



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
- ▶ 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 DIN EN 10204



DMP 331P

Industrial Pressure Transmitter

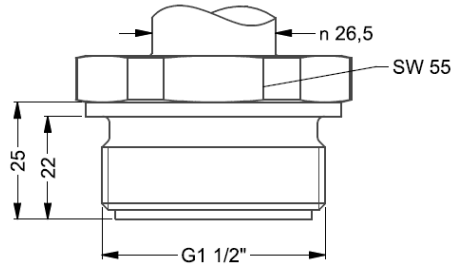
Technical Data

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 silicon oil -40 ... 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 silicon 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		silicon 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 field housing		stainless steel 1.4301 (304), cable gland M16x1.5 brass, nickel plated (clamping range 2....8 mm)							
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							

Explosion protection (only for 4 ... 20 mA / 2-wire)					
Approvals DX9-DMP 331P	IBExU10ATEX1122 X zone 0: II 1G Ex ia IIC T4 Ga				

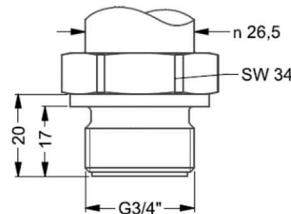
Mechanical connection (dimension in mm)

Standard

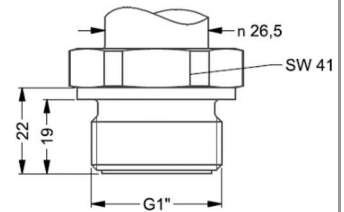


G1/2" flush DIN 3852⁹

Option

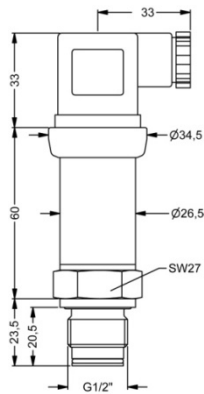


G 3/4" flush DIN 3852
with ISO 4400

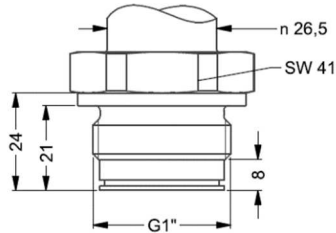


G1" flush DIN 3852
with ISO 4400

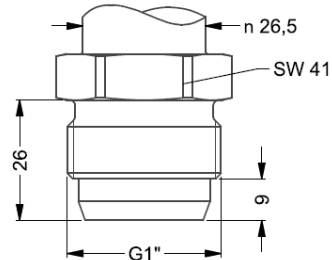
Option



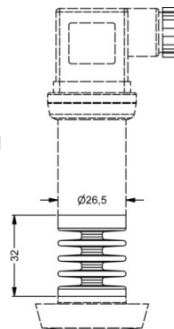
G1/2" flush
with radial o-ring⁹



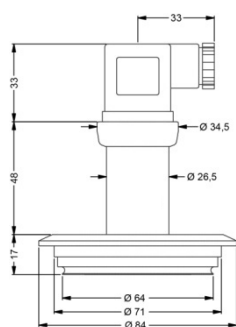
G1" flush
with 2 radial o-ring ($P_N > 0,25$ bar)



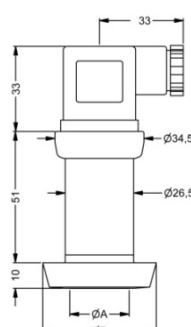
G1" cone
with ISO 4400



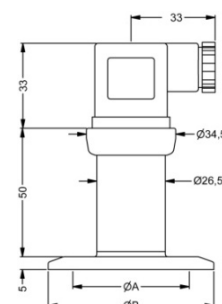
cooling element 300 °C



Varivent®
 $P_N \leq 10$ 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]	$\geq 0,25$ ≤ 40	$\geq 0,25$ ≤ 40	$\geq 0,25$ ≤ 25

dimension in mm			
size	3/4"	DN 25	DN 32
A	14	23	32
B	25	50.5	64
P_N [bar]	≥ 4 ≤ 8	$\geq 0,25$ ≤ 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 $P_N \geq 1$ bar

This datasheet contains product specification. Properties are not guaranteed. Subject to change without notice.

