

Pressure Measurement

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 mbar to 32 bar (0.018 to 465 psi; 0.5 to 12860 inH₂O)
- 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 enable 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 °C (-40 to +257 °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.

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Pressure transmitters for differential pressure and flow

- Measured variables:
 - Differential pressure
 - Small positive or negative pressure
 - Flow $q \sim \sqrt{\Delta p}$ (together with a primary element (see Chapter "Flow Meters"))
- Span (freely adjustable)
for SITRANS P500: 1.25 mbar to 32 bar (0.018 to 465 psi;
0.5 to 12860 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 6250 mbar (0.5 to 2509 inH₂O)

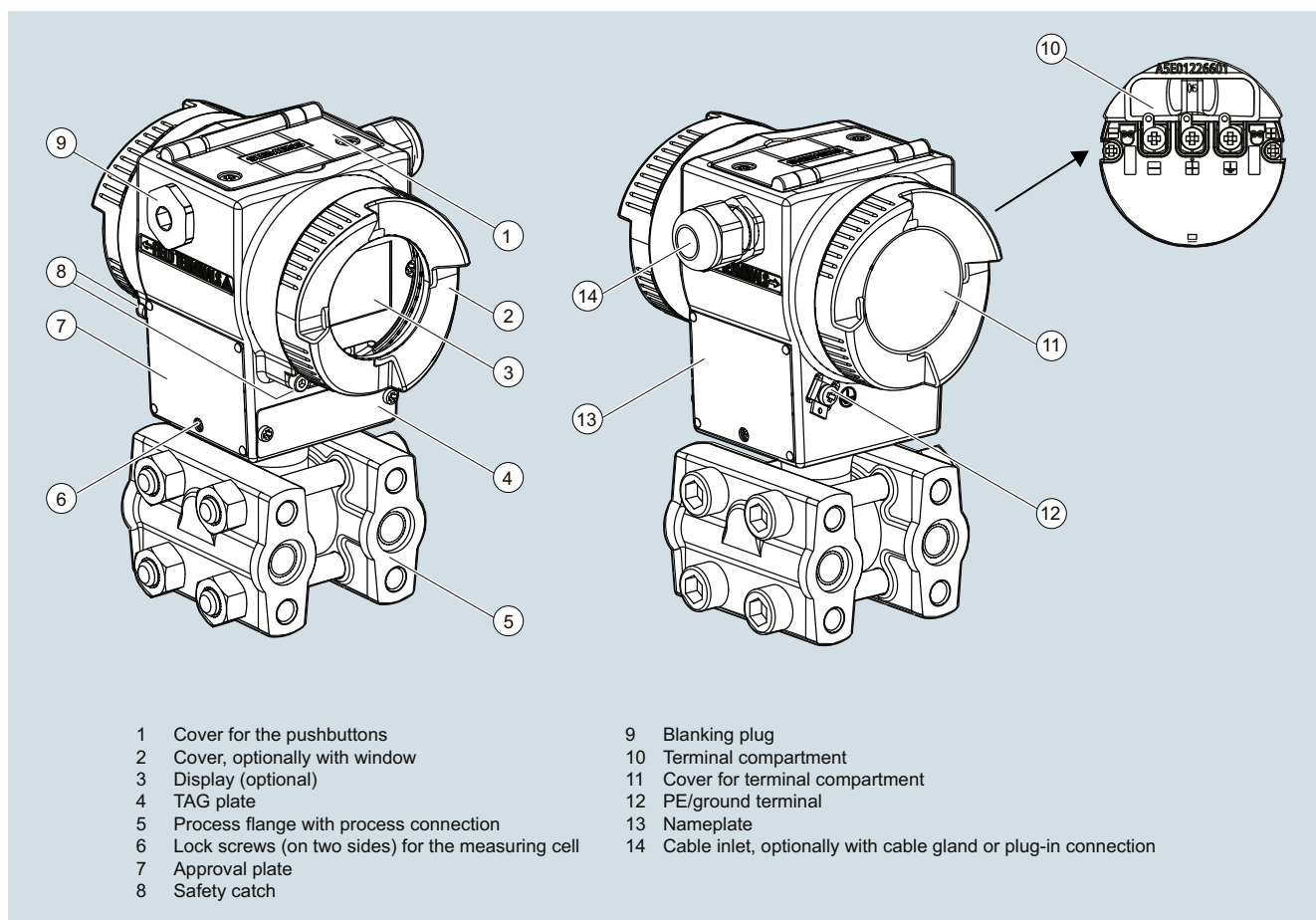
- Nominal diameter of the mounting flange
 - DN 50 / PN 40
 - DN 80 / PN 40
 - DN 100/ PN 16, PN 40
 - 2 inch/class 150, class 300
 - 3 inch/class 150, class 300
 - 4 inch/ class 150, class 300
 - customized special version

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



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.

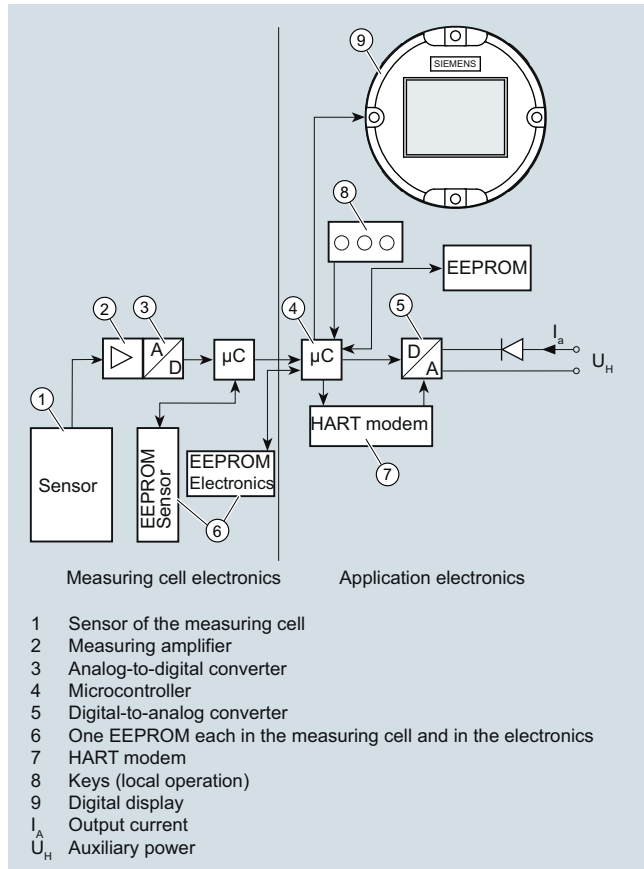
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Function

Operation of electronics with HART communication



Function diagram of electronics

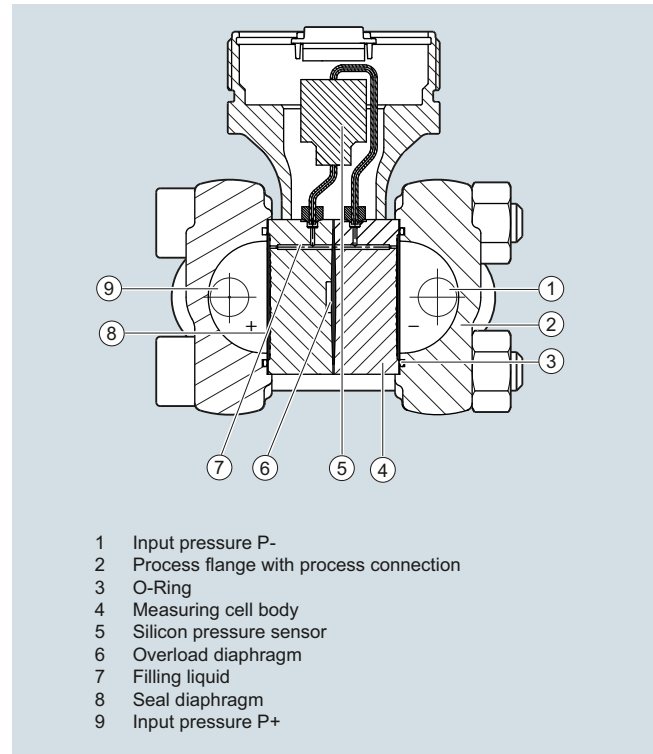
- The input pressure is converted into an electrical signal by the sensor.
- This signal is amplified by the measuring amplifier and digitalized in an analog-to-digital converter.
- The digital signal is analyzed in a microcontroller and corrected according to linearity and thermal characteristics.
- 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 the seal diaphragm touches the body of the measuring cell. This protects the sensor module 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.

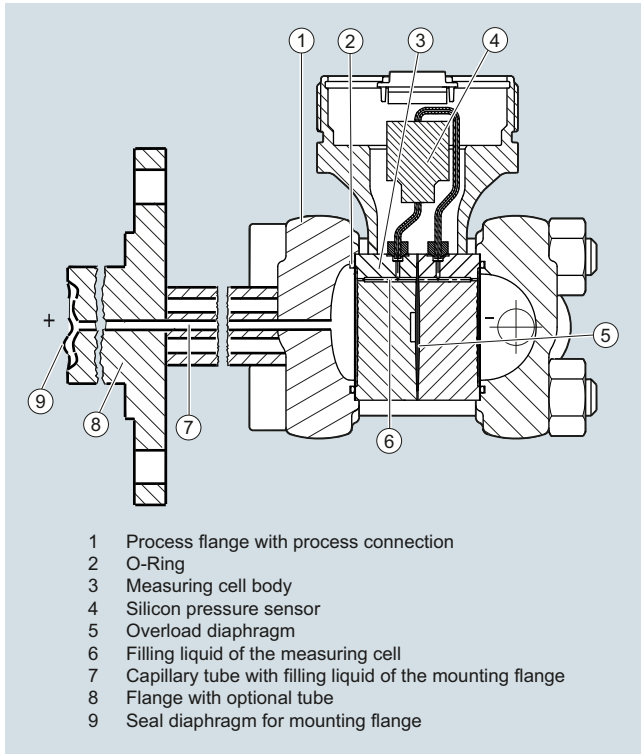
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Measuring cell for level



Measuring cell for level, function diagram

- The input pressure (hydrostatic pressure) acts hydraulically on the measuring cell via the seal diaphragm on the mounting flange.
- 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 the seal diaphragm touches the body of the measuring cell. This protects the sensor module 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.

