vartheta \leq +100\text{ °C}$  (max.  $85\text{ °C}$  for measuring cell 30 bar)  
( $140\text{ °F} < \vartheta \leq +212\text{ °F}$  (max.  $185\text{ °F}$  for measuring cell 435 psi))

0 mbar a/0 kPa a/0 psi a

30 mbar a/3 kPa a/0.44 psi a

$30\text{ mbar a} + 20\text{ mbar a} \cdot (\vartheta - 60\text{ °C})/\text{°C}$   
 $3\text{ kPa a} + 2\text{ kPa a} \cdot (\vartheta - 60\text{ °C})/\text{°C}$   
 $0.44\text{ psi a} + 0.29\text{ psi a} \cdot (\vartheta - 140\text{ °F})/\text{°F}$

Upper measuring limit

100 % of max. span  
(for oxygen measurement max. 100 bar/10 MPa/1450 psi and  $60\text{ °C}$  ( $140\text{ °F}$ ) ambient temperature/process temperature)

Start of scale value

Between the measuring limits (fully adjustable)

**Output****HART****PROFIBUS PA/FOUNDATION Fieldbus**

Output signal

4 ... 20 mA

Digital PROFIBUS PA and FOUNDATION Fieldbus signal

- Lower limit (infinitely adjustable)

3.55 mA, factory preset to 3.84 mA

-

- Upper limit (infinitely adjustable)

23 mA, factory preset to 20.5 mA or optionally set to 22.0 mA

-

Load

- Without HART

 $R_B \leq (U_H - 10.5\text{ V})/0.023\text{ A}$  in  $\Omega$ ,  
 $U_H$ : Power supply in V

-

- With HART

 $R_B = 230 \dots 500\ \Omega$  (SIMATIC PDM) or  
 $R_B = 230 \dots 1100\ \Omega$  (HART Communicator)

-

Physical bus

-

IEC 61158-2

Protection against polarity reversal

Protected against short-circuit and polarity reversal.  
Each connection against the other with max. supply voltage.

Electrical damping (step width 0.1 s)

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

# Pressure Measurement

Pressure transmitters

for applications with advanced requirements (Advanced)

SITRANS P DS III

for absolute pressure (from gauge pressure series)

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

### Measuring accuracy

Reference conditions

(All error data refer always refer to the set span)

Acc. to IEC 60770-1

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

Measuring span ratio  $r$  (spread, Turn-Down)

$r = \text{max. measuring span/set measuring span or nom. pressure range}$

Error in measurement at limit setting incl. hysteresis and reproducibility

- Linear characteristic

-  $r \leq 10$

$\leq 0.1 \%$

-  $10 < r \leq 30$

$\leq 0.2 \%$

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

- 250 mbar a/25 kPa a/3.6 psi a

$\leq (0.15 \cdot r + 0.1) \%$

- 1300 mbar a/130 kPa a/18.8 psi a
- 5 bar a/500 kPa a/72.5 psi a
- 30 bar a/3000 kPa a/435 psi a
- 100 bar a/10 MPa a/1450 psi a
- 160 bar a/16 MPa a/2321 psi a
- 400 bar a/40 MPa a/5802 psi a
- 700 bar a/50 MPa a/10152 psi a

$\leq (0.08 \cdot r + 0.16) \%$

Long-term stability (temperature change  $\pm 30$  °C ( $\pm 54$  °F))

$\leq (0.25 \cdot r) \%$  in 5 years

Effect of mounting position (in pressure per change in angle)

$\leq 0.05$  mbar/0.005 kPa/0.000725 psi per 10° inclination  
(zero point correction is possible with position error compensation)

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

0.005 % per 1 V

Measuring value resolution for PROFIBUS PA and FOUNDATION Fieldbus

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

### Rated conditions

Degree of protection

- according to EN 60529
- according to NEMA 250

IP66 (optional IP66/IP68)

Type 4X

Temperature of medium

- Measuring cell with silicone oil filling

-40 ... +100 °C (-40 ... +212 °F)

-20 ... +100 °C (-4 ... +212 °F) with 30 bar a measuring cell

- Measuring cell with inert filling liquid

-20 ... +100 °C (-4 ... +212 °F)

- In conjunction with dust explosion protection

-20 ... +60 °C (-4 ... +140 °F)

