

Intrinsically safe pressure transmitters

**ATM.ECO/Ex**

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Version: 28.03.2012

# Technical Specifications

## Pressure measuring range (bar)

	0.1 ... 0.5, (1)	> 0.5 ... 2	> 2 ... 100
<b>Overpressure</b>	3 bar	3 x FS ( $\geq 3$ bar)	3 x FS
<b>Burst pressure</b>	> 200 bar	> 200 bar	> 850 bar
<b>Accuracy, (4), (<math>\pm</math> % FS)</b>	$\leq 0.25$	$\leq 0.25$	$\leq 0.25$
<b>Total Error, (5), (<math>\pm</math> % FS)</b>			
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.)	$\leq 2.0 / 2.5$	$\leq 1.0 / 1.5$	$\leq 1.0 / 1.5$
<b>Response time, (typ.)</b>	< 1ms / 10...90% FS	< 1ms / 10...90% FS	< 1ms / 10...90% FS
<b>Long term stability, (6)</b>	< 0.5% FS / < 4 mbar	< 0.2% FS / < 4 mbar	< 0.1% FS / < 0.2% FS

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

(1) 50 mbar on request

(2) Titanium available  $\leq 400$  bar (burst pressure > 550 bar)

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

(4) Zero based accuracy according to DIN16086, incl. hysteresis and repeatability at ambient temperature

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

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

## Temperature range

<b>Operating temperature</b>	-40...125 °C
<b>Process temperatur</b>	-40...150 °C
<b>Storage temperatur</b>	-40...125 °C

## Electrical specifications

	4 ... 20 mA
<b>Power supply</b>	9...28 V DC
Supply influence	< 0.05% FS
<b>Circuit diagram</b>	
<b>Load resistance</b>	
Load influence	< 0.05% FS

## ATEX Approval

<b>Certificate, (1)</b>	SEV 09 ATEX 0108		
<b>Gas</b>	II 1G Ex ia IIC T3 / T4 / T6	EN 60079-0 / -11 / -26	
<b>Dust</b>	II 1D Ex iaD 20 IP6x Tx°C	EN 61241-0 / -11	
<b>Mining</b>	I M1 Ex ia I	EN 50303	
<b>Temperature class, (2)</b>	T6	T4	T3
Ambient temperature	-40...50 °C	-40...85 °C	-40...125 °C
Process temperature	-40...50 °C	-40...110 °C	-40...150 °C
<b>Maximum values of the intrinsically safe circuit</b>	28V / 93 mA / 0.65W		

(1) For detailed Ex specifications see certificate and operating and safety instructions

(2) Without any information about temperature class the transmitter will be delivered for T4

## GL Approval

<b>Certificate</b>	75877-09 HH
<b>Field of application</b>	C, F, EMC1

## Additional approvals

<b>IEC Ex</b>	IEC Ex SEV 10.0003
<b>FM</b>	3027351
<b>FM C*</b>	3038239

## Qualifications

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

## Physical specifications

<b>Materials</b>	
Transducer	Stainless steel (316L / 1.4435), titanium (Gr. 2), (1)
Housing	Stainless steel (316L / 1.4404), titanium (Gr. 2)
Seals	Viton (Standard), EPDM, Kalrez
Cable	PUR, PTFE

(1) Hastelloy (C-276) on request

# Equipment

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## Overview

10.00.0091	Accessories overview

# Additional documents

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## Operating and safety instructions