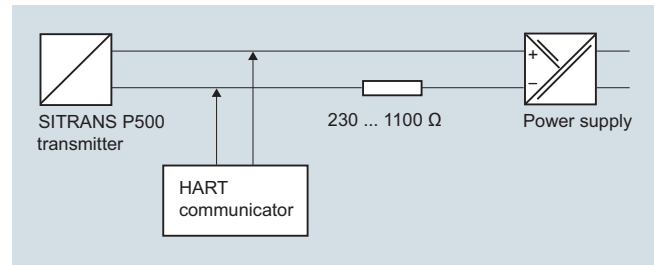
Configuration using the pushbuttons (local operation)

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.

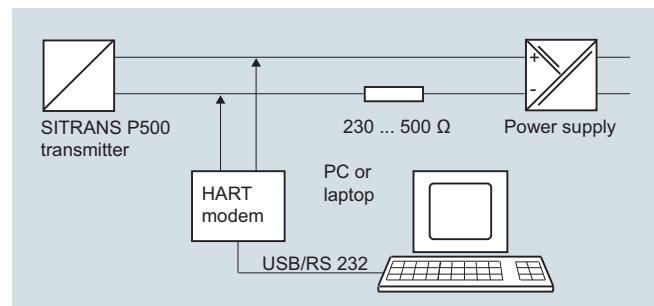
Configuration using HART

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

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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/cm ² , kg/cm ² , mmH ₂ O (4 °C), inH ₂ O (4 °C), inH ₂ O (20 °C), mmH ₂ O, mmH ₂ O (4 °C), ftH ₂ O (20 °C), inHg, mmHg, 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, l; Norm (standard) l; Norm (standard) m ³ , Norm (standard) feet ³
Mass	g, kg, t (metric), lb, Ston, Lton, oz
Volume flow	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, gallon/s, l/h, milL/d, gallon/d, gallon/h, milgallon/d, Imp.gallon/s, Imp.gallon/m, Imp.gallon/h, Imp.gallon/d, Norm (standard) m ³ /h, Norm (standard) l/h, Norm (standard) ft ³ /h, Norm (standard) ft ³ /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

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Technical specifications

Input		Measuring accuracy		
Measured variable	Differential pressure and flow		Reference conditions (in accordance with IEC 60770-1) All error information always refers to the set span.	<ul style="list-style-type: none">• Rising characteristic curve• Start of scale 0 bar• Stainless steel seal diaphragm• Measuring cell with silicone oil filling• Room temperature (25 °C (77 °F))
Span (infinitely adjustable)	Span (min. ... max.)	Maximum operating pressure (static pressure)		
	1.25 ... 250 mbar (0.5 ... 100 inH ₂ O) 6.25 ... 1250 mbar (2.5 ... 502 inH ₂ O) 31.25 ... 6250 mbar (12.54 ... 2509 inH ₂ O) 0.16 ... 32 bar (2.33 ... 465 psi)	160 bar (2320 psi)	Error in measurement at limit setting incl. hysteresis and reproducibility r: Span ratio (r: Span ratio (r = max. span / set span)) Linear characteristic	r ≤ 10 r ≥ 10
Lower range limit	-100 % of max. span and/or 30 mbar a (0.44 psia)		<ul style="list-style-type: none">• 250 mbar (100 inH₂O)1250 mbar (502 inH₂O)6250 mbar (2509 inH₂O)32 bar (465 psi)	≤ 0.03 % ≤ (0.003 · r) %
Upper range limit	100 % of max. span		Square-rooted characteristic	r ≤ 10 r ≥ 10
Start of scale	Between measuring limits (freely adjustable)		<ul style="list-style-type: none">• Flow > 50 %<ul style="list-style-type: none">- 250 mbar (100 inH₂O)1250 mbar (502 inH₂O)6250 mbar (2509 inH₂O)32 bar (465 psi)	≤ 0.03 % ≤ (0.003 · r) %
Output			<ul style="list-style-type: none">• Flow 25 % ... 50 %<ul style="list-style-type: none">- 250 mbar (100 inH₂O)1250 mbar (502 inH₂O)6250 mbar (2509 inH₂O)32 bar (465 psi)	r ≤ 10 r ≥ 10
Output current signal	4 ... 20 mA			≤ 0.06 % ≤ (0.006 · r) %
• Lower current limit (freely adjustable)	3.55 mA, factory setting 3.8 mA			
• Upper current limit (freely adjustable)	23 mA, factory setting 20.5 mA			
• Ripple (without HART communication)	I _{pp} ≤ 0.4 % of max. output current			
• adjustable damping	0... 100 s in steps of 0.1 s, factory-setting: 2 s			
• current transmitter	3.55 ... 23 mA			
• Failure signal	adjustable within limits:: <ul style="list-style-type: none">• Bottom: 3.55 ... 3.7 mA (default value: 3.6 mA)• Top: 21.0 ... 23 mA (default value: 22.8 mA)			
Load			Influence of ambient temperature per 28 °C (50 °F)	
• Without HART communication	$R_B \leq (U_H - 10.5 \text{ V})/0.023 \text{ A}$ in Ω , U_H : Power supply in V		<ul style="list-style-type: none">• 250 mbar (100 inH₂O)• 1250 mbar (502 inH₂O)6250 mbar (2509 inH₂O)32 bar (465 psi)	≤ (0.025 · r + 0.014) % ≤ (0.006 · r + 0.03) %
• With HART communication			Influence of static pressure	
- HART Communicator	$R_B = 230 \dots 1100 \Omega$		<ul style="list-style-type: none">• At the start of scale value (PKN)	
- HART modem	$R_B = 230 \dots 500 \Omega$		- 250 mbar (100 inH ₂ O)	≤ (0.035 · r) % per 70 bar (1015 psi) correction via zero point correction
Characteristic curve	Linearly rising, linearly falling, square rooted characteristic rising, bidirectional square rooted characteristic and user-specific		- 1250 mbar (502 inH ₂ O)	≤ (0.007 · r) % per 70 bar (1015 psi) correction via zero point correction
			6250 mbar (2509 inH ₂ O)	
			32 bar (465 psi)	≤ 0.09 % per 70 bar (1015 psi)
				≤ 0.05 % per 70 bar (1015 psi)

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Total Performance ¹⁾			Design	
• Linear characteristic	r ≤ 5	5 < r ≤ 10	Weight (without options)	Approx. 3.3 kg (7.3 lb)
- 250 mbar (100 inH ₂ O)	≤ 0.14 %	≤ 0.27 %	Material of parts in contact with the medium	Stainless steel, mat. no. 1.4404/316L, Hastelloy C276, Monel 400
- 1250 mbar (502 inH ₂ O) 6250 mbar (2509 inH ₂ O) 32 bar (465 psi)	≤ 0.09 %	≤ 0.14 %		
Square rooted characteristic			• Process connection and sealing screw	PN 160: stainless steel, mat.-No. 1.4404/316L
• Flow > 50 %	r ≤ 5	5 < r ≤ 10	• Sealing material in the process connections	• Standard: Viton (FKM (FPM)) • Optional: NBR PTFE (virginal) PTFE (glass fiber-reinforced) FFPM (Kalrez) ²⁾²⁾ Graphite
- 250 mbar (100 inH ₂ O)	≤ 0.14 %	≤ 0.27 %		
- 1250 mbar (502 inH ₂ O) 6250 mbar (2509 inH ₂ O) 32 bar (465 psi)	≤ 0.09 %	≤ 0.14 %	- O-Ring	
• Flow 25 % ... 50 %	r ≤ 5	5 < r ≤ 10	Material of parts not in contact with media	• Low copper die-cast aluminum AC-AlSi12 (Fe) or AC-AlSi 10 Mg (Fe) to DIN EN 1706 • Lacquer on polyurethane base, optional epoxy-based primer • Stainless steel name plates (mat. no. 1.4404/316L)
- 250 mbar (100 inH ₂ O)	≤ 0.28 %	≤ 0.54 %		
- 1250 mbar (502 inH ₂ O) 6250 mbar (2509 inH ₂ O) 32 bar (465 psi)	≤ 0.18 %	≤ 0.28 %	Electronics housing	
Step response time T ₆₃ without electrical damping			Process connection screws	Stainless steel, mat. no. 1.4404/316L
• 250 mbar (100 inH ₂ O) 1250 mbar (502 inH ₂ O) 6250 mbar (2509 inH ₂ O) 32 bar (465 psi)	≤ 88 ms, contains a dead time of ≤ 45 ms		Mounting bracket	Steel or stainless steel mat. no. 1.4301
Long-term stability	≤ (0.05 · r) % per 5 years ≤ (0.08 · r) % per 10 years		Measuring cell filling	Silicone oil
Influence of power supply	≤ 0.005 %/1 V		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 61518
Rated conditions			Electrical connection	• Screw terminals • Cable entry via the following screwed glands: - M20 x 1.5 - 1/2-14 NPT - Han 7D/Han 8D connector - M12 plug
Mounting position	Any		Displays and controls	3 for local programming directly on transmitter
Ambient conditions			Pushbuttons	
• Ambient temperature (Note: Observe the temperature class in areas subject to explosion hazard.)			Display	• With or without integrated display • Cover with or without window
- Total device	-40 ... +85 °C (-40 ... +185 °F)		Auxiliary power supply	Terminal voltage on transmitter
- Readable display	-20 ... +85 °C (-4 ... +185 °F)			
- Storage temperature	-50 ... +90 °C (-58 ... +194 °F)			• DC 10.6 ... 44 V • With intrinsically-safe operation DC 10.6 ... 30 V
Climatic class				
• Condensation	Relative humidity 0 ... 100 % (condensation permissible)			
Degree of protection (to IEC 60529)	IP66/IP 68 and NEMA 4X (with corresponding cable gland)			
Electromagnetic Compatibility				
• Emitted interference and interference immunity	Acc. to IEC 61326 and NAMUR NE 21			
Permissible pressures	According to 97/23/EC pressure equipment directive			
Temperature of medium				
• Measuring cell with silicone oil filling	-40 ... +125 °C (-40 ... +257 °F)			