Ordering code DMP 331P

3.4.2020

DMP 331P

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Pressure					
Gauge	5	0	0		
Absolute	5	0	1		
Input [bar]					
0 ... 0,1			1	0	0
0 ... 0,16			1	6	0
0 ... 0,25			2	5	0
0 ... 0,4			4	0	0
0 ... 0,6			6	0	0
0 ... 1			1	0	0
0 ... 1,6			1	6	0
0 ... 2,5			2	5	0
0 ... 4			4	0	0
0 ... 6			6	0	0
0 ... 10			1	0	0
0 ... 16			1	6	0
0 ... 25			2	5	0
0 ... 40			4	0	0
-1 ... 0 (temperature max. 70 °C)		X	1	0	2
Customer		9	9	9	9
Customer - underpressure (temperature max. 70°C)		X	X	X	X
Output					
4...20 mA / 2-wire					1
0...20 mA / 3-wire					2
0 ... 10 V / 3-wire					3
0...5 V / 3-wire					4
4...20 mA / 3-wire					7
Intrinsic safety Ex ia 4...20 mA / 2-wire					E
SIL2, 4 ... 20 mA / 2-wire					1S
SIL2, Intrinsic safety 4 ... 20 mA / 2-wire					ES
Customer					9
Accuracy					
1 %					8
0,5 % (P _N ≤ 0,4 bar)					5
0,35 % (P _N > 0,4 bar)					3
0,25 % (P _N > 0,4 bar)					2
1 % including Calibration Certificate					U
0,5 % including Calibration Certificate (P _N ≤ 0,4 bar)					T
0,35 % including Calibration Certificate (P _N > 0,4 bar)					S
0,25 % including Calibration Certificate (P _N > 0,4 bar)					R
Customer					9
Electrical connection					
Connector DIN 43650 (ISO 4400) (IP 65)				1	0
Connector Binder 723 5-pin (IP 67)				2	0
Cable gland PG7 / cable length specify (IP 67)				4	0
+ PVC cable / 1 m					
Connector Buccaneer (IP 68)				5	0
Field housing stainless steel, cable gland M 16 x 1,5 (IP 67)				8	0
Field housing stainless steel, cable gland M 20 x 1,5 (IP 67)				8	8
Connector DIN 43650 (ISO 4400) - potting compound inside (IP 67)				E	0
Cable outlet, cable with ventilation tube (IP68)				T	R
+ PVC cable / 1 m					
Connector M12 x 1, 4-pin (IP 67)				M	0
Connector M12 x 1, 4-pin (IP 67) - metal				M	1
Customer				9	9
Mechanical connection					
G 1/2" DIN 3852 flush (P _N > 2,5 bar) (only with seals)			Z	0	0
M 20 x 1,5 DIN 3852 flush (P _N > 2,5 bar) (only with seals)			D	0	4
G 3/4" DIN 3852 flush (P _N > 0,6 bar) (only with seals)			Z	3	0
G 1" DIN 3852 flush (P _N > 0,25 bar) (only with seals)			Z	3	1
G 1 1/2" DIN 3852 flush (only with seals)			Z	3	3
G 2" DIN 3852 flush			Z	3	4
G 1" DIN 3852 flush 2x O ring (P _N > 0,25 bar)			Z	5	7
G 1/2" DIN 3852 flush 2x O ring (P _N > 1 bar)			Z	6	1
G1" flush cone seal (P _N > 0,25 bar) (without seals)			K	3	1
1/8" NPT (without seals, monel pressure port, tantal membrane)			Z	9	2



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1" NPT flush (P _N > 0,25 bar)	N	5	4							
Clamp DN 1" (DN 25) (P _N > 0,6 bar) (without seals)	C	6	1							
Clamp DN 1 1/2" (DN 32) (P _N > 0,4 bar) (without seals)	C	6	2							
Clamp DN 2" (DN 50) (P _N > 0,25 bar) (without seals)	C	6	3							
DIN 11851 DN 25 (P _N > 0,6 bar) (without seals)	M	7	3							
DIN 11851 DN 40 (P _N > 0,4 bar) (without seals)	M	7	5							
DIN 11851 DN 50 (P _N > 0,25 bar) (without seals)	M	7	6							
"sandwich" DN 25 (without seals)	S	6	1							
"sandwich" DN 50 (without seals)	S	7	6							
"sandwich" DIN 2501 DN 80 (without seals)	S	8	0							
M 22 x 1,5 DIN 3852 flush (P _N > 2,5 bar) (only with seals)	D	1	5							
Flange DN 25/PN40 DIN 2501 (without seals)	F	2	0							
Flange DN 40/PN40 DIN 2501 (without seals)	F	2	2							
Flange DN 50/PN40 DIN 2501 (without seals)	F	2	3							
Flange DN 80/PN16 DIN 2501 (without seals)	F	1	4							
Flange DN 100/PN16 DIN 2501 (without seals)	F	2	5							
Varivent® DN 40/50 (without seals)	P	4	1							
Customer	9	9	9							
Diaphragm										
Stainless steel 1.4435 (316 L)				1						
Hastelloy ® C-276 (2.4819)				H						
Tantalum				T						
Stainless steel 1.4435 (316 L) with PTFE foil (accuracy ≥ 1%)				3						
Customer				9						
Seals										
Without seals (Clamp, dairy pipe DIN, sandwich, flange, varivent)				0						
Viton (FKM)				1						
EPDM				3						
FFKM (for media temperature ≤ 200 °C)				7						
Customer				9						
Filling Fluids										
Silicone oil				1						
Edible oil for foodstuff industry (temperature max. 150°C)				2						
Halocarbon				C						
Customer				9						
Special version										
Standard					0	0	0			
With cooling element from 125°C up to 150°C					1	5	0			
With cooling element from 150°C up to 300°C (P _N ≤ 70 bar max. 200°C permanent)					2	0	0			
Customer					9	9	9			

3.1 Material Certificate for Membrane and Mechanical Connection	3.1 prot.
Settings in temperature different from basic 20°C (+/- 10°C, max. 70 bar and 200°C)	

0,...without additional charge
On request...in accordance with the producer

!!!! When you make an order it is necessary to fill the questionnaire for transmitter with separators!!!
Surcharges for calibration are not subject to any discounts. Subject to change.
This document contains the specification for ordering the product; detailed technical parameters of the product and its possible variants are given in the data sheet.
BD SENSORS reserves the right to change sensor specifications without further notice.

