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Pressure Transmitter - ATEX certified

TM/Ex - Passive Transmitter (mV)

CUSTOMER BENEFITS

- Certificates: ATEX, EAC, GOST
- Any measuring ranges between 0 ... 50 mbar and 0 ... 1000 bar available
- Static accuracies available to 0.1 %FS
- Hysteresis and repeatability better than 0.01 %
- Piezoresistive technology suitable for static and dynamic pressure measurements
- Modular design ideal for customization to the application
- Barometric or negative pressure ranges available

Technical Specifications

PRESSURE MEASURING RANGE (BAR)

Pressure range	0 ... 0.05 to 0 ... 0.5	0 ... > 0.5 to 0 ... 2	0 ... > 2 to 0 ... 25
Overpressure (Proof)	3 bar	3 bar / 3 x FS	3 x FS
Burst pressure	> 200 bar	> 200 bar	> 200 bar
Accuracy, (1), ± % FS	≤ 0.5 / ≤ 0.25	≤ 0.5 / ≤ 0.25 / ≤ 0.1	≤ 0.5 / ≤ 0.25 / ≤ 0.1
Thermal error (± % FS/°C)			
Zero point: 0 ... 70°C	≤ 0.06	≤ 0.03	≤ 0.015
Zero point: -25 ... 85°C	≤ 0.08	≤ 0.04	≤ 0.02
Span: 0 ... 70°C	≤ 0.015	≤ 0.015	≤ 0.015
Span: -25 ... 85°C	≤ 0.02	≤ 0.02	≤ 0.02
Response time, (typ.)	< 0.1 ms / 10...90 % FS	< 0.1 ms / 10...90 % FS	< 0.1 ms / 10...90 % FS
Long term stability (typ./max. per year)	< 0.5% FS / < 2 mbar	< 0.2% FS / < 2 mbar	< 0.1% FS / < 0.2% FS

Pressure range	0 ... > 25 to 0 ... 600, (2)	0 ... > 600 to 0 ... 1000
Overpressure (Proof)	3 x FS (≤ 850 / ≤ 1500 bar)	≤ 850 / ≤ 1500 bar
Burst pressure	> 850 / > 1500 bar	> 850 / > 1500 bar
Accuracy, (1), ± % FS	≤ 0.5 / ≤ 0.25 / ≤ 0.1	≤ 1 / ≤ 0.5
Thermal error (± % FS/°C)		
Zero point: 0 ... 70°C	≤ 0.015	≤ 0.015
Zero point: -25 ... 85°C	≤ 0.02	≤ 0.02
Span: 0 ... 70°C	≤ 0.015	≤ 0.015
Span: -25 ... 85°C	≤ 0.02	≤ 0.02
Response time, (typ.)	< 0.1 ms / 10...90 % FS	< 0.1 ms / 10...90 % FS
Long term stability (typ./max. per year)	< 0.1% FS / < 0.2% FS	< 0.1% FS / < 0.2% FS

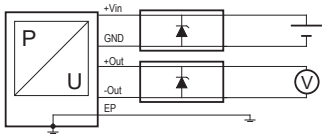
(1) Zero based accuracy according to EN-61298, incl. hysteresis and repeatability at ambient temperature

(2) Overpressure (proof) and burst pressure 1500 bar (stainless steel) optional

TEMPERATURE RANGE

Operating temperature	-25 ... 85°C
Process temperature	-25 ... 150°C
Storage temperature	-25 ... 85°C

ELECTRICAL SPECIFICATIONS

Output signal	Typically between 10 mV FS and 100 mV FS at 10 V DC supply. Depending on the pressure range and accuracy requirement. The possible output signal can be specified on request.
Circuit diagram	
Input impedance	> 10 kOhm
Bridge resistance, (typ.)	3.3 kOhm
Power supply (typ./max.)	10 / 15 V DC

CERTIFICATES / APPROVALS

Certificates, (1)			
ATEX, (2)	SEV 04 ATEX 0149 X		
Gas	Zone 0	II 1G Ex ia IIC T3 ... T6 Ga	
Gas	Zone 1+2	II 2G Ex ia IIB T3 ... T6 Gb	
Dust		II 1D Ex ia IIIC T_{200} 110°C Da	
Maximum values of the intrinsically safe circuit	20 V / 300 mA / 1.2 W		
Temperature class, (3)	T6	T4	T3
Ambient temperature (Ta)	-25 ... 55 °C	-25 ... 85 °C	-25 ... 85 °C
Process temperature	-25 ... 55 °C	-25 ... 110 °C	-25 ... 150 °C

