



## PRESSURE TRANSMITTER DMP 331 P

The DMP 331 P is a pressure transmitter designed for process measurement. It has a flush diaphragm and can be ordered either with a screw thread basing on an inch-system or with several process connections such as Clamp and dairy pipe. The DMP 331 P proportionally converts pressure into an electric signal. It is suitable for gases, fluids and higher viscous media.

Static and dynamic pressure measurement with pressure ranges from 100 mbar up to 400 bar acc. to DIN 16128, as well as special pressure ranges are available.

The transmitter can be used for all media, which are compatible with 1.4571 (AISI 316) and 1.4404 (AISI 316L). In connection with an inch thread the sealing material is FKM, for pressure higher than 100 bar NBR; other materials on request.

For usage with higher media temperatures a cooling element is available. Filling fluids others than silicon oil or fillings suitable for foodstuff industry are available on request.

A variety of standard output signals and electrical connections make the DMP 331 P covering a wide field of applications.

Typical areas of use are:

- Process- and unit operations
- Chemical Industry
- Foodstuff Industry
- Paper Industry

# DMP 331 P

**FLUSH DIAPHRAGM**

**PROCESS-MEASUREMENT  
PRESSURE TRANSMITTER**

**PRESSURE RANGE**  
**100 mbar up to 400 bar**

**ACCURACY ACC. TO IEC 60770:**  
**0,35% / 0,25% FSO**  
**(BFSL: 0,175% / 0,125% FSO)**



- Pressure range between 0 ... 100 mbar and 0 ... 400 bar
- Customer-designed pressure ranges e.g. -250 mbar ... +150 mbar
- Output signals 4 ... 20 mA / 2w, 0 ... 20 mA / 3w 0 ... 10 V / 3w und other voltage outputs on request
- Optional: Cooling element for media temperature up to 150 °C or up to 300°C
- Optional: Stainless steel field housing, fixed cable outlet
- excellent linearity
- small thermal effect
- excellent long term stability
- high resistance against electrical faults (caused by incorrect wiring, short-circuit and overvoltage)
- rugged and reliable under most conditions
- long operating life
- wide range of electrical connections
- Optional: Ex: II 1 G EEx ia IIC T4 (TÜV 99 ATEX 1504 X)
- Customer-designed applications

### Optional: Field housing

for usage under rough conditions

- fixed cable outlet
- compact design



## INPUT PRESSURE RANGE

Nominal pressure $P_N$ gauge [bar]	-1 .. 0	0 .. 0.1	0 .. 0.25	0 .. 0.4	0 .. 0.6	0 .. 1.0	0 .. 1.6	0 .. 2.5	0 .. 4	0 .. 6	0 .. 10	0 .. 16	0 .. 25
Nominal pressure $P_N$ abs. [bar]	-	-	-	-	-	0 .. 1	0 .. 1.6	0 .. 2.5	0 .. 4	0 .. 6	0 .. 10	0 .. 16	0 .. 25
Overpressure $P_{max}$ [bar]	3	1	1	1	3	3	6	6	12	12	25	50	50
Nominal pressure $P_N$ <sup>1)</sup> [bar]	0 .. 40		0 .. 60		0 .. 100		0 .. 160		0 .. 250		0 .. 400		
Overpressure $P_{max}$ [bar]	120		120		250		500		500		600		

## SUPPLY

Voltage	12 ... 36 VDC
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## OUTPUT SIGNAL

Standard: 2-wire-system	Current: 4 ... 20 mA
Optional: 3-wire-system	Current: 4 ... 20 mA / 0 ... 20 mA      Voltage : 0 ... 10 V / 0 ... 5 V

## PERFORMANCE

Accuracy according to IEC 60770 - Limit Point Adjustment (Nonlinearity, Hysteresis, Repeatability):	Standard:	$\leq \pm 0,35\%$ FSO (BFSL: $\leq \pm 0,175\%$ FSO)
	(Nominal pressure 0,1 ... 0,4 bar:	$\leq \pm 0,50\%$ FSO (BFSL: $\leq \pm 0,25\%$ FSO))
	Optional ( $P_N > 0,4$ bar):	$\leq \pm 0,25\%$ FSO (BFSL: $\leq \pm 0,175\%$ FSO)
Permissible Load [ $\Omega$ ]	Current 2-wire: [ UB (V) – 12V ] / 0.02 A Current 3-wire: $\leq 500 \Omega$	Voltage : $> 1 M\Omega$
Influence effects	Supply: $\leq \pm 0.05\%$ FSO / 10 V	Load : $\leq \pm 0.05\%$ FSO / k $\Omega$

