DMP 331i
DMP 333i

Precision Pressure Transmitter

Stainless Steel Sensor

accuracy according to IEC 60770:
0.1 % FSO

Nominal pressure

from 0 ... 400 mbar up to 0 ... 600 bar

Output signal

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

Product characteristics

- thermal error in compensated range
  -20 ... 80 °C: 0.2 % FSO
  TC 0.02 % FSO / 10K
- excellent long term stability

Optional versions

- IS-versions
  Ex ia = intrinsically safe
  for gases and dusts
- welded pressure sensor
- pressure port G1/2" flush
- customer specific versions

The precision pressure transmitter DMP 331i and DMP 333i demonstrate the further development of our industrial pressure transmitters.

The signal processing of sensor signal is done by digital electronics with 16-bit analogue digital converter. Consequently, it is possible to conduct an active compensation and the transmitters with excellent measurements and exceptionally attractive price to offer on the market.

Preferred areas of use are

- Laboratory techniques
- Energy production (gas consumption and thermal energy measurement)

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Pressure ranges DMP 331i								
Nominal pressure gauge / absolute	[bar]	0.4	1	2	4	10	20	40	60
Overpressure	[bar]	2	5	10	20	40	80	105	105
Burst pressure ≥	[bar]	3	7.5	15	25	50	120	210	210

Vacuum ranges						
Nominal pressure gauge	[bar]	-0.4 ... 0.4	-1 ... 1	-1 ... 2	-1 ... 4	-1 ... 10
Overpressure	[bar]	2	5	10	20	40
Burst pressure ≥	[bar]	3	7.5	15	25	50

Pressure ranges DMP 333i					
Nominal pressure gauge / absolute	[bar]	100	200	400	600
Overpressure	[bar]	210	600	1000	1000
Burst pressure ≥	[bar]	420	1000	1250	1250

Output signal / Supply		
Standard	2-wire: 4 ... 20 mA / V_S = 12 ... 36 V_{DC}	
Option IS-version	2-wire: 4 ... 20 mA / V_S = 14 ... 28 V_{DC}	
Options analogue signal	3-wire: 0 ... 10 V / V_S = 14 ... 36 V_{DC}	
Performance		
Accuracy [1]	≤ ± 0.1 % FSO	
Permissible load	current 2-wire: R_{max} = [(V_S – $V_{S\ min}$) / 0.02 A] Ω voltage 3-wire: R_{min} = 10 kΩ	
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ	
Long term stability	≤ ± 0.1 % FSO / year at reference conditions	
Response time	approx. 5 msec	
[1] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)		
Thermal effects (offset and span)		
Tolerance band [% FSO]	≤ ± 0.2	in compensated range -20 ... 80 °C
TC, average [% FSO / 10 K]	± 0.02	in compensated range -20 ... 80 °C
Permissible temperatures		
Medium	-25 ... 125°C	
Electronics / environment	-25 ... 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	
Materials		
Pressure port	stainless steel 1.4404 (316 L)	
Housing	stainless steel 1.4404 (316 L)	
Option compact field housing	stainless steel 1.4301 (304) cable gland M12x1.5, brass, nickel plated (clamping range 2 … 8 mm)	
Seals	FKM NBR welded version [2] others on request	
Diaphragm	stainless steel 1.4435 (316L)	
Media wetted parts	pressure port, seal, diaphragm	
[2] welded version only with pressure ports according to EN 837 and NPT; welded version not available with pressure ranges > 60 bar		

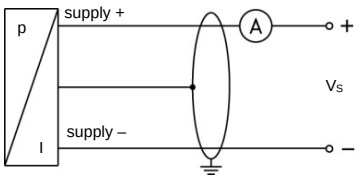
Mechanical stability		
Vibration	10 g RMS (20 ... 2000 Hz)	according to DIN EN 60068-2-6
Shock	100 g / 11 msec.	according to DIN EN 60068-2-27
Explosion protection (only for 4 ... 20 mA / 2-wire)		
Approvals DX19-DMP 331i DX19-DMP 333i	IBExU 10 ATEX 1068 X / IECEx IBE 12.0027X zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ia IIIC T135 °C Da	
Safety technical max. values	U_i = 28 V, I_i = 93 mA, P_i = 660 mW, C_i ≈ 0 nF, L_i ≈ 0 µH, the supply connections have an inner capacity of max. 27 nF to the housing	
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: -40/-20 ... 65 °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: 1µH/m	
Miscellaneous		
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA	
Weight	approx. 200 g	
Installation position	any [3]	
Operational life	100 million load cycles	
CE-conformity	EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module A) [4]	
ATEX Directive	2014/34/EU	

[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 ≤ 1 bar.

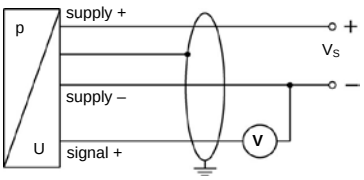
[4] This directive is only valid for devices with maximum permissible overpressure > 200 bar.