Ambient conditions

- Ambient temperature

- Transmitter

-40 ... +85 °C (-40 ... +185 °F)

- Display readable

-30 ... +85 °C (-22 ... +185 °F)

- Storage temperature

-50 ... +85 °C (-58 ... +185 °F)

- Climatic class

- Condensation

Relative humidity 0 ... 100 %  
Condensation permissible, suitable for use in the tropics

- Electromagnetic Compatibility

- Emitted interference and interference immunity

Acc. to IEC 61326 and NAMUR NE 21

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

Weight (without options)	≈ 1.5 kg (≈ 3.3 lb)
Enclosure material	Low-copper die-cast aluminum, GD-AlSi 12 or stainless steel precision casting, mat. no. 1.4408
Wetted parts materials	
• Connection shank	Stainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4602
• Oval flange	Stainless steel, mat. no. 1.4404/316L
• Seal diaphragm	Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819
Measuring cell filling	Silicone oil or inert filling liquid (maximum value with oxygen measurement pressure 100 bar (1450 psi) at 60 °C (140 °F))
Process connection	Connection shank G $\frac{1}{2}$ B to EN 837-1, female thread $\frac{1}{2}$ -14 NPT or oval flange (PN 160 (MAWP 2320 psi a)) to DIN 19213 with mounting thread M10 or $\frac{7}{16}$ -20 UNF to IEC 61518/DIN EN 61518
Material of mounting bracket	
• Steel	Sheet-steel, Mat. No. 1.0330, chrome-plated
• Stainless steel 304	Sheet stainless steel, mat. no. 1.4301 (SS 304)
• Stainless steel 316L	Sheet stainless steel, mat. no. 1.4404 (SS 316L)

**Power supply  $U_H$** 

	<b>HART</b>	<b>PROFIBUS PA/FOUNDATION Fieldbus</b>
Terminal voltage on transmitter	10.5 ... 45 V DC 10.5 ... 30 V DC in intrinsically-safe mode	-
Power supply		Supplied through bus
Separate 24 V power supply necessary	-	No
Bus voltage		
• Not Ex	-	9 ... 32 V
• With intrinsically-safe operation	-	9 ... 24 V
Current consumption		
• Basic current (max.)	-	12.5 mA
• Start-up current $\leq$ basic current	-	Yes
• Max. current in event of fault	-	15.5 mA
Fault disconnection electronics (FDE) available	-	Yes

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### Certificates and approvals

Classification according to PED 2014/68/EU

Explosion protection

- Intrinsic safety "i"

- Marking
- Permissible ambient temperature

- Connection

- Effective internal inductance/capacitance

- Explosion-proof "d"

- Marking
- Permissible ambient temperature

- Connection

- Dust explosion protection for zone 20

- Marking
- Permissible ambient temperature
- Max. surface temperature
- Connection

- Effective internal inductance/capacitance

- Dust explosion protection for zone 21/22

- Marking
- Connection

- Type of protection "n" (zone 2)

- Marking
- Connection (Ex nA)
- Connection (Ex ic)

- Effective internal inductance/capacitance

- Explosion protection acc. to FM

- Identification (XP/DIP) or (IS); (NI)

- Explosion protection to CSA

- Identification (XP/DIP) or (IS)

### HART

For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 4, paragraph 3 (sound engineering practice)

PTB 13 ATEX 2007 X

Ex II 1/2 G Ex ia/ib IIC T4/T5/T6 Ga/Gb

-40 ... +85 °C (-40 ... +185 °F) temperature class T4;  
-40 ... +70 °C (-40 ... +158 °F) temperature class T5;  
-40 ... +60 °C (-40 ... +140 °F) temperature class T6

To certified intrinsically-safe circuits with peak values:  
 $U_i = 30 \text{ V}$ ,  $I_i = 100 \text{ mA}$ ,  
 $P_i = 750 \text{ mW}$ ;  $R_i = 300 \Omega$

$L_i = 0.4 \text{ mH}$ ,  $C_i = 6 \text{ nF}$

PTB 99 ATEX 1160

Ex II 1/2 G Ex d IIC T4/T6 Gb

-40 ... +85 °C (-40 ... +185 °F) temperature class T4;  
-40 ... +60 °C (-40 ... +140 °F) temperature class T6

