

# DMP 331P

## Industrial Pressure Transmitter

Process Connections With  
Flush Welded Stainless Steel  
Diaphragm

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



### Nominal pressure

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

### Output signals

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

### Special characteristics

- ▶ hygienic version
- ▶ diaphragm with low surface roughness
- ▶ CIP / SIP cleaning up to 150 °C
- ▶ vacuum resistant

### Optional versions

- ▶ IS-version  
Ex ia = intrinsically safe for gases and dust
- ▶ SIL 2  
according to IEC 61508 / IEC 61511
- ▶ Diaphragm in  
Hastelloy® or Tantalum
- ▶ cooling element for media  
temperatures up to 300 °C

The pressure transmitter DMP 331P was designed for use in the food / beverage and pharmaceutical industry. The compact design with hygienic versions makes it possible to achieve an outstanding performance in terms of accuracy, temperature behavior and long term stability.

The modular construction concept allows a combination of various process connections with different filling fluids and a cooling element. Several electrical connections complete the profile of DMP 331P.

### Preferred areas of use are



Food and Beverage



Pharmaceutical Industry

### Material and test certificates

- ▶ inspection certificate 3.1  
according to EN 10204
- ▶ test report 2.2  
according to EN 10204



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Technical Data

Input pressure range <sup>1</sup>									
Nominal pressure gauge	[bar]	-1...0	0.10	0.16	0.25	0.40	0.60	1	1.6
Nominal pressure abs.	[bar]	-	-	-	-	0.40	0.60	1	1.6
Overpressure	[bar]	5	0.5	1	1	2	5	5	10
Burst pressure ≥	[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 ≥	[bar]	15	25	50	50	120	120	210	
Vacuum resistance		P <sub>N</sub> > 1 bar: unlimited vacuum resistance P <sub>N</sub> ≤ 1 bar: on request							
<sup>1</sup> consider the pressure resistance of fitting and clamps									
Output signal / Supply									
Standard		2-wire: 4 ... 20 mA / V <sub>S</sub> = 8 ... 32 V <sub>DC</sub>				SIL-version: V <sub>S</sub> = 14 ... 28 V <sub>DC</sub>			
Option IS-protection		2-wire: 4 ... 20 mA / V <sub>S</sub> = 10 ... 28 V <sub>DC</sub>				SIL-version: V <sub>S</sub> = 14 ... 28 V <sub>DC</sub>			
Options 3-wire		3-wire: 0 ... 20 mA / V <sub>S</sub> = 14 ... 30 V <sub>DC</sub>							
		0 ... 10 V / V <sub>S</sub> = 14 ... 30 V <sub>DC</sub>							
Performance									
Accuracy <sup>2</sup>		standard: nominal pressure < 0.4 bar: ≤ ± 0.5 % FSO nominal pressure ≥ 0.4 bar: ≤ ± 0.35 % FSO option: nominal pressure ≥ 0.4 bar: ≤ ± 0.25 % FSO							
Permissible load		current 2-wire: R <sub>max</sub> = [(V <sub>S</sub> - V <sub>S min</sub> ) / 0.02 A] Ω current 3-wire: R <sub>max</sub> = 500 Ω voltage 3-wire: R <sub>min</sub> = 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		2-wire: < 10 msec				3-wire: ≤ 3 msec			
<sup>2</sup> accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)									
Thermal effects (Offset and Span) <sup>3</sup> / Permissible temperatures									
Nominal pressure P <sub>N</sub>	[bar]	-1 ... 0			< 0.40			≥ 0.40	
Tolerance band	[% FSO]	≤ ± 0.75			≤ ± 1,5			≤ ± 0.75	
in compensated range	[°C]	-20 ... 85			0 ... 50			-20 ... 85	
Permissible temperatures <sup>4</sup>		medium: -40 ... 125 °C for filling fluid silicone oil -10 ... 125 °C for filling fluid food grade oil electronics / environment: -40 ... 85 °C storage: -40 ... 100 °C							
Permissible temperature medium for cooling element 300°C		filling fluid silicone oil		overpressure: -40 ... 300 °C			vacuum: -40 ... 150 °C <sup>5</sup>		
		filling fluid food grade oil		overpressure: -10 ... 250 °C			vacuum: -10 ... 150 °C <sup>5</sup>		
<sup>3</sup> an optional cooling element can influence thermal effects for offset and span depending on installation position and filling conditions.									
<sup>4</sup> max. temperature of the medium for nominal pressure gauge > 0 bar: 150 °C for 60 minutes with a max. environmental temperature of 50 °C									
<sup>5</sup> also for P <sub>abs</sub> ≤ 1 bar									
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 according to DIN EN 60068-2-6		G 1/2": 20 g RMS (25 ... 2000 Hz)				others: 10 g RMS (25 ... 2000 Hz)			
Shock according to DIN EN 60068-2-27		G 1/2": 500 g / 1 msec				others: 100 g / 1 msec			
Filling fluids									
Standard		silicone oil							
Options		food grade oil, compliant with 21CFR178.3570 (Mobil SHC Cibus 32; Category Code: H1; NSF Registration No.: 141500) others on request							
Materials									
Pressure port		stainless steel 1.4404 (316 L)				others on request			
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)		FKM (recommended for medium temperatures ≤ 200 °C) FFKM (recommended for medium temperatures > 200 °C) Clamp, dairy pipe, Varivent®: without							
Standard									
Optional		others on request							
Diaphragm		stainless steel 1.4435 (316 L)							
Standard		Hastelloy® C-276 (2.4819)							
Optional		Tantalum on request							
Media wetted parts		pressure port, seal, diaphragm							



