

Pressure Measurement

Transmitters for applications with advanced requirements (Advanced)

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

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Selection and Ordering data		Article No.	Selection and Ordering data		Article No.
Pressure transmitters for absolute pressure from differential pressure series, SITRANS P DS III with HART		7MF4333-	Pressure transmitters for absolute pressure from differential pressure series, SITRANS P DS III with HART		7MF4333-
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.			Electrical connection/cable entry		
Measuring cell filling	Measuring cell cleaning		<ul style="list-style-type: none"> Screwed gland M20 x 1.5 Screwed gland 1/2-14 NPT Han 7D plug (plastic housing) incl. mating connector¹⁴⁾ M12 connectors (stainless steel)^{15) 16)} 		B
Silicone oil	normal	1			C
Inert liquid ¹⁾	grease-free to cleanliness level 2	3			D
Measuring span (min. ... max.)			Display		F
8.3 ... 250 mbar a	(0.12 ... 3.62 psia)	D	<ul style="list-style-type: none"> Without display Without visible display (display concealed, setting: mA) With visible display (setting: mA) with customer-specific display (setting as specified, Order code "Y21" or "Y22" required) 		0
43 ... 1300 mbar a	(0.62 ... 18.85 psia)	F			1
0.16 ... 5 bar a	(2.32 ... 72.5 psia)	G			6
1 ... 30 bar a	(14.5 ... 435 psia)	H			7
5.3 ... 100 bar a	(76.9 ... 1450 psia)	KE			
Wetted parts materials			Power supply units see Chap. 7 "Supplementary Components".		
Seal diaphragm	Parts of measuring cell		Included in delivery of the device:		
Stainless steel	Stainless steel	A	<ul style="list-style-type: none"> Quick-start guide Sealing plug(s) or sealing screw(s) for the process flanges(s) 		
Hastelloy	Stainless steel	B	<ol style="list-style-type: none"> For oxygen applications, add Order code E10. Version 7MF4333-1DY... only up to max. span 200 mbar a (2.9 psia). 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 <u>total</u> 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. The diaphragm seal is to be specified with a separate order number and must be included with the transmitter order number, for example 7MF433-...Y... and 7MF4900-1...-B The standard measuring cell filling for configurations with remote seals (Y) is silicone oil. Not for span "5.3 ... 100 bar a (76.9 ... 1450 psia)". Position of the top vent valve in the process flange (see dimensional drawing). Not in conjunction with Electrical connection "Han7D plug". Without cable gland, with blanking plug With enclosed cable gland Ex ia and blanking plug Configurations with HAN and M12 connectors are only available in Ex ic. Only in connection with IP66. Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505. Only in connection with Ex approval A, B or E. Only in connection with Ex approval A, B, E or F. M12 delivered without cable socket. 		
Hastelloy	Hastelloy	C			
Tantalum	Tantalum	E			
Monel	Monel	H			
Gold	Gold	L			
Version for diaphragm seal ^{2) 3) 4) 5) 6)}		Y			
Process connection					
Female thread 1/4-18 NPT with flange connection					
<ul style="list-style-type: none"> Sealing screw opposite process connection - Mounting thread 7/16"-20 UNF to IEC 61518/DIN EN 61518 - Mounting thread M10 to DIN 19213 (only for replacement requirement) Vent on side of process flange⁷⁾ - Mounting thread 7/16"-20 UNF to IEC 61518/DIN EN 61518 - Mounting thread M10 to DIN 19213 (only for replacement requirement) 		2			
		0			
		6			
		4			
Non-wetted parts materials					
process flange screws	Electronics housing				
Stainless steel	Die-cast aluminum	2			
Stainless steel	Stainless steel precision casting ⁸⁾	3			
Version					
<ul style="list-style-type: none"> Standard version, German plate inscription, setting for pressure unit: bar International version, English plate inscription, setting for pressure unit: bar Chinese version, English plate inscription, setting for pressure unit: Pascal 		1			
All versions include DVD with compact operating instructions in various EU languages.		2			
		3			
Explosion protection					
<ul style="list-style-type: none"> None With ATEX, Type of protection: <ul style="list-style-type: none"> "Intrinsic safety (Ex ia)" "Explosion-proof (Ex d)"⁹⁾ "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)"¹⁰⁾ "Ex nA/ic (Zone 2)"¹¹⁾ "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia+ Ex d + Zone 1D/2D)"¹⁰⁾¹²⁾ FM + CSA intrinsic safe (is)¹³⁾ FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D¹⁰⁾¹²⁾¹³⁾ With FM + CSA, Type of protection: <ul style="list-style-type: none"> "Intrinsic Safe and Explosion Proof (is + xp)"⁹⁾¹³⁾ 		A			
		B			
		D			
		P			
		E			
		R			
		F			
		S			
		NC			