(1) For detailed Ex specifications see certificate and operating and safety instructions
(2) Max. permitted cable length: ≤ 300 m
(3) Without any information about temperature class the transmitter will be delivered for T4

QUALIFICATIONS

	Description	**Level**
EN 60068-2-6	Vibration	4G (4 ... 100 Hz)
EN 60068-2-27	Shock	100 G (impulse duration 6 ms)
EN 61326-2-3	EMC	
EN 61000-6-2	EMC	
EN 61000-6-3	EMC	

PHYSICAL SPECIFICATIONS

Oil filling	Standard: Silicone Oil Optional: AS100 / Anderol Food / PAO 4
Transducer	Standard: Stainless steel (316L / 1.4435) Optional: Titanium (Gr. 2) or Hastelloy C-276
Housing	Standard: Stainless steel (316L / 1.4435) Optional: Titanium (Gr. 2) or Hastelloy C-276
Weight	typ. 120 gram, depending on the configuration

Accessories

CABLE SOCKET CONNECTOR

Article number	**Description**
HART002	Cable socket connector Binder 723, 5 pins
HART012	Cable socket connector MIL C26482, 10-6
HART018	Cable socket connector M12x1, 5 pins

MANUALS

Article number	**Description**	
DMM043	Operating and safety instructions	10.88.0438

Ordering information

Type		x	xxxx	xxxx	xx	xxx
TM/Ex	20					
Pressure type						
Gauge		1				
Absolute		2				
Sealed gauge		3				
Pressure measuring range						
Any measuring ranges between 0 … 50 mbar and 0 … 1000 bar available			xx			
Barometric pressure ranges available			xx			
Negative pressure ranges available			xx			
Process connection						
G 1/2 M, bore 14 mm (Fig. 1)			17			
G 1/4 F (Fig. 2)			00			
G 1/4 M (Fig. 3)			11			
G 1/4 M, manometer EN 837 (Fig. 4)			12			
G 1/2 M (Fig. 5)			13			
G 1/2 M, manometer EN 837 (Fig. 6)			16			
1/4 NPT M (Fig. 7)			10			
1/2 NPT M (Fig. 8)			19			
G 1/2 M, frontal diaphragm (Fig. 9), (1)			14			
G 1/2 M, frontal diaphragm Hastelloy C-276 (Fig. 9), (1)			37			
G 1/2 M, with flush diaphragm membrane (Fig. 10), (1)			15			
G 1/4, with flush diaphragm (Fig. 11), (1)			21			
Other pressure connections on request			99			
Electrical connection						
Binder 723, 5 pins, IP 67 (Fig. 13), (2)				03		
MIL C26482, 10-6, 316L, IP 67 (Fig. 14), (2)				80		
M12x1, 5 pins, (Fig. 15), (2)				08		
PUR cable, blue, IP 67, (Fig. 16), (4), (6)				17		
FEP cable, blue, IP 67, (Fig. 16), (4)				22		
PUR cable, blue, IP 68, (Fig. 17), (4), (6)				36		
Other electrical connections on request				99		
Output signal						
0 ... xxx mV				xx		
Accuracy						
≤ ± 0.5 % FS (50 mbar … 600 bar)					0	
≤ ± 0.25 % FS (100 mbar … 600 bar)					1	
≤ ± 0.1 % FS (> 500 mbar … 600 bar)					2	
≤ ± 1 % FS (> 600 bar)					5	

Temperature range						
	T6 (Ta: -25 ... 55 °C) 0 ... 70 °C compensated				0	
	T4 (Ta: -25 ... 85 °C) -25 ... 85 °C compensated				1	
	T3 (Ta: -25 ... 85 °C) -25 ... 85 °C compensated				2	
Options						
	Throttle, (7)					A
	Special oil filling: Anderol Food (for food applications)					G
	Special oil filling: PAO4 (silicone free)					Q
	Pressure connection elastomerfree					N
	Pressure connection welded					V
	Titanium, (9)					K
	Seals: FKM (standard)					U
	Seals: EPDM					S
	Seals: Kalrez, (5)					T
	Seals: NBR, (8)					H

