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Industrial **Pressure Transmitter** For High Pressure

Stainless Steel Sensor

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

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 modulare 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.

Optional versions

3-wire: 0 ... 20 mA / 0 ... 10 V

Special characteristics

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

Output signals

2-wire: 4 ... 20 mA

others on request

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

excellent long-term stability, also

with high dynamic pressure loads

insensitive to pressure peaks

high overpressure capability

customer specific versions

-ransmitte Pressure ndustria







Preferred areas of use are



Plant and Machine Engineering

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



Mobile Hydraulics

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Input pressure range							
Nominal pressure gauge / abs.	[bar]	60	100	160	250	400	600
Overpressure	[bar]	210	600	600	1050	1250	1250
Burst pressure ≥	[bar]	420	1000	1000	1250	1250	1250

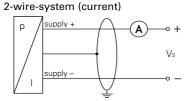
·	
Output signal / Supply	
Standard	2-wire: 4 20 mA / V _s = 8 32 V _{DC}
Option IS-protection	2-wire: 4 20 mA / V _s = 10 28 V _{DC}
Options 3-wire	3-wire: 0 20 mA / V _s = 14 30 V _{pc}
•	$0 \dots 10 \text{ V} / \text{V}_{\text{S}} = 14 \dots 30 \text{ V}_{\text{DC}}$
Performance	
Accuracy ¹	standard: ≤± 0.35 % FSO
, 1000. 007	option 1: $\leq \pm 0.25 \%$ FSO
	option 2: $\leq \pm 0.1\%$ FSO
Permissible load	· '
Termissible load	current 2-wire: $R_{max} = [(V_s - V_s min) / 0.02] \Omega$ current 3-wire: $R_{max} = 500 \Omega$
	voltage 3-wire: $R_{min} = 500 \Omega$
Influence effects	supply: 0.05 % FSO / 10 V
illidence enects	load: 0.05 % FSO / kΩ
Lang tarm atability	≤± 0.1 % FSO / year at reference conditions
Long term stability	2-wire: < 10 msec
Response time	3-wire: \leq 3 msec
1 accuracy according to IEC 60770	imit point adjustment (non-linearity, hysteresis, repeatability)
Thermal effects (Offset and Sp	,
Tolerance band	≤± 0.75 % FSO
in compensated range	20 85 °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 1.4404 (310 L) stainless steel 1.4405 (303), cable gland brass, nickel plated others on request
Seals (media wetted)	standard: FKM
Jeais (illedia Wetted)	options: EPDM (for $P_N \le 160$ bar)
	NBR
	others on request
Diaphragm	stainless steel 1.4435 (316 L)
Media wetted parts	pressure port, seals, diaphragm
Explosion protection (only for	
Approval DX19-DMP 333	IBEXU 10 ATEX 1068 X
Approval DV 12-DIML 333	zone 0: Il 1G Ex ia IIC T4 Ga
	zone 20: II 1D Ex iaD 20 T85 °C
Safety technical maximum	
values	$U_{i} = 28 \text{ V}_{DC}$, $I_{i} = 93 \text{ mA}$, $P_{i} = 660 \text{ mW}$, $C_{i} \approx 0 \text{ nF}$, $L_{i} \approx 0 \mu\text{H}$
Permissible temperatures for	in zone 0: -20 60 °C with p _{atm} 0.8 bar up to 1.1 bar
environment	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 μH/m

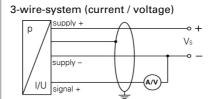
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Miscellaneous		
Option SIL 2	according to IEC 61508 / IEC 61511	
Current consumption	signal output current: max. 25 mA	signal output voltage: max. 7 mA
Weight	approx. 140 g	
Installation position	any ³	
Operational life	> 100 x 10 ⁶ pressure cycles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

Pressure transmitters are calibrated in a vertical position with the pressure connection down.
This directive is only valid for devices with maximum permissible overpressure > 200 bar

Wiring diagrams



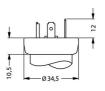


D:		
PIN.	contia	uration

Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 / Metall (4-pin)	field housing	cable colours (DIN 47100)		
Supply +	1	3	1	IN +	wh (white)		
Supply –	2	4	2	IN –	bn (brown)		
Signal + (for 3-Leiter)	3	1	3	OUT+	gn (green)		
Shield	ground pin	5	4	<u></u>	gn/ye (green / yellow)		

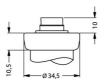
Electrical connections (dimensions in mm)

standard



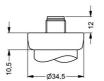


option



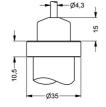


Binder Series 723 5-pin (IP 67)



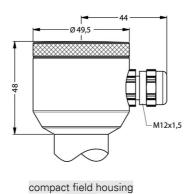


M12x1 4-pin (IP 67)

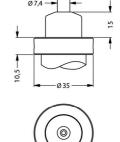




cable outlet with PVC cable (IP 67) ⁵



(IP 67)



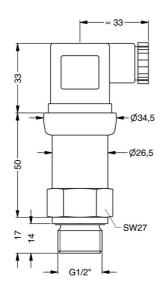
cable outlet, cable with ventilation tube (IP 68) ⁶

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

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

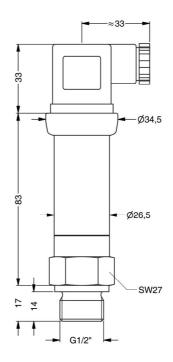
Mechanical connections (dimensions in mm)

standard for accuracy 0.35 / 0.25 %



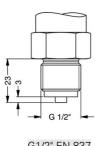
G1/2" DIN 3852 with ISO 4400

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

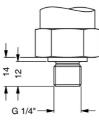


G1/2" DIN 3852 with ISO 4400

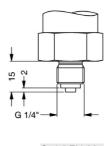
option



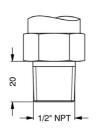
G1/2" EN 837



G1/4" DIN 3852



G1/4" EN 837



1/2" NPT

metric threads and other versions on request

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	Order	ing co	de	D	M	P :	33	3			
								- I			
DMP 333	L	┴ ┴┴┤-└	J-L	-∐	Ш	-		⅃−∟	-L		
Pressure											
gauge ¹	1 3 0										
absolute	1 3 1										
Input [bar]											
60	6	0 0 2									
100	1										
160	1	6 0 3									
250 400	2	5 0 3									
600	6										
customer	9										
Output											
4 20 mA / 2-wire		1									
0 20 mA / 3-wire		2									
0 10 V / 3-wire		3	3								
Intrinsic safety 4 20 mA / 2-wire SIL2 4 20 mA / 2-wire		E									
SIL2 with Intrinsic safety		1									
4 20 mA / 2-wire		E	S								
customer		ç)								
Accuracy											
standard 0.35 %			3								
option 1 0.25 %			2								
option 2 0.10 %			1								
Electrical connection			9								
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					A 0						
Cable outlet ³				T	R 0						
Male plug M12x1 (4-pin) / metal				M	1 0						
Compact field housing				8	5 0						
stainless steel 1.4305											
Mechanical connection			-	9	9 9		_				
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)			
Seals											
FKM EPDM ⁴								1			
NBR								5			
customer								9			
Special version								J			
standard									0	0	0
customer									9	9	9

¹ measurement starts with ambient pressure

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

³ cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, permissible temperature depends on kind of cable, price without cable

 $^{^4}$ possible for nominal pressure ranges P $_{\text{N}} \leq 160$ bar