

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



DMP 331P

Industrial Pressure Transmitter

Technical Data

Input pressure range ¹									
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 _N > 1 bar: unlimited vacuum resistance P _N ≤ 1 bar: on request								
¹ consider the pressure resistance of fitting and clamps									
Output signal / Supply									
Standard	2-wire: 4 ... 20 mA / V _S = 8 ... 32 V _{DC}					SiL-version: V _S = 14 ... 28 V _{DC}			
Option IS-protection	2-wire: 4 ... 20 mA / V _S = 10 ... 28 V _{DC}					SiL-version: V _S = 14 ... 28 V _{DC}			
Options 3-wire	3-wire: 0 ... 20 mA / V _S = 14 ... 30 V _{DC} 0 ... 10 V / V _S = 14 ... 30 V _{DC}								
Performance									
Accuracy ²	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 _{max} = [(V _S – V _{S min}) / 0.02 A] Ω current 3-wire: R _{max} = 500 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	2-wire: < 10 msec 3-wire: ≤ 3 msec								
² accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)									
Thermal effects (Offset and Span) ³ / Permissible temperatures									
Nominal pressure P _N	[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 ⁴	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 ⁵ filling fluid food grade oil overpressure: -10 ... 250 °C vacuum: -10 ... 150 °C ⁵								
³ an optional cooling element can influence thermal effects for offset and span depending on installation position and filling conditions. ⁴ max. temperature of the medium for nominal pressure gauge > 0 bar: 150 °C for 60 minutes with a max. environmental temperature of 50 °C ⁵ also for P _{abs} ≤ 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)									
Standard	FKM (recommended for medium temperatures ≤ 200 °C)								
Optional	FFKM (recommended for medium temperatures > 200 °C) others on request Clamp, dairy pipe, Varivent®: without								
Diaphragm									
Standard	stainless steel 1.4435 (316 L)								
Optional	Hastelloy® C-276 (2.4819) Tantalum on request								
Media wetted parts	pressure port, seal, diaphragm								

DMP 331P

Industrial Pressure Transmitter

Technical Data

Explosion protection (only for 4 ... 20 mA / 2-wire)					
Approvals DX 19-DMP 331P	IBExU 10 ATEX 1068 X / IECEx IBE 12.0027X zone 0: II 1G Ex ia IIC T4 Ga				

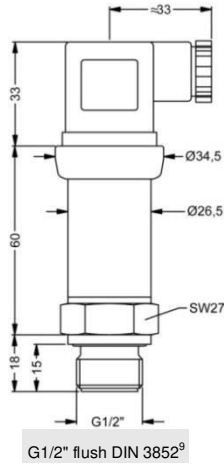
DMP 331P

Industrial Pressure Transmitter

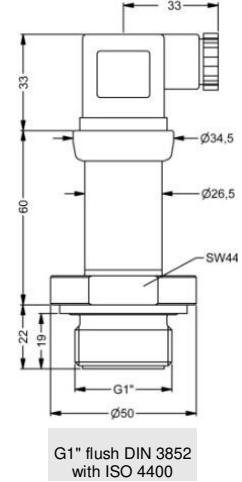
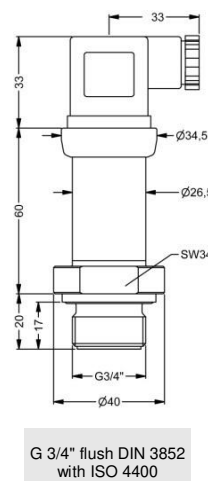
Technical Data

Mechanical connection (dimension in mm)

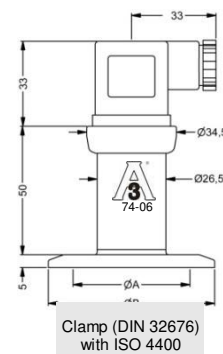
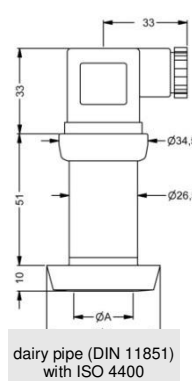
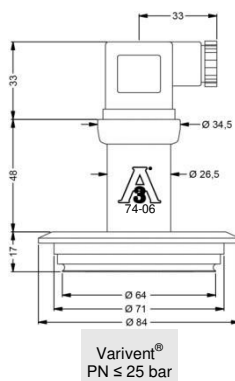
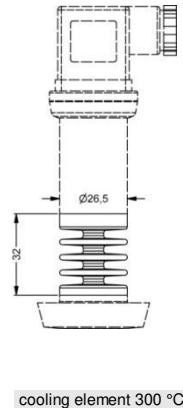
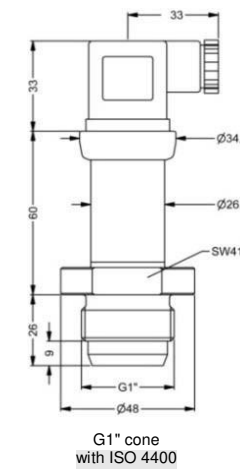
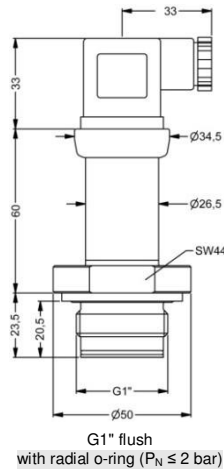
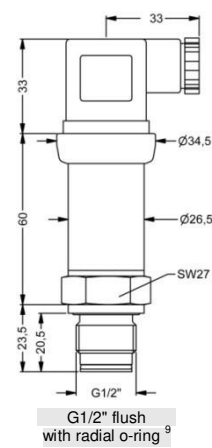
Standard



Option



Option



	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

⁹ possible only for P_N ≥ 1 bar

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