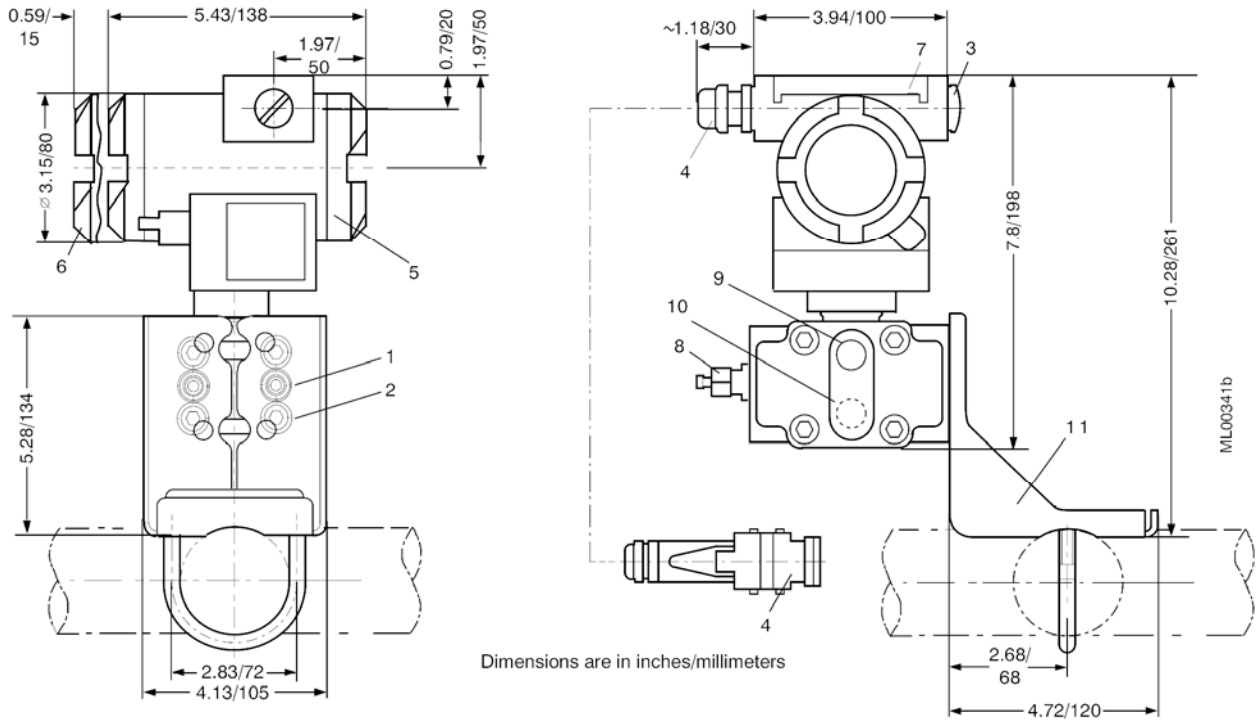
MODEL 7MF4333, ABSOLUTE PRESSURE

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



1	Process connection ¼-18NPT for absolute pressure (+) side	6	Electronics side, digital display (greater length for cover with window)
2	Mounting thread M10, M12 or 7/16-20UNF	7	Access cover over magnetic pushbuttons
3	Dummy plug	8	Sealing screw with vent shown (optional)
4	Electrical connection: Screwed gland PG 13.5 (adapter) M20 x 1.5 or ½ -14NPT or Han 7D/Han 8 U plug	9	Side vent for measuring liquid
		10	Side vent for measuring gas (supplement H02)
		11	Mounting bracket (optional)
5	Connection side		This Figure is for Models 7MF4333, 7MF4433, and 7MF4533.