To circuits with values:  $U_{H1} = 10.5 \dots 45 \text{ V DC}$

PTB 01 ATEX 2055

Ex II 1 D Ex ta IIIC T120°C Da

Ex II 1/2 D Ex ta/tb IIIC T120°C Da/Db

-40 ... +85 °C (-40 ... +185 °F)

120 °C (248 °F)

To certified intrinsically-safe circuits with peak values:  
 $U_i = 30 \text{ V}$ ,  $I_i = 100 \text{ mA}$ ,  
 $P_i = 750 \text{ mW}$ ,  $R_i = 300 \Omega$

$L_i = 0.4 \text{ mH}$ ,  $C_i = 6 \text{ nF}$

PTB 01 ATEX 2055

Ex II 2 D Ex tb IIIC T120°C Db

To circuits with values:  $U_{H1} = 10.5 \dots 45 \text{ V DC}$ ;  $P_{\max} = 1.2 \text{ W}$

PTB 13 ATEX 2007 X

Ex II 2/3 G Ex nA IIC T4/T5/T6 Gb/Gc

Ex II 2/3 G Ex ic IIC T4/T5/T6 Gb/Gc

$U_m = 45 \text{ V}$

To circuits with values:  
 $U_i = 45 \text{ V}$

$L_i = 0.4 \text{ mH}$ ,  $C_i = 6 \text{ nF}$

Certificate of Compliance 3008490

CL I, DIV 1, GP ABCD T4...T6; CL II, DIV 1, GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4...T6; CL I, DIV 2, GP ABCD T4...T6; CL II, DIV 2, GP FG; CL III

Certificate of Compliance 1153651

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

### PROFIBUS PA/ FOUNDATION Fieldbus

FISCO supply unit:  
 $U_o = 17.5 \text{ V}$ ,  $I_o = 380 \text{ mA}$ ,  $P_o = 5.32 \text{ W}$

Linear barrier:  
 $U_o = 24 \text{ V}$ ,  $I_o = 250 \text{ mA}$ ,  $P_o = 1.2 \text{ W}$

$L_i = 7 \mu\text{H}$ ,  $C_i = 1.1 \text{ nF}$

To circuits with values:  $U_{H1} = 9 \dots 32 \text{ V DC}$

FISCO supply unit:  
 $U_o = 17.5 \text{ V}$ ,  $I_o = 380 \text{ mA}$ ,  $P_o = 5.32 \text{ W}$

Linear barrier:  
 $U_o = 24 \text{ V}$ ,  $I_o = 250 \text{ mA}$ ,  $P_o = 1.2 \text{ W}$

$L_i = 7 \mu\text{H}$ ,  $C_i = 1.1 \text{ nF}$

To circuits with values:  $U_{H1} = 9 \dots 32 \text{ V DC}$ ;  
 $P_{\max} = 1 \text{ W}$

$U_m = 32 \text{ V}$

FISCO supply unit ic:  
 $U_o = 17.5 \text{ V}$ ,  $I_o = 570 \text{ mA}$

Linear barrier:  
 $U_o = 32 \text{ V}$ ,  $I_o = 132 \text{ mA}$ ,  $P_o = 1 \text{ W}$

$L_i = 7 \mu\text{H}$ ,  $C_i = 1.1 \text{ nF}$

# Pressure Measurement

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

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

# Pressure Measurement

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

for absolute pressure (from gauge pressure series)

