

MODEL DESIGNATIONS AND SPECIFICATIONS

This section contains the model designation tables, a comprehensive accessory list, functional and performance specifications, and hazardous area classifications for SITRANS P Series DSIII Pressure Transmitters with HART communication capability. A CE Declaration of Conformity and a NACE certificate are at the end of this section.

IMPORTANT

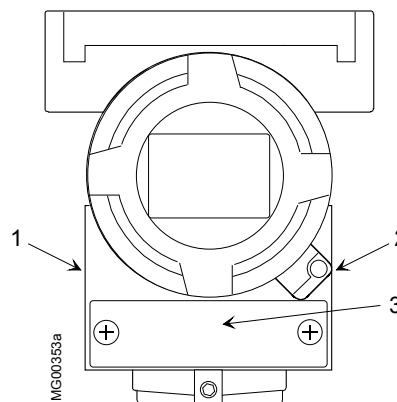
Before installing, calibrating, troubleshooting or servicing a transmitter, review this section carefully for applicable specifications and hazardous area classifications.

Sections 9.1 through 9.5 and Table 9-20 identify each entry on a transmitter's rating and approval plates. These plates carry important transmitter information:³

- Model number and serial number (Rating Plate)
- Materials of construction (Rating Plate)
- Span and rated pressure (Rating Plate)
- Certifications (Approval Plate)
- User-supplied Tag (Tag Plate)

Service Parts

Section 9.7 lists service parts.



1. Rating Plate
2. Approval Plate
3. Tag Plate

IMPORTANT

Before installing, applying or removing power, configuring, or servicing, confirm transmitter model by referring to the transmitter's model designation on its rating plate and in Sections 9.1 through 9.5.

The table below is an overview of measurement categories and available models. For details pertaining to a model, see the appropriate section for a dimension drawing, the model designations and specifications.

Measurement	Models	See Section	Dimensions	Model Designation	Specifications
Absolute or Gauge Pressure	7MF4033	9.1	Figure 9-1	Table 9-1	Table 9-2
	7MF4233	9.2	Figure 9-2	Table 9-3	Table 9-4
	7MF4333	9.3	Figure 9-3	Table 9-5	Table 9-6
Differential Pressure	7MF4433	9.4	Figure 9-3 or 9-4	Table 9-7	Table 9-9
	7MF4533			Table 9-8	
Level (Flange)	7MF4633	9.5	Figure 9-5	Table 9-10	Table 9-11
	7MF4812				

³ For complete model information, refer to the current edition of Siemens Catalog FI 01 (year) US Edition

9.1 MODEL 7MF4033, GAGE PRESSURE

This section contains a dimension drawing of the transmitter, a model designation table and performance specifications.

