DMP 333P

Industrial Pressure Transmitter

Pressure Ports with Flush Welded Stainless Steel Diaphragm

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

Nominal pressure

from 0 ... 60 bar up to 0 ... 600 bar

Output signals

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

Special characteristics

- suited for viscous and pasty media

Optional versions

- IS-version
  Ex ia = intrinsically safe for gases and dusts (in preparation)
- gold-plated process connection for hydrogen applications
- cooling element for media temperatures up to 200 °C
- customer specific versions

The The pressure transmitter DMP 333P is suitable for measuring the pressure of viscous, pasty or gaseous media and for applications that require a front-flush, dead space-free process connection. Especially for hydrogen applications there is the possibility to use the process connection with gold plating. A temperature decoupler can also be provided for medium temperatures of up to 200 °C. A wide range of electrical connection variants are available to enable the DMP 333P to be integrated easily and quickly in the various system configurations.

Preferred areas of use are

- Plant and machine engineering
- Hydrogen

Preferred used for

- Viscous and pasty media

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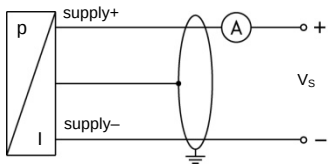
Input pressure range							
Nominal pressure gauge [1]	[bar]	60	100	-	-	-	-
Nominal pressure absolute	[bar]	60	100	160	250	400	600
Overpressure	[bar]	210	210	600	1000	1000	1000
Burst pressure ≥	[bar]	1000	1000	1000	1250	1250	1800
[1] measurement starts with ambient pressure							

Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V_S = 8 ... 32 V_{DC}
Option IS-protection	2-wire: 4 ... 20 mA / V_S = 10 ... 28 V_{DC} (in preparation)
Options 3-wire	3-wire: 0 ... 10 V / V_S = 14 ... 30 V_{DC}
Performance	
Accuracy [2]	standard: ≤ ± 0.35 % FSO option: ≤ ± 0.25 % FSO
Permissible load	current 2-wire: $R_{max} = [(U_B – U_{B\,min}) / 0.02\ A]\ \Omega$ voltage 3-wire: $R_{min} = 10\ k\Omega$
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / 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	
Tolerance band	≤ ± 0.75 % FSO
In compensated range	-20 ... 80 °C
Permissible temperatures	medium: -40 ... 125 °C electronics / environment: -40 ... 85 °C storage: -40 ... 100 °C
Permissible temperature medium for cooling element 200 °C	overpressure: -40 ... 200 °C vacuum: -40 ... 150 °C
[3] an optional cooling element can influence thermal effects for offset and span depending on installation position and filling conditions	
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	20 g RMS (25 ... 2000 Hz) with cooling element: 10 g RMS (25 … 2000 Hz)
Shock according to DIN EN 60068-2-27	500 g / 1 msec with cooling element: 100 g / 1 msec
Filling fluids	
Standard	silicone oil others on request
Materials	
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)
Pressure port	standard: stainless steel 1.4404 (316 L) option: stainless steel 1.4404 (316 L), golden others on request
Diaphragm	standard: stainless steel 1.4435 (316 L) option: stainless steel 1.4435 (316 L), golden others on request
Seals	standard: FKM (recommended for medium temperatures ≤ 200 °C) option: FFKM (recommended for medium temperatures > 200 °C) others on request
Media wetted parts	pressure port, seal, diaphragm

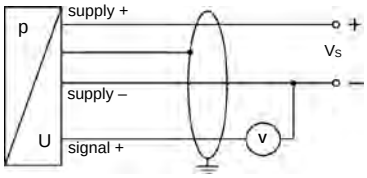
Explosion protection (only for 4 … 20 mA / 2-wire) in preparation	
Approvals DX19-DMP 333P	IBExU 10 ATEX xxxx X zone 0: II 1G Ex ia IIC T4 Ga; zone 20: II 1D Ex ia IIIC T 135°C Da
Safety technical maximum values	U_i = 28 V, I_i = 93 mA, P_i = 660 mW, C_i ≈ 0 nF, L_i ≈ 0 µH, the supply connections have an inner capacity of max. 27 nF to the housing
Permissible temperatures for environment	in zone 0: -20 ... 60 °C with p_{atm} 0.8 up to bis 1.1 bar in zone 1: -20 ... 70 °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: 1µH/m
Miscellaneous	
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA
Weight	min. 200 g (depending on process connection)
Installation position	any (standard calibration in a vertical position with the pressure port connection down)
Operational life	100 million load cycles
CE-conformity	EMC Directive: 2014/30/EU
ATEX Directive	2014/34/EU

Wiring diagrams

2-wire-system (current)



3-wire-system (voltage)

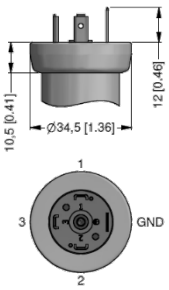


Pin configuration

Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	compact field housing	cable colours (IEC 60757)
Supply + Supply – Signal + (only 3-wire)	1 2 3	3 4 1	1 2 3	IN + IN – OUT +	WH (white) BN (brown) GN (green)
Shield	ground pin ⏚	5	4	⏚	GNYE (green-yellow)

