



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

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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 ≤ 100 mbar:	IEC 60770 ¹ $\leq \pm 0.35$ % 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	≤ 100	≤ 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]	± 0.08	± 0.15	± 0.12	± 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 ² : 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	

¹ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

² approved for atmospheric pressure from 0.8 bar up to 1.1 bar

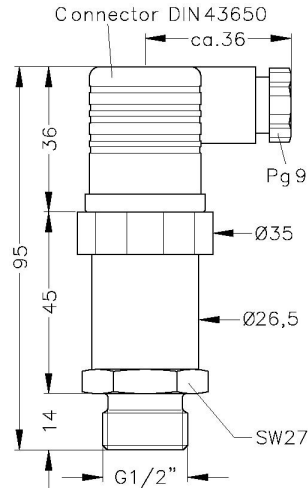
DMP 343

Industrial Pressure Transmitter

Technical Data

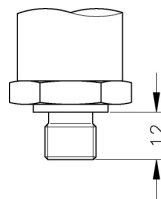
Mechanical connection

Standard

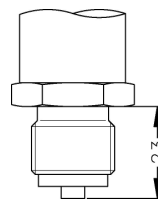


G1/2" DIN 3852
M20 x 1.5

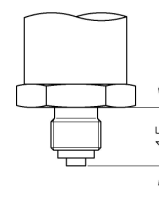
Optional



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



G1/2" EN 837
M20 x 1.5

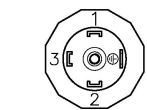
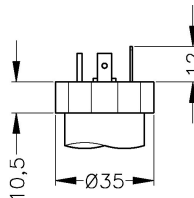


G1/4" EN 837

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

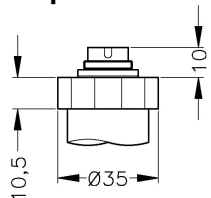
Electrical connection

Standard

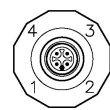
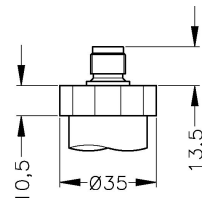


DIN 43650 (IP 65)

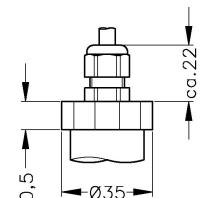
Optional



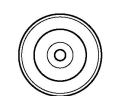
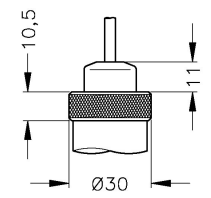
Binder Series 723 (IP 67)



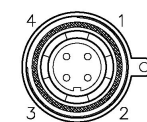
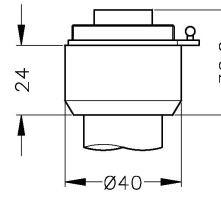
M12x1 4-pin (IP 67)



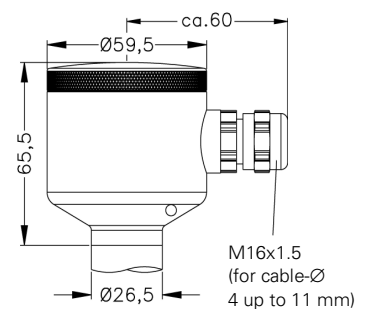
Cable gland (IP 67)^{3,4}



Cable outlet (IP 68)³



Buccaneer (IP 68)⁵



Field housing (IP 67)

³ different cable types and lengths available

⁴ standard: 2m PVC cable without ventilation tube, optionally cable with ventilation tube

⁵ 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 ₂ O ₃ , silicon
Media wetted parts	pressure port, seals, sensor

Miscellaneous

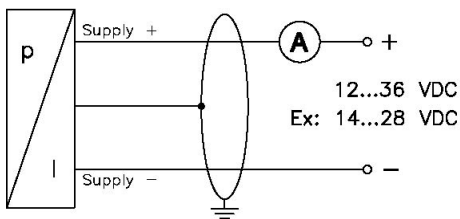
Cable capacitance ⁶	cable without air tube:	signal line/shield: 160 pF/m	signal line/signal line: 120 pF/m
	cable with air tube:	signal line/shield: 150 pF/m	signal line/signal line: 100 pF/m
Cable inductance ⁶	cable without air tube:	signal line/shield: 0.65 µH/m	signal line/signal line: 0.65 µH/m
	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

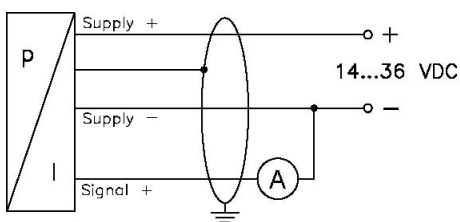
Electrical connection		DIN 43650	Binder 723 (5-pin)	M12x1 (4-pin)	Buccaneer (4-pin)	Cable colours ⁶ (DIN 47100)
2-wire - system	Supply +	1	3	1	1	white
	Supply -	2	4	2	2	brown
	Ground	ground pin	5	4	4	yellow / green (shield)
3-wire - system	Supply+	1	3	1	1	white
	Supply -	2	4	2	2	brown
	Signal +	3	1	3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

Wiring diagrams

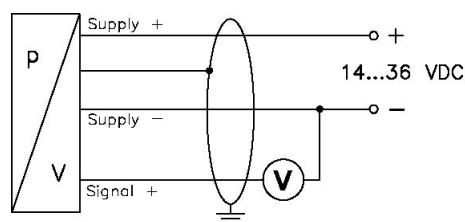
2-wire-system (current)



3-wire-system (current)



3-wire-system (voltage)



⁶ if the electrical connection is a mounted cable by factory