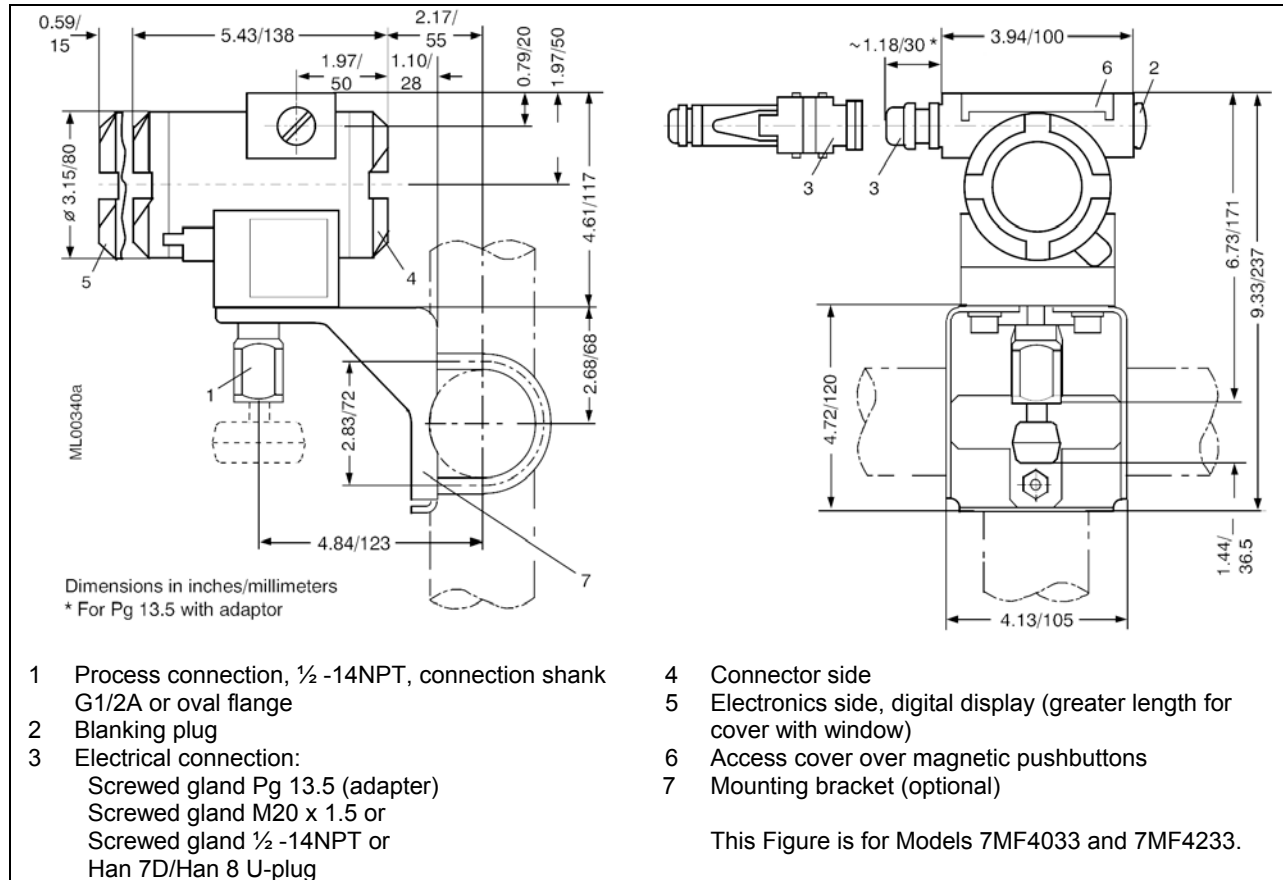


FIGURE 9-1 Model 7MF4033, Dimensions

TABLE 9-1 Model 7MF4033, Model Designation

Pressure transmitter, two-wire, series DSIII, 7MF4033-									
<u>Measuring cell filling</u>		<u>Measuring cell cleaning</u>							
Silicone oil		Standard		1					
Inert liquid		Grease-free		3					
<u>Span</u>									
0.01 To 1 bar g	(0.15 To 14.5 psi g)					B			
0.04 To 4 bar g	(0.58 To 58 psi g)					C			
0.16 To 16 bar g	(2.32 To 232 psi g)					D			
0.63 To 63 bar g	(9.14 To 914 psi g)					E			
1.6 To 160 bar g	(23.2 To 2320 psi g)					F			
4.0 To 400 bar g	(58.0 To 5802 psi g)					G			
<u>Wetted parts materials</u>		<u>Process connection</u>							
<u>Seal diaphragm</u>		Stainless steel				A			
Stainless steel		Stainless steel				B			
Hastelloy®		Stainless steel				C			
Hastelloy		Hastelloy				Y			
Version as diaphragm seal									
<u>Process connection</u>									
• Connection shank G1/2A to EN 837-1						0			
• Female thread 1/2-14 NPT						1			
• Oval flange made of stainless steel									
- Mounting thread 7/16-20 UNF to 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			
<u>Non-wetted parts materials</u>									
• Housing die-cast aluminum						0			
• Housing stainless steel precision casting						3			
<u>Version</u>									
• Standard version							1		
• International version, English label inscription and documentation in 5 languages on CD							2		
<u>Explosion protection</u>									
• Without								A	
• With ATEX, type of protection:								B	
- Intrinsic safety (Ex ia)								D	
- Explosion proof (Ex d)								P	
- Intrinsic safety and explosion-proof enclosure (Ex ia + Ex d)								E	
- Ex nA/nL (Zone 2)								R	
- Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)								N	C
• With FM + CSA, type of protection: Intrinsic safety and explosion proof (is + xp)									
<u>Electrical connection / cable entry</u>									
• Screwed gland PG 13.5; adapter								A	
• Screwed gland M20 x 1.5								B	
• Screwed gland 1/2-14 NPT								C	
• Han 7D plug (plastic housing) includes mating connector								D	
• M12 connector (metal)								F	
<u>Display</u>									
• Without (digital indicator hidden, setting: mA)								1	
• With visible digital indicator, setting: mA								6	
• With customer specified digital indicator and setting, order code Y21 or Y22 required								7	
• Additional selections and data on next page.									

