



# DMP 343

## Industrial Pressure Transmitter for very low Pressure

- ▶ piezoresistive silicon sensor
- ▶ especially for gaseous, non-aggressive media
- ▶ accuracy:  
0.175 % FSO BFSL  
(0.350 % FSO IEC 60770)
- ▶ nominal pressure ranges  
from 0 ... 10 mbar  
up to 0 ... 1000 mbar

The pressure transmitter DMP 343 is designed for measurement of very low gauge pressure starting at 10 mbar and for vacuum applications (-1 ... 0 bar). Permissible media are gases, pressurized air and non-aggressive liquids of low viscosity.

Basic element of the pressure transmitter DMP 343 is the silicon sensor DSP 201. The ultimate sensor element is mounted on a ceramic substrate, the media coupling occurs on the backside of the piezoresistive silicon sensor. The DMP 343 features excellent thermal behaviour and outstanding long term stability.

A variety of standard output signals as well as mechanical and electrical connections make the DMP 343 covering a wide field of applications.

#### Applications:

- ▶ process control
- ▶ pneumatic control systems
- ▶ heating and air conditioning
- ▶ filter technology
- ▶ computer peripherals and systems

- ▶ 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:
  - special pressure ranges
  - variety of electrical and mechanical connections
  - other versions on request

Characteristics



**DMP 343**  
Industrial Pressure Transmitter

# DMP 343

Industrial Pressure Transmitter

Technical Data

Input pressure range											
Nominal pressure gauge [mbar]	-1000 ... 0	10	20	40	60	100	160	250	400	600	1000
Permissible overpressure[mbar]	3000	60	60	300	300	300	1000	1000	1000	3000	3000

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	standard: nominal pressure $\leq 100$ mbar:	IEC 60770 <sup>1</sup> $\leq \pm 0.35$ % FSO $\leq \pm 0.5$ % FSO	BFSL $\leq \pm 0.175$ % FSO $\leq \pm 0.25$ % 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: load:	0.05 % FSO / 10 V 0.05 % FSO / $k\Omega$	
Response time	< 5 msec		

Thermal errors (Offset and Span)				
Nominal pressure $P_N$ [mbar]	-1000 ... 0	$\leq 100$	$\leq 400$	$> 400$
Tolerance band [% FSO]	$\leq \pm 0.75$	$\leq \pm 1.5$	$\leq \pm 1$	$\leq \pm 0.75$
TC, average [% FSO / 10 K]	$\pm 0.08$	$\pm 0.15$	$\pm 0.12$	$\pm 0.08$
in compensated range [°C]	0 ... 60			

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 343	zone 0 <sup>2</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 ... 90 °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> accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

<sup>2</sup> approved for atmospheric pressure from 0.8 bar up to 1.1 bar

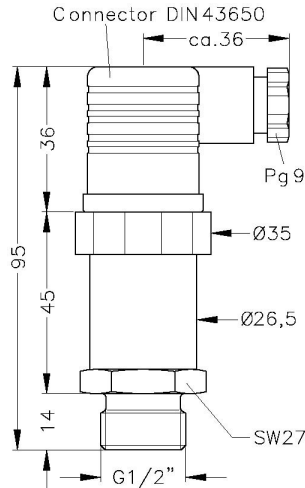
# DMP 343

Industrial Pressure Transmitter

Technical Data

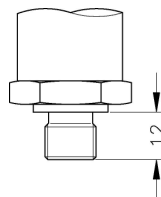
## Mechanical connection

### Standard

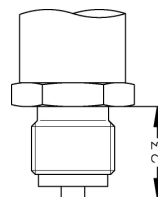


G1/2" DIN 3852  
M20 x 1.5

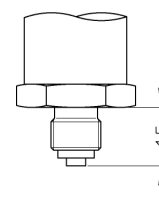
### Optional



G1/4" DIN 3852  
M10 x 1  
M12 x 1  
M12 x 1.5



G1/2" EN 837  
M20 x 1.5

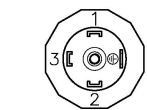
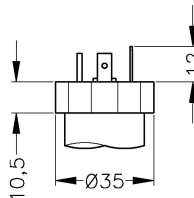


G1/4" EN 837

⇒ Ex-protection: total length increases by 20 mm!

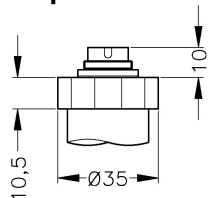
## Electrical connection

### Standard

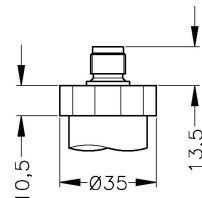


DIN 43650 (IP 65)

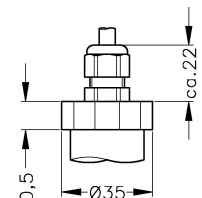
### Optional



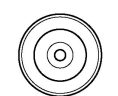
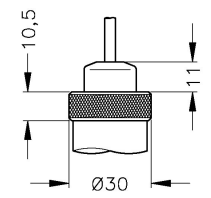
Binder Series 723 (IP 67)



