



DMP 331

Industrial Pressure Transmitter for Low Pressure

Stainless Steel Sensor

accuracy according to IEC 60770:
standard: 0.35 % FSO
option: 0.25 / 0.1 % FSO

Industrial Pressure Transmitter

Nominal pressure

from 0 ... 100 mbar
up to 0 ... 40 bar

Output signals

2-wire: 4 ... 20 mA
3-wire: 0 ... 20 mA / 0 ... 10 V
others on request

Special characteristics

- ▶ perfect thermal behaviour
- ▶ excellent long term stability
- ▶ **pressure port**
G 1/2" flush from 100 mbar on

Optional versions

- ▶ IS-version
Ex ia = intrinsically safe for gases and dusts
- ▶ SIL 2
according to IEC 61508 / IEC 61511
- ▶ **pressure sensor welded**
- ▶ customer specific versions

The pressure transmitter DMP 331 can be used in all industrial areas when the medium is compatible with stainless steel 1.4404 (316 L) or 1.4435 (316 L). Additional are different elastomer seals as well as a helium tested welded version available.

The modulare concept of the device allows to combine different stainless steel sensors and electronic modules with a variety of electrical and mechanical versions.

Thus a diversity of variations is created, meeting almost all requirements in industrial applications.

Preferred areas of use are



Plant and Machine Engineering



Environmental Engineering
(water - sewage - recycling)



Energy Industry

DMP 331

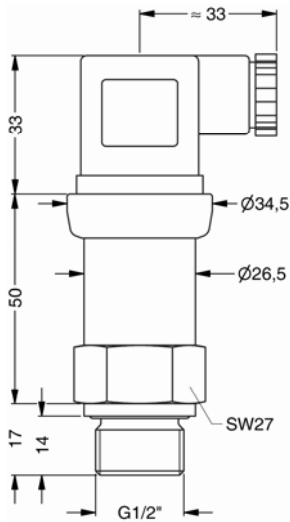


Input pressure range									
Nominal pressure gauge / abs.	[bar]	-1...0	0.10	0.16	0.25	0.40	0.60	1	1.6
Overpressure	[bar]	5	0.5	1	1	2	5	5	10
Burst pressure \geq	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15
Nominal pressure gauge / abs.	[bar]	2.5	4	6	10	16	25	40	
Overpressure	[bar]	10	20	40	40	80	80	105	
Burst pressure \geq	[bar]	15	25	50	50	120	120	210	
Vacuum resistance		$P_N \geq 1$ bar: unlimited vacuum resistance $P_N < 1$ bar: on request							
Output signal / Supply									
Standard		2-wire: 4 ... 20 mA / $V_S = 8 \dots 32 V_{DC}$							
Option IS-protection		2-wire: 4 ... 20 mA / $V_S = 10 \dots 28 V_{DC}$							
Options 3-wire		3-wire: 0 ... 20 mA / $V_S = 14 \dots 30 V_{DC}$ 0 ... 10 V / $V_S = 14 \dots 30 V_{DC}$							
Performance									
Accuracy ¹		standard: nominal pressure < 0.4 bar: $\leq \pm 0.5$ % FSO nominal pressure ≥ 0.4 bar: $\leq \pm 0.35$ % FSO option 1: nominal pressure ≥ 0.4 bar: $\leq \pm 0.25$ % FSO option 2: for all nominal pressure: $\leq \pm 0.1$ % FSO							
Permissible load		current 2-wire: $R_{max} = [(V_S - V_S \text{ min}) / 0.02] \Omega$ current 3-wire: $R_{max} = 500 \Omega$ voltage 3-wire: $R_{min} = 10 \text{ k}\Omega$							
Influence effects		supply: 0.05 % FSO / 10 V						load: 0.05 % FSO / $\text{k}\Omega$	
Long term stability		$\leq \pm 0.1$ % FSO / year at reference conditions							
Response time		2-wire: ≤ 10 msec						3-wire: ≤ 3 msec	
¹ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)									
Thermal effects (Offset and Span)									
Nominal pressure P_N	[bar]	-1 ... 0			< 0.40			≥ 0.40	
Tolerance band	[% FSO]	$\leq \pm 0.75$			$\leq \pm 1$			$\leq \pm 0.75$	
in compensated range	[°C]	-20 ... 85			0 ... 70			-20 ... 85	
Permissible temperatures									
Permissible temperatures		medium: -40 ... 125 °C electronics / environment: -40 ... 85 °C storage: -40 ... 100 °C							
Electrical protection									
Short-circuit protection		permanent							
Reverse polarity protection		no damage, but also no function							
Electromagnetic compatibility		emission and immunity according to EN 61326							
Mechanical stability									
Vibration		10 g RMS (25 ... 2000 Hz) according to DIN EN 60068-2-6							
Shock		500 g / 1 msec according to DIN EN 60068-2-27							
Materials									
Pressure port		stainless steel 1.4404 (316 L)							
Housing		stainless steel 1.4404 (316 L)							
Option compact field housing		stainless steel 1.4305 (303), cable gland brass, nickel plated						others on request	
Seals (media wetted)		standard: FKM options: EPDM NBR welded version ² others on request							
Diaphragm		stainless steel 1.4435 (316 L)							
Media wetted parts		pressure port, seals, diaphragm							
² welded version only with pressure ports according to EN 837									
Explosion protection (only for 4 ... 20 mA / 2-wire)									
Approval DX19-DMP 331		IBExU 10 ATEX 1068 X zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ta IIIC T 85°C, IP6x in preparation							
Safety technical maximum values		$U_i = 28 \text{ V}$, $I_i = 93 \text{ mA}$, $P_i = 660 \text{ mW}$, $C_i \approx 0 \text{ nF}$, $L_i \approx 0 \text{ }\mu\text{H}$							
Permissible temperatures for environment		in zone 0: -20 ... 60 °C with p_{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -20 ... 70 °C							
Connecting cables (by factory)		cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1 $\mu\text{H}/\text{m}$							