Additional Model 7MF4033 Selections and Data*	Order Code
Transmitter with mounting bracket of:	
- steel	A01
- stainless steel	A02
Plug: Han 7D (metal, gray)	A30
Plug: Han 8U (instead of Han 7D)	A31
Cable sockets for M12 connectors (metal)	A50
Inscribing of rating plate (instead of German):	
- English	B11
- French	B12
- Spanish	B13
- Italian	B14
- English, pressure units in inH ₂ O or psi	B21
Manufacturer's test/calibration certificate M to DIN 55350, part 18 and ISO 8402	C11
Acceptance test certificate to EN 10204-3.1	C12
Factory certificate to EN 10204-2.2	C14
"Functional Safety (SIL)" certificate	C20
Setting upper limit of output signal limit to 22.0 mA	D05
Manufacturer's declaration according to NACE	D07
Type of protection IP68	D12
Digital indicator alongside the input keys	D27
Supplied with oval flange	D37
Use in or on Zone 1D/2D	E01
Use in Zone 0	E02
Oxygen cleaning application, 160 bar g (2320 psi g) maximum, for oxygen measurement and inert liquid	E10
Explosion proof, intrinsic safety to INMETRO (Brazil)	E25
Explosion proof, intrinsic safety to NEPSI (China)	E55
Explosion protection, explosion proof to NEPSI (China)	E56
Explosion proof, Zone 2 to NEPSI (China)	E57
Measuring range to be set, 5 characters maximum, specify in plain text:	
Y01: ... to ... mbar, bar, psi, kPa, MPa,	Y01
Tag number/descriptor, 16 characters maximum, specify in plain text:	Y15
Tag message, 27 characters maximum, specify in plain text	Y16
Entry of HART address (Tag), 8 characters maximum, specify in plain text	Y17
Setting of pressure indication in pressure units, specify in plain text: mbar, psi, kPa, MPa...	Y21
Setting of pressure indication in non-pressure units, specify in plain text: l/min, m ³ /h, m, USgpm... (5 characters maximum)	Y22+Y01
Only Y01, Y21, Y22, Y25 and D05 can be factory preset.	

* Add "-Z" to model number and specify Order Code(s).