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Selection and Ordering data		Article No.
<b>Pressure transmitters for absolute pressure from gauge pressure series SITRANS P DS III with HART</b>		<b>7MF4233-</b>
<p>Click on the Article No. for the online configuration in the PIA Life Cycle Portal.</p>		
<b>Measuring cell filling</b>	<b>Measuring cell cleaning</b>	
Silicone oil	normal	1
Inert liquid <sup>1)</sup>	grease-free to cleanliness level 2	3
<b>Measuring span (min. ... max.)</b>		
8.34 ... 250 mbar a	(0.13 ... 3.63 psi a)	D
43.34 ... 1300 mbar a	(0.63 ... 18.86 psi a)	F
0.17 ... 5 bar a	(2.43 ... 72.5 psi a)	G
1 ... 30 bar a	(14.6 ... 435 psi a)	H
5.34 ... 160 bar a <sup>2)</sup>	(77.4 ... 2 321 psi a)	L
13.34 ... 400 bar a <sup>2)</sup>	(193.4 ... 5 802 psi a)	M
23.34 ... 700 bar a <sup>2)</sup>	(338.43 ... 10 153 psi a)	N
<b>Wetted parts materials</b>		
Seal diaphragm	Process connection	
Stainless steel	Stainless steel	A
Hastelloy	Stainless steel	B
Hastelloy	Hastelloy	C
Version for diaphragm seals in conjunction with process connector "female thread 1/2-14 NPT" (recommended version) <sup>3) 4) 5) 6) 7)</sup>		Y 1
Version for diaphragm seals in conjunction with process connector "G1/2B connection shank" <sup>3) 4) 5) 6) 7)</sup>		Y 0
<b>Process connection</b>		
• Connection shank G1/2B to EN 837-1		0
• Female thread 1/2-14 NPT		1
• Stainless steel oval flange with process connection (Oval flange has no female thread)		
- Mounting thread 7/16-20 UNF to IEC 61518/DIN EN 61518		2
- Mounting thread M10 to DIN 19213		3
- Mounting thread M12 to DIN 19213		4
• Male thread M20 x 1.5		5
• Male thread 1/2 -14 NPT		6
<b>Non-wetted parts materials</b>		
• Housing made of die-cast aluminium		0
• Housing stainless steel precision casting <sup>8)</sup>		3
<b>Version</b>		
• Standard version, German plate inscription, setting for pressure unit: bar		1
• International version, English plate inscription, setting for pressure unit: bar		2
• Chinese version, English plate inscription, setting for pressure unit: Pascal		3
All versions include DVD with compact operating instructions in various EU languages.		
<b>Explosion protection</b>		
• None		A
• With ATEX, Type of protection:		
- "Intrinsic safety (Ex ia)"		B
- "Explosion-proof (Ex d)" <sup>9)</sup>		D
- "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)" <sup>10)</sup>		P
- "Ex nA/ic (Zone 2)" <sup>11)</sup>		E
- "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia+ Ex d + Zone 1D/2D)" <sup>10)12)</sup>		R
• FM + CSA intrinsic safe (is) <sup>13)</sup>		F
• FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D <sup>10)12)13)</sup>		S
• With FM + CSA, Type of protection:		
- "Intrinsic Safe and Explosion Proof (is + xp)" <sup>9)13)</sup>		NC

Selection and Ordering data		Article No.
<b>Pressure transmitters for absolute pressure from gauge pressure series SITRANS P DS III with HART</b>		<b>7MF4233-</b>
<b>Electrical connection/cable entry</b>		
• Screwed gland M20x1.5		B
• Screwed gland 1/2-14 NPT		C
• Device plug Han 7D (plastic housing) incl. mating connector <sup>14)</sup>		D
• Device plugs M12 (stainless steel) <sup>15) 16)</sup>		F
<b>Display</b>		
• Without display		0
• Without visible display (display concealed, setting: mA)		1
• With visible display (setting: mA)		6
• with customer-specific display (setting as specified, Order code "Y21" or "Y22" required)		7
Power supply units see Chap. 7 "Supplementary Components".		
A quick-start guide is included in the scope of delivery of the device.		
1) For oxygen application, add Order code E10.		
2) Available soon		
3) Version 7MF4233-1DY... only up to max. span 200 mbar a (80 inH <sub>2</sub> O a).		
4) When the manufacturer'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.		
5) If the acceptance test certificate 3.1. is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.		
6) The diaphragm seal is to be specified with a separate order number and must be included with the transmitter order number, for example 7MF423-...Y... and 7MF4900-1...-B		
7) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil.		
8) Not in conjunction with Electrical connection "device plug Han 7D".		
9) Without cable gland, with blanking plug.		
10) With enclosed cable gland Ex ia and blanking plug.		
11) Configurations with device plugs Han and M12 are only available in Ex ic.		
12) Only in connection with IP66.		
13) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.		
14) Only in connection with Ex approval A, B or E.		
15) Only in connection with Ex approval A, B, E or F.		
16) M12 delivered without cable socket		

