

Pressure Transmitter

ATM.ECO - Analog Pressure Transmitter with Temperature Compensation



CUSTOMER BENEFITS

- Entry level series into precision pressure measurement
- High measurement accuracy is ensured by sophisticated digital temperature compensation algorithms
- Fast customization thanks to configurable product design

Technical Specifications

PRESSURE MEASURING RANGE (BAR)

	0.1 ... 0.5, (1)	> 0.5 ... 2	> 2 ... 100
Overpressure	3 bar	3 x FS (≥ 3 bar)	3 x FS
Burst pressure	> 200 bar	> 200 bar	> 850 bar
Accuracy, (4), ($\pm$ % FS)	≤ 0.25	≤ 0.25	≤ 0.25
Total Error, (5), ($\pm$ % FS)			
0 ... 70°C, (typ. / max.)	$\leq 1.0 / 1.5$	$\leq 0.7 / 1.0$	$\leq 0.7 / 1.0$
-25 ... 100°C, (typ. / max.)	$\leq 2.0 / 2.5$	$\leq 1.0 / 1.5$	$\leq 1.0 / 1.5$
-40...100°C, (typ. / max.)	$\leq 1.5 / 2.0$	$\leq 1.0 / 1.5$	$\leq 1.0 / 1.25$
Response time, (typ.)	< 1ms / 10 ... 90% FS	< 1ms / 10 ... 90% FS	< 1ms / 10 ... 90% FS
Long term stability, (6)	< 0.5% FS / < 4 mbar	< 0.2% FS / < 4 mbar	< 0.1% FS / < 0.2% FS

	> 100 ... 600, (3)	> 600 ... 1000, (2)
Overpressure	3 x FS ($\leq 850 / \leq 1500$ bar)	1500 bar
Burst pressure	> 850 / ≤ 1500 bar	> 1500 bar
Accuracy, (4), ($\pm$ % FS)	≤ 0.25	≤ 0.25
Total Error, (5), ($\pm$ % FS)		
0 ... 70°C, (typ. / max.)	$\leq 0.7 / 1.0$	$\leq 0.7 / 1.0$
-25 ... 100°C, (typ. / max.)	$\leq 1.0 / 1.5$	$\leq 1.0 / 1.5$
-40...100°C, (typ. / max.)	$\leq 1.0 / 1.25$	$\leq 1.0 / 1.25$
Response time, (typ.)	< 1ms / 10 ... 90% FS	< 1ms / 10 ... 90% FS
Long term stability, (6)	< 0.1% FS / < 0.2% FS	< 0.1% FS / < 0.2% FS

(1) 50 mbar on request

(2) Process connection frontal and flush diaphragm available ≤ 600 bar

(3) Overpressure and burst pressure 1500 bar (stainless steel) optional

(4) Zero based accuracy according to DIN-16086, incl. hysteresis and repeatability at ambient temperature

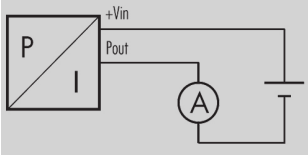
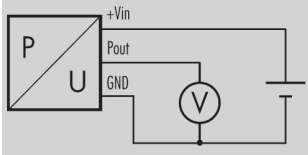
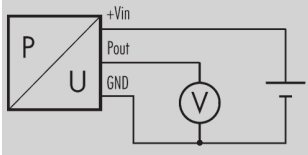
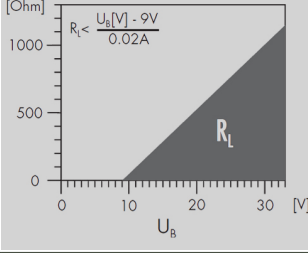
(5) Total error including accuracy and temperature influences at maximum signal span (16 mA / 10 V DC)

(6) 1 year (typ. / max.), the long term stability can be improved by aging (burn-in) the sensor

TEMPERATURE RANGE

Operating temperature	-40 ... 125°C
Process temperatur	-40 ... 150°C
Storage temperatur	-40 ... 125°C

ELECTRICAL SPECIFICATIONS

	4 ... 20 mA	0 ... 5 V	0 ... 10 V
Power supply	9 ... 33 VDC	10 ... 30 VDC	12 ... 30 VDC
Supply influence	< 0.05% FS	< 0.05% FS	< 0.05% FS
Current consumption		3 mA	3 mA
Circuit diagram			
Load resistance		$R_L > 10k\Omega$	$R_L > 10k\Omega$
Load influence	< 0.05% FS	< 0.05% FS	< 0.05% FS

QUALIFICATIONS

	Description	Level	Typical interferences
EN 60068-2-6	Vibration	10 G (4...2000 Hz / ± 10 mmpp)	
EN 60068-2-27	Shock	100 G (impulse duration 6 ms)	
EN 55022	Emission, class B	< 30 dB μ V/m (0.03 ... 1 GHz)	
EN 61000-4-2	Electrostatic discharge	8 kV contact / 15 kV air	
EN 61000-4-3	Irradiated RF	10V/m (0.08 ... 2.7 GHz, 3s)	Radio sets, wireless phones
EN 61000-4-4	Transients (burst)	4 kV	Motors, valves
EN 61000-4-5	Surge	Line-Line: 0.5 kV/42 Ω , Line-Earth: 1 kV/42 Ω	Overvoltage
EN 61000-4-6	Conducted RF	3 V (0.15...80 MHz, 3 s)	Frequency converters

PHYSICAL SPECIFICATIONS

Materials	
Transducer	Stainless steel (316L / 1.4435)
Housing	Stainless steel (316L / 1.4404)
Seals	Viton (Standard), EPDM, Kalrez, NBR
Cable	PUR, FEP, PE