Wiring diagrams

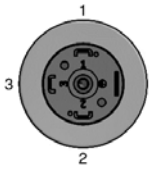
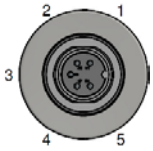
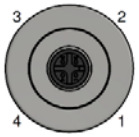
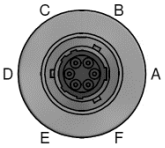
2-wire-system (current)

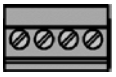


3-wire-system (voltage)

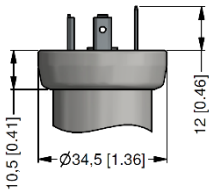


Pin configuration

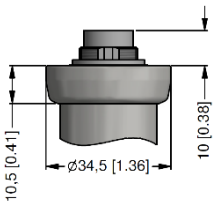
Electrical connections	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	Bayonet MIL-C-26482 (10-6)	
					
				2-wire	3-wire
Supply +	1	3	1	A	A
Supply –	2	4	2	B	D
Signal + (only for 3-wire)	3	1	3	-	B
Shield	ground contact ⏚	5	4	pressure port	

Electrical connections	compact field housing	cable colours (IEC 60757)
	 V_{S+} V_{S-} S+ GND	
Supply +	V_S+	WH (white)
Supply –	V_S-	BN (brown)
Signal + (only for 3-wire)	S+	GN (green)
Shield	GND	GNYE (green-yellow)

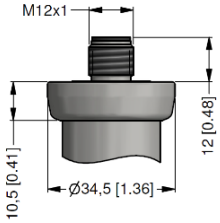
Electrical connections (dimensions mm / in)



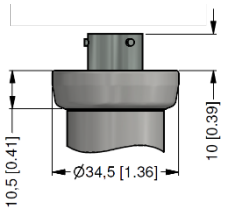
ISO 4400
(IP 65)



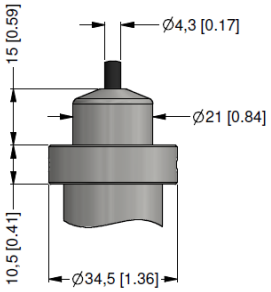
Binder series 723
(IP 67)



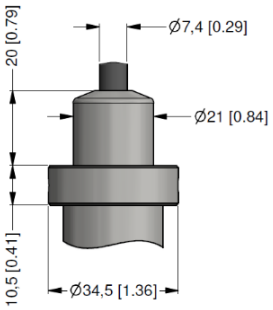
M12x1, 4-pin
(IP 67)



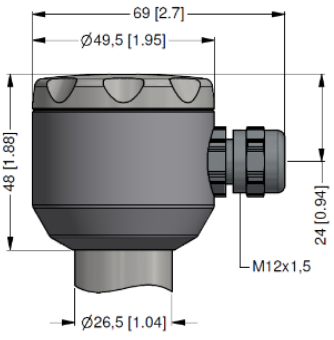
Bayonet MIL-C-26482 (10-6)
(IP 67)



cable outlet with PVC cable
(IP 67) [5]



cable outlet, cable with
ventilation tube (IP 68) [6]



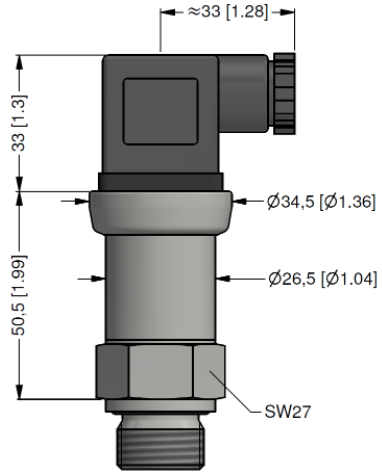
compact field housing
(IP 67)

⇨ **universal-field housing stainless steel 316L with cable gland M20x1.5 (ordering code 880) and other versions on request**

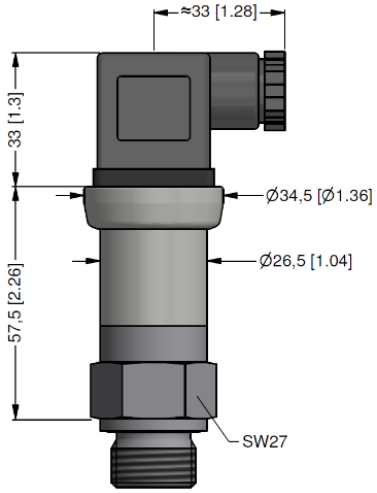
[5] *standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)*
[6] *different cable types and lengths available, permissible temperature depends on kind of cable*

Dimensions (mm / in)

DMP 331i [7]

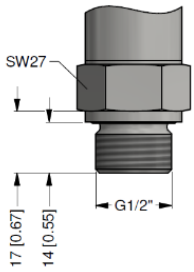


DMP 333i [7, 8]

