

DMP 333

Industrial Pressure Transmitter For High Pressure

Stainless Steel Sensor

accuracy according to IEC 60770:
standard: 0.35 % FSO
option: 0.25 / 0.1 % FSO



Nominal pressure

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

Output signals

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

Special characteristics

- ▶ excellent long-term stability, also with high dynamic pressure loads
- ▶ insensitive to pressure peaks
- ▶ high overpressure capability

Optional versions

- ▶ IS-version
Ex ia = intrinsically safe for gases and dusts
- ▶ SIL 2 version
according to IEC 61508 / IEC 61511
- ▶ customer specific versions

The pressure transmitter type DMP 333 has been especially designed for use in hydraulic applications with high static and dynamic pressure. The transmitter is characterized by an excellent long term stability, also under fast changing pressure as well as positive and negative pressure peaks.

The modular concept of the device allows to combine different stainless steel sensors and electronic modules with a variety of electrical and mechanical versions. Thus a diversity of variations is created, meeting almost all requirements in hydraulic applications.

Preferred areas of use are

Plant and Machine Engineering

- machine tools
- hydraulic presses
- injection moulding machine
- handling equipment
- elevated platforms
- test benches



Mobile Hydraulics



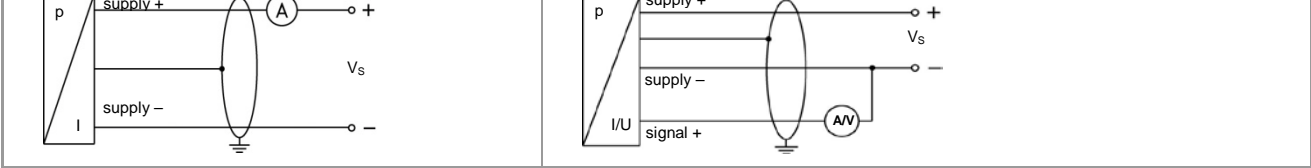
Input pressure range						
Nominal pressure gauge ¹ / abs.	[bar]	100	160	250	400	600
Overpressure	[bar]	210	600	1000	1000	1000
Burst pressure ≥	[bar]	1000	1000	1250	1250	1800
¹ measurement starts with ambient pressure						
Output signal / Supply						
Standard	2-wire:	4 ... 20 mA / $V_S = 8 \dots 32 V_{DC}$		SIL-version: $V_S = 14 \dots 28 V_{DC}$		
Option IS-protection	2-wire:	4 ... 20 mA / $V_S = 10 \dots 28 V_{DC}$		SIL-version: $V_S = 14 \dots 28 V_{DC}$		
Options 3-wire	3-wire:	0 ... 20 mA / $V_S = 14 \dots 30 V_{DC}$ 0 ... 10 V / $V_S = 14 \dots 30 V_{DC}$				
Performance						
Accuracy ²		standard: ≤ ± 0.35 % FSO option 1: ≤ ± 0.25 % FSO option 2: ≤ ± 0.1 % FSO				
Permissible load		current 2-wire: $R_{max} = [(V_S - V_S \text{ min}) / 0.02 \text{ A}] \Omega$ current 3-wire: $R_{max} = 500 \Omega$ voltage 3-wire: $R_{min} = 10 \text{ k}\Omega$				
Influence effects		supply: 0.05 % FSO / 10 V load: 0.05 % FSO / $\text{k}\Omega$				
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)						
Tolerance band in compensated range		≤ ± 0.75 % FSO 0 ... 70 °C				
Permissible temperatures						
Permissible temperatures		medium: -40 ... 125 °C electronics / environment: -40 ... 85 °C storage: -40 ... 100 °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) according to DIN EN 60068-2-6				
Shock		100 g / 11 msec according to DIN EN 60068-2-27				
Materials						
Pressure port		stainless steel 1.4404 (316 L)				
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 options: EPDM (for $P_N \leq 160 \text{ bar}$) others on request				
Diaphragm		stainless steel 1.4435 (316 L)				
Media wetted parts		pressure port, seals, diaphragm				
Explosion protection (only for 4 ... 20 mA / 2-wire)						
Approvals DX19-DMP 333		IBExU 10 ATEX 1068 X / IECEx IBE 12.0027X zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ia IIIC T 85°C Da				
Safety technical maximum values		$U_i = 28 V_{DC}$, $I_i = 93 \text{ mA}$, $P_i = 660 \text{ mW}$, $C_i \approx 0 \text{ nF}$, $L_i \approx 0 \mu\text{H}$, 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 bar up to 1.1 bar in zone 1 or higher: -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: 1 $\mu\text{H}/\text{m}$				