TABLE 9-2 Model 7MF4033, Specifications

<p>Input</p> <p>Measured variable Span (infinitely adjustable)</p> <p>Lower measuring limit</p> <ul style="list-style-type: none"> • Measuring cell, silicone oil filling • Measuring cell, inert filling liquid <p>Upper measuring limit</p> <ul style="list-style-type: none"> • With oxygen measurement and inert liquid 	<p>Gage pressure</p> <p><u>Span</u></p> <table border="0"> <tr> <td>0.01 to 1 bar g (0.145 to 14.5 psi g)</td> <td>6 bar g (87 psi g)</td> </tr> <tr> <td>0.04 to 4 bar g (0.58 to 58 psi g)</td> <td>10 bar g (145 psi g)</td> </tr> <tr> <td>0.16 to 16 bar g (2.23 to 232 psi g)</td> <td>32 bar g (464 psi g)</td> </tr> <tr> <td>0.6 to 63 bar g (9.14 to 914 psi g)</td> <td>100 bar g (1450 psi g)</td> </tr> <tr> <td>1.6 to 160 bar g (23.2 to 2320 psi g)</td> <td>250 bar g (3626 psi g)</td> </tr> <tr> <td>4.0 to 400 bar g (58 to 5802 psi g)</td> <td>600 bar g (8700 psi g)</td> </tr> </table> <p>30 mbar a (0.435 psi a)</p> <p>30 mbar a (0.435 psi a)</p> <p>100% of maximum span</p> <p>160 bar g (2320 psi g) maximum</p>	0.01 to 1 bar g (0.145 to 14.5 psi g)	6 bar g (87 psi g)	0.04 to 4 bar g (0.58 to 58 psi g)	10 bar g (145 psi g)	0.16 to 16 bar g (2.23 to 232 psi g)	32 bar g (464 psi g)	0.6 to 63 bar g (9.14 to 914 psi g)	100 bar g (1450 psi g)	1.6 to 160 bar g (23.2 to 2320 psi g)	250 bar g (3626 psi g)	4.0 to 400 bar g (58 to 5802 psi g)	600 bar g (8700 psi g)
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<p>Output</p> <p>Output signal</p> <ul style="list-style-type: none"> • Lower limit (infinitely adjustable) • Upper limit (infinitely adjustable) <p>Load</p> <ul style="list-style-type: none"> • Without HART communication • With Hart communication 	<p>4 to 20 mA</p> <p>3.55 mA, factory preset to 3.84 mA</p> <p>23 mA, factory preset to 20.5 mA or optionally set to 22.0 mA</p> <p>$R_B \leq (U_H - 10.5 \text{ V})/0.023 \text{ A}$ in Ω; U_H: power supply in V</p> <p>$R_B = 230$ to 500Ω (SIMATIC PDM); $R_B = 230$ to 1100Ω (HART Communicator)</p>												
<p>Accuracy</p> <p>Reference Conditions</p> <p>Error in measurement and fixed-point setting (including hysteresis and repeatability)</p> <ul style="list-style-type: none"> • Linear characteristic <p>- $r \leq 10$</p> <p>- $10 \leq r < 30$</p> <p>- $30 \leq r < 100$</p> <p>Long-term drift (temperature change +/-30°C (+/-54°F))</p> <p>Influence of ambient temperature</p> <ul style="list-style-type: none"> • at -10 to +60°C (14 to +140°F) • at -40 to -10°C and +60 to +85°C (-40 to +14°F and 140 to +185°F) 	<p>To EN 60770-1</p> <p>Increasing characteristic, start of scale value 0 bar, stainless steel seal diaphragm, silicon oil filling, temperature 25°C (77°F) r: span ratio (r = max. span/set span)</p> <p>$\leq (0.0029 * r + 0.071)\%$</p> <p>$\leq (0.0045 * r + 0.071)\%$</p> <p>$\leq (0.005 * r + 0.05)\%$</p> <p>$\leq (0.25 * r)\%$ every 5 years</p> <p>$\leq (0.08 * r + 0.1)\%$</p> <p>$\leq (0.1 * r + 0.15)\%/10K$</p>												
<p>Rated operating conditions</p> <p>Degree of protection (to EN 60529)</p> <p>Process temperature</p> <ul style="list-style-type: none"> • Measuring cell, silicon oil filling • Measuring cell, inert filling liquid • In conjunction with dust explosion protection <p>Ambient conditions</p> <ul style="list-style-type: none"> • Ambient temperature, digital indicators • Storage temperature • Climatic class, condensation • Electromagnet compatibility 	<p>IP65</p> <p>-40 to +100°C (-40 to +212°F)</p> <p>-20 to +100°C (-4 to +212°F)</p> <p>-20 to +60°C (-4 to +140°F)</p> <p>-30 to +85°C (-22 to +185°F)</p> <p>-50 to +85°C (-58 to +185°F)</p> <p>Permissible</p> <p>To EN 61326 and NAMUR NE 21</p>												
<p>Design</p> <p>Weight, approximate, without options</p> <p>Housing material</p>	<p>1.5 kg (3.3 lb)</p> <p>Low copper die-cast aluminum, GD-AISI 12 or stainless steel precision casing, mat. No. 1.4408</p>												

Wetted parts materials	
• Connection shank	Stainless steel, mat. No. 1.4404/316L or Hastelloy C4, mat. No. 2.4610
• Oval flange	Stainless steel, mat. No. 1.4404/316L
• Seal diaphragm	Stainless steel, mat. No. 1.4404/316L or Hastelloy C276, mat. No. 2.4819
Measuring cell filling	Silicone oil or inert filling liquid
Process connection	Connection shank G1/2A to DIN EN837-1, female thread 1/2-14 NPT or oval flange to DIN 19213 with mounting thread M10 or 7/16-20 UNF to EN 16518
Power Supply U_H	
Terminal voltage at transmitter	10.5 to 45 Vdc; 10.5 to 30 Vdc in intrinsically-safe mode
Certificate and approvals	See Table 9-20.
HART communication	
HART communication	230 to 1100 Ω
Protocol	HART Version 5.x
Software for computer	SIMATIC PDM