

DMP 304

Industrial Pressure Transmitter for very high Pressure

accuracy according to IEC 60770:
standard: 0.5 % FSO
option: 0.25 % FSO



High Pressure
Transmitter

DMP 304

Nominal pressure ranges

from 0 ... 2 000 bar
up to 0 ... 6 000 bar

Output signals

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

Special characteristics

- ▶ adjustability of offset and span via front sided potentiometers
- ▶ pressure port 9/16" UNF
- ▶ 80 % calibration signal with MIL / Bendix plug

Optional versions

- ▶ IS-version:
Ex ia = intrinsically safe for gases
- ▶ Accuracy according to IEC 60770:
0.25 % FSO
- ▶ pressure port M20x1.5 and M16x1.5

The high-pressure transmitter type DMP 304 has been especially designed for applications with highest demand on precision and reliability. DMP 304 series is based on a compensated strain gauge, bonded onto a stainless steel diaphragm.

Due to the rugged stainless steel housing usage under extreme conditions and in IS-required areas is no problem.

Preferred areas of use are



hydraulic circuits



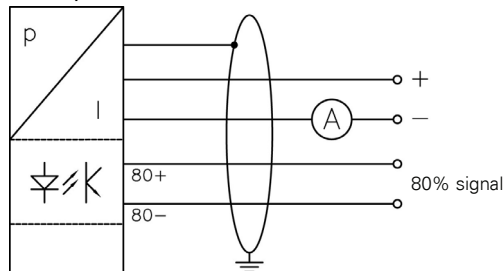
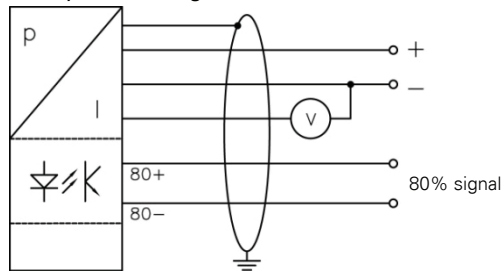
water jet torching



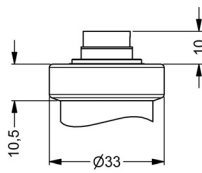
high pressure applications in
chemical and petrochemical
industry