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

Selection and Ordering data		Article No.	Selection and Ordering data		Article No.
Pressure transmitter for absolute pressure from differential pressure series			Pressure transmitter for absolute pressure from differential pressure series		
SITRANS P DS III with PROFIBUS PA (PA)		7 MF 4 3 3 4 -	SITRANS P DS III with PROFIBUS PA (PA)		7 MF 4 3 3 4 -
SITRANS P DS III with FOUNDATION Fieldbus (FF)		7 MF 4 3 3 5 -	SITRANS P DS III with FOUNDATION Fieldbus (FF)		7 MF 4 3 3 5 -
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.					
Measuring cell filling	Measuring cell cleaning		Electrical connection/cable entry		
Silicone oil	normal	1	<ul style="list-style-type: none"> Screwed gland M20 x 1.5 Screwed gland 1/2-14 NPT M12 connectors (stainless steel)¹³⁾¹⁴⁾ 		B C F
Inert liquid ¹⁾	grease-free to cleanliness level 2	3	Display		
Nominal measuring range			<ul style="list-style-type: none"> Without display Without visible display (display concealed, setting: bar) With visible display (setting: bar) With customer-specific display (setting as specified, Order code "Y21" required) 		0 1 6 7
250 mbar a	(3.62 psia)	D	Included in delivery of the device:		
1300 mbar a	(18.85 psia)	F	<ul style="list-style-type: none"> Quick-start guide Sealing plug(s) or sealing screw(s) for the process flanges(s) 		
5 bar a	(72.5 psia)	G	<ol style="list-style-type: none"> For oxygen application, add Order code E10. Version 7MF4334-1DY... only up to max. span 200 mbar a (80 inH₂O a). When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here. If the acceptance test certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals. The diaphragm seal is to be specified with a separate order number and must be included with the transmitter order number, for example 7MF433-...Y... and 7MF4900-1...-B The standard measuring cell filling for configurations with remote seals (Y) is silicone oil. Not for nominal measuring range 100 bar a (1450 psia). Position of the top vent valve in the process flange (see dimensional drawing). Without cable gland, with blanking plug With enclosed cable gland Ex ia and blanking plug Configurations with HAN and M12 connectors are only available in Ex ic. Only in connection with IP66. Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505. Only in connection with Ex approval A, B, E or F. M12 delivered without cable socket 		
30 bar a	(435 psia)	H			
100 bar a	(1450 psia)	KE			
Wetted parts materials					
Seal diaphragm	Parts of measuring cell				
Stainless steel	Stainless steel	A			
Hastelloy	Stainless steel	B			
Hastelloy	Hastelloy	C			
Tantalum	Tantalum	E			
Monel	Monel	H			
Gold	Gold	L			
Version as diaphragm seal 2) 3) 4) 5) 6)		Y			
Process connection					
Female thread 1/4-18 NPT with flange connection					
<ul style="list-style-type: none"> Sealing screw opposite process connection - Mounting thread 7/16-20 UNF to IEC 61518/DIN EN 61518 - Mounting thread M10 to DIN 19213 (only for replacement requirement) 	2				
<ul style="list-style-type: none"> Vent on side of process flange 7) - Mounting thread 7/16-20 UNF to IEC 61518/DIN EN 61518 - Mounting thread M10 to DIN 19213 (only for replacement requirement) 	0				
		6			
		4			
Non-wetted parts materials					
process flange screws	Electronics housing				
Stainless steel	Die-cast aluminum	2			
Stainless steel	Stainless steel precision casting	3			
Version					
<ul style="list-style-type: none"> Standard version, German plate inscription, setting for pressure unit: bar International version, English plate inscription, setting for pressure unit: bar Chinese version, English plate inscription, setting for pressure unit: Pascal 	1				
All versions include DVD with compact operating instructions in various EU languages.					
Explosion protection					
<ul style="list-style-type: none"> None With ATEX, Type of protection: <ul style="list-style-type: none"> "Intrinsic safety (Ex ia)" "Explosion-proof (Ex d)⁸⁾" "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)⁹⁾ "Ex nA/ic (Zone 2)¹⁰⁾" "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)^{9) 11)} (not for DS III FF) FM + CSA intrinsic safe (is)¹²⁾ FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D^{9) 11) 12)} With FM + CSA, Type of protection: <ul style="list-style-type: none"> "Intrinsic Safe and Explosion Proof (is + xp)^{8) 12)}" 	A B D P E R F S NC				