Selection and Ordering data		Article No.	Selection and Ordering data		Article No.
<b>Pressure transmitters for absolute pressure from gauge pressure series</b>			<b>Pressure transmitters for absolute pressure from gauge pressure series</b>		
<b>SITRANS P DS III with PROFIBUS PA (PA)</b>		7 MF 4 2 3 4 -	<b>SITRANS P DS III with PROFIBUS PA (PA)</b>		7 MF 4 2 3 4 -
<b>SITRANS P DS III with FOUNDATION Fieldbus (FF)</b>		7 MF 4 2 3 5 -	<b>SITRANS P DS III with FOUNDATION Fieldbus (FF)</b>		7 MF 4 2 3 5 -
<a href="#">Click on the Article No. for the online configuration in the PIA Life Cycle Portal.</a>					
<b>Measuring cell filling</b>	<b>Measuring cell cleaning</b>		<b>Explosion protection</b>		
Silicone oil	normal	1	• None		A
Inert liquid <sup>1)</sup>	grease-free to cleanliness level 2	3	• With ATEX, Type of protection:		B
			- "Intrinsic safety (Ex ia)"		D
			- "Explosion-proof (Ex d)" <sup>8)</sup>		P
			- "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d) <sup>9)</sup>		E
			- "Ex nA/ic (Zone 2)" <sup>10)</sup>		R
			- "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)" <sup>9) 11)</sup>		F
			• FM + CSA intrinsic safe (is) <sup>12)</sup>		S
			• FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D <sup>9) 11) 12)</sup>		NC
			• With FM + CSA, Type of protection:		
			- "Intrinsic Safe and Explosion Proof (is + xp)" <sup>8) 12)</sup>		
			<b>Electrical connection/cable entry</b>		
			• Screwed gland M20 x 1.5		B
			• Screwed gland ½-14 NPT		C
			• Device plugs M12 (stainless steel) <sup>13) 14)</sup>		F
			<b>Display</b>		
			• Without display		0
			• Without visible display (display concealed, setting: bar)		1
			• With visible display (setting: bar)		6
			• with customer-specific display (setting as specified, Order code "Y21" or "Y22" required)		7
			A quick-start guide is included in the scope of delivery of the device.		
			1) For oxygen application, add Order code E10.		
			2) Available soon		
			3) Version 7MF4233-1DY... only up to max. span 200 mbar a (2.9 psi a).		
			4) When the manufacturer's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.		
			5) If the acceptance test certificate 3.1 is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.		
			6) The diaphragm seal is to be specified with a separate order number and must be included with the transmitter order number, for example 7MF423.-.Y.-... and 7MF4900-1...-B		
			7) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil.		
			8) Without cable gland, with blanking plug.		
			9) With enclosed cable gland Ex ia and blanking plug.		
			10) Configurations with device plugs Han and M12 are only available in Ex ic.		
			11) Only in connection with IP66.		
			12) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.		
			13) Only in connection with Ex approval A, B, E or F.		
			14) M12 delivered without cable socket.		
<b>Nominal measuring range</b>					
250 mbar a	(3.63 psi a)	D			
1300 mbar a	(18.86 psi a)	F			
5 bar a	(72.5 psi a)	G			
30 bar a	(435 psi a)	H			
160 bar a <sup>2)</sup>	(2 321 psi a)	L			
400 bar a <sup>2)</sup>	(5 802 psi a)	M			
700 bar a <sup>2)</sup>	(10 153 psi a)	N			
<b>Wetted parts materials</b>					
Seal diaphragm	Process connection				
Stainless steel	Stainless steel	A			
Hastelloy	Stainless steel	B			
Hastelloy	Hastelloy	C			
Version for diaphragm seals in conjunction with process connector "female thread ½-14 NPT" (recommended version) <sup>3) 4) 5) 6) 7)</sup>		Y 1			
Version for diaphragm seals in conjunction with process connector "G½B connection shank" <sup>3) 4) 5) 6) 7)</sup>		Y 0			
<b>Process connection</b>					
• Connection shank G½B to EN 837-1		0			
• Female thread ½-14 NPT		1			
• Stainless steel oval flange with process connection (Oval flange has no female thread)					
- Mounting thread 7/16-20 UNF to IEC 61518/DIN EN 61518		2			
- Mounting thread M10 to DIN 19213		3			
- Mounting thread M12 to DIN 19213		4			
• Male thread M20 x 1.5		5			
• Male thread ½-14 NPT		6			
<b>Non-wetted parts materials</b>					
• Housing made of die-cast aluminium		0			
• Housing stainless steel precision casting		3			
<b>Version</b>					
• Standard version, German plate inscription, setting for pressure unit: bar		1			
• International version, English plate inscription, setting for pressure unit: bar		2			
• Chinese version, English plate inscription, setting for pressure unit: Pascal		3			
All versions include DVD with compact operating instructions in various EU languages.					