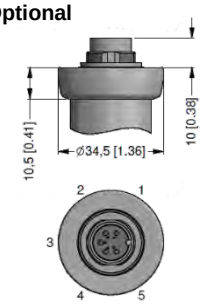
Electrical connections (dimensions mm/in)

Standard

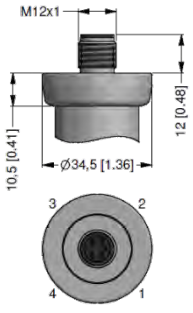


ISO 4400
(IP 65)

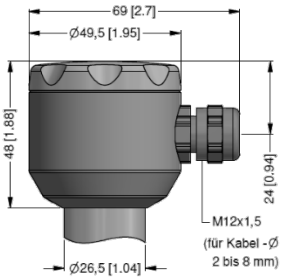
Optional



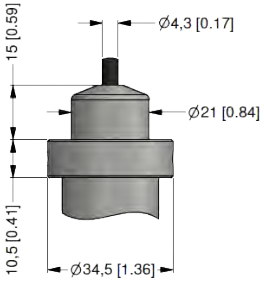
Binder series 723, 5-pin
(IP 67)



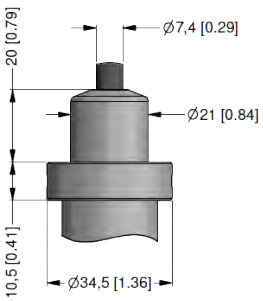
M12x1, 4-pin
(IP 67)



compact field housing
(IP 67)



cable outlet
with PVC cable (IP 67) [3]



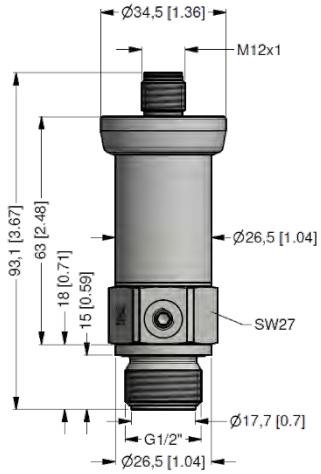
cable outlet, cable with
ventilation tube (IP 68) [4]

⇨ **universal field housing stainless steel 1.4404 (316 L) with cable gland M20x1.5 (ordering code 880) and other versions on request**

[3] standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 … 70°C)
[4] different cable types and lengths available, permissible temperature depends on kind of cable

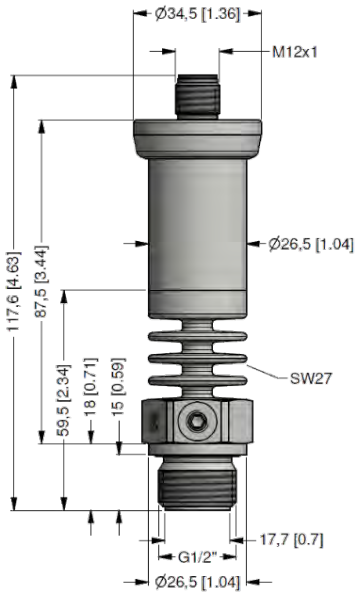
Mechanical connection (dimension mm/in)

standard



G1/2" flush DIN 3852

option



G1/2" flush DIN 3852
with cooling element 200 °C

⇨ **metric threads and other versions on request**

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BD|SENSORS pressure measurement

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Ordering code DMP 333P

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Pressure		
gauge [1]	5 4 C	
absolute	5 4 D	
Input [bar]		
60	6 0 0 2	
100	1 0 0 3	
160	1 6 0 3	
250	2 5 0 3	
400	4 0 0 3	
600	6 0 0 3	
customer	9 9 9 9	consult
Output		
4 … 20 mA / 2-wire	1	
0 … 10 V / 3-wire	3	
intrinsic safety 4 … 20 mA / 2-wire	E	in preparation
customer	9	consult
Accuracy		
standard: 0.35 % FSO	3	
option: 0.25 % FSO	2	
customer	9	consult
Electrical connection		
male and female plug ISO 4400	1 0 0	
male plug Binder series 723 (5-pin)	2 0 0	
cable outlet with PVC-cable (IP67) [2]	T A 0	
male plug M12x1 (4-pin) / metal	M 1 0	
compact field housing stainless steel1.4301 (304)	8 5 0	
customer	9 9 9	consult
Mechanical connection		
G1/2" DIN 3852 with flush diaphragm	Z 0 0	
customer	9 9 9	consult
Diaphragm		
stainless steel 1.4435 (316L)	1	
stainless steel 1.4435 (316L), golden	G	
customer	9	consult
Seal		
FKM	1	
FFKM [3]	7	
customer	9	consult
Filling fluid		
silicone oil	1	
customer	9	consult
Special version		
standard	0 0 0	
with cooling element up to 200 °C [4]	2 0 0	
customer	9 9 9	consult

[1] measurement starts with ambient pressure
[2] standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C); others on request
[3] only for p_N ≤ 100 bar possible
[4] only for p_N ≤ 160 bar and mechanical connection G1/2" possible

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