FIGURE 9-3 Models 7MF4333, 7MF4433 and 7MF4533, Dimensions

TABLE 9-5 Model 7MF4333, Model Designation

Absolute pressure, differential pressure construction, two-wire, series DSIII, 7MF4333-											-				
Measuring cell filling	Measuring cell cleaning														
Silicone oil	Standard					1									
Inert liquid	Grease-free					3									
Span															
8.3 to 250 mbar a		(0.12 to 3.63 psi a)					D								
43 to 1300 mbar a		(0.62 to 18.9 psi a)					F								
0.16 to 5 bar a		(2.32 to 72.5 psi a)					G								
1 to 30 bar a		(14.5 to 435 psi a)					H								
5.3 to 100 bar a		(76.9 to 1450 psi a)					K	E							
Wetted parts materials															
Seal diaphragm	Parts of the measuring cell														
Stainless steel	Stainless steel							A							
Hastelloy	Stainless steel							B							
Hastelloy	Hastelloy							C							
Tantalum	Tantalum							E							
Monel®	Monel							H							
Gold	Gold							L							
Version for diaphragm seal								Y							
Process connection															
Female thread 1/4-18 NPT with flange connection															
• Sealing screw opposite process connection															
- Mounting thread M10 to DIN 19213									0						
- Mounting thread 7/16-20 UNF to EN 61518									2						
• Vent on side of process flange															
- Mounting thread M10 to DIN 19213									4						
- Mounting thread 7/16-20 UNF to EN 61518									6						
Non-wetted parts materials															
Process flange screws	Electronics housing														
Stainless steel	Die-cast aluminum									2					
Stainless steel	Stainless steel precision casting									3					
Version															
• Standard version											1				
• International version, English label inscriptions and documentation in 5 languages on CD											2				
Explosion protection															
• Without												A			
• With ATEX, type of protection:															
- Intrinsic safety (EEx ia)												B			
- Explosion proof (EEx d)												D			
- Intrinsic safety and explosion-proof enclosure (EEx ia + EEx d)												P			
- Ex nA/nL (Zone 2)												E			
- Intrinsic safety, explosion proof enclosure and dust explosion protection (EEX ia + EEx d + Zone 1D/2D)												R			
• With FM +CSA, type of protection intrinsic safety and explosion proof (is + xp)												N	C		
Electrical connection / cable entry															
• 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) including mating connector													D		
• Plug M12 (metal)													F		
Display															
• Without (digital indicator hidden, setting: mA)														1	
• With visible digital indicator														6	
• With customer specified digital indicator and setting, order code Y21 or Y22 required														7	

Additional selections and data on next page.

Additional Model 7MF4333 Selections and Data*	**Order Code**
Transmitter with mounting bracket of:	
- steel	**A01**
- stainless steel	**A02**
Process flange O-ring (instead of FPM (Viton®)) of:	
- PTFE (Teflon®)	**A20**
- FEP (with silicone core, approved for food)	**A21**
- FFPM (Kalrez®, compound 4079)	**A22**
- NBR (buna N)	**A23**
Plug: Han 7D (metal, gray)	**A30**
Plug: Han 8U (instead of Han 7D)	**A31**
Sealing screws (1/4-18 NPT) with valve in same material as process flange	**A40**
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_2O or psi	**B21**
Manufacturer 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 of the upper limit of output signal limit to 22.0 mA	**D05**
Manufacturer's declaration according to NACE	**D07**
Type of protection IP 68	**D12**
Digital indicator alongside the input keys	**D27**
Supplied with oval flange	**D37**
Use in or on Zone 1D/2D	**E01**
Use on Zone 0	**E02**
Oxygen cleaning application, 160 bar a (2320 psi a) 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**
Interchanging of process connection sides	**H01**
Vent on side for gas measurement	**H02**
Process flange:	
- Hastelloy	**K01**
- Monel	**K02**
- Stainless steel with PVDF insert, PN 10 (MWP 145 psi) maximum, temperature of medium 90°C (194°F) maximum	**K04**
Measuring range to be set, specify in plain text:	
Y01: 0 to ... mbar, psi, kPa, MPa, ... (27 characters maximum)	**Y01**
Tag number/description, 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: l/min, m^3/h, m, USgpm...	**Y22+Y01**
Only Y01, Y21, Y22, Y25 and D05 can be factory preset.	