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Certificates and approvals

Classification according to PED 97/23/EC

- 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)

Explosion protection

Explosion protection for Europe (to ATEX)

- Intrinsic safety "i"
 - Marking
 - Permissible ambient temperature
 - Connection

PTB 09 ATEX 2004 X
Ex II 1/2 G Ex ia/ib IIC T4
-40 ... +85 °C (-40 ... +185 °F)

To certified intrinsically-safe circuits with peak values:
 $U_i = 30 \text{ V}$, $I_i = 100 \text{ mA}$, $P_i = 750 \text{ mW}$,
 $R_i = 300 \Omega$
 $L_i = 400 \mu\text{H}$

- Effective internal inductance:
- Effective inner capacitance:

$C_i = 6 \text{ nF}$

- Explosion-proof "d"

- Marking
- Permissible ambient temperature

BVS 09 ATEX E 027
Ex II 1/2 G Ex d IIC T4/T6
-40 ... +85 °C (-40 ... +185 °F)
temperature class T4;
-40 ... +60 °C (-40 ... +140 °F)
temperature class T6

- Connection

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

- Dust explosion protection for zone 20

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

PTB 09 ATEX 2004 X
Ex II 1 D Ex iaD 20 T 120 °C
-40 ... +85 °C (-40 ... +185 °F)

120 °C (248 °F)
To certified intrinsically-safe circuits with peak values:
 $U_i = 30 \text{ V}$, $I_i = 100 \text{ mA}$,
 $P_i = 750 \text{ mW}$, $R_i = 300 \Omega$
 $L_i = 400 \mu\text{H}$

- Effective internal inductance:
- Effective inner capacitance:

$C_i = 6 \text{ nF}$

- Dust explosion protection for zone 21/22

- Marking

Ex II 2 D Ex tD A21 IP68 T120 °C Ex ia D21

- Connection

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

- Type of protection "n" (zone 2)

- Marking

PTB 09 ATEX 2004 X
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

- "nA" connection
- "nL, ic" connection
- Effective internal inductance:

$U_m = 45 \text{ V DC}$
 $U_i = 45 \text{ V}$
 $L_i = 400 \mu\text{H}$

- Effective inner capacitance:

$C_i = 6 \text{ nF}$

Explosion protection for USA (to FM)

Certificate of Compliance

No. 3033013

- Identification (XP/DIP) or (IS)

XP CL I, DIV 1, GP ABCDEFG T4 / T6
DIP CL II, III, DIV1, GP EFG T4/T6
IS CL I, II, III, DIV1, GP ABCDEFG T4
CL I, Zone 0, AEx ia IIC T4
CL I, Zone 1, AEx ib IIC T4

- Permissible Ambient Temperature

$T_a = \text{T4: } -40 \dots +85 \text{ °C}$
(-40 ... +185 °F)
 $T_a = \text{T6: } -40 \dots +60 \text{ °C}$
(-40 ... +140 °F)

- Entity parameters

According to "control drawing":
A5E02189134N
 $U_m = 30 \text{ V}$, $I_m = 100 \text{ mA}$,
 $P_i = 750 \text{ mW}$, $L_i = 400 \mu\text{H}$, $C_i = 6 \text{ nF}$

- 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 CLII, III, DIV 2, GP FG T4/T6, NIFW

- Permissible Ambient Temperature

$T_a = \text{T4: } -40 \dots +85 \text{ °C}$
(-40 ... +185 °F)
 $T_a = \text{T6: } -40 \dots +60 \text{ °C}$
(-40 ... +140 °F)

- (NI/S) parameters

According to "control drawing":
A5E02189134N
 $U_m = 45 \text{ V}$, $L_i = 400 \mu\text{H}$, $C_i = 6 \text{ nF}$

Explosion protection for Canada (to cCSA-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

$T_a = \text{T4: } -40 \dots +85 \text{ °C}$ (-40 ... +185 °F)
 $T_a = \text{T6: } -40 \dots +60 \text{ °C}$ (-40 ... +140 °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

$T_a = \text{T4: } -40 \dots +85 \text{ °C}$
(-40 ... +185 °F)

- Entity parameters

$U_i = 30 \text{ V}$, $I_i = 100 \text{ mA}$, $P_i = 750 \text{ mW}$, $R_i = 300 \Omega$, $L_i = 400 \mu\text{H}$, $C_i = 6 \text{ nF}$

- Marking (NI/n)

CL I, DIV 2, GP ABCD T4/T6
CL II, III, DIV 2, 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

$T_a = \text{T4: } -40 \dots +85 \text{ °C}$ (-40 ... +185 °F)
 $T_a = \text{T6: } -40 \dots +60 \text{ °C}$ (-40 ... +140 °F)

- NI/nA parameters

According to "control drawing":
A5E02189134N
 $U_m = 45 \text{ V}$

- nL parameters

According to "control drawing":
A5E02189134N
 $U_i = 45 \text{ V}$, $I_i = 100 \text{ mA}$, $L_i = 400 \mu\text{H}$,
 $C_i = 6 \text{ nF}$

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Explosion protection for China (acc. to NEPSI)

• Intrinsic safety "i"	GYJ111111X
- Marking	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	$L_i = 400 \text{ mH}$
- Effective inner capacitance	$C_i = 6 \text{ nF}$
• Explosion-proof "d"	GYJ111112
- Marking	Ex dia 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: $U_m = \text{DC } 10.5 \dots 45 \text{ V}$
• Dust explosion protection for zone 21/22	GYJ111112
- Marking	DIP A21 TA, T120 °C IP68 D21
- Connection	To circuits with values: $U_m = \text{DC } 10.5 \dots 45 \text{ V}$
• Type of protection "n" (zone 2)	GYJ111111X
- Marking	Ex nL IIB/IIC T4/T6 Ex nA II T4/T6
- Connection	$U_i = 45 \text{ V DC}$
- Effective internal inductance	$L_i = 400 \text{ mH}$
- Effective inner capacitance	$C_i = 6 \text{ nF}$

1) The total performance includes the errors caused by temperature effects, static pressure effects and conformity error, including hysteresis and repeatability.

2) Not in combination with span "G".

HART communication

Load with connection of	
• HART communicator	$R_B = 230 \dots 1100 \Omega$
• HART modem	$R_B = 230 \dots 500 \Omega$
Cable	2 wire shielded: $\leq 3.0 \text{ km}$ (1.86 miles), multiwire shielded: $\leq 1.5 \text{ km}$ (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

Pressure Measurement

Transmitters for High Performance requirements

SITRANS P500 for differential pressure and flow

1

Selection and Ordering data

Pressure transmitters for differential pressure and flow, SITRANS P500 HART, PN 160 (MAWP 2320 psi)

➤ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.

Enclosure

Die-cast aluminum, dual compartment
Die-cast aluminum, dual compartment

Thread for cable gland

M20x1.5
½-14 NPT

Output

4 ... 20 mA, HART

Measuring cell filling

Silicone oil

Measuring cell cleaning

normal

Measuring span

1.25 ... 250 mbar	(0.5 ... 100.4 inH ₂ O)
6.25 ... 1250 mbar	(2.5 ... 502 inH ₂ O)
31.25 ... 6250 mbar	(12.54 ... 2509 inH ₂ O)
0.16 ... 32 bar	(2.33 ... 465 psi)

Wetted parts materials

(stainless steel process flanges)

Seal diaphragm

Process connection

Stainless steel 1.4404/316L

Stainless steel 1.4404/316L

Hastelloy C276¹⁾

Stainless steel 1.4404/316L

Monel 400¹⁾

Stainless steel 1.4404/316L

Process connection

Female thread ¼-18 NPT

- Sealing screw opposite process connection
 - Mounting thread 7/16 - 20 UNF according to EN 61518
 - Mounting thread M10 to DIN 19213
- Vent on side of process flange²⁾
 - Mounting thread 7/16 - 20 UNF according to EN 61518
 - Mounting thread M10 to DIN 19213

¹⁾ Can be ordered for measuring ranges D, E, F and G.

²⁾ Not in conjunction with remote seals.

Article No.

7MF54 - 0

0

1

3

1

D

E

F

G

A

B

C

0

1

4

5

Pressure Measurement

Transmitters for High Performance requirements

SITRANS P500 for differential pressure and flow

1

Selection and Ordering data	Order code
Further designs Add "-Z" to Article 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 default⁹⁾ (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 10204-3.1 ³⁾	C12

Selection and Ordering data	Order code
Further designs Add "-Z" to Article 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 (cCSA _{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 (cCSA _{US}) (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/cCSA _{US})	E73
Supplementary approvals/degree of protection	
Dual Seal approval ⁵⁾	E85
Export approval Korea	E86
Special process connection versions (diff. pressure)	
Side vents for gas measurements ⁷⁾	L32
Swap process connection: high-pressure side at front	L33
Mosquito protection	
4 pcs. for 1/4-18 NPT thread	L36
Process flanges, O-rings, special material Standard: Viton (FKM (FPM))	
Process conn. 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) ¹⁰⁾	L62
Process connection sealing rings made of NBR	L63
Process connection sealing rings made of graphite	L64
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 1/203)	V00

¹⁾ Enclosed in print or as CD: see page 1/201.

²⁾ 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 cCSA_{US}

⁶⁾ Please select a remote seal separately. Also refer to the information under footnote 2). Remote seals see page 1/199.

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.

¹⁰⁾ Not together with Measuring span "G".