Miscellaneous					
Option SIL 2	according to IEC 61508 / IEC 61511				
Current consumption	signal output current:	max. 25 mA	signal output voltage:	max. 5 mA	
Weight	approx. 140 g				
Installation position	any ³				
Operational life	> 100 x 10 ⁶ pressure cycles				
CE-conformity	EMC Directive: 2004/108/EC				
³ Pressure transmitters are calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight deviations in the zero point for pressure ranges $P_N \leq 1$ bar.					
Wiring diagrams					
2-wire-system (current) 			3-wire-system (current / voltage) 		
Pin configuration					
Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	field housing	cable colours (DIN 47100)
Supply +	1	3	1	IN +	wh (white)
Supply -	2	4	2	IN -	bn (brown)
Signal + (for 3-wire)	3	1	3	OUT+	gn (green)
Shield	ground pin	5	4	⊥	gn/ye (green / yellow)
Electrical connections (dimensions in mm)					
standard		option			
<p>ISO 4400 (IP 65)</p>		<p>Binder Series 723 5-pin (IP 67)</p>		<p>M12x1 4-pin (IP 67)</p>	
				<p>cable outlet with PVC cable (IP 67)⁴</p>	
		<p>compact field housing (IP 67)</p>		<p>cable outlet, cable with ventilation tube (IP 68)⁵</p>	
<p>⇒ universal field housing stainless steel 1.4404 (316 L) with cable gland M20x1.5 (ordering code 880) and other versions on request</p>					
⁴ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C)					
⁵ different cable types and lengths available, permissible temperature depends on kind of cable					

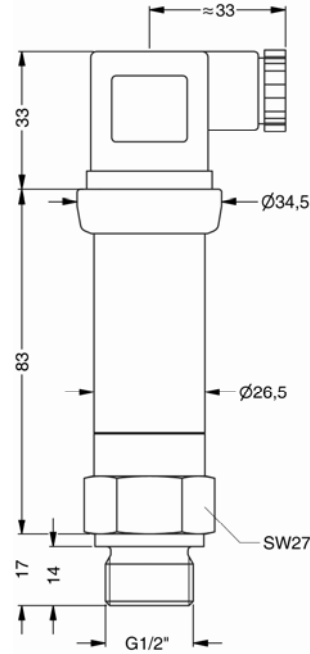
Mechanical connections (dimensions in mm)