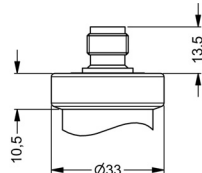
Input pressure range					
Nominal pressure gauge [bar]		2 000	4 000	5 000	6 000
Overpressure [bar]		3 000	5 000	6 000	7 000
Burst pressure [bar]		4 000	8 000	10 000	10 000
Output signal / Supply					
Standard	2-wire:	4 ... 20 mA / $V_s = 10 \dots 30 V_{DC}$			
IS-protection	2-wire:	4 ... 20 mA / $V_s = 10 \dots 28 V_{DC}$			
Option 3-wire (on request)	3-wire:	0 ... 10 V / $V_s = 14 \dots 36 V_{DC}$			
Performance					
Accuracy		IEC 60770 ¹			
	standard:	$\leq \pm 0.50 \% \text{ FSO}$			
	option:	$\leq \pm 0.25 \% \text{ FSO (on request)}$			
Permissible load	current 2-wire:	$R_{max} = [(V_s - V_{s \text{ min}}) / 0.02] \Omega$			
	voltage 3-wire:	$R_{min} = 10 \text{ k}\Omega$			
Influence effects	supply	0.05 % FSO / 10 V			
	load:	0.05 % FSO / k Ω			
Long term stability		$\leq \pm 0.2 \% \text{ FSO / year}$			
Response time		< 2.5 msec			
Adjustability		Via a front sided potentiometer is an adjustment of the offset possible within the range of $\pm 5 \%$ of the nominal pressure range, without an influence of characteristic curve and accuracy.			
¹ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)					
Calibration (only with MIL / Bendix plug)					
Calibration signal accuracy		$\leq \pm 0.25 \% \text{ FSO}$			
Calibration		80 % FSO calibration (e.g. for 4 ... 20 mA / 2-wire: signal = $0.8 \cdot 16 \text{ mA} + 4 \text{ mA} = 16.8 \text{ mA}$)			
Thermal effects (Offset and Span)					
Thermal error		$\leq \pm 0.2 \% \text{ FSO / 10 K}$ in compensated range -20 ... 85 °C			
Permissible temperatures					
Permissible temperatures	medium:	-40 ... 85 °C			
	electronics / environment:	-25 ... 85 °C			
	storage:	-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 (20 ... 2000 Hz)			
Shock		100 g / 11 msec			
Materials					
Pressure port / diaphragm		stainless steel 1.4548 (17-4 PH)			
Housing		standard: stainless steel 1.4301 (304)			
Seals (media wetted)		none (welded version)			
Media wetted parts		pressure port, diaphragm			
IS-protection (only for 4 ... 20 mA / 2-wire)					
Approval DX17-DMP 304		zone 0: II 1G Ex ia IIC T4			
Safety technical maximum values		$U_i = 28 \text{ V}$, $I_i = 93 \text{ mA}$, $P_i = 660 \text{ mW}$			
Permissible temperatures for environment		in zone 0: -20 ... 60 °C with p_{atm} 0.8 bar up to 1.1 bar zone 1 and higher: -25 ... 70 °C			
Connecting cables (by factory)	cable capacity:	signal line/shield as well as signal line/signal line: 160 pF/m			
	cable inductance:	signal line/shield as well as signal line/signal line: 1 $\mu\text{H/m}$			

Miscellaneous						
Insulation strength / resistance	standard: insulation strength 100 M Ω @ 35 V IS-version: insulation resistance 100 M Ω @ 35 V _{DC} 100 M Ω @ 500 V _{AC} (relative to housing)					
Current consumption	2-wire signal output current: max. 28 mA 3-wire signal output voltage: max. 15 mA					
Weight	approx. 260 g					
Installation position	any					
CE-conformity	EMC Directive: 2004/108/EC		Pressure Equipment Directive: 97/23/EC (module A)			
Wiring diagrams						
2-wire-system (current) 		3-wire-system (voltage) 				
Pin configuration						
Electrical connections	Binder 723 (5-pin)	M12x1 (4-pin)	ISO 4400	cable colours (DIN 47100)		
Supply +	3	1	1	wh (white)		
Supply -	4	2	2	bn (brown)		
Signal + (only for 3-wire)	1	3	3	gn (green)		
Shield	5	4	pin	gn/ye (green / yellow)		
Pin configuration MIL / Bendix plug (optional)						
Version	Pin A	Pin B	Pin C	Pin D	Pin E	Pin F
2-wire current signal 4 ... 20 mA	supply +/- signal +	supply -/ signal -	-	-	calibration +	calibration -
3-wire	signal +	supply - / signal - / calibration -	supply +	-	-	calibration +

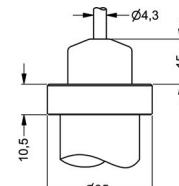
Electrical connections (dimensions in mm)



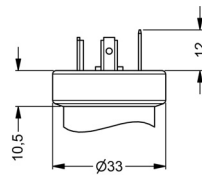
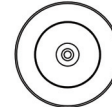
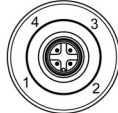
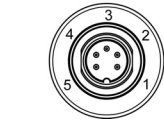
Binder series 723 (IP 67)



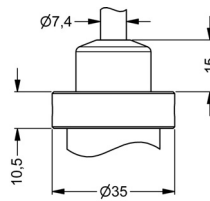
M12x1 4-pin (IP 67)