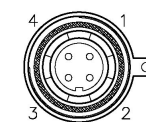
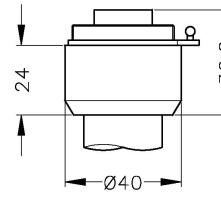
M12x1 4-pin (IP 67)



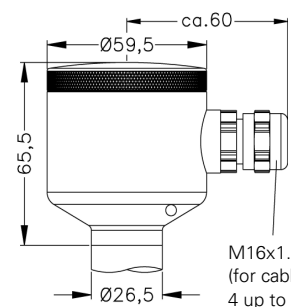
Cable gland (IP 67)<sup>3,4</sup>



Cable outlet (IP 68)<sup>3</sup>



Buccaneer (IP 68)<sup>5</sup>



Field housing (IP 67)

M16x1.5  
(for cable-Ø  
4 up to 11 mm)

<sup>3</sup> different cable types and lengths available

<sup>4</sup> standard: 2m PVC cable without ventilation tube, optionally cable with ventilation tube

<sup>5</sup> cable with ventilation tube required

### Materials

Pressure port	stainless steel 1.4571 (316Ti)
Housing	stainless steel 1.4301 (304)
Seals (media wetted)	FKM
Sensor	stainless steel 1.4305 (303) , RTV, ceramics Al <sub>2</sub> O <sub>3</sub> , silicon
Media wetted parts	pressure port, seals, sensor

### Miscellaneous

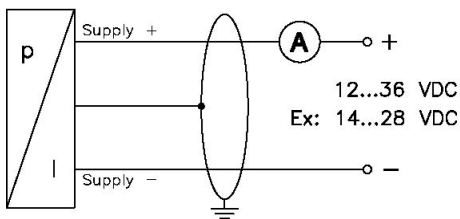
Cable capacitance <sup>6</sup>	cable without air tube:	signal line/shield: 160 pF/m	signal line/signal line: 120 pF/m
	cable with air tube:	signal line/shield: 150 pF/m	signal line/signal line: 100 pF/m
Cable inductance <sup>6</sup>	cable without air tube:	signal line/shield: 0.65 µH/m	signal line/signal line: 0.65 µH/m
	cable with air tube:	signal line/shield: 1.0 µH/m	signal line/signal line: 1.0 µH/m
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA		
Weight	approx. 140 g		
Installation position	any		

### Pin configuration

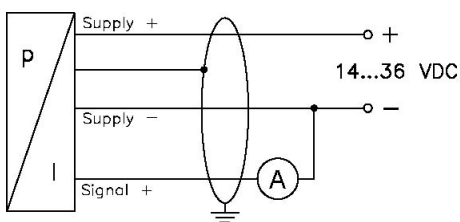
Electrical connection		DIN 43650	Binder 723 (5-pin)	M12x1 (4-pin)	Buccaneer (4-pin)	Cable colours <sup>6</sup> (DIN 47100)
2-wire - system	Supply +	1	3	1	1	white
	Supply -	2	4	2	2	brown
	Ground	ground pin	5	4	4	yellow / green (shield)
3-wire - system	Supply+	1	3	1	1	white
	Supply -	2	4	2	2	brown
	Signal +	3	1	3	3	green
	Ground	ground pin	5	4	4	yellow / green (shield)

### Wiring diagrams

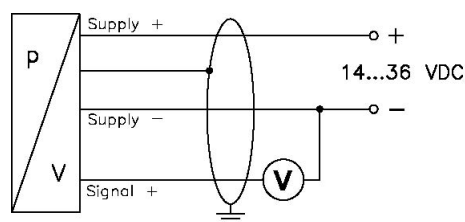
2-wire-system (current)



3-wire-system (current)



3-wire-system (voltage)



<sup>6</sup> if the electrical connection is a mounted cable by factory

**Ordering Code DMP 343**

**DMP 343**

□	□	□	-	□	□	□	□	-	□	□	-	□	□	-	□	□	-	□	□
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<b>Pressure</b>		gauge	1	0	0														
<b>Input</b>		[mbar]																	
	10		0	1	0	0													
	20		0	2	0	0													
	40		0	4	0	0													
	60		0	6	0	0													
	100		1	0	0	0													
	160		1	6	0	0													
	250		2	5	0	0													
	400		4	0	0	0													
	600		6	0	0	0													
	1000		1	0	0	1													
	-1000 ... 0		X	1	0	2													
	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 for $P_N > 100$ mbar	0,35 %					3												
	standard for $P_N \leq 100$ mbar	0,5 %					5												
<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>1,2</sup>						4	0	0										
	Cable outlet <sup>1</sup>						T	R	0										
	Male plug Buccaneer IP68 <sup>3</sup>						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										
	customer						9	9	9										
<b>Special version</b>																			
	standard															0	0	0	
	customer															9	9	9	

<sup>1</sup> different cable types and lengths deliverable  
<sup>2</sup> standard: 2 m PVC cable without ventilation tube, optionally cable with ventilation tube  
<sup>3</sup> cable with ventilation tube required