Miscellaneous	
Option SIL ³ 2	according to IEC 61508 / IEC 61511
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA
Weight	approx. 140 g
Installation position	any ⁴
Operational life	> 100 x 10 ⁶ pressure cycles
CE-conformity	EMC Directive: 2004/108/EC Pressure Equipment Directive: 97/23/EC (module A) ⁵
ATEX Directive	94/9/EG

³ only for 4 ... 20 mA / 2-wire, not in combination with the accuracy 0.1%

⁴ Pressure transmitters are calibrated in a vertical position with the pressure connection down.

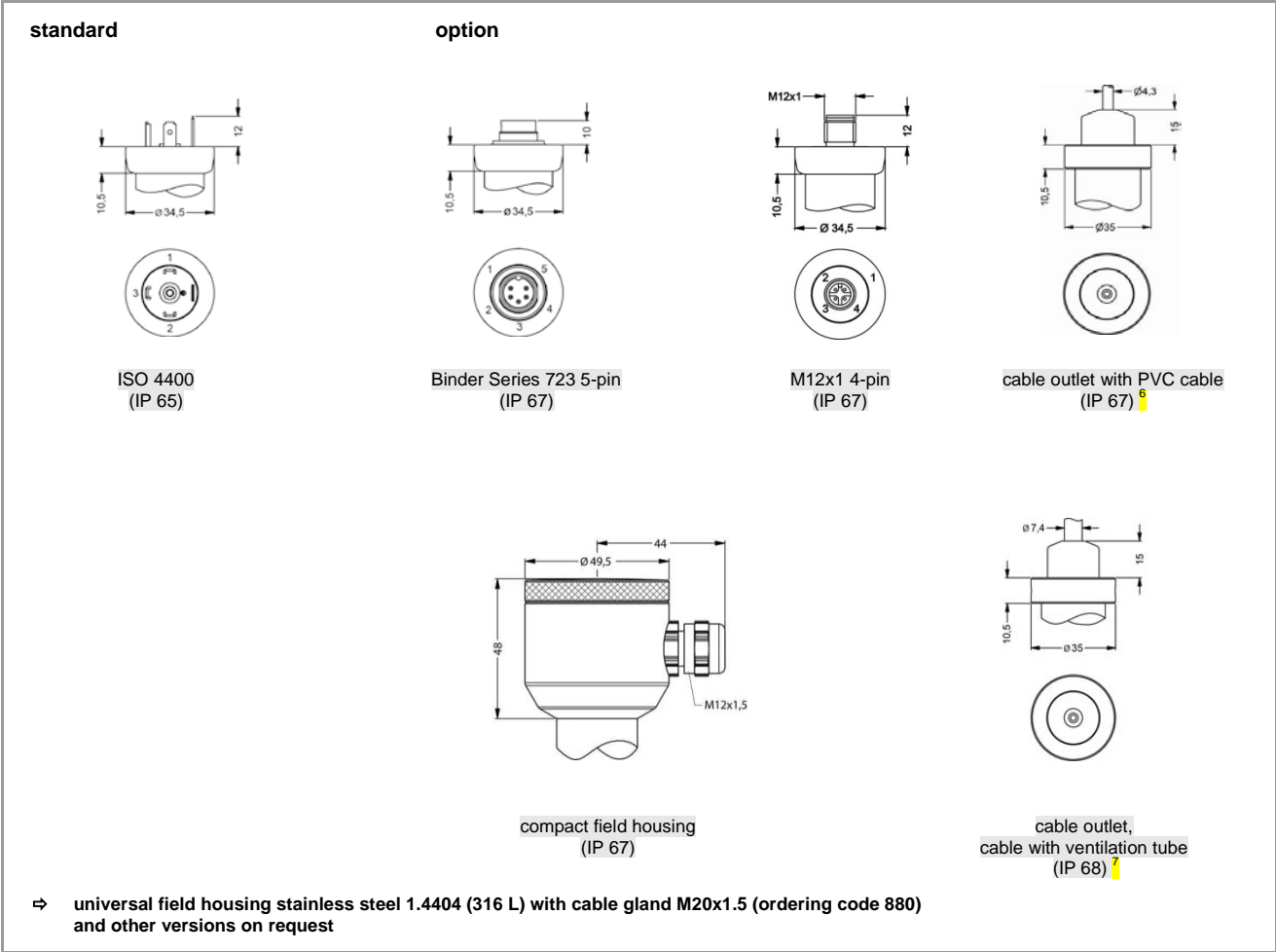
⁵ This directive is only valid for devices with maximum permissible overpressure > 200 bar