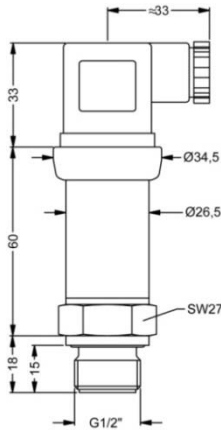
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Industrial Pressure Transmitter

Technical Data

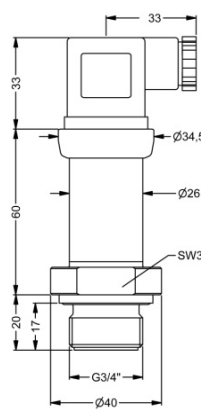
## Mechanical connection (dimension in mm)

### Standard

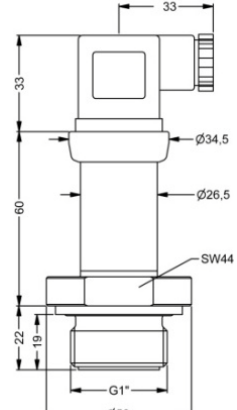


G1/2" flush DIN 3852<sup>9</sup>

### Option

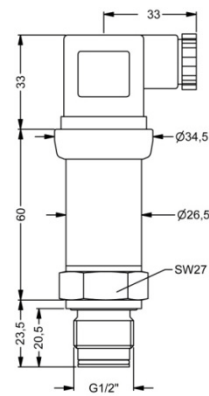


G 3/4" flush DIN 3852 with ISO 4400

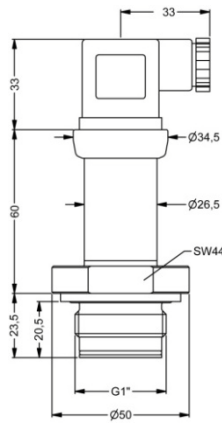


G1" flush DIN 3852 with ISO 4400

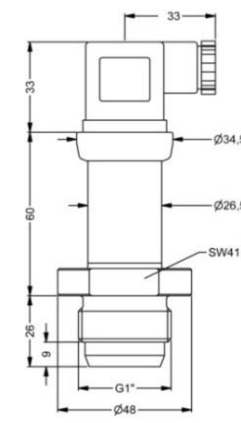
### Option



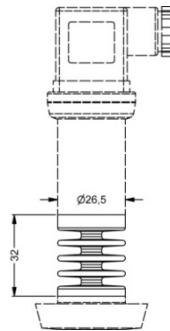
G1/2" flush with radial o-ring<sup>9</sup>



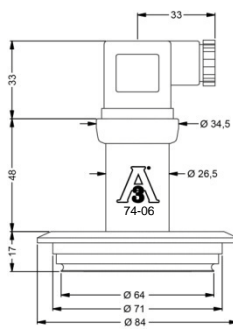
G1" flush with radial o-ring ( $P_N \leq 2$  bar)



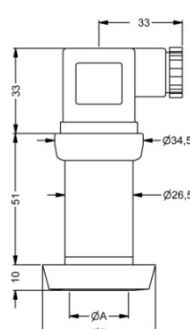
G1" cone with ISO 4400



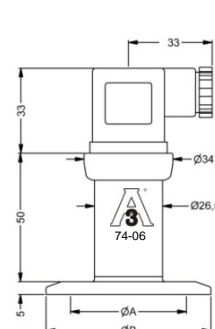
cooling element 300 °C



Varivent<sup>®</sup> PN ≤ 25 bar



dairy pipe (DIN 11851) with ISO 4400



Clamp (DIN 32676) with ISO 4400

	dimension in mm		
size	DN 25	DN 40	DN 50
A	23	32	45
B	44	56	68.5
$P_N$ [bar]	≥ 0,25 ≤ 40	≥ 0,25 ≤ 40	≥ 0,25 ≤ 25

	dimension in mm			
size	3/4"	DN 25	DN 32	DN 50
A	14	23	32	45
B	25	50.5	50.5	64
$P_N$ [bar]	≥ 4 ≤ 8	≥ 0,25 ≤ 16	≤ 16	≤ 16

\* higher pressure ranges on request

- ⇒ SIL- and SIL-Ex version: total length increases by 26.5 mm!
- ⇒ metric threads and other versions on request

<sup>9</sup> possible only for  $P_N \geq 1$  bar

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