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Selection and Ordering data	Order code			Selection and Ordering data	Order code				
Further designs Add "-Z" to Article No. and specify Order code.		HART	PA	FF	Setting of the upper saturation limit of the output signal to 22.0 mA	D05	✓		
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:					Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009) (only together with seal diaphragm made of Hastelloy and stainless steel)	D07	✓	✓	✓
• Steel	A01	✓	✓	✓	Degree of protection IP66/IP68 (only for M20 x 1.5 and ½-14 NPT)	D12	✓	✓	✓
• Stainless steel 304	A02	✓	✓	✓	Supplied with oval flange (1 item), PTFE packing and screws in thread of process flange	D37	✓	✓	✓
• Stainless steel 316L	A03	✓	✓	✓	Capri cable gland 4F CrNi and clamping device (848699 + 810634) included	D59	✓	✓	✓
O-rings for process flanges (instead of FPM (Viton))									
• PTFE (Teflon)	A20	✓	✓	✓					
• FEP (with silicone core, approved for food)	A21	✓	✓	✓					
• FFPM (Kalrez, compound 4079), for measured medium temperatures -15 ... 100 °C (5 ... 212 °F)	A22	✓	✓	✓					
• NBR (Buna N)	A23	✓	✓	✓					
Plug									
• Han 7D (metal)	A30	✓							
• Han 8D (instead of Han 7D)	A31	✓							
• Angled	A32	✓							
• Han 8D (metal)	A33	✓							
Sealing screw ¼-18 NPT, with valve in mat. of process flanges	A40	✓	✓	✓					
Cable sockets for M12 connectors (metal (CuZn))	A50	✓	✓	✓					
Rating plate inscription (instead of German)									
• English	B11	✓	✓	✓					
• French	B12	✓	✓	✓					
• Spanish	B13	✓	✓	✓					
• Italian	B14	✓	✓	✓					
• Cyrillic (russian)	B16	✓	✓	✓					
English rating plate Pressure units in inH ₂ O and/or psi	B21	✓	✓	✓					
Quality Inspection Certificate (5-point characteristic curve test) according to IEC 60770-2¹⁾	C11	✓	✓	✓					
Inspection certificate²⁾ Acc. to EN 10204-3.1	C12	✓	✓	✓					
Factory certificate Acc. to EN 10204-2.2	C14	✓	✓	✓					
Acceptance certificate (EN 10204-3.1) PMI test of parts in contact with medium	C15	✓	✓	✓					
Functional safety (SIL2) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	C20	✓							
Functional safety (PROFIsafe) Certificate and PROFIsafe protocol	C21³⁾		✓						
Functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	C23	✓							
PED for Russia with initial calibration mark	C99	✓	✓	✓					