Pressure Measurement

Transmitters for High Performance requirements

SITRANS P500 for differential pressure and flow

1

Selection and Ordering data	Order code
Additional data Please add "-Z" to Article No. and specify Order code(s) and plain text.	
Measuring range to be set Specify in plain text:	
<ul style="list-style-type: none"> In the case of linear characteristic curve (max. 5 characters): Y01: ... up to ... mbar, bar, kPa, MPa, psi 	Y01
<ul style="list-style-type: none"> 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 ₂ O*, in H ₂ O*, ftH ₂ O*, mmHG, inHG, psi, Pa, kPa, MPa, g/cm ² , kg/cm ² , Torr, ATM, % or mA *) Reference temperature 20 °C	
Setting of pressure indication in non-pressure units¹⁾ Specify in plain text: Y22: ... up to ... l/min, m ³ /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

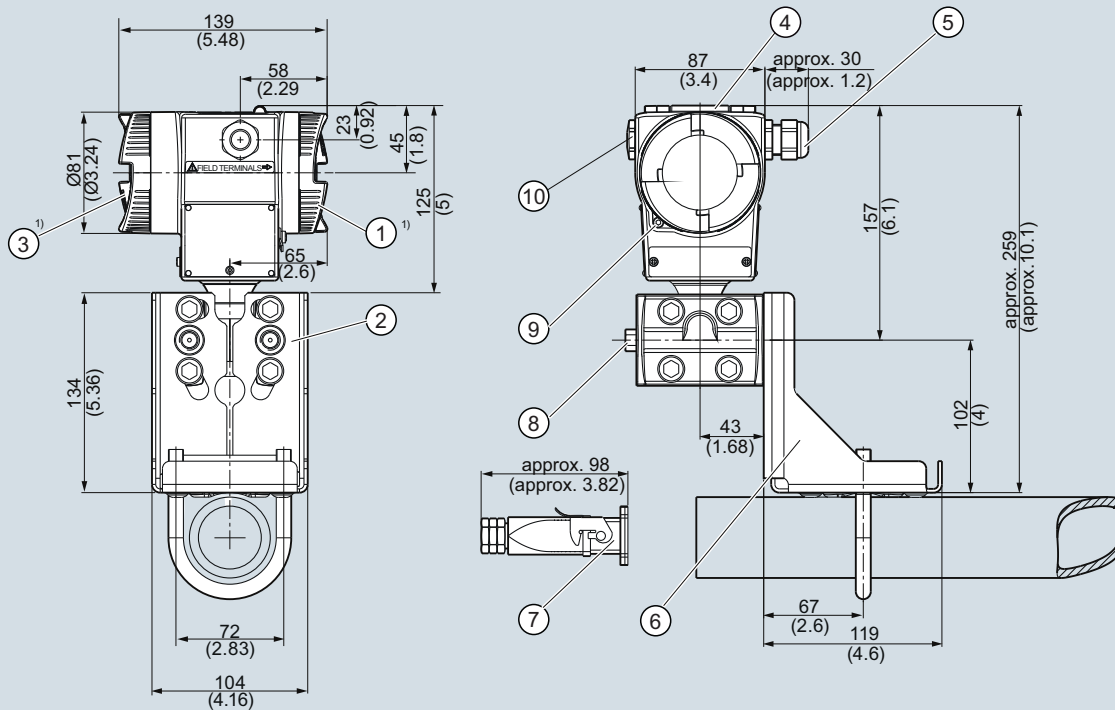
¹⁾ Preset values can only be changed over SIMATIC PDM.

Pressure Measurement

Transmitters for High Performance requirements

SITRANS P500 for differential pressure and flow

Dimensional drawings



- 1 Terminal side
- 2 Process connection: 1/4-18 NPT (EN61518)
- 3 Electronics side, digital display
- 4 Protective cover for the pushbuttons
- 5 Cable entry:
 - Screwed gland M20 x 1.5³⁾
 - Screwed gland 1/2-14 NPT
 - Han 7D/Han 8D connector²⁾³⁾
 - M12 connector
- 6 Mounting bracket (optional)

- 7 Electrical connection:
 - Han 7D/Han 8D connector/socket²⁾³⁾
- 8 Vent valve (optional)
- 9 Safety catch
- 10 Blanking plug

- 1) Allow approx. 20 mm (0.79 inch) additional thread length to permit unscrewing
- 2) Not with type of protection "Explosion-proof"
- 3) Not with type of protection "FM + cCSA_{US} [IS + XP]"

SITRANS P pressure transmitter for differential pressure and flow, P500 series, measurements in mm (inch)

Pressure Measurement

Transmitters for High Performance requirements

SITRANS P500 for level

1

Technical specifications

Input			Long-term stability	≤ (0.05 · r) % per 5 years ≤ (0.08 · r) % per 10 years
Measured variable	Level			
Span (infinitely adjustable)	Span (min. ... max.)	Maximum operating pressure	Influence of ambient temperature per 28 °C (50 °F) ¹⁾	
	1.25 ... 250 mbar (0.5 ... 100 inH ₂ O)	See "Mounting flange"	• 250 mbar (100 inH ₂ O)	≤ (0.025 · r + 0.014) %
	6.25 ... 1250 mbar (2.5 ... 500 inH ₂ O)		• 1250 mbar (502 inH ₂ O) 6250 mbar (2509 inH ₂ O)	≤ (0.006 · r + 0.03) %
	31.25 ... 6250 mbar (12.54 ... 2509 inH ₂ O)		Influence of static pressure	
Lower range limit			• At the start of scale value (PKN)	
• Measuring cell with silicone oil filling			- 250 mbar (100 inH ₂ O)	≤ (0.035 · r) % je 70 bar (1015 psi) correction via zero point correction
			- 1250 mbar (502 inH ₂ O) 6250 mbar (2509 inH ₂ O)	≤ (0.007 · r) % je 70 bar (1015 psi) correction via zero point correction
Upper range limit			• On the span (PKS)	
Start of scale			- 250 mbar (100 inH ₂ O) 1250 mbar (502 inH ₂ O)	≤ 0.03 % je 70 bar (1015 psi)
			- 6250 mbar (2509 inH ₂ O)	≤ 0.09 % je 70 bar (1015 psi)
			Influence of power supply	≤ 0.005 %/1 V
Output			Rated conditions	
Output current signal	4 ... 20 mA		Mounting position	Defined by flange
• Lower current limit (freely adjustable)	3.55 mA, factory setting 3.8 mA		Ambient conditions	
• Upper current limit (freely adjustable)	23 mA, factory setting 20.5 mA		• Ambient temperature (Note: Observe the temperature class in areas subject to explosion hazard.)	
• Ripple (without HART communication)	I _{pp} ≤ 0.4 of max. output current		- total device	-40 ... +85 °C (-40 ... +185 °F)
• adjustable damping	0... 100 s in steps of 0.1 s, factory setting 2 s		- Readable display	-20 ... +85 °C (-4 ... +185 °F)
• current transmitter	3.55 ... 23 mA		- Storage temperature	-50 ... +90 °C (-58 ... +194 °F)
• Failure signal	Adjustable within limits: • Lower: 3.55 ... 3.7 mA (factory setting 3.6 mA) • Upper: 21.0 ... 23 mA (factory setting 22.8 mA)		Climatic class	
Load			• Condensation	Relative humidity 0 ... 100 % (condensation permissible)
• Without HART communication	R _B ≤ (U _H - 10.5 V)/0.023 A in Ω, U _H : Power supply in V		Degree of protection to IEC 60529	IP66/IP68 and NEMA 4X (with corresponding cable gland)
• With HART communication			Electromagnetic Compatibility	
- HART Communicator	R _B = 230 ... 1100 Ω		• Emitted interference and interference immunity	Acc. to IEC 61326 and NAMUR NE 21
- HART modem	R _B = 230 ... 500 Ω		Permissible pressures	According to 97/23/EC pressure equipment directive
Characteristic curve	Linearly rising or linearly falling and user-specific		Medium temperature of high-pressure side	
Measuring accuracy			• Measuring cell with silicone oil filling	
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))		- p _{abs} ≥ 1 bar	-40 ... +175 ²⁾ °C (-40 ... +347 ²⁾ °F)
All error information always refers to the set span.			- p _{abs} < 1 bar	-40 ... +80 °C (-40 ... +176 °F)
Error in measurement at limit setting incl. hysteresis and reproducibility			Design	
r: Span ratio (r = max. span / set span)			Weight	
Linear characteristic	r ≤ 10	r ≥ 10	• To EN (pressure transmitter with mounting flange, without tube)	approx. 9.8 ... 11.8 kg (21.6... 26.0 lb)
• 250 mbar (100 inH ₂ O) 1250 mbar (502 inH ₂ O) 6250 mbar (2509 inH ₂ O)	≤ 0.03 %	≤ (0.003 · r) %	• To ASME (pressure transmitter with mounting flange, without tube)	approx. 9.8 ... 16.8 kg (21.6 ... 37.0 lb)