## THERMAL EFFECTS

Nominal pressure $P_N$ [bar]	-1 .. 0	0 .. 0.1	0 .. 0.25	0 .. 0.4	0 .. 0.6	0 .. 1.0	0 .. 1.6	0 .. 2.0	0 .. 4	0 .. 6	0 .. 10	> 10
Tolerance band [ $\pm\%$ FSO] <sup>2)</sup>	< 0.75	< 2.0	< 1.5	< 1.0			< 0.75					
Compensated range [°C]	0 .. 70	0 .. 50	0 .. 50	0 .. 70			0 .. 70					

## ELECTRICAL PROTECTION

Insulation resistance	>100 M $\Omega$
Short-Circuit protection	Permanent
Miswiring	No Damage, but also no Function
Overvoltage protection	-120 ... 150 VDC (1 sec. at 25°C)
Electromagnetic compatibility :	Emission acc. to EN 50081-2; Immunity acc. to EN 50082-2
Error in RF Field 10 V/m	$\leq \pm 0.5\%$ FSO
Error with induced RF-Current (Capacitive Coupling) 10 V	$\leq \pm 1.0\%$ FSO
Optional Intrinsic safety Type DX12- DMP 331 P	II 1 G EEx ia IIC T4 (only with 4...20mA/2w) Safety technical data: $U_i = 28$ V, $I_i = 93$ mA, $P_i = 660$ mW

## PERMISSIBLE TEMPERATURES

Medium [°C]	-25 ... 125	Optional: with cooling element up to 150°C or up to 300°C
Electronic / Environment [°C]	-25 ... 85	
Storage [°C]	-40 ... 125	

## MECHANICAL STABILITY

Vibration	10 g RMS (20 ... 2000 Hz)
Shock	100 g / 11 ms

## ELECTRICAL CONNECTION

Standard	IP 65	Male and female Connector DIN 43650
Optional	IP 67	Binder series 723 (5-pin) / Cable gland incl. 2m cable
Optional	IP 68	Bulgin series Buccaneer <sup>3)</sup> / Others: on request

<sup>1)</sup> measurement starts with ambient pressure

<sup>2)</sup> Tolerance band for offset and span

<sup>3)</sup> Gauge pressure ranges require a special cable with integrated air tube

## MECHANICAL CONNECTION

Standard	G 1" DIN 3852 Clamp ISO 2852 DN 1", DN 1 1/2" or DN 2" / Dairy pipe DIN 11851 DN25, DN50
Others	On request

## MATERIALS

Pressure port	Stainless steel 1.4571
Diaphragm	Stainless steel 1.4571
Housing	Stainless steel 1.4301
Seals	Only with inch thread: PN<100 bar FKM / PN≥100 bar NBR / Others: on request
Media wetted parts	Pressure port, diaphragm, seals

## FILLING FLUIDS

Standard	Silicon oil
Optional	Suitable for foodstuff industry / Others: on request

## MISCELLANEOUS

Current consumption	Signal output Current < 25 mA / Signal output Voltage < 15 mA
Installation position	Any <sup>4)</sup>
Operational life	> 100 × 10 <sup>6</sup> Cycles

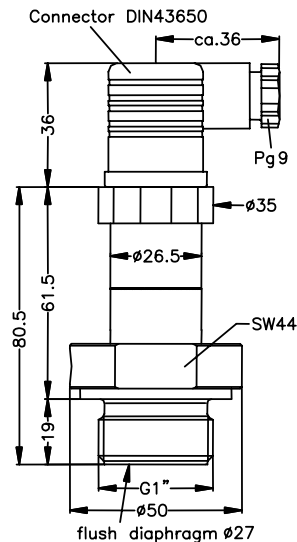
<sup>4)</sup> Transmitters are calibrated in vertical position, thread port showing down. Changing installation position may cause a slight offset shift with pressure ranges ≤ 1,6 bar.

# DIMENSIONS / CONNECTIONS

# DMP 331 P

## MECHANICAL CONNECTION

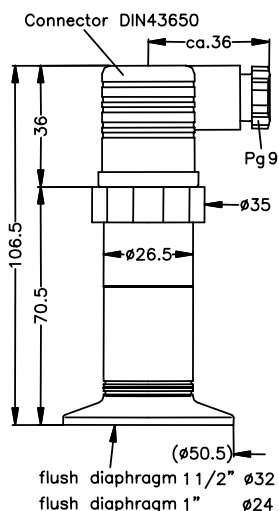
### INCH THREAD



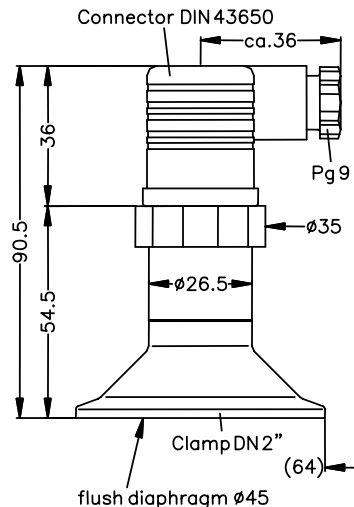
**Information:** With optional intrinsic safety length increases approx. 26.5 mm !