# Pressure Measurement

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

for absolute pressure (from gauge pressure series)

1

Selection and Ordering data	Order code			Selection and Ordering data	Order code		
<i>Further designs</i>	HART	PA	FF	<i>Further designs</i>	HART	PA	FF
Add "-Z" to Article No. and specify Order code.				Add "-Z" to Article No. and specify Order code.			
<b>Pressure transmitter with mounting bracket (1x fixing angle, 2 x nut, 2 x U-washer or 1 x bracket, 2 x nut, 2 x U-washer) made of:</b>				<b>CRN approval Canada</b> (Canadian Registration Number)	E22 <sup>6)</sup>	✓	✓
• Steel	A01	✓	✓	<b>Dual seal</b>	E24	✓	✓
• Stainless steel 304	A02	✓	✓	<b>Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil)</b> (only for transmitter 7MF4...-.....-B..)	E25 <sup>7)</sup>	✓	✓
• Stainless steel 316L	A03	✓	✓	<b>"Flameproof" explosion protection according to INMETRO (Brazil)</b> (only for transmitter 7MF4...-.....-D..)	E26 <sup>7)</sup>	✓	✓
<b>Device plugs<sup>1)</sup></b>				<b>Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil)</b> (only for transmitter 7MF4...-.....-P..)	E28 <sup>7)</sup>	✓	✓
• Han 7D (metal)	A30	✓		<b>Ex Approval IEC Ex (Ex ia)</b> (only for transmitter 7MF4...-.....-B..)	E45 <sup>7)</sup>	✓	✓
• Han 8D (instead of Han 7D)	A31	✓		<b>Ex Approval IEC Ex (Ex d)</b> (only for transmitter 7MF4...-.....-D..)	E46 <sup>7)</sup>	✓	✓
• Angled	A32	✓		<b>Explosion-proof "Intrinsic safety" to NEPSI (China)</b> (only for transmitter 7MF4...-.....-B..)	E55 <sup>7)</sup>	✓	✓
• Han 8D (metal)	A33	✓		<b>Explosion protection "Explosion-proof" to NEPSI (China)</b> (only for transmitter 7MF4...-.....-D..)	E56 <sup>7)</sup>	✓	✓
<b>Cable sockets for device plugs M12 (metal (CuZn))</b>	A50	✓	✓	<b>Explosion-proof "Zone 2" to NEPSI (China)</b> (only for transmitter 7MF4...-.....-E..)	E57 <sup>7)</sup>	✓	✓
<b>Rating plate inscription</b> (instead of German)				<b>Ex protection „Ex ia", „Ex d" and „Zone 2" to NEPSI (China)</b> (only for transmitter 7MF4...-.....-R..)	E58 <sup>7)</sup>	✓	✓
• English	B11	✓	✓	<b>"Intrinsic safety" and "Explosion-proof" explosion protection acc. to Kosha (Korea)</b> (only for transmitter 7MF4...-.....-[B, D]..-Z + E11)	E70 <sup>7)</sup>	✓	✓
• French	B12	✓	✓	<b>Ex-protection Ex ia according to EAC Ex (Russia)</b>	E80	✓	✓
• Spanish	B13	✓	✓	<b>Ex-protection Ex d according to EAC Ex (Russia)</b>	E81	✓	✓
• Italian	B14	✓	✓	<b>Ex-protection Ex nA/ic (Zone 2) according to EAC Ex (Russia)</b>	E82	✓	✓
• Cyrillic (russian)	B16	✓	✓	<b>Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia)</b>	E83	✓	✓
<b>English rating plate</b>	B21	✓	✓	<b>Two coats of lacquer on casing and cover (PU on epoxy)</b>	G10	✓	✓
Pressure units in inH <sub>2</sub> O and/or psi				<b>Transient protector 6 kV (lightning protect.)</b>	J01	✓	✓
<b>Quality Inspection Certificate (5-point characteristic curve test) according to IEC 60770-2<sup>2)</sup></b>	C11	✓	✓	<b>Oval flange NAM (ASTAVA)</b>	J06	✓	✓
<b>Inspection certificate<sup>3)</sup></b>	C12	✓	✓	<b>Marine approvals</b>			
Acc. to EN 10204-3.1				• Det Norske Veritas Germanischer Lloyd (DNV-GL)	S10	✓	✓
<b>Factory certificate</b>	C14	✓	✓	• Lloyds Register (LR)	S11	✓	✓
Acc. to EN 10204-2.2				• French marine classification society Bureau Veritas (BV)	S12	✓	✓
<b>Acceptance certificate (EN 10204-3.1)</b>	C15	✓	✓	• American Bureau of Shipping (ABS)	S14	✓	✓
PMI test of parts in contact with medium				• Russian Maritime Register (RMR)	S16	✓	✓
<b>Functional safety (SIL2)</b>	C20	✓		• Korean Register of Shipping (KR)	S17	✓	✓
Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration							
<b>Functional safety (PROFIsafe) Certificate and PROFIsafe protocol</b>	C21 <sup>4)</sup>		✓				
<b>Functional safety (SIL2/3)</b>	C23	✓					
Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration							
<b>PED for Russia with initial calibration mark</b>	C99	✓	✓				
<b>Setting of the upper saturation limit of the output signal to 22.0 mA</b>	D05	✓					
<b>Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009)</b>	D07	✓	✓				
<b>Degree of protection IP66/IP68</b> (only for M20 x 1.5 and ½-14 NPT)	D12	✓	✓				
<b>Supplied with oval flange</b> (1 item), PTFE packing and screws in thread of oval flange	D37	✓	✓				
<b>Capri cable gland 4F CrNi and clamping device (848699 + 810634) included</b>	D59	✓	✓				
<b>Use in or on zone 1D/2D<sup>5)</sup></b> (only together with type of protection "Intrinsic safety" (transmitter 7MF4...-.....-B.. Ex ia) and IP65)	E01	✓	✓				
<b>Oxygen application</b> (In the case of oxygen measurement and inert liquid max. 100 bar (1450 psi) at 60°C (140 °F))	E10	✓	✓				
<b>Export approval Korea</b>	E11	✓	✓				