Equipment

CABLE SOCKET CONNECTOR

HART001	Cable Socket Connector
HART002	Cable socket M16 (Binder 723), IP67, 5-pins

OVERVIEW

10.00.0091	Accessories overview

Additional documents

OPERATING AND SAFETY INSTRUCTIONS

	Article number
10.88.0092	DMM029

Ordering information

	X.	XXXX.	XXXX.	XX.	XXX
Type					
ATM.ECO					
Pressure type					
Gauge	1				
Absolute (vacuum)	2				
Sealed gauge	3				
Pressure measuring range					
100 mbar ... 600 bar	XX				
> 600 bar	XX				
Process connection					
G 1/4 F, (Fig. 1)	00				
1/4 NPT M, (Fig. 6)	10				
1/2 NPT M, (Fig. 7)	19				
G 1/4 M, (Fig. 2)	11				
G 1/4 M, manometer DIN-16288	12				
G 1/2 M, (Fig. 3)	13				
G 1/2 M, frontal diaphragm, (Fig. 4), (3)	14				
G 1/2 M, flush diaphragm, (Fig. 5), (3)	15				
G 1/2 M, manometer DIN-16288	16				
G 1/2 M, with bore Ø 14 mm	17				
Customized connection available	99				
Electrical connection					
DIN-43650, with metal threaded part, demountable, IP 65 (Fig. 8), (4)	01				
M16 (Binder 723), 5 pins, IP 67, (Fig. 9), (4)	03				
M16 (Binder 723), 5 pins, IP 67, demountable	43				
MIL C26482, 10-6, IP 40, (Fig. 11), (4)	06				
M12 (Lumberg RSF4, 5 pins (Fig. 15), (4)	07				
PE cable, black, IP 67 (Fig. 12), (5), (6)	13				
PUR cable, black, IP 67 (Fig. 12), (5), (7)	15				
FEP cable, black, IP 67 (Fig. 12), (5)	21				
Customized connection available	99				
Output signal					
4 ... 20 mA	05				
4 ... 20 mA surge protection	08				
0 ... 5 VDC	46				
0 ... 10 VDC	47				
Accuracy					
$\leq \pm 0.25 \% \text{ FS}$	1				
Temperature range					
0 ... 70°C compensated (allowed process temperature: -40 ... 125°C)	0				
-25 ... 100°C compensated (allowed process temperature: -40 ... 125°C)	1				
-25 ... 100°C compensated (allowed process temperature: -40 ... 150°C) with cooling fins	2				
-40 ... 100°C compensated (allowed process temperature: -40 ... 125°C)	3				

Option 1				
	Throttle, (8)			A
	Special oil filling: Anderol Food (for food applications)			G
	Special oil filling: AS100			J
	Special oil filling: PAO4 (silicone free)			Q
Option 2				
	Electronics packed in gel: Gauge pressure			C
	Electronics packed in gel: Absolute pressure			D
Option 3				
	Seals: Viton (standard)			U
	Seals: EPDM			S
	Seals: Kalrez			T
	Seals: NBR (ACS) (9)			H

(3) Process connection available ≤ 600 bar

(4) Cable socket connector not included

(5) Please specify the required cable length and medium

(6) Suitable for drinking water (food approved)

(7) For operating temperature $> 50^{\circ}\text{C}$, PE or FEP cable must be used

(8) Only with pressure connection Fig. 2, Fig. 3, Fig. 6 and Fig. 7

(9) ACS Certification

Technical drawings

Pressure connections

Fig. 1

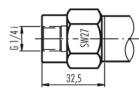


Fig. 2

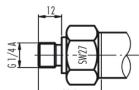


Fig. 3

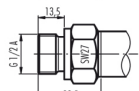


Fig. 4

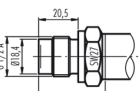


Fig. 5

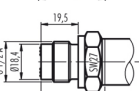


Fig. 6

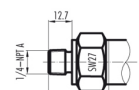
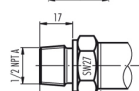
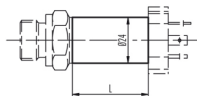


Fig. 7



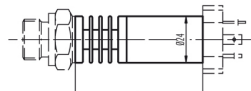
Dimensions

Version for medium temperature up to 125°C



L = 25 mm for connector DIN 43650

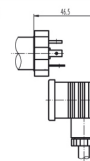
Version for medium temperature >125°C up to 150°C



L = 52 mm for connector DIN 43650

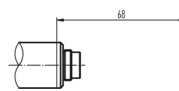
Electrical Connections

Fig. 8



Pin	2-wire	3-wire
1	+Vin	+Vin
2	Pout	Pout
3		GND
E		
E	EP (only Ex)	

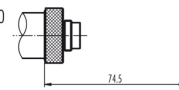
Fig. 9



Cable socket connector

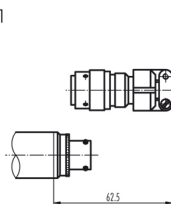


Fig. 10



Pin	2-wire	3-wire
1	Pout	Pout
2		
3	+Vin	+Vin
4		GND
5	EP (only Ex)	

Fig. 11

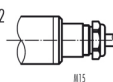


Cable socket connector



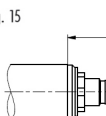
Pin	2-wire	3-wire
A	+Vin	+Vin
B		GND
C	Pout	Pout
D		
E	EP (only Ex)	

Fig. 12

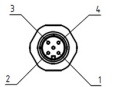


Colour	2-wire	3-wire
white	+Vin	+Vin
yellow	Pout	Pout
brown		GND
grey	EP (only Ex)	

Fig. 15



Cable socket connector



Pin	2-Wire	3-Wire
1		GND
3	Pout	Pout
4	+Vin	+Vin



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