BD|SENSORS
pressure measurement

DMP 320

Precision Pressure Transmitter with Fast Response Time

Stainless steel sensor

accuracy according to IEC 60770:
0.1% FSO

Nominal pressure

from 0...100 mbar up to 0...600 bar

Output signal

3-wire: 0.1 … 10 V
4 … 20 mA
others on request

Product characteristics

- extremely fast response time ≤ 0.5 ms
- internal sample rate 10 kHz
- accuracy 0.1% FSO
- excellent thermal behaviour
- outstanding long term stability

optional versions

- customer specific versions

DMP 320 stands for speed and precision.

With a response time of ≤ 0.5 msec and a sampling rate of 10 kHz, the pressure transmitter was designed for applications, in which an extremely fast and exact pressure measuring is required. Pressure curves, peaks and hits can be monitored and evaluated exactly.

The signal processing of the sensor signal is done by newly developed digital electronics, which detect the signal with a sampling rate of 10 kHz. Sensor-specific deviations such as non-linearity, hysteresis and temperature errors are compensated actively.

Preferred areas of use are

- Plant and Machine Engineering
- Energy Industry

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Input pressure range												
Nominal pressure gauge	[bar]	-1…0	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6
Nominal pressure abs.	[bar]	-	-	-	-	0.40	0.60	1	1.6	2.5	4	6
Overpressure	[bar]	5	0.5	1	1	2	5	5	10	10	20	40
Burst pressure ≥	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50

Nominal pressure gauge /abs	[bar]	10	16	25	40	60	100	160	250	400	600
Overpressure	[bar]	40	80	80	105	210	600	600	1000	1000	1000
Burst pressure ≥	[bar]	50	120	120	210	420	1000	1000	1250	1250	1250
Vacuum resistance		P_N ≥ 1 bar: unlimited vacuum resistance P_N < 1 bar: on request									

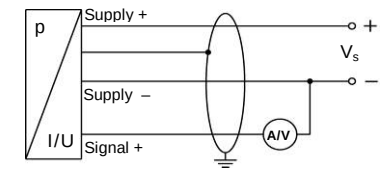
Output signal / Supply		
3-wire	0.1 … 10 V / V_S = 14 … 30 V_{DC}	
3-wire	4 ... 20 mA / V_S = 14 ... 30 V_{DC}	
Performance		
Accuracy [1]	≤ ± 0.1 % FSO	
Permissible load	Current 3-wire: Voltage 3-wire:	R_{max} = 500 Ω R_{min} = 10 kΩ
Influence effects	supply: load:	0.05 % FSO / 10 V 0.05 % FSO / kΩ
Long term stability	≤ ± 0.1 % FSO / year	
Response time	≤ 0.5 ms	
[1] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)		
Thermal effects (Offset and Span) / Permissible temperatures		
Tolerance band [% FSO]	≤ ± 0.2 in compensated range -20 ... 80 °C	
TC, average [% FSO / 10 K]	± 0.02 in compensated range -20 ... 80 °C	
Permissible temperatures	medium: -40 ... 125°C storage: -40 ... 100°C	electronics / environment: -40 ... 85°C
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	10 g RMS (25 ... 2000 Hz)	nach DIN EN 60068-2-6
Shock	500 g / 1 ms	nach DIN EN 60068-2-27
Materials		
Pressure Port	stainless steel 1.4404	
Housing	stainless steel 1.4404	
Option compact field housing	stainless steel 1.4305, cable gland M12x1,5, brass, nickel plated	others on request
Seals (media wetted)	standard: FKM options: EPDM	 others on request
Diaphragm	Stainless steel 1.4435	
Media wetted parts	Pressure port, seal, diaphragm	
Miscellaneous		
Current consumption	3-wire voltage: < 30 mA	3-wire current: < 55 mA
Weight	approx. 200 g	
Installation position	any [2]	
Operational life	> 100 x 10^6 pressure cycles	
CE-conformity	EMC Directive: 2014/30/EU	Pressure Equipment Directive: 2014/68/EU (module A) [3]

[2] Pressure transmitters are calibrated in a vertical position with the pressure connection down. If this position is changed on installation ther can be slight deviations in the zero point for pressure ranges P_N ≤ 1 bar.

[3] This directive is only valid for devices with maximum permissible overpressure > 200 bar

Wiring diagrams

3-wire-system (current/voltage)