Pressure Measurement

Transmitters for High Performance requirements

SITRANS P500 for level

1

Material of wetted parts at the high-pressure side		Auxiliary power supply	
• Seal diaphragm of mounting flange	Stainless steel 1.4404/316L, Hastelloy C276, mat. no. 2.4819, Monel 400, mat. no. 2.4360, Tantal, PFA auf Edelstahl 1.4404/316L, PTFE auf Edelstahl 1.4404/316L	Terminal voltage on transmitter	<ul style="list-style-type: none"> • DC 10.6 ... 44 V • With intrinsically-safe operation DC 10.6 ... 30 V
• Sealing face	Smooth to EN 1092-1, Form B1 and/or ASME B16.5 RF 125 ... 250 AA for stainless steel 316L, EN1092-1 Form B2 and/or ASME B16.5 RFSF in the case of other materials	Certificates and approvals	
• Sealing material in the process connection		Classification according to PED 97/23/EC	
- O-Ring	<ul style="list-style-type: none"> • Standard: Viton (FKM (FPM)) • Optional: NBR, PTFE (virginal), PTFE (glas fiber-reinforced), FFPM (Kalrez), Graphite 	• 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)
- For vacuum application of mounting flange	copper	Explosion protection	
Material of wetted parts at the low-pressure side		<u>Explosion protection for Europe (to ATEX)</u>	
• Seal diaphragm	Stainless steel, mat. no. 1.4404/316L, Hastelloy C276, Monel 400	• Intrinsic safety "i"	PTB 09 ATEX 2004 X
• Process connection and sealing screw	• Stainless steel, mat. no. 1.4404/316L	- Marking	Ex II 1/2 G Ex ia/ib IIC T4
• Sealing material in the process connection	<ul style="list-style-type: none"> • Standard: Viton (FKM (FPM)) • Optional: NBR, PTFE (virginal), PTFE (glas fiber-reinforced), FFPM (Kalrez), Graphite 	- Permissible ambient temperature	-40 ... +85 °C (-40 ... +185 °F)
- O-Ring		- Connection	To certified intrinsically-safe circuits with peak values: $U_i = 30 \text{ V}$, $I_i = 100 \text{ mA}$, $P_i = 750 \text{ mW}$, $R_i = 300 \Omega$
Material of parts not in contact with media		- Effective internal inductance:	$L_i = 400 \mu\text{H}$
Electronics housing	<ul style="list-style-type: none"> • Low copper die-cast aluminum AC-AlSi12 (Fe) or AC-AlSi 10 Mg (Fe) to DIN EN 1706 • Lacquer on polyurethane base, optional epoxy-based primer • Stainless steel serial plate 	- Effective inner capacitance:	$C_i = 6 \text{ nF}$
Process connection screws	Stainless steel	• Explosion-proof "d"	BVS 09 ATEX E 027
Measuring cell filling	Silicone oil	- Marking	Ex II 1/2 G Ex d IIC T4/T6
• Liquid mounting flange	Silicone oil or other material	- Permissible ambient temperature	-40 ... +85 °C (-40 ... +185 °F) temperature class T4; -40 ... +60 °C (-40 ... +140 °F) temperature class T6
Process connection		- Connection	To circuits with values: $U_m = \text{DC } 10.5 \dots 45 \text{ V}$
• High-pressure side	Flange to EN and ASME	• Dust explosion protection for zone 20	PTB 09 ATEX 2004 X
• Low-pressure side	1/4-18 NPT female thread and flange connection with M10 to DIN 19213 or 7/16-20 UNF mounting thread to IEC 61518	- Marking	Ex II 1 D Ex iaD 20 T 120 °C
Electrical connection	<ul style="list-style-type: none"> • Screw terminals • Cable entry via the following screwed glands: <ul style="list-style-type: none"> - M20 x 1.5 - 1/2-14 NPT - Han 7D/Han 8D connector - M12 plug 	- Permissible ambient temperature	-40 ... +85 °C (-40 ... +185 °F)
Displays and controls		- Max. surface temperature	120 °C (248 °F)
Push buttons	3; for operation directly on the device	- Connection	To certified intrinsically-safe circuits with peak values: $U_i = 30 \text{ V}$, $I_i = 100 \text{ mA}$, $P_i = 750 \text{ mW}$, $R_i = 300 \Omega$
Display	<ul style="list-style-type: none"> • With or without integrated display • Cover with or without window 	- Effective internal inductance:	$L_i = 400 \mu\text{H}$
		- Effective inner capacitance:	$C_i = 6 \text{ nF}$
		• Dust explosion protection for zone 21/22	BVS 09 ATEX E 027
		- Marking	Ex II 2 D Ex tD A21 IP68 T120 °C Ex ia D21
		- Connection	To circuits with values: $U_H = 10.5 \dots 45 \text{ V DC}$; $P_{\text{max}} = 1.2 \text{ W}$
		• Type of protection "n" (zone 2)	PTB 09 ATEX 2004 X
		- 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
		- "nA" connection	$U_m = 45 \text{ V DC}$
		- "nL, ic" connection	$U_i = 45 \text{ V}$
		- Effective internal inductance	$L_i = 400 \mu\text{H}$
		- Effective inner capacitance	$C_i = 6 \text{ nF}$

Pressure Measurement

Transmitters for High Performance requirements

SITRANS P500 for level

1

Explosion protection for USA (to FM)		Explosion protection for China (acc. to NEPSI)	
Certificate of Compliance	No. 3033013	• Intrinsic safety "i"	GYJ111111X
• Identification (XP/DIP) or (IS)	XP CL I, DIV 1, GP ABCDEFG T4 / T6 DIP CL II, III, DIV1, GP EFG T4/T6 IS CL I, II, III, DIV1, GP ABCDEFG T4 CL I, Zone 0, AEx ia IIC T4 CL I, Zone 1, AEx ib IIC T4	- Marking	Ex ia/ib IIB/IIC T4
- Permissible Ambient Temperature	$T_a = T4: -40 \dots +85 \text{ }^{\circ}\text{C}$ (-40 ... +185 °F) $T_a = T6: -40 \dots +60 \text{ }^{\circ}\text{C}$ (-40 ... +140 °F)	- Permissible ambient temperature	40 ... +85 °C (-40 ... +185 °F)
- Entity parameters	According to "control drawing": A5E02189134N $U_m = 30 \text{ V}$, $I_i = 100 \text{ mA}$, $P_i = 750 \text{ mW}$, $L_i = 400 \text{ } \mu\text{H}$, $C_i = 6 \text{ nF}$	- Connection	To certified intrinsically-safe circuits with maximum values: $U_i = 30 \text{ V}$ $I_i = 100 \text{ mA}$, $P_i = 750 \text{ mW}$
• 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 CLII, III, DIV 2, GP FG T4/T6, NIFW	- Effective internal inductance	$L_i = 400 \text{ mH}$
- Permissible Ambient Temperature	$T_a = T4: -40 \dots +85 \text{ }^{\circ}\text{C}$ (-40 ... +185 °F) $T_a = T6: -40 \dots +60 \text{ }^{\circ}\text{C}$ (-40 ... +140 °F)	- Effective inner capacitance	$C_i = 6 \text{ nF}$
- (NI/S) parameters	According to "control drawing": A5E02189134N $U_m = 45 \text{ V}$, $L_i = 400 \text{ } \mu\text{H}$, $C_i = 6 \text{ nF}$	• Explosion-proof "d"	GYJ111112
Explosion protection for Canada (to cCSA-US)		- Marking	Ex dia IIC T4/T6
Certificate of Compliance	No. 2280963	- Permissible ambient temperature	-40 ... +85 °C (-40 ... +185 °F) temperature class T4; -40 ... +60 °C (-40 ... +140 °F) temperature class T6
• Marking (XP/DIP)	CL I, DIV 1, GP ABCD T4 /T6; CL II, DIV 1, GP EFG T4/T6	- Connection	To circuits with values: $U_m = \text{DC } 10.5 \dots 45 \text{ V}$
- Permissible Ambient Temperature	$T_a = T4: -40 \dots +85 \text{ }^{\circ}\text{C}$ (-40 ... +185 °F) $T_a = T6: -40 \dots +60 \text{ }^{\circ}\text{C}$ (-40 ... +140 °F)	• Dust explosion protection for zone 21/22	GYJ111112
- Entity parameters	According to "control drawing": A5E02189134N, $U_m = 45 \text{ V}$	- Marking	DIP A21 TA,T120 °C IP68 D21
• 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	- Connection	To circuits with values: $U_m = \text{DC } 10.5 \dots 45 \text{ V}$
- Permissible Ambient Temperature	$T_a = T4: -40 \dots +85 \text{ }^{\circ}\text{C}$ (-40 ... +185 °F)	• Type of protection "n" (zone 2)	GYJ111111X
- Entity parameters	$U_i = 30 \text{ V}$, $I_i = 100 \text{ mA}$, $P_i = 750 \text{ mW}$, $R_i = 300 \text{ } \Omega$, $L_i = 400 \text{ } \mu\text{H}$, $C_i = 6 \text{ nF}$	- Marking	Ex nL IIB/IIC T4/T6 Ex nA II T4/T6
• 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	- Connection	$U_i = 45 \text{ V DC}$
- Permissible Ambient Temperature	$T_a = T4: -40 \dots +85 \text{ }^{\circ}\text{C}$ (-40 ... +185 °F) $T_a = T6: -40 \dots +60 \text{ }^{\circ}\text{C}$ (-40 ... +140 °F)	- Effective internal inductance	$L_i = 400 \text{ mH}$
- NI/nA parameters	According to "control drawing": A5E02189134N, $U_m = 45 \text{ V}$	- Effective inner capacitance	$C_i = 6 \text{ nF}$
- nL parameters	According to "control drawing": A5E02189134N, $U_i = 45 \text{ V}$, $I_i = 100 \text{ mA}$, $L_i = 400 \text{ } \mu\text{H}$, $C_i = 6 \text{ nF}$	1) Only relevant for the pressure transmitter. The temperature error of the remote seal must be calculated separately. 2) This value may be increased if the process connection is sufficiently insulated.	
		HART communication	
		Load with connection of	
		• HART Communicator	$R_B = 230 \dots 1100 \text{ } \Omega$
		• HART modem	$R_B = 230 \dots 500 \text{ } \Omega$
		Cable	2 wire shielded: $\leq 3.0 \text{ km}$ (1.86 miles), multiwire shielded: $\leq 1.5 \text{ km}$ (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

Pressure Measurement
Transmitters for High Performance requirements

SITRANS P500 for level

1

Selection and Ordering data	Article No.	Order code
Pressure transmitters for level, SITRANS P500 HART	7MF56 - - 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
Other version, add		9
Order code and plain text:		R 1 Y
Filling liquid: ...		

