

# DMP 333

## Industrial Pressure Transmitter for High Pressure

- ▶ piezoresistive stainless steel sensor
- ▶ accuracy:  
0.175 / 0.125 / 0.05 % FSO BFSL  
(0.35 / 0.25 / 0.1 % FSO IEC 60770)
- ▶ nominal pressure ranges  
from 0 ... 60 bar  
up to 0 ... 600 bar

The DMP 333 pressure transmitter is specially designed for use in hydraulic equipment under severe operation conditions. Permissible media are all with stainless steel 1.4571 and 1.4435 compatible media.

Demands of machine and equipment manufacturers for ruggedness and reliability have been optimally fulfilled. These features of the DMP 333, combined with outstanding measuring parameters and excellent offset stability, offers the user an easy-to-use, reliable and rugged pressure transmitter.

For the special demand in high pressure area the customer can choose between different electrical and mechanical connections. Additional it is possible to use the DMP 333 in explosive area (zone 0 / 20).

Typical areas of use are hydraulic systems in:

- ▶ machine tools
- ▶ hydraulic presses
- ▶ injection moulding machines
- ▶ handling equipment and mobile hydraulics
- ▶ elevated platforms
- ▶ test stands

- ▶ small thermal effect
- ▶ excellent linearity
- ▶ good long term stability
- ▶ option Ex-version  
(only for 4 ... 20 mA / 2-wire)  
TÜV 03 ATEX 2006 X
- ▶ customer specific versions:
  - variety of electrical and mechanical connections
  - other versions on request

Characteristics



**DMP 333**  
Industrial Pressure Transmitter

Input pressure range							
Nominal pressure gauge <sup>1</sup> [bar]	60	100	160	250	400	600	
Nominal pressure abs. [bar]	60	100	160	250	400	600	
Permissible overpressure [bar]	140	340	340	600	600	1000	

Output signal / Supply			
Standard	2-wire:	4 ... 20 mA / $V_s = 12 \dots 36 V_{DC}$	Ex-protection: $V_s = 14 \dots 28 V_{DC}$
Optional	3-wire:	0 ... 20 mA / $V_s = 14 \dots 36 V_{DC}$ 0 ... 10 V / $V_s = 14 \dots 36 V_{DC}$	

Performance			
Accuracy	IEC 60770 <sup>2</sup>		BFSL
	standard:	$\leq \pm 0.35\%$ FSO	standard: $\leq \pm 0.175\%$ FSO
	option 1:	$\leq \pm 0.25\%$ FSO	option 1: $\leq \pm 0.125\%$ FSO
	option 2:	$\leq \pm 0.10\%$ FSO	option 2: $\leq \pm 0.050\%$ FSO
Permissible load	current 2-wire:	$R_{max} = [(V_s - V_{smin}) / 0.02] \Omega$	
	current 3-wire:	$R_{max} = 500 \Omega$	
	voltage 3-wire:	$R_{min} = 10 k\Omega$	
Influence effects	supply:	0.05 % FSO / 10 V	
	load:	0.05 % FSO / $k\Omega$	
Long term stability	$\leq \pm 0.1\%$ FSO / year		
Response time <sup>3</sup>	< 5 msec		

Thermal errors (Offset and Span)	
Tolerance band	$\leq \pm 0.75\%$ FSO
TC, average	$\pm 0.07\%$ FSO / 10 K
in compensated range	0 ... 70 °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
Option Ex-protection only with 4 ... 20 mA / 2-wire DX13-DMP 333	zone 0 <sup>4</sup> : II 1 G EEx ia IIC T4 zone 20: II 1 D T 85°C safety technical maximum values: $V_i = 28 V$ , $I_i = 93 mA$ , $P_i = 660 mW$ , $C_i \leq 1 nF$ , $L_i \leq 10 \mu H$

