



## DMP 331i DMP 333i

### Precision Pressure Transmitter

Stainless Steel Sensor

accuracy according to IEC 61298-2:  
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)



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 / $V_S = 12 \dots 36 V_{DC}$
Option IS-version	2-wire: 4 ... 20 mA / $V_S = 14 \dots 28 V_{DC}$
Options analogue signal	3-wire: 0 ... 10 V / $V_S = 14 \dots 36 V_{DC}$

Performance	
Accuracy <sup>1</sup>	≤ ± 0.1 % FSO
Permissible load	current 2-wire: $R_{max} = [(V_S - V_{S min}) / 0.02 A] \Omega$ voltage 3-wire: $R_{min} = 10 k\Omega$
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / $k\Omega$
Long term stability	≤ ± 0.1 % FSO / year at reference conditions
Response time	approx. 5 msec

<sup>1</sup> accuracy according to IEC 61298-2 – 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 <sup>2</sup> others on request
Diaphragm	stainless steel 1.4435 (316L)
Media wetted parts	pressure port, seal, diaphragm

<sup>2</sup> welded version only with pressure ports according to EN 837 and NPT; welded version not available with pressure ranges > 60 bar

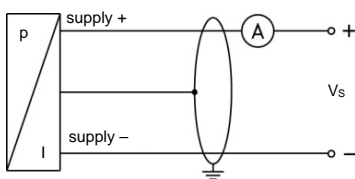
<b>Mechanical stability</b>		
Vibration	20 g RMS / 10 ... 2000 Hz	according to DIN EN 60068-2-6
Shock	500 g / 1 msec half sine	according to DIN EN 60068-2-27
<b>Explosion protection (only for 4 ... 20 mA / 2-wire)</b>		
Approvals	DX19-DMP 331i DX19-DMP 333i	IBExU 10 ATEX 1068 X / IECEx IBE 12.0027X zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ia IIC T135 °C Da
Safety technical max. values	$U_i = 28 \text{ V}$ , $I_i = 93 \text{ mA}$ , $P_i = 660 \text{ mW}$ , $C_i \approx 0 \text{ nF}$ , $L_i \approx 0 \text{ }\mu\text{H}$ , 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 $p_{\text{atm}}$ 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: 1 $\mu\text{H}/\text{m}$	
<b>Miscellaneous</b>		
Current consumption	signal output current: signal output voltage:	max. 25 mA max. 7 mA
Weight	approx. 200 g	
Installation position	any <sup>3</sup>	
Operational life	100 million load cycles	
CE-conformity	EMC Directive: Pressure Equipment Directive:	2014/30/EU 2014/68/EU (module A) <sup>4</sup>
ATEX Directive	2014/34/EU	

<sup>3</sup> 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  $p_N \leq 1 \text{ bar}$ .

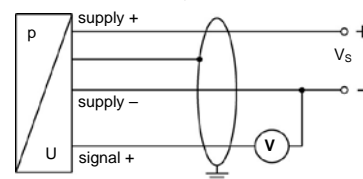
<sup>4</sup> This directive is only valid for devices with maximum permissible overpressure > 200 bar.

**Wiring diagrams**

2-wire-system (current)



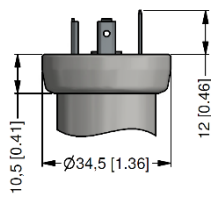
3-wire-system (voltage)



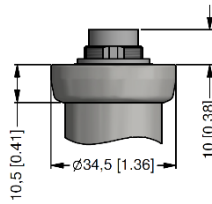
**Pin configuration**

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)		
Supply +	$V_{S+}$		WH (white)		
Supply -	$V_{S-}$		BN (brown)		
Signal + (only for 3-wire)	S+		GN (green)		
Shield	GND		GNYE (green-yellow)		

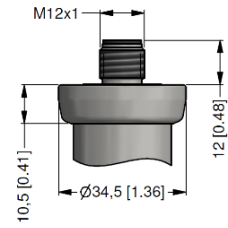
Electrical connections (dimensions mm / in)



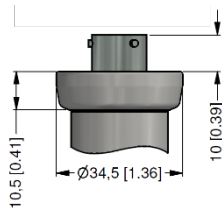
ISO 4400  
(IP 65)