Pressure Measurement

Transmitters for High Performance requirements

SITRANS P500 for level

1

Selection and Ordering data	Order code
Further designs Add "-Z" to Article 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 default⁸⁾ (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	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 10204-3.1 ³⁾	C12
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 (cCSA _{US}) (T4)	E02
Ex ia/ib protection (NEPSI) (T4)	E06

Selection and Ordering data	Order code
Further designs Add "-Z" to Article 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 (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 (cCSA _{US}) (T4/T6)	E42
Zone 2 (nA, nL) (NEPSI) (T4/T6)	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 (cCSA _{US})	E72
IS protection and XP and DIP (FM/cCSA _{US})	E73
Supplementary approvals / degree of protection	
Dual Seal approval ⁵⁾	E85
Export approval Korea	E86
Special process connection versions (diff. pressure)	
Swap process connection: high-pressure side at front	L33
Mosquito protection	
4 pcs. for 1/4-18 NPT thread	L36
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
Process connection sealing rings made of graphite	L64
Drain/Vent valve (1 set = 2 units)	
2 ventilation valves 1/4- 18 NPT, in material of process flange)	L80
Vacuum-proof design	
Vacuum service	V04
Spark arrester	V05
For mounting on zone 0 (including documentation)	
¹⁾ Enclosed in print or as CD: see page 1/201. ²⁾ 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 cCSA _{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 "-Z" to Article 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 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/cm ² , kg/cm ² , Torr, ATM, % or mA *) Reference temperature 20 °C	Y21
Setting of pressure indication in non-pressure units¹⁾ Specify in plain text: Y22: ... up to ... l/min, m ³ /h, m, USgpm, ... (specification of measuring range in pressure units "Y01" is essential, unit with max. 5 characters)	Y22 + Y01
Customer-specific settings Damping setting (range: 0 ... 100 s) (Standard setting: 2 s)	Y30

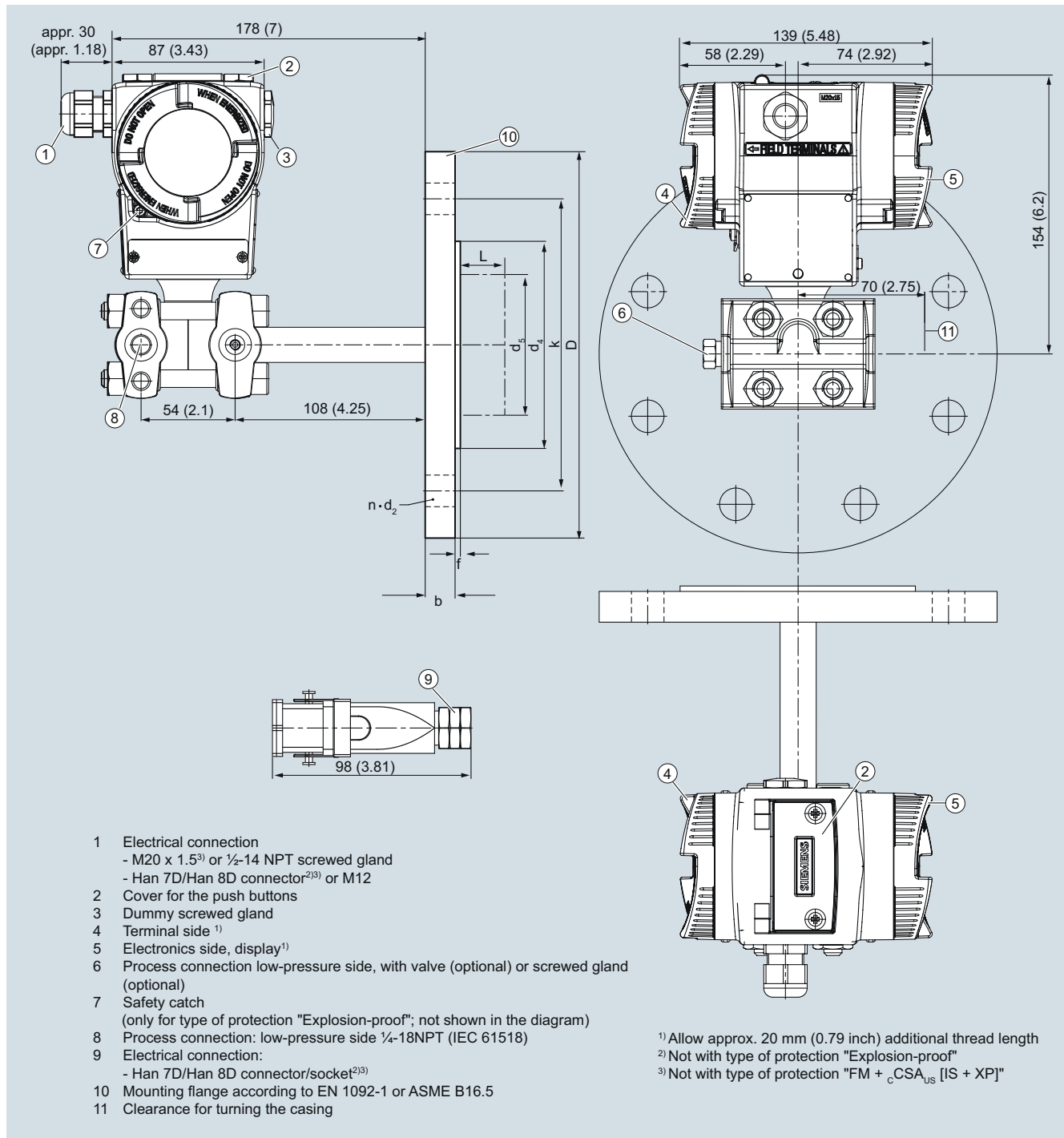
¹⁾ Preset values can only be changed over SIMATIC PDM.

Pressure Measurement

Transmitters for High Performance requirements

SITRANS P500 for level

Dimensional drawings



SITRANS P pressure transmitter for filling level, P500 series, measurements in mm (inch)

Pressure Measurement

Transmitters for High Performance requirements

SITRANS P500 for level

1

Connection to EN 1092-1

Nominal diameter	Nominal pressure	b mm	D mm	d mm	d ₂ mm	d ₄ mm	d ₅ mm	d _M mm	f mm	k mm	n	L mm
DN50	PN 40	20	165	61	18	102	48.3	45 ¹⁾	2	125	4	0, 50, 100, 150 or 200
DN 80	PN 40	24	200	90	18	138	76	72 ²⁾	2	160	8	
DN 100	PN 16	20	220	115	18	158	94	89	2	180	8	
	PN 40	24	235	115	22	162	94	89	2	190	8	

Connection to ASME B16.5

Nominal diameter	Nominal pressure lb/sq.in.	b inch (mm)	D inch (mm)	d ₂ inch (mm)	d ₄ inch (mm)	d ₅ inch (mm)	d _M inch (mm)	f inch (mm)	k inch (mm)	n	L inch (mm)
2 inch	class 150	0.77 (19.5)	5.91 (150)	0.75 (19.0)	3.62 (92)	1.9 (48.3)	1.77 (45) ¹⁾	0.079 (2.0)	4.75 (120.7)	4	0, 2, 3.94, 5.94 or 7.87
	class 300	0.89 (22.7)	6.49 (165)	0.75 (19.0)	3.62 (92)	1.9 (48.3)	1.77 (45) ¹⁾	0.079 (2.0)	5.0 (127)	8	
3 inch	class 150	0.96 (24.3)	7.5 (190.5)	0.75 (19.0)	5 (127)	3.0 (76)	2.83 (72) ²⁾	0.079 (2.0)	6 (152.4)	4	(0, 50, 100, 150 or 200)
	class 300	1.14 (29.0)	8.27 (210)	0.87 (22.2)	5 (127)	3.0 (76)	2.83 (72) ²⁾	0.079 (2.0)	6.69 (168.3)	8	
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⁾ 59 mm = 2.32 inch with tube length L=0..

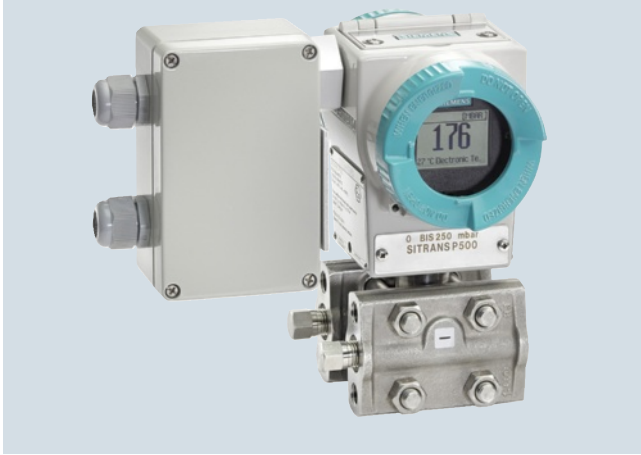
²⁾ 89 mm = 3½ inch with tube length L=0.

Pressure Measurement

Transmitters for High Performance requirements

SITRANS P500 - 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 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 has to be ordered through the **supplementary options** of the pressure transmitter in question.

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

Conformity error (in addition to transmitter)	According to IEC 60770-1 ≤ 0.15 % of set span
Influence of ambient temperature	≤ 0.1 % per 10 K
Power supply effect	≤ 0.1 % per 10 % change in voltage or frequency
Load effect	≤ 0.1 % per 100 % change

Rated conditions

Ambient temperature	
• 24 V version	-20 ... +80 °C (-4 ... +176 °F)
• 230 V version	-20 ... +60 °C (-4 ... +140 °F)
Storage temperature	-50 ... +85 °C (-58 ... +185 °F)
Degree of protection	IP54 to IEC 60529
Electromagnetic compatibility (EMC)	IEC 61236-1
Condensation	Relative humidity 0 ... 95 % condensation permissible

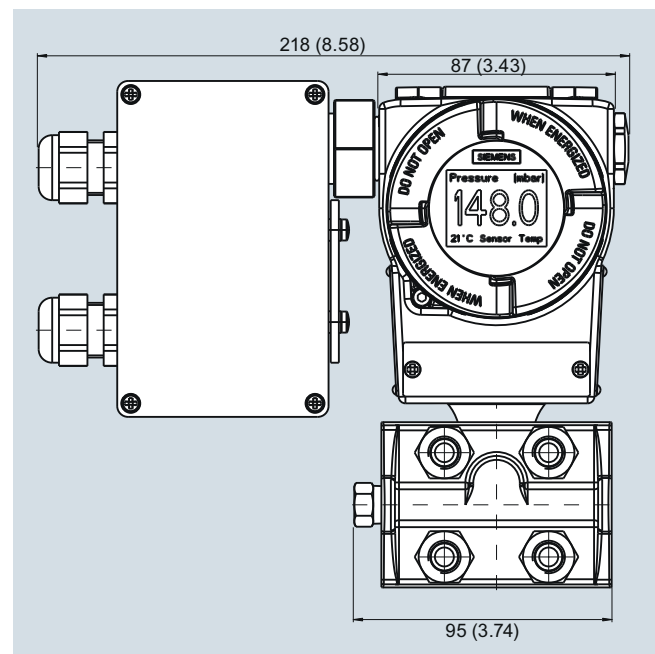
Structural design

Dimensions (W x H x D) in mm (inch)	80 x 120 x 60 (3.15 x 4.72 x 2.36)
Electrical connection	Screw terminals (Pg 13.5 cable inlet) or Han 7D / Han 8D plug