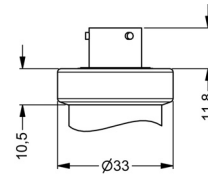
cable outlet with PVC-cable (IP 67)²



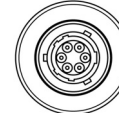
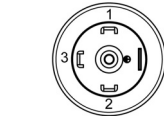
ISO 4400 (IP 65)



cable outlet (IP 68)³



MIL / Bendix plug
(Typ PT 02 A 10-6 P)

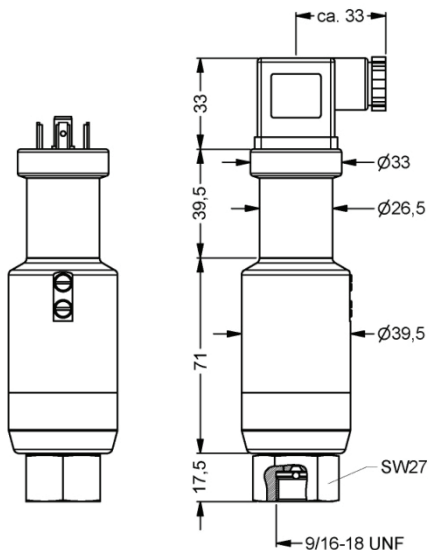


² standard: 2 m PVC-cable without air tube (permissible temperature: -5 ... 70 °C)

³ different cable types and lengths available, permissible temperature depends on kind of cable

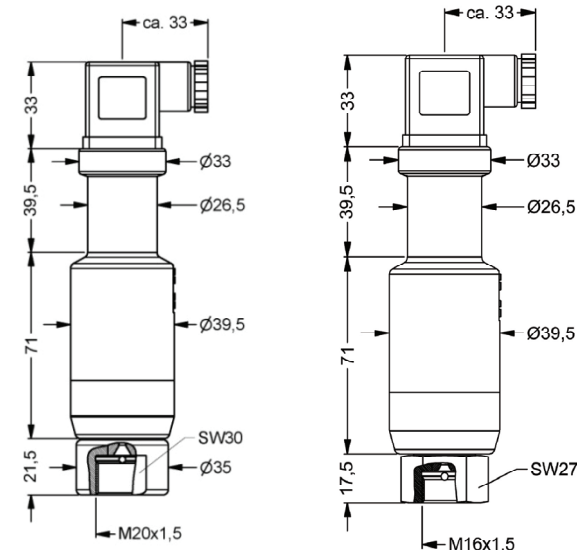
Mechanical connection (dimensions in mm)

Standard



9/16" UNF internal thread

Option



M20x1.5 internal thread

M16x1.5 internal thread

Ordering code DMP 304

DMP 304



Pressure																		
	gauge	2	2	0														
Input																		
	[bar]																	
	2 000	2	0	0	4													
	4 000	4	0	0	4													
	5 000	5	0	0	4													
	6 000	6	0	0	4													
	customer	9	9	9	9													consult
Output																		
	4 ... 20 mA / 2-wire					1												
	Intrinsic safety 4 ... 20 mA / 2-wire					E												consult
	0 ... 10 V / 3-wire					3												consult
	customer					9												consult
Accuracy																		
	standard	0.5 %				5												
	option	0.25 %				2												consult
	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 ¹					T	A	0										
	Cable outlet ²					T	R	0										
	Male plug M12x1 (4-pin)					M	0	0										
	MIL-/Bendix (Typ PT 02 A 10-6 P)					B	G	0										consult
	customer					9	9	9										consult
Mechanical connection																		
	9/16" UNF internal thread						V	0	0									
	M16x1.5 internal thread						P	0	0									
	M20x1.5 internal thread						D	2	8									
	customer						9	9	9									consult
Special version																		
	standard											0	4	1				
	customer											9	9	9				consult

¹ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C), optionally cable with ventilation tube

² different cable types and lengths deliverable (permissible temperature depends on kind of cable)

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