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<i>Further designs</i> Add "-Z" to Article No. and specify Order code.	HART	PA	FF		<i>Further designs</i> Add "-Z" to Article No. and specify Order code.	HART	PA	FF	
Use in or on zone 1D/2D (only together with type of protection "Intrinsic safety" (transmitter 7MF4...-.....-B.. Ex ia)" and IP66)	E01	✓	✓	✓	Transient protector 6 kV (lightning protection)	J01	✓	✓	✓
Oxygen application (In the case of oxygen measurement and inert liquid max. 100 bar (1450 psi) at 60°C (140 °F))	E10	✓	✓	✓	Chambered graphite gasket for process flange	J02	✓	✓	✓
Export approval Korea	E11	✓	✓	✓	Chambered PTFE graphite gasket	J03	✓	✓	✓
CRN approval Canada (Canadian Registration Number)	E22 ⁴⁾	✓	✓	✓	EPDM O-rings for process flange with approval (WRC/WRAS)	J05	✓	✓	✓
Dual seal	E24	✓	✓	✓	Vent valve or blanking plug of process flange welded-in (orientation: on right when viewing the display)⁷⁾	J08	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4...-.....-B..)	E25 ⁵⁾	✓	✓	✓	Vent valve or blanking plug of process flange welded-in (orientation: on left when viewing the display)⁷⁾	J09	✓	✓	✓
"Flameproof" explosion protection according to INMETRO (Brazil) (only for transmitter 7MF4...-.....-D..)	E26 ⁵⁾	✓	✓	✓	Process flange				
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4...-.....-P..)	E28 ⁵⁾	✓	✓		• Hastelloy	K01	✓	✓	✓
Ex Approval IEC Ex (Ex ia) (only for transmitter 7MF4...-.....-B..)	E45 ⁵⁾	✓	✓	✓	• Monel	K02	✓	✓	✓
Ex Approval IEC Ex (Ex d) (only for transmitter 7MF4...-.....-D..)	E46 ⁵⁾	✓	✓	✓	• Stainless steel with PVDF insert max. PN 10 (MAWP 145 psi), max. temperature of medium 90 °C (194 °F)	K04	✓	✓	✓
Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4...-.....-B..)	E55 ⁵⁾	✓	✓	✓	For ½-14 NPT inner process connection on the side in the middle of the process flange, vent valve not possible				
Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4...-.....-D..)	E56 ⁵⁾	✓	✓	✓	Marine approvals				
Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4...-.....-E..)	E57 ⁵⁾	✓	✓	✓	• Det Norske Veritas Germanischer Lloyd (DNV-GL)	S10	✓	✓	✓
Ex protection „Ex ia", „Ex d" and „Zone 2" to NEPSI (China) (only for transmitter 7MF4...-.....-R..)	E58 ⁵⁾	✓	✓	✓	• Lloyds Register (LR)	S11	✓	✓	✓
"Intrinsic safety" and "Explosion-proof" explosion protection acc. to Kosha (Korea) (only for transmitter 7MF4...-.....-[B, D]..-Z + E11)	E70 ⁵⁾	✓	✓	✓	• French marine classification society Bureau Veritas (BV)	S12	✓	✓	✓
Ex-protection Ex ia according to EAC Ex (Russia)	E80	✓	✓	✓	• American Bureau of Shipping (ABS)	S14	✓	✓	✓
Ex-protection Ex d according to EAC Ex (Russia)	E81	✓	✓	✓	• Russian Maritime Register (RMR)	S16	✓	✓	✓
Ex-protection Ex nA/ic (Zone 2) according to EAC Ex (Russia)	E82	✓	✓	✓	• Korean Register of Shipping (KR)	S17	✓	✓	✓
Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia)	E83	✓	✓	✓					
Two coats of lacquer on casing and cover (PU on epoxy)	G10	✓	✓	✓					
Interchanging of process connection side	H01	✓	✓	✓					
Vent on side for gas measurements	H02	✓	✓	✓					
Stainless steel process flanges for vertical differential pressure lines (not together with K01, K02 and K04) ⁶⁾	H03	✓	✓	✓					

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

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Selection and Ordering data	Order code			
<i>Additional data</i>		HART	PA	FF
Please add "-Z" to Article No. and specify Order code(s) and plain text.				
Measuring range to be set Specify in plain text (max. 5 characters): Y01: ... up to ... mbar a, bar a, kPa _{abs} , MPa _{abs} , psia ²⁾	Y01	✓	✓ ¹⁾	
Stainless steel tag plate and entry in device variable (measuring point description) Max. 16 characters, specify in plain text: Y15:	Y15	✓	✓	✓
Measuring point text (entry in device variable) Max. 27 characters, specify in plain text: Y16:	Y16	✓	✓	✓
Entry of HART address (TAG) Max. 8 characters, specify in plain text: Y17:	Y17	✓		
Setting of pressure indication in pressure units Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, ... Note: The following pressure units can be selected: bar, mbar, mm H ₂ O ¹⁾ , inH ₂ O ¹⁾ , ftH ₂ O ¹⁾ , mmHG, inHG, psi, Pa, kPa, MPa, g/cm ² , kg/cm ² , Torr, ATM or %) ref. temperature 20 °C	Y21	✓	✓	✓
Setting of pressure indication in non-pressure units³⁾ 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	✓		
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	Y25		✓	✓
Damping adjustment in seconds (0 ... 100 s)	Y30	✓	✓	✓