Power supply

Supply voltage	230 V AC (-10 ... +6 %, 47 ... 63 Hz, approx. 6 VA) or 24 V AC/DC (24 V AC ± 10 %, 47 ... 63 Hz, approx. 3 VA)
Permissible ripple (within the specified limits)	Approx. 2.5 V _{pp}

Dimensional drawings



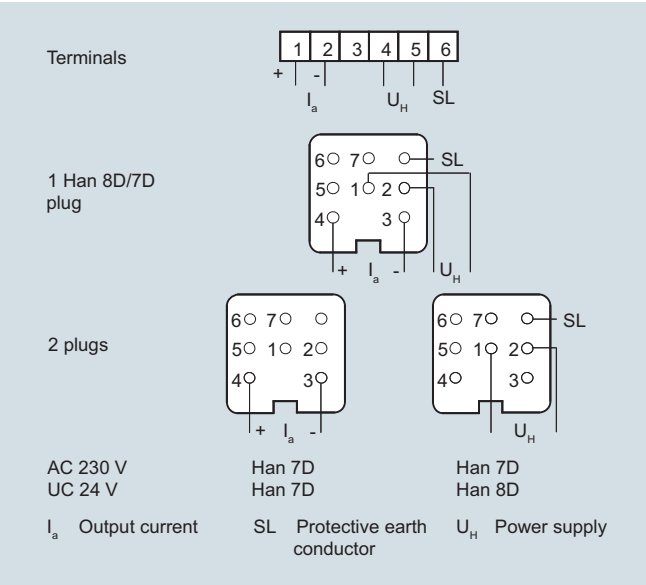
SITRANS P pressure transmitters with supplementary electronics for four-wire connection, dimension drawing, dimensions in mm (inch)

Pressure Measurement
Transmitters for High Performance requirements

SITRANS P500 - Supplementary electronics for 4-wire connection

1

Schematics



Supplementary electronics for 4-wire connection, connection diagram
(the HAN 8D conector is identical to the previous version of the HAN 8U)

Selection and Ordering data		Order code
Supplementary electronics for 4-wire connection Article No. of the transmitter 7MF54..-.....-..... or 7MF56..-.....-..... add "-Z" and Order code.		V
Power supply 24 V AC/DC	Electrical connection Terminals; 2 Pg screwed glands, to left 2 Han 7D/Han 8D plugs incl. mating connector, to left 1 Han 7D plug incl. mating connector, angled Terminals; 1 Pg screwed gland, downwards 1 Han 8D plug incl. mating connector, downwards (observe arrangement of plug and differential pressure line)	1 3 5 6 9
230 V AC	Terminals; 2 Pg screwed glands, to left 2 Han 7D plugs incl. mating connector, to left	7 8
Output current 0 ... 20 mA 4 ... 20 mA		0 1
Accessories Instruction Manual German/English		Article No. A5E00322799

Pressure Measurement

Transmitters for High Performance requirements

SITRANS P500 Accessories/Spare parts

1

Selection and ordering data		Article No.
Replacement measuring cells for differential pressure SITRANS P pressure transmitters for differential pressure and flow, P500 HART PN 160 series (MAWP 2320 psi)		7MF5994 -
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		1
Measuring cell filling Silicone oil	Measuring cell cleaning normal	1
Measuring span (min. ... max.)		
1.25 ... 250 mbar	(0.5 ... 100.4 inH ₂ O)	D
6.25 ... 1250 mbar	(2.5 ... 502 inH ₂ O)	E
31.25 ... 6250 mbar	(12.54 ... 2509 inH ₂ O)	F
0.16 ... 32 bar	(2.33 ... 465 psi)	G
Wetted parts materials (stainless steel process flanges)		
Seal diaphragm	Parts of measuring cell	
Stainless steel 1.4404/316L	Stainless steel 1.4404/316L	A
Hastelloy C276	Stainless steel 1.4404/316L	B
Monel 400	Stainless steel 1.4404/316L	C
Process connection Female thread 1/4-18 NPT		
<ul style="list-style-type: none"> Sealing screw opposite process connection <ul style="list-style-type: none"> Mounting thread 7/16-20 UNF to IEC 61518 Mounting thread M10 to DIN 19213 Vent on side of process flange <ul style="list-style-type: none"> Mounting thread 7/16-20 UNF to IEC 61518 Mounting thread M10 to DIN 19213 		0 1 4 5
Further designs Add "-Z" to Article No. and specify Order code.		Order code
Acceptance test certificate Acc. to EN 10204-3.1		C12
Without process flanges		K00
Vent on side for gas measurements ¹⁾		L32
Process flanges, O-ring, 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) ²⁾		L62
Process flanges, O-rings made of NBR		L63
Process flanges, O-rings made of graphite		L64

¹⁾ Only in conjunction with process connection code 4 or 5.

²⁾ Not together with Measuring span "G".

Pressure Measurement

Transmitters for High Performance requirements

SITRANS P500 Accessories/Spare parts

1

Selection and Ordering data

	Article No.
Mounting brackets For differential pressure transmitters with flange thread M10 (7MF54...10 and 7MF54...50) • Made of steel • Made of stainless steel ▶	7MF5987-1AA 7MF5987-1AD
Mounting brackets for differential pressure transmitter with flange thread 7/16-20 UNF (7MF54...00 and 7MF54...40) • 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.) Printed (1 pc.) Data according to Y01 or Y02, Y15 and Y16 (see "SITRANS P transmitters")	7MF5987-1CA 7MF5987-1CB-Z Y...:
Mounting screws For TAG plate, grounding and connection 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 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.) • NBR (Buna N) (10 pcs.)	7MF5987-2DA 7MF5987-2DE
Push buttons assembly (incl. fastening material) For replacement of operating keys for on- site operation of the transmitter	7MF5987-2AF
Sealing ring for • Process connection • NBR sealing ring for screw cover (10 pcs.) • NBR sealing ring for interface measuring cell/housing (10 pcs.)	See catalog FI01, "Fittings" 7MF4997-2EA 7MF5987-2EB

Selection and Ordering data

	Article No.
Operating Instructions¹⁾ German English French Italian Spanish	A5E02344527 A5E02344528 A5E02344529 A5E02344530 A5E02344531
Compact operating instructions¹⁾ English, German, Spanish, French, Italian, Dutch English, Estonian, Latvian, Lithuanian, Polish, Romanian English, Bulgarian, Czech, Finnish, Slovakian, Slovenian English, Danish, Greek, Portuguese, Swedish, Hungarian Russian	A5E02344532 A5E02307339 A5E02307340 A5E02307341 A5E02307338
Brief instructions (Leporello) German, English, French, Italian, Spanish, Chinese	A5E02344536
DVD with SITRANS P documentation German, English, French, Spanish, Italian Compact operating instructions in 21 EU languages	A5E00090345
Service Instructions¹⁾ for replacement of electronics, measuring cell and terminal board • German • English	A5E02822443 A5E02344534
HART modem With USB interface ▶	7MF4997-1DB
Operating instruction¹⁾ Supplementary electronics for 4-wire connection German, English	A5E00322799
Certificates (order only via SAP) addi- tional to internet download • Hard copy (to order) • On CD (to order)	A5E03252406 A5E03252407

¹⁾ You can download these operating instructions free-of-charge from our
Internet site at www.siemens.com/sitransp.

▶ Available ex stock.

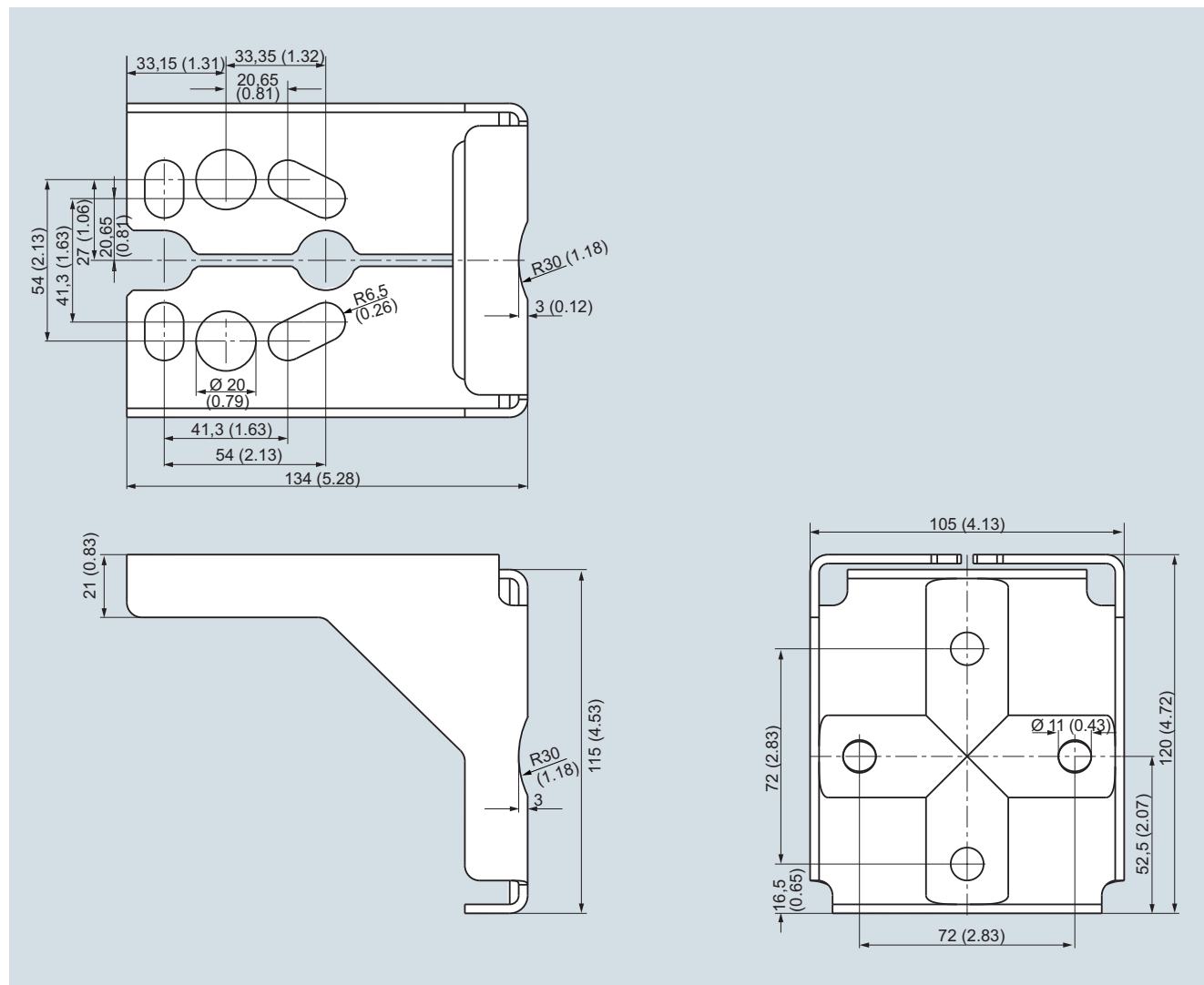
For power supply units, see catalog FI01 "Supplementary Com-
ponents".