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

TABLE 9-6 Model 7MF4333, Specifications

Input		
Measured variable	Absolute pressure (differential construction)	
Span (infinitely adjustable)	Span	Max. permissible test pressure
	8.3 to 250 mbar a (0.12 to 3.6 psi a) see Note	32 bar a (464 psi a)
	43 to 1300 mbar a (0.62 to 18.9 psi a)	32 bar a (464 psi a)
	160 to 5000 mbar a (2.32 to 72.5 psi a)	32 bar a (464 psi a)
	1 to 30 bar a (14.5 to 435 psi a)	160 bar a (2320 psi a)
	5.3 to 100 bar a (77 to 1450 psi a)	160 bar a (2320 psi a)*
		* For process flange connection thread M10 and 7/16-20 UNF
Lower measuring limit		
• Measuring cell, silicone oil filling	0 mbar a (0 psi a)	
Upper measuring limit	100% of maximum span	
Output		
Output signal	4 to 20 mA	
• Lower limit (infinitely adjustable)	3.55 mA, factory preset to 3.84 mA	
• Upper limit (infinitely adjustable)	23 mA, factory preset to 20.5 mA Optionally set to 22.0 mA	
Load		
• Without HART communication	$R_B \leq (U_H - 10.5\ V)/0.023\ A$ in Ω U_H: power supply in V	
• With Hart communication	R_B = 230 to 500 Ω (SIMATIC PDM) or R_B = 230 to 1100 Ω (HART Communicator)	
Accuracy	To EN 60770-1	
Reference Conditions	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)	
Error in measurement and fixed-point setting (including hysteresis and repeatability)		
• Linear characteristic		
- r ≤ 10	≤ 0.1%	
- 10 ≤ r < 30	≤ 0.2%	
Long-term drift (temperature change +/-30°C (+/-54°F))	≤ (0.1 * r)%/ year	
Influence of ambient temperature		
• at -10 to +60°C (14 to +140°F)	≤ (0.1 * r + 0.2)%	
• at -40 to -10°C and +60 to +85°C (-40 to +14°F and 140 to +185°F)	≤ (0.1 * r + 0.15)%/10K	
Rated operating conditions		
Degree of protection (to EN 60529)	IP65	
Process temperature		
• Measuring cell, silicon oil filling	-40 to +100°C (-40 to +212°F)	
• Measuring cell, inert filling liquid	-20 to +100°C (-4 to +212°F)	
• In conjunction with dust explosion protection	-20 to +60°C (-4 to +140°F)	
Ambient conditions		
• Ambient temperature, digital indicators	-30 to +85°C (-22 to +185°F)	
• Storage temperature	-50 to +85°C (-58 to +185°F)	
• Climatic class, condensation	Permissible	
• Electromagnet compatibility	To EN 61326 and NAMUR NE 21	
Design		
Weight, approximate, without options	4.5 kg (9.9 lb)	
Housing material	Low copper die-cast aluminum, GD-AISi 12 or stainless steel precision casing, mat. No. 1.4408	
Wetted parts materials		

• Seal diaphragm	Stainless steel, mat. No. 1.4404/316L or Hastelloy C4, mat. No. 2.4610, Monel, mat. No. 2.4360, tantalum or gold
• Process flange and sealing screw	Stainless steel, mat. No. 1.4408, Hastelloy C4, mat. No. 2.4610 or Monel, mat. No. 2.4360
• O-ring(s)	FPM (Viton) or optionally: PTFE, FEP, FEPM and NBR
Measuring cell filling	Silicone oil or inert filling liquid; max. 160 bar a (2320 psi a) with oxygen measurement
Process connection	1/4-18 NPT and flange connection to DIN 19213 with mounting thread M10 to DIN 19213 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

Note: 3.6 psi absolute (250 mbar a) Capsule

This measuring cell is designed for operation within the measuring limits of 0 to 3.63 psi (absolute). When stored in the normal ambient pressure of about of about 14.7 psi (absolute), the measuring cell is in the overload state. An overload error of up to 0.03 psi may occur. The overload disappears in normal operation within the measuring limits and the transmitter operates within specifications.

When performing accurate continuous pressure measurements within the measuring limits, a readjustment of the transmitter zero for absolute pressure must be performed after approximately one day (refer to Section 6.2.5).

If pressure measurements exceed the measuring limits repeatedly (e.g. batch processes with transitions between vacuum and ventilation), a measuring cell with a maximum range of 18.9 psi should be selected to avoid overloading.