Pin configuration

Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	field housing	cable colours (DIN 47100)
Supply +	1	3	1	IN +	wh (white)
Supply -	2	4	2	IN -	bn (brown)
Signal + (only for 3-wire)	3	1	3	OUT +	gn (green)
Shield	ground pin	5	4	⊥	ye/gn (yellow / green)

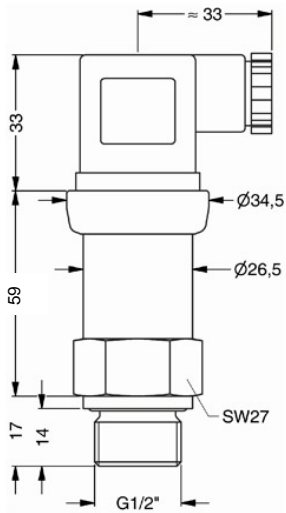
Electrical connections (dimensions in mm)



⁶ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)
⁷ different cable types and lengths available, permissible temperature depends on kind of cable

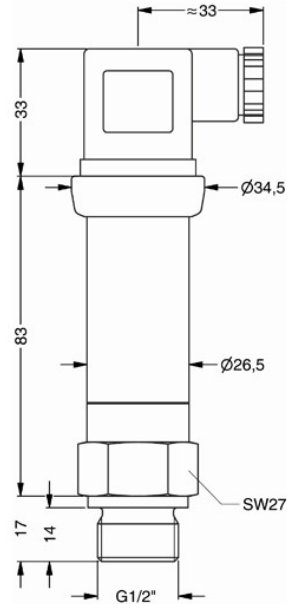
Mechanical connections (dimensions in mm)

standard for accuracy 0.35 / 0.25 %



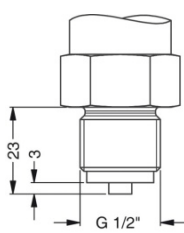
G1/2" DIN 3852
with ISO 4400

standard for accuracy 0.1 % ;
SIL- and SIL-IS-version

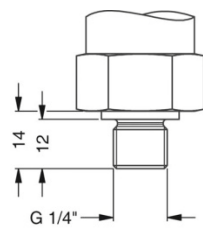


G1/2" DIN 3852
with ISO 4400

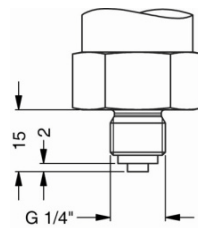
option



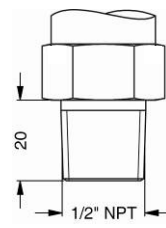
G1/2" EN 837



G1/4" DIN 3852



G1/4" EN 837



1/2" NPT

⇒ metric threads and other versions on request

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Ordering code DMP 333

DMP 333



Pressure			
gauge ¹	1 3 0		
absolute	1 3 1		
Input [bar]			
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 ... 20 mA / 3-wire		2	
0 ... 10 V / 3-wire		3	
Intrinsic safety 4 ... 20 mA / 2-wire		E	
SIL2 4 ... 20 mA / 2-wire		1S	
SIL2 with Intrinsic safety		ES	
4 ... 20 mA / 2-wire			
customer		9	consult
Accuracy			
standard	0.35 %	3	
option 1	0.25 %	2	
option 2	0.1 % ²	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 ³		T A 0	
Cable outlet ⁴		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	
1/2" NPT		N 0 0	
customer		9 9 9	consult
Seals			
FKM			1
EPDM ⁵			3
customer			9
			consult
Special version			
standard			0 0 0
customer			9 9 9
			consult

¹ measurement starts with ambient pressure

² not in combination with SIL

³ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C), optionally without ventilation tube

⁴ cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, permissible temperature depends on kind of cable, price without cable

⁵ possible for nominal pressure ranges P_N ≤ 160 bar