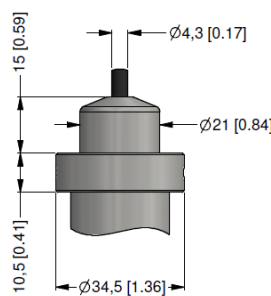
Binder series 723  
(IP 67)



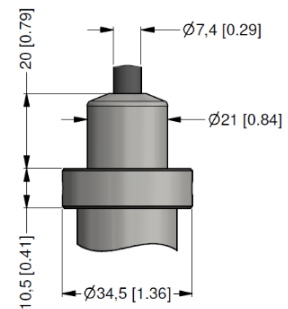
M12x1, 4-pin  
(IP 67)



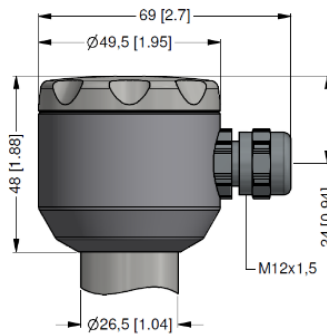
Bayonet MIL-C-26482 (10-6)  
(IP 67)



cable outlet with PVC cable  
(IP 67)<sup>5</sup>



cable outlet, cable with  
ventilation tube (IP 68)<sup>6</sup>

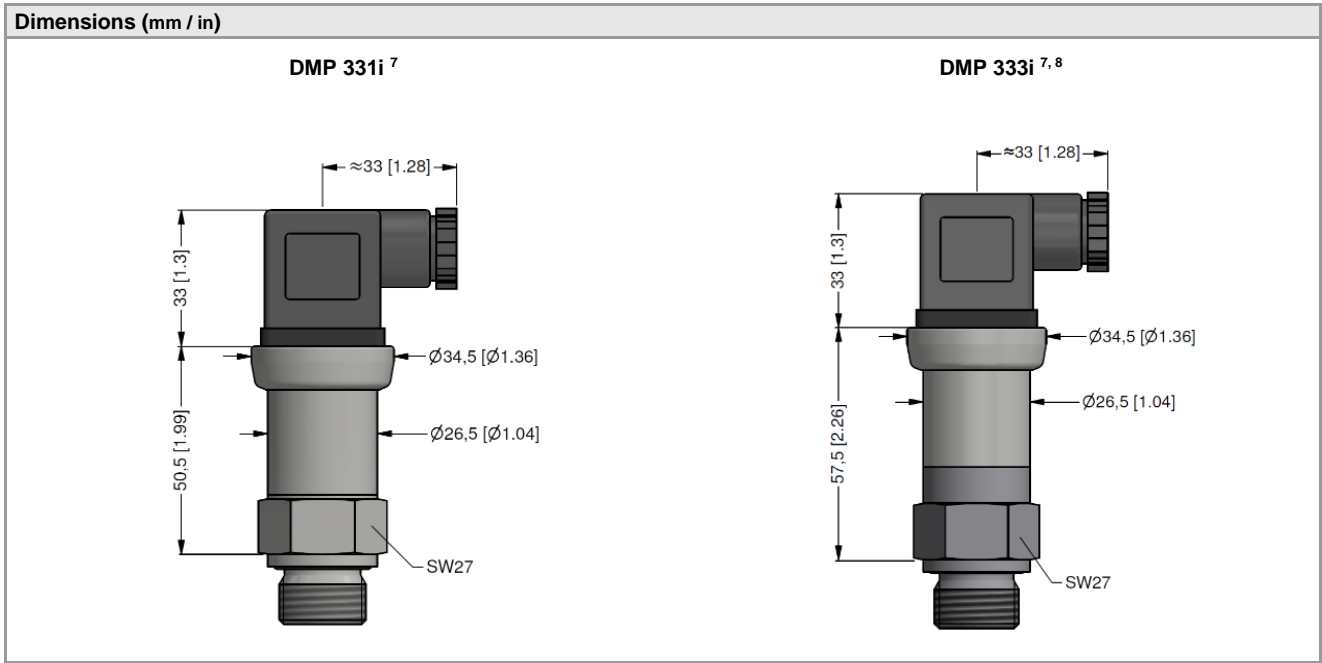


compact field housing  
(IP 67)

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

<sup>5</sup> standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)

<sup>6</sup> different cable types and lengths available, permissible temperature depends on kind of cable



<sup>7</sup> with electrical connection Bayonet MIL-C-26482 (10-6) increases the length of devices by 5 mm  
<sup>8</sup> 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)**