Pressure Measurement

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)

Pressure Measurement

Transmitters for High Performance requirements

SITRANS P500 Factory-mounting of valve manifolds on transmitters

1

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 inH₂O)) and is certified leak-proof with a test report 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 Article No. of the transmitter and add Order codes

Order code

SITRANS P500 7MF54...-...

mounted with gaskets made of PTFE and screws made of

- Chromized steel
- Stainless steel

U01

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
- Stainless steel

A01

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



Add -Z to the Article No. of the transmitter and add Order codes

Order code

SITRANS P500 7MF54...-...

mounted with gaskets made of PTFE and screws made of

- Chromized steel
- Stainless steel

U03

U04

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

A01

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

Pressure Measurement

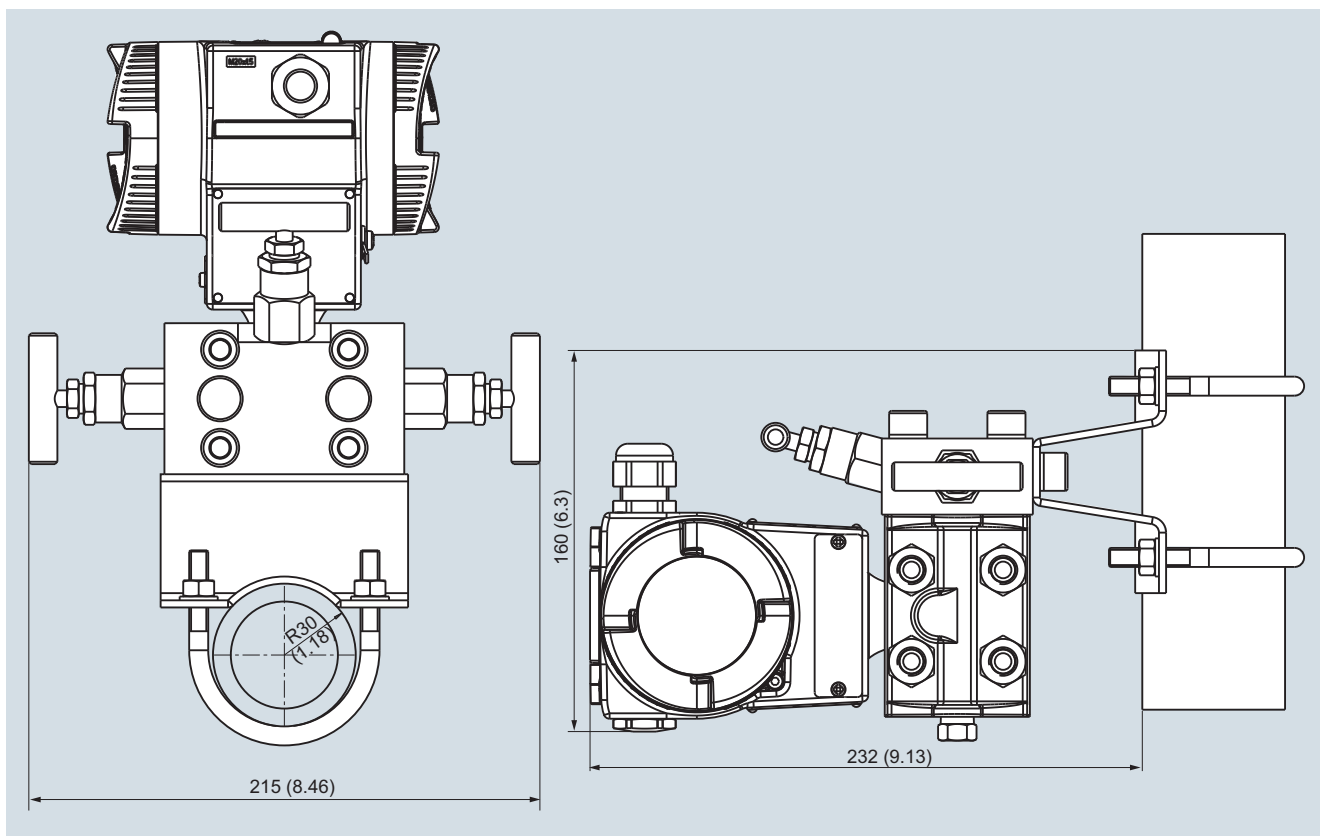
Transmitters for High Performance requirements

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)



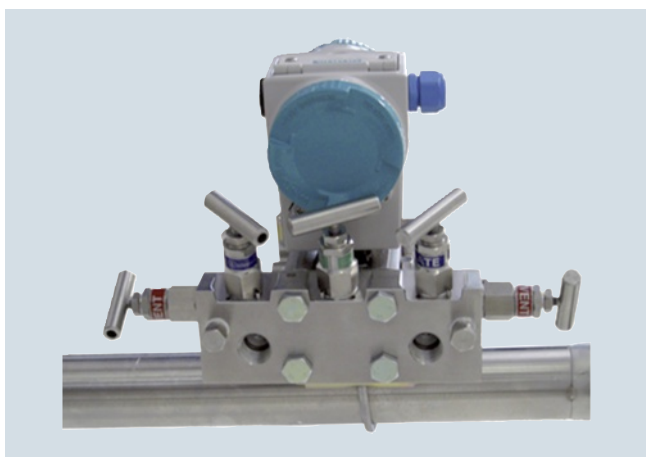
Manifold 7MF9411-5BA with attached SITRANS P500 pressure transmitter for differential pressure and flow, measurements in mm (inch)

Pressure Measurement

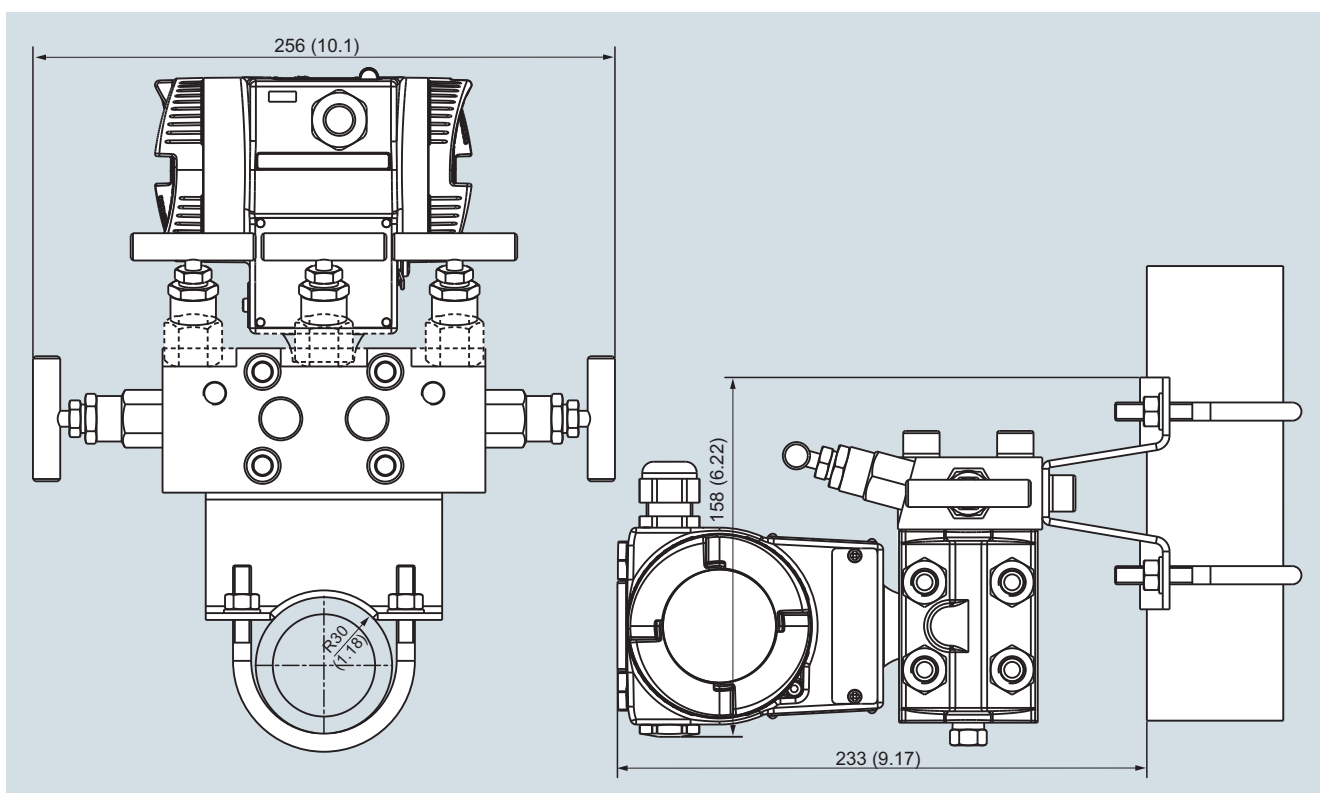
Transmitters for High Performance requirements

SITRANS P500 Factory-mounting of valve manifolds on transmitters

1



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)