Mechanical stability	
Vibration	10 g RMS (20 ... 2000 Hz)
Shock	100 g / 11 msec

Permissible temperatures		
Medium	-25 ... 125 °C	
Electronics / environment	-25 ... 85 °C	Ex-protection: application in zone 0: -20 ... 60 °C application in zone 1 or higher: -25 ... 70 °C
Storage	-40 ... 100 °C	

<sup>1</sup> measurement starts with ambient pressure

<sup>2</sup> accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

<sup>3</sup> with optional accuracy 0.1 % FSO the response time is 200 msec

<sup>4</sup> approved for atmospheric pressure from 0.8 bar up to 1.1 bar

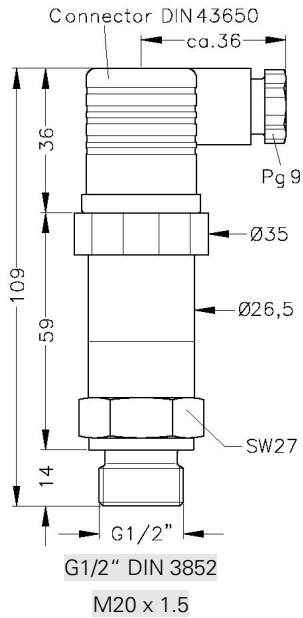
# DMP 333

Industrial Pressure Transmitter

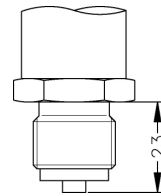
Technical Data

## Mechanical connection

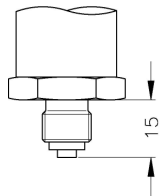
### Standard



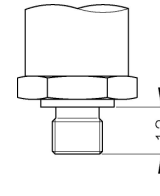
### Optional



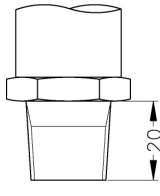
G1/2" EN 837  
M20 x 1.5



G1/4" EN 837



G1/4" DIN 3852  
M10x1; M12x1; M12x1,5  
(up to 100 bar)



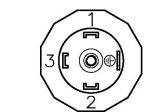
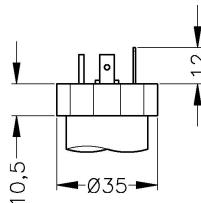
1/2" NPT

⇒ Total length of devices with Ex-protection increases by 20 mm!

⇒ Total length of devices with accuracy 0.1 % FSO IEC 60770 increases by 28,5 mm! (standard and Ex-protection)

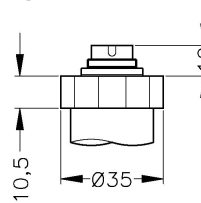
## Electrical connection

### Standard

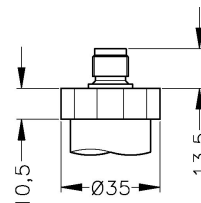


DIN 43650 (IP 65)

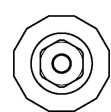
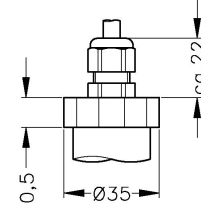
### Optional



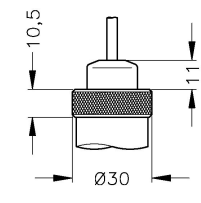
Binder Series 723 (IP 67)



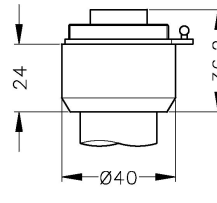
M12x1 4-pin (IP 67)



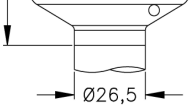
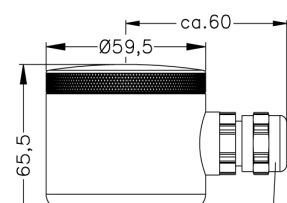
Cable gland (IP 67)<sup>5,6</sup>



Cable outlet (IP 68)<sup>5</sup>



Buccaneer (IP 68)



Field housing (IP 67)

M16x1,5  
(for Kabel-Ø  
4 up to 11 mm)