## MECHANICAL CONNECTION

### CLAMP



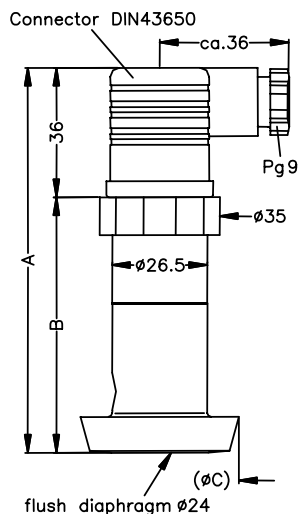
1" or 1 1/2" ISO 2852



2" ISO 2852

**Information:** With optional intrinsic safety length increases approx. 26.5 mm !

### DAIRY PIPE

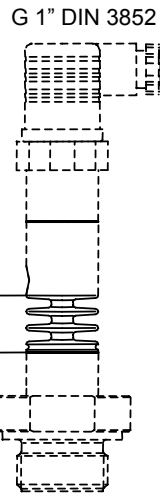
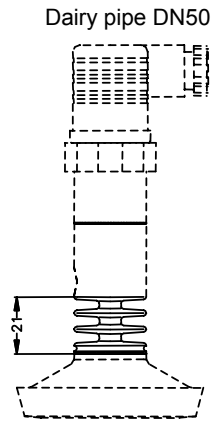


Dimensions			
measure	DN 25	DN 40	DN 50
A	107 mm	89 mm	89 mm
B	71 mm	53 mm	53 mm
C	44 mm	56 mm	68,5 mm
D	24 mm	32 mm	45 mm

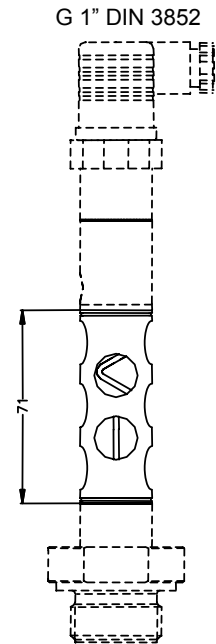
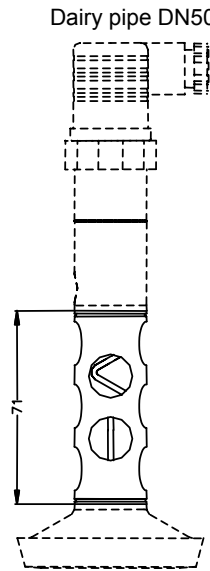
**Information:** With optional intrinsic safety length increases (A) approx. 26.5 mm !

## Option: Cooling element

Cooling element 150°C



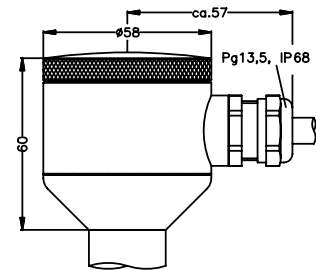
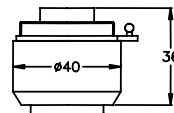
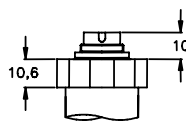
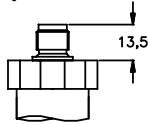
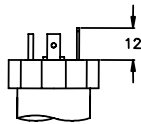
Cooling element 300°C



## Electrical connection

Standard

Options



DIN 43650

M12 x 1

Binder 723

Buccaneer

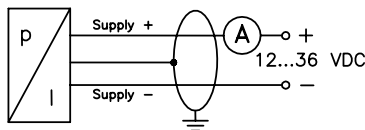
Field housing

## Pin configuration

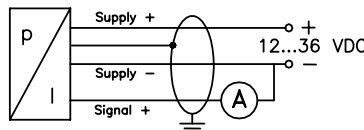
		Electrical connection				
		DIN 43650	M12x1 (4-pin)	Binder 723 (5-pin)	Bulgin Buccaneer	Cable colors (DIN 47100)
2-wire-system:	Supply +	1	1	3	1	white
	Supply -	2	2	4	2	brown
	Ground	Ground pin	4	5	4	cable shield
3-wire-system:	Supply +	1	1	3	1	white
	Supply -	2	2	4	2	brown
	Signal +	3	3	1	3	green
	Ground	Ground pin	4	5	4	cable shield

## Wiring diagram

2-wire: 4...20 mA



3-wire: 0...20 mA / 4 ... 20 mA



3-wire: 0...10V / 0...5V