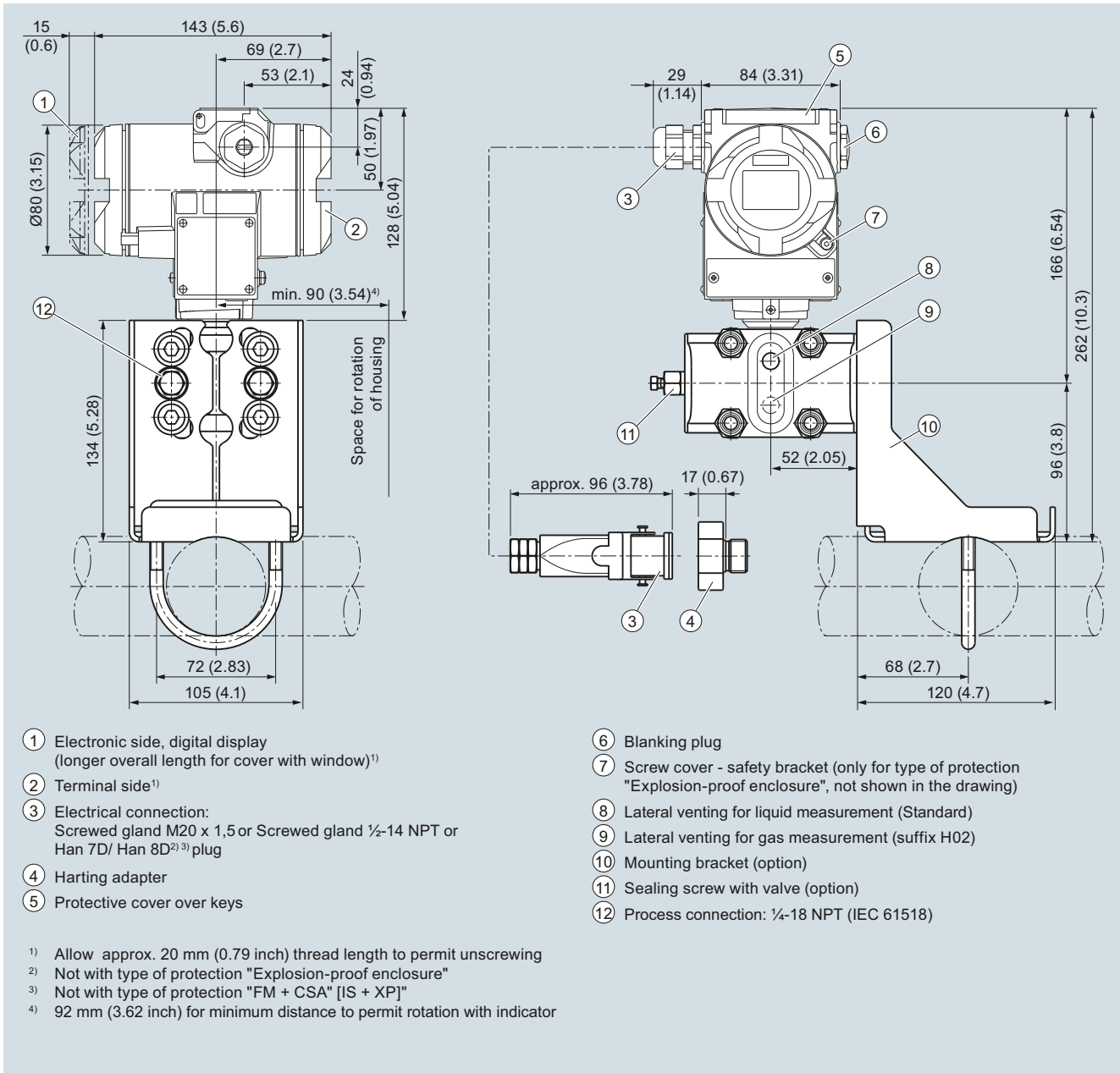
Factory mounting of valve manifolds, see accessories.

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

✓ = available

- 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.

Dimensional drawings



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