standard for accuracy 0.35 / 0.25 %



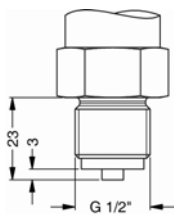
G1/2" DIN 3852
with ISO 4400

**standard for accuracy 0.1 %;
SIL- and SIL-IS-version**

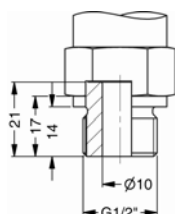


G1/2" DIN 3852
with ISO 4400

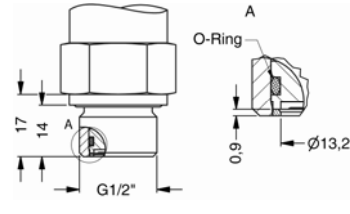
option



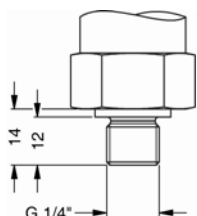
G1/2" EN 837



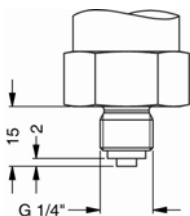
G1/2" open port



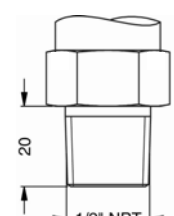
G1/2" DIN 3852
with flush sensor



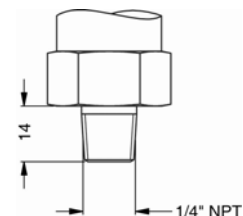
G1/4" DIN 3852



G1/4" EN 837



1/2" NPT



1/4" NPT

⇒ **metric threads and other versions on request**

Code DMP 331

DMP 331

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Pressure										
gauge	1	1	0							
absolute	1	1	1							
Input [bar]										
0.10	1	0	0	0						
0.16	1	6	0	0						
0.25	2	5	0	0						
0.40	4	0	0	0						
0.60	6	0	0	0						
1.0	1	0	0	1						
1.6	1	6	0	1						
2.5	2	5	0	1						
4.0	4	0	0	1						
6.0	6	0	0	1						
10	1	0	0	2						
16	1	6	0	2						
25	2	5	0	2						
40	4	0	0	2						
-1 ... 0	X	1	0	2						
customer	9	9	9	9						consult
Output										
4 ... 20 mA / 2-wire					1					
0 ... 20 mA / 3-wire					2					
0 ... 10 V / 3-wire					3					
Intrinsic safety 4 ... 20 mA / 2-wire					E					
SIL2 4 ... 20 mA / 2-wire					1S					
SIL2 with intrinsic safety										
4 ... 20 mA / 2-wire					ES					
customer					9					consult
Accuracy										
standard for $P_N \geq 0.4$ bar	0.35 %				3					
standard for $P_N < 0.4$ bar	0.5 %				5					
option 1 for $P_N \geq 0.4$ bar	0.25 %				2					
option 2	0.1 %				1					
customer					9					consult
Electrical connection										
Male and female plug ISO 4400					1	0	0			
Male plug Binder series 723 (5-pin)					2	0	0			
Cable outlet with PVC cable ¹					T	A	0			
Cable outlet ²					T	R	0			
Male plug M12x1 (4-pin) / metal					M	1	0			
Compact field housing					8	5	0			
stainless steel 1.4305										
customer					9	9	9			consult
Mechanical connection										
G1/2" DIN 3852					1	0	0			
G1/2" EN 837					2	0	0			
G1/4" DIN 3852					3	0	0			
G1/4" EN 837					4	0	0			
G1/2" DIN 3852					F	0	0			
with flush sensor										
G1/2" DIN 3852 open pressure port					H	0	0			
1/2" NPT					N	0	0			
1/4" NPT					N	4	0			
customer					9	9	9			consult
Seals										
FKM								1		
EPDM								3		
NBR								5		
without (welded version) ³								2		
customer								9		consult
Special version										
standard								0	0	0
customer								9	9	9
										consult

¹ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C), others on request

² cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, price without cable

³ welded version only with pressure ports according to EN 837