<sup>5</sup> different cable types and lengths available

<sup>6</sup> standard: 2 m PVC cable without ventilation tube

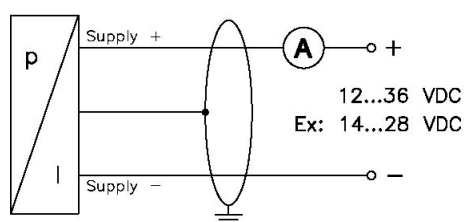
Materials	
Pressure port	stainless steel 1.4571 (316Ti)
Housing	standard: stainless steel 1.4301 (304) field housing: stainless steel 1.4305 (303), cable gland: brass, nickel plated
Seals (media wetted)	NBR; others on request
Diaphragm	stainless steel 1.4435 (316L)
Media wetted parts	pressure port, seals, diaphragm

Miscellaneous	
Cable capacitance <sup>7</sup>	signal line/shield: 160 pF/m      signal line/signal line: 120 pF/m
Cable inductance <sup>7</sup>	signal line/shield: 0.65 µH/m      signal line/signal line: 0.65 µH/m
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA
Weight	approx. 140 g
Installation position	any
Operational life	> 100 x 10 <sup>6</sup> cycles

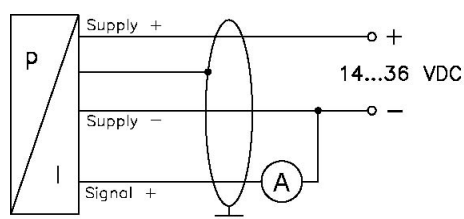
Pin configuration						
Electrical connection		DIN 43650	Binder 723 (5-pin)	M12x1 (4-pin)	Buccaneer (4-pin)	cable colours <sup>7</sup> (DIN 47100)
2-wire-system	Supply +	1	3	1	1	white
	Supply -	2	4	2	2	brown
	Ground	ground pin	5	4	4	yellow / green (shield)
3-wire-system	Supply +	1	3	1	1	white
	Supply -	2	4	2	2	brown
	Signal +	3	1	3	3	green
	Ground	ground pin	5	4	4	yellow / green (shield)

### Wiring diagrams

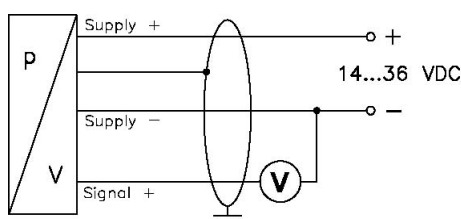
2-wire-system (current)



3-wire-system (current)



3-wire-system (voltage)



<sup>7</sup> if the electrical connection is a mounted cable by factory

This data sheet contains product specification, properties are not guaranteed. Subject to change without notice.

Ordering Code DMP 333

**DMP 333**

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<b>Pressure</b>									
gauge <sup>1</sup>	1	3	0						
absolute	1	3	1						
<b>Input [bar]</b>									
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					
<b>Output</b>									
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
customer									9
<b>Accuracy</b>									
standard	0,35 %								3
option 1	0,25 %								2
option 2	0,10 %								1
customer									9
<b>Electrical connection</b>									
Male and female plug DIN 43650					1	0	0		
Binder series 723 (5-pin)					2	0	0		
Cable gland incl. Cable <sup>2,3</sup>					4	0	0		
Cable outlet <sup>2</sup>					T	R	0		
Male plug Buccaneer IP68					5	0	0		
M12x1 (4-pin)					M	0	0		
Field housing stainless steel					8	0	0		
customer					9	9	9		
<b>Mechanical connection</b>									
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		
<b>Seals</b>									
NBR									5
customer									9
<b>Special version</b>									
standard									0 0 0
customer									9 9 9

<sup>1</sup> measurement starts with ambient pressure  
<sup>2</sup> different cable types and lengths deliverable  
<sup>3</sup> standard: 2 m PVC cable without ventilation tube