(1) Process connection available ≤ 600 bar

(2) Cable socket connector not included

(4) Please specify the required cable length and medium

(5) Profile seal not included

(6) For operating temperature > 50°C, FEP cable must be used

(7) Only with pressure connection Fig. 3, Fig. 5, Fig. 6, Fig. 7 and Fig. 8

(8) Suitable for drinking water

(9) Titanium available for Pn ≤ 400 bar (burst pressure max. 550 bar), not all versions are available in titanium

Process connections

P_N ≥ 50 mbar ... 25 bar (1)

Fig. 1 - G 1/2 M, bore 14 mm

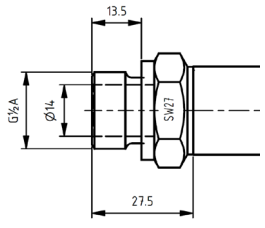


Fig. 2 - G 1/4 F

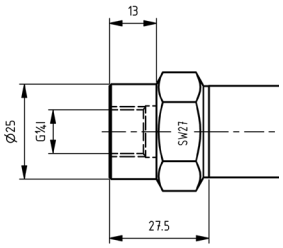


Fig. 3 - G 1/4 M

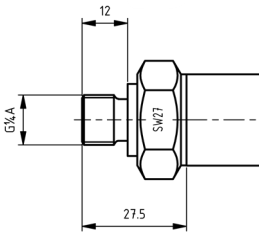


Fig. 4 - G 1/4 M, Manometer EN837

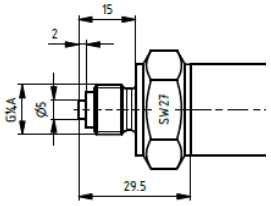


Fig. 5 - G 1/2 M

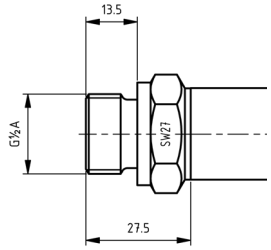


Fig. 6 - G 1/2 M, Manometer EN837

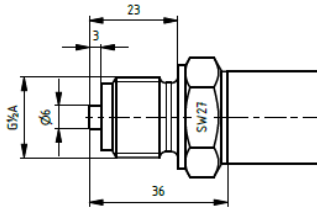


Fig. 7 - 1/4 NPT M

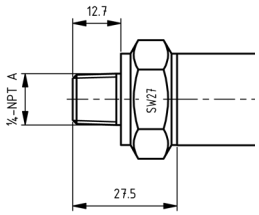
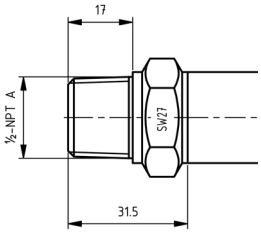


Fig. 8 - 1/2 NPT M



P_N > 25 bar ... 1000 bar (1) (2)