1) Device plug Han IP65

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

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

6) Cannot be ordered with remote seal.

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



Selection and Ordering data	Order code			
Additional data		HART	PA	FF
Please add <b>"-Z"</b> to Article No. and specify Order code(s) and plain text.				
<b>Measuring range to be set</b> Specify in plain text (max. 5 characters): Y01: ... up to ... mbar a, bar a, kPa <sub>abs</sub> , MPa <sub>abs</sub> , psi a <sup>2)</sup>	Y01	✓	✓ <sup>1)</sup>	
<b>Stainless steel tag plate and entry in device variable (measuring point description)</b> Max. 16 characters, specify in plain text: Y15: .....	Y15	✓	✓	✓
<b>Measuring point text (entry in device variable)</b> Max. 27 characters, specify in plain text: Y16: .....	Y16	✓	✓	✓
<b>Entry of HART address (TAG)</b> Max. 8 characters, specify in plain text: Y17: .....	Y17	✓		
<b>Setting of pressure indication in pressure units</b> Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, ... Note: The following pressure units can be selected: bar, mbar, mm H <sub>2</sub> O <sup>*)</sup> , inH <sub>2</sub> O <sup>*)</sup> , ftH <sub>2</sub> O <sup>*)</sup> , mmHG, inHG, psi, Pa, kPa, MPa, g/cm <sup>2</sup> , kg/cm <sup>2</sup> , Torr, ATM or % *) ref. temperature 20 °C	Y21	✓	✓	✓
<b>Setting of pressure indication in non-pressure units<sup>3)</sup></b> Specify in plain text: Y22: ..... up to ..... l/min, m <sup>3</sup> /h, m, USgpm, ... (specification of measuring range in pressure units "Y01" is essential, unit with max. 5 characters)	Y22 + Y01	✓		
<b>Preset bus address</b> possible between 1 and 126 Specify in plain text: Y25: .....	Y25		✓	✓
<b>Damping adjustment in seconds (0 ... 100 s)</b> Factory mounting of valve manifolds, see accessories. Only Y01, Y15, Y16, Y17, Y21, Y22, Y25 and D05 can be factory preset	Y30	✓	✓	✓