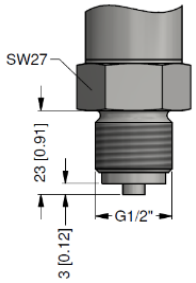


[7] *with electrical connection Bayonet MIL-C-26482 (10-6) increases the length of devices by 5 mm*
[8] *for nominal pressure p_N > 400 bar increases the length without IS-version by 19 mm and with IS-version by 39 mm*

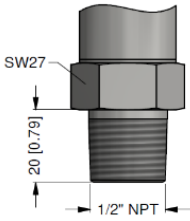
Mechanical connections (dimensions mm / in)



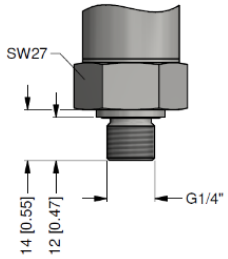
G1/2" DIN 3852



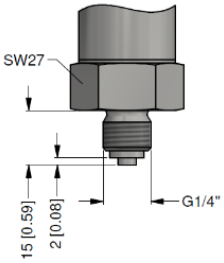
G1/2" EN 837



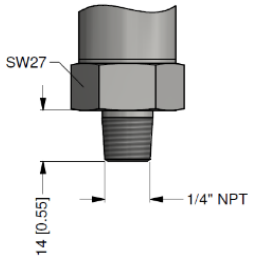
1/2" NPT



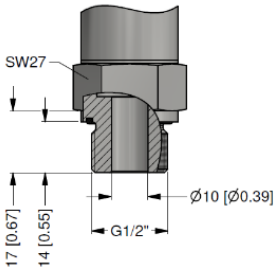
G1/4" DIN 3852



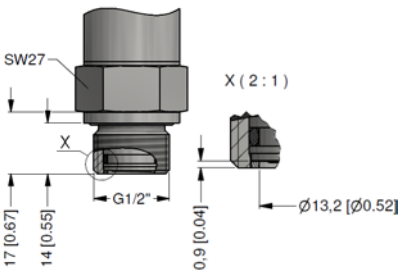
G1/4" EN 837



1/4" NPT



G1/2" open port DIN 3852
(p_N ≤ 60 bar)



G1/2" flush DIN 3852
(p_N ≤ 60 bar)

⇨ **metric threads and others on request**

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BD|SENSORS pressure measurement

Ordering code DMP 331i / DMP 333i

DMP 331i / DMP 333i ☐☐☐-☐☐☐☐-☐-☐-☐☐☐-☐☐☐-☐-☐☐☐

Description	Code	
Pressure		
For DMP 331i		
gauge	1 1 0	
absolute	1 1 1	
For DMP 333i		
gauge [1]	1 3 0	
absolute	1 3 1	
Input [bar]		
For DMP 331i [2]		
0.40	4 0 0 0	
1.0	1 0 0 1	
2.0	2 0 0 1	
4.0	4 0 0 1	
10	1 0 0 2	
20	2 0 0 2	
40	4 0 0 2	
60	6 0 0 2	
For DMP 333i [2]		
100	1 0 0 3	
200	2 0 0 3	
400	4 0 0 3	
600	6 0 0 3	
For DMP 331i		
-0.40 … 0.40	S 4 0 0	
-1 … 1	S 1 0 2	
-1 … 2	V 2 0 2	
-1 … 4	V 4 0 2	
-1 … 10	V 1 0 3	
customer	9 9 9 9	consult
Output		
4 … 20 mA / 2-wire	1	
intrinsic safety 4 … 20 mA / 2-wire	E	
0 … 10 V / 3-wire	3	
customer	9	consult
Accuracy		
0.1 % FSO	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	
male plug M12x1 (4-pin) / metal - for analog output	M 1 0	
male plug M12x1 (4-pin) / metal - for digital output	M 1 3	
Bayonet MIL-C-26482 (10-6); 2 wire	B G 0	
Bayonet MIL-C-26482 (10-6); 3 wire	B G 4	
cable outlet with PVC cable (IP67) [3]	T A 0	
cable outlet, cable with ventilation tube (IP68) [4]	T R 0	
compact field housing stainless steel 1.4301 (304)	8 5 0	
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 with flush sensor [5]	F 0 0	
G1/2" DIN 3852 open pressure port [5]	H 0 0	
1/2" NPT	N 0 0	
1/4" NPT	N 4 0	
customer	9 9 9	consult
Seal		
For DMP 331i		
FKM	1	
without (welded version) [6]	2	
For DMP 333i		
FKM	1	
NBR	5	
customer	9	consult
Special version		
standard	1 1 1	
customer	9 9 9	consult

[1] measurement starts with ambient pressure
[2] pressure ranges ≤ 60 bar as DMP 331i; pressure ranges > 60 bar as DMP 333i
[3] standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C); others on request
[4] code TR0 = PVC cable, cable with ventilation tube available in different types and lengths
[5] only possible for DMP 331i and $p_N \leq 60$ bar
[6] welded version only with pressure ports according to EN 837 and NPT; welded version not available with pressure ranges > 60 bar

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