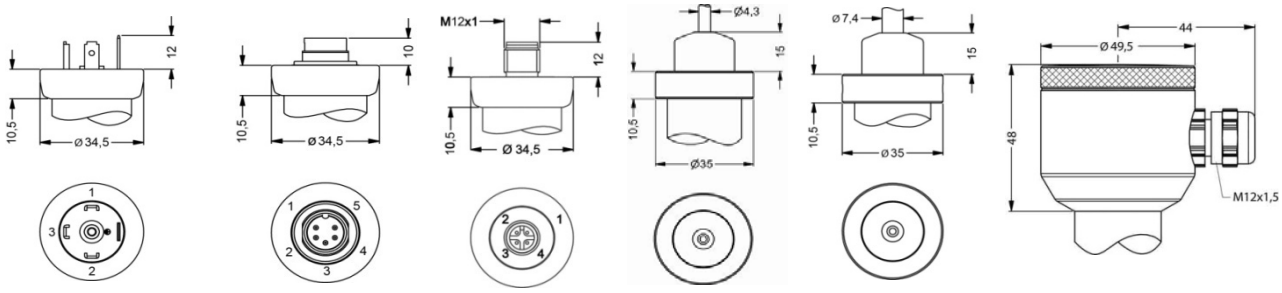


Pin configuration

Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1/metal (4-pin)	Field housing	cable colour (IEC 60757)
Supply + Supply – Signal +	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 in mm)

Standard **Optional**



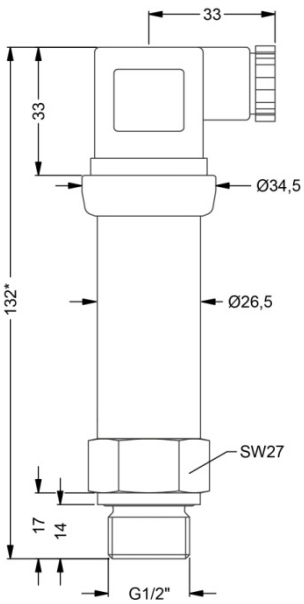
ISO 4400 (IP65)	Binder Serie 723 5-pin (IP67)	M12x1, 4-pin (IP67)	Cable outlet with PVC cable (IP67)[4]	Cable outlet, cable with ventilation tube (IP68)[5]	Compact field housing (IP 67)

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

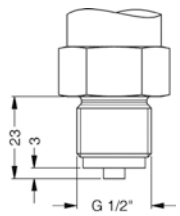
[4] *standard: 2 m PVC-cable without ventilation tube (permissible temperature: -5 … 70°C)*
[5] *different cable types and lengths available, permissible temperature depends on kind of cable*

Mechanical connections (dimensions in mm)

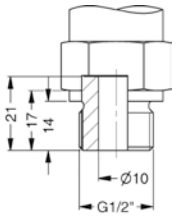
Standard **Optional**



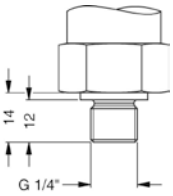
G1/2" DIN 3852 with ISO 4400



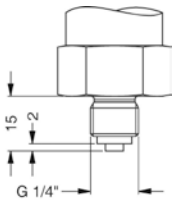
G1/2" EN 837



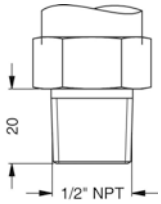
G1/2“ open port, $P_N \leq 40$



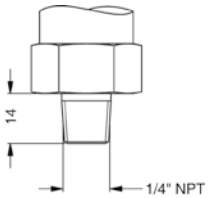
G1/4" DIN 3852



G1/4" EN 837



1/2" NPT



1/4" NPT

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

⇨ *** for nominal pressure P_N > 40 bar increases the length of devices by 9 mm**

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Ordering code DMP 320

DMP 320 ☐☐☐ - ☐☐☐☐ - ☐ - ☐ - ☐☐☐ - ☐☐☐ - ☐ - ☐☐☐

Pressure																						
gauge		1	1	C																		
absolute [1]		1	1	D																		
Input	**[bar]**																					
0.10 [1]					1	0	0	0														
0.16 [1]					1	6	0	0														
0.25 [1]					2	5	0	0														
0.40					4	0	0	0														
0.60					6	0	0	0														
1.0					1	0	0	1														
1.6					1	6	0	1														
2.5					2	5	0	1														
4.0					4	0	0	1														
6.0					6	0	0	1														
10					1	0	0	2														
16					1	6	0	2														
25					2	5	0	2														
40					4	0	0	2														
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														
-1 … 0					X	1	0	2														
customer					9	9	9	9														consult
Output																						
0,1 … 10 V / 3 wire									3A													
4 … 20 mA / 3-wire									7													
customer									9													consult
Accuracy																						
0.1 %										1												
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 [2]											T	A	0									
Cable outlet [3]											T	R	0									
Male plug M12x1 (4-pin) / metal											M	1	0									
Compact field housing stainless steel 1.4305											8	5	0									
customer											9	9	9									consult
Mechanical connection																						
G1/2" DIN 3852														1	0	0						
G1/2" EN 837														2	0	0						
G1/4" DIN 3852														3	0	0						
G1/4" EN 837														4	0	0						
G1/2" DIN 3852 open pressure port [4]														H	0	0						
1/2" NPT														N	0	0						
1/4" NPT														N	4	0						
customer														9	9	9						consult
Seals																						
FKM																	1					
EPDM																	3					
customer																	9					consult
Special version																						
standard																		0	0	0		
customer																		9	9	9		consult

[1] absolute pressure possible from 0.4 bar
[2] standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 … 70°C), others on request
[3] cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, price without cable
[4] only for $P_N \leq 40$ bar

11.11.2014

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