Fig. 2 - G 1/4 F

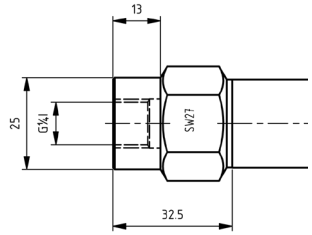


Fig. 3 - G 1/4 M

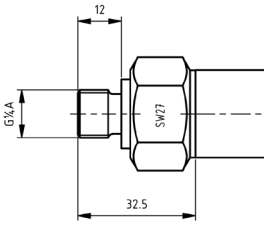


Fig. 4 - G 1/4 M, Manometer EN837

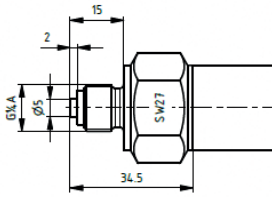


Fig. 5 - G 1/2 M

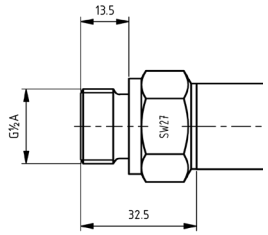


Fig. 6 - G 1/2 M, Manometer EN837

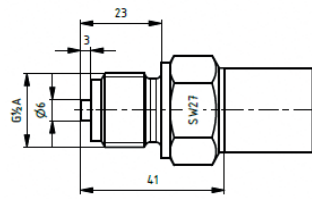


Fig. 7 - 1/4 NPT M

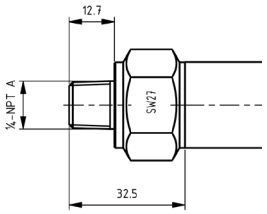
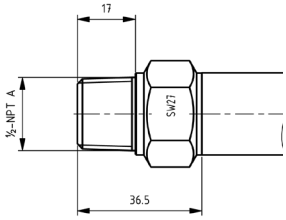
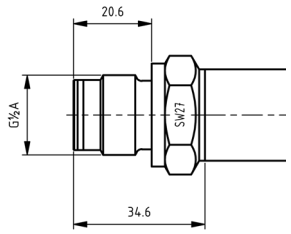


Fig. 8 - 1/2 NPT M



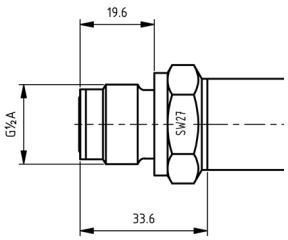
P_N ≥ 50 mbar ... 600 bar

Fig. 9 - G 1/2 M, frontal diaphragm



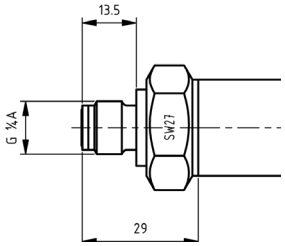
P_N ≥ 100 mbar ... 1000 bar (3)

Fig. 10 - G 1/2 M, flush diaphragm



P_N ≥ 10 bar ... 600 bar

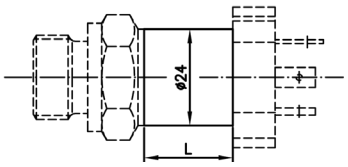
Fig. 11 - G 1/4 M, flush diaphragm



(1) Dimensions for welded or elastomerfree versions may be different
(2) Not all process connections available for pressure ranges > 600 bar
(3) Dimensions for pressure ranges > 600 bar differ

Dimensions

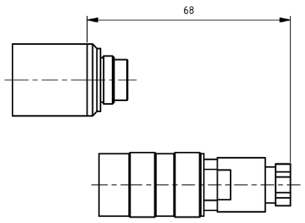
Version for medium temperature up to 150°C



L = 22 mm

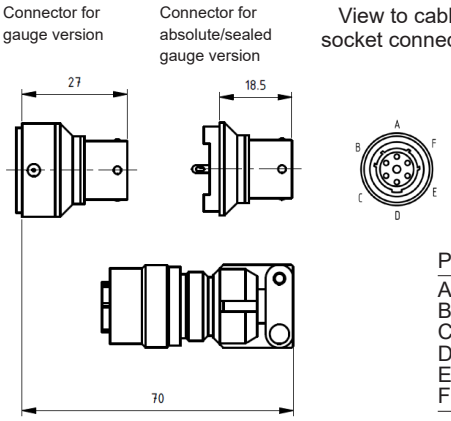
Electrical connections

Fig. 13 - Binder 723, 5 pins



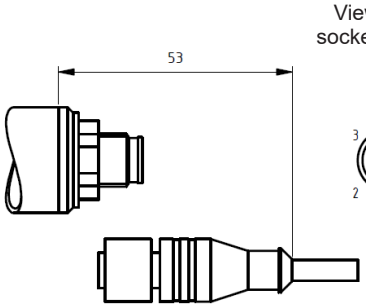
Pin	5 wire
1	+Out
2	-Out
3	+Vin
4	GND
5	EP

Fig. 14 - MIL C26482, 10-6, 316L



Pin	5 wire
A	+Vin
B	GND
C	+Out
D	-Out
E	EP
F	

Fig. 15 - M12 x 1, 5 pins



Pin	5 wire
1	+Out
2	-Out
3	+Vin
4	GND
5	EP

Fig. 16 - Cable connection IP67

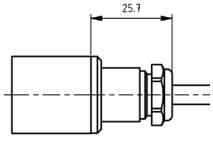
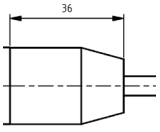


Fig. 17 - Cable connection IP68



Colour	5 wire
white	+Vin
brown	+Out
green	-Out
yellow	GND
grey	EP