	Article number
10.88.0092	DMM029

## Ordering information

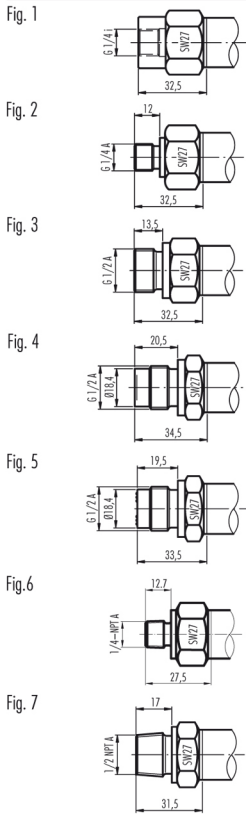
		X. XXXX.	XXXX.	XX.	XXX
<b>Type</b>	ATM.ECO/Ex				
<b>Pressure type</b>	Gauge	1			
	Absolute (vacuum)	2			
	Sealed gauge	3			
<b>Pressure measuring range</b>	Any pressure measuring ranges between 0...100 mbar and 0...1000 bar available, (1), (2), (3)	XX			
<b>Process connection</b>	G 1/4 F, (Fig. 1)	00			
	G 1/4 M, (Fig. 2)	11			
	G 1/2 M, (Fig. 3)	13			
	G 1/2 M, frontal diaphragm, (Fig. 4)	14			
	G 1/2 M, flush diaphragm, (Fig. 5)	15			
	1/4 NPT M, (Fig. 6)	10			
	1/2 NPT M, (Fig. 7)	19			
	Customized connection available	XX			
<b>Electrical connection</b>	DIN 43650, demountable, IP 65, (Fig. 8), (4)		01		
	Binder 723, 5-pin, IP 67, (Fig. 9), (4)		03		
	Binder 723, 5-pin, demountable, IP 67, (Fig. 10), (4)		43		
	MIL C26482, 10-6, IP 40, (Fig. 11), (4)		06		
	PUR cable, blue, IP 67, (Fig. 12), (5), (6)		17		
	PTFE cable, blue, IP 67, (Fig. 12), (5)		22		
	Customized connection available		XX		
<b>Output signal</b>	4...20 mA		05		
<b>Accuracy</b>	$\leq \pm 0.25\%$ FS			1	
<b>Temperature range</b>	T6 (Ta: -40...50 °C) 0...70 °C compensated (allowed process temperature: -40...50°C)			0	
	T4 (Ta: -40...85 °C) -25...100 °C compensated (allowed process temperature: -40...110°C)			1	
	T3 (Ta: -40...125 °C) -40...125 °C compensated (allowed process temperature: -40...125°C)			2	
<b>Option 1</b>	Throttle, (7)				A
	Special oil filling: ASEOL Food (for food applications)				G
	Special oil filling: Halocarbon (for oxygen applications), (8), (9)				H
<b>Option 2</b>					
<b>Option 3</b>	Version titanium				K
	Seals: Viton (standard)				U
	Seals: EPDM				S
	Seals: Kalrez				T
	Aging				Z

(1) 50 mbar on request

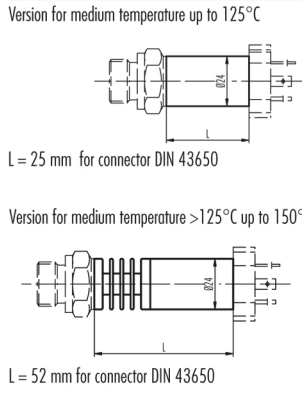
- (2) Titanium available  $\leq 400$  bar (burst pressure  $> 550$  bar)
- (3) mbar, PSI, kPa etc. available
- (4) Cable socket connector not included
- (5) Please specify the required cable length and medium
- (6) For operating temperature  $> 50^{\circ}\text{C}$ , PTFE cable must be used
- (7) Only with pressure connection Fig. 2, Fig. 3, Fig. 6 and Fig. 7
- (8) Maximum pressure measuring range  $\leq 270$  bar (burst pressure  $> 400$  bar)
- (9) min. Medium temperature  $-25^{\circ}\text{C}$

# Technical drawings

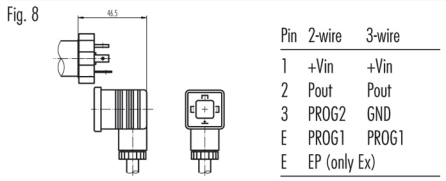
## Pressure connections



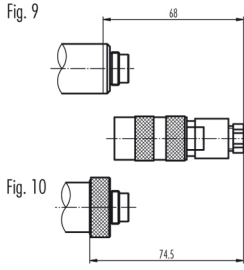
## Dimensions



## Electrical Connections

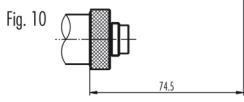


Pin	2-wire	3-wire
1	+Vin	+Vin
2	Pout	Pout
3	PROG2	GND
E	PROG1	PROG1
E	EP (only Ex)	

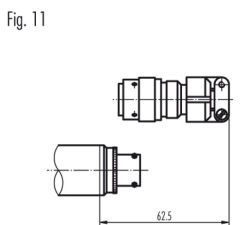


Cable socket connector

Pin	2-wire	3-wire
1	Pout	Pout
2	PROG1	PROG1
3	+Vin	+Vin
4	PROG2	GND
5	EP (only Ex)	

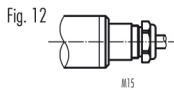


Pin	2-wire	3-wire
1	Pout	Pout
2	PROG1	PROG1
3	+Vin	+Vin
4	PROG2	GND
5	EP (only Ex)	



Cable socket connector

Pin	2-wire	3-wire
A	+Vin	+Vin
B	PROG2	GND
C	Pout	Pout
D	PROG1	PROG1
E	EP (only Ex)	



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

Specifications may change without notice.

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