✓ = available

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

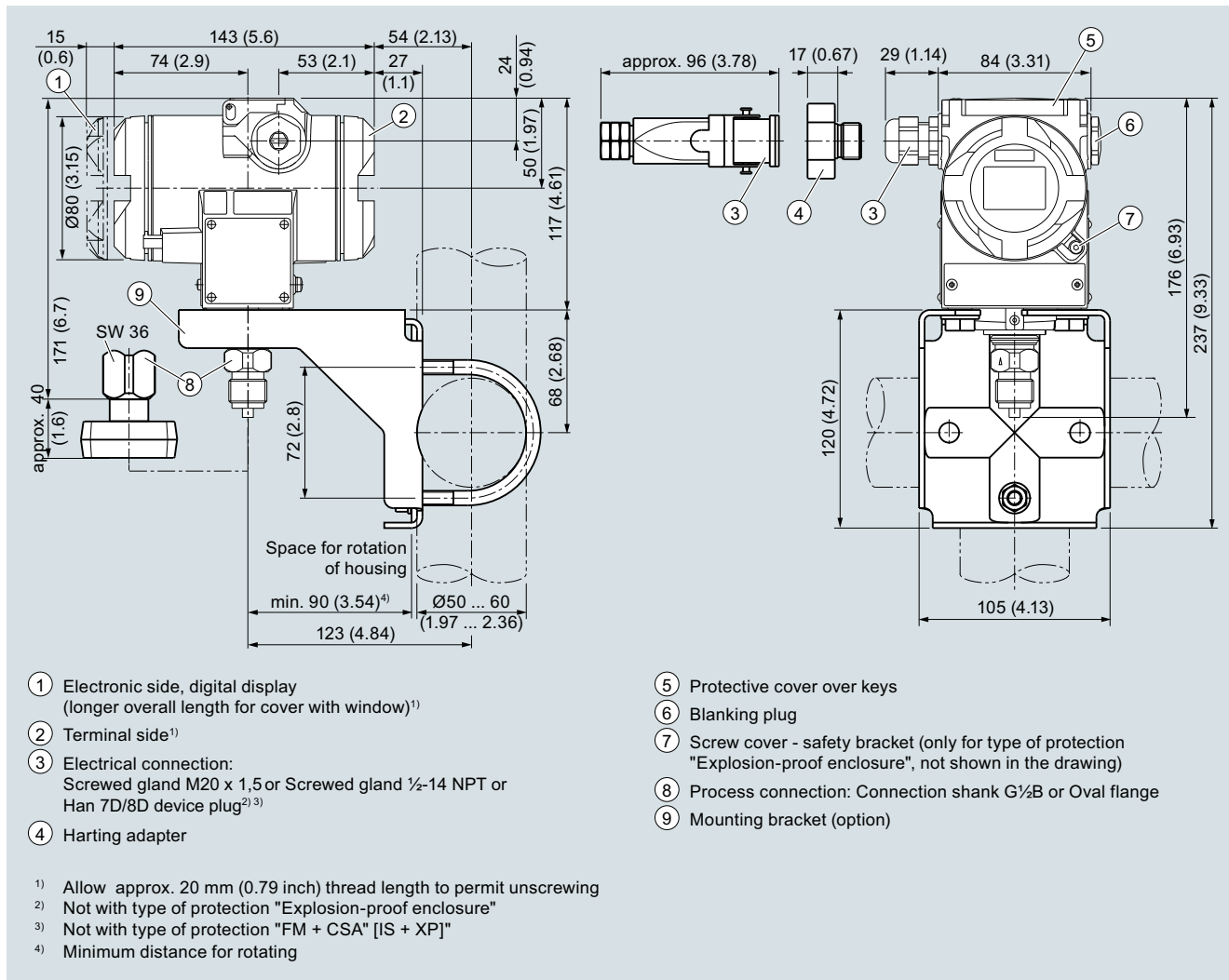
# Pressure Measurement

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

for absolute pressure (from gauge pressure series)

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## Dimensional drawings



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