

## Passive pressure transmitters

# TM

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Version: 07.01.2016

# Technical Specifications

## Pressure measuring range (bar)

	0.1 ... 0.5, (1)	> 0.5 ... 2	> 2 ... 25
<b>Overpressure</b>	3 bar	3 x FS (≥ 3 bar)	3 x FS
<b>Burst pressure</b>	> 200 bar	> 200 bar	> 200 bar
<b>Accuracy, (4), (± % FS)</b>	≤ 0.5	≤ 0.5 / ≤ 0.25	≤ 0.5 / ≤ 0.25
<b>Thermal shift, (± % FS/°C)</b>			
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
<b>Response time, (typ.)</b>	< 0.1ms / 10 ... 90% FS	< 0.1ms / 10 ... 90% FS	< 0.1ms / 10 ... 90% FS
<b>Long term stability, (5)</b>	< 0.5% FS/< 4 mbar	< 0.2% FS/< 4 mbar	< 0.1% FS/< 0.2% FS

	> 25 ... 600, (2), (3), (4)	> 600 ... 1000, (2)
<b>Overpressure</b>	3 x FS (≤ 850 / ≤ 1500 bar)	1500 bar
<b>Burst pressure</b>	> 850 / ≤ 1500 bar	> 1500 bar
<b>Accuracy, (4), (± % FS)</b>	≤ 0.5 / ≤ 0.25	≤ 1 / ≤ 0.5
<b>Thermal shift, (± % FS/°C)</b>		
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
<b>Response time, (typ.)</b>	< 0.1ms / 10 ... 90% FS	< 0.1ms / 10 ... 90% FS
<b>Long term stability, (5)</b>	< 0.1% FS/< 0.2% FS	< 0.1% FS/< 0.2% FS

(1) 50 mbar on request

(2) Titanium available ≤ 400 bar (burst pressure > 550 bar)

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

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

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

(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

## Typical output signal (bar)

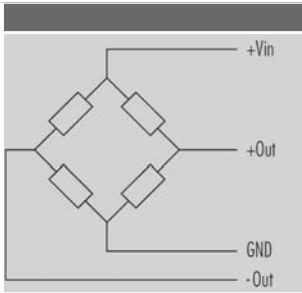
	≤ 0.25	> 0.25 ... 0.6	> 0.6 ... 1
<b>Output signal, (1), (mV)</b>	15	25	35

	> 1 ... 2.5	> 2.5
<b>Output signal, (1), (mV)</b>	50	100

(1) At nominal pressure, 10 V DC

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## Electrical specifications

<b>Circuit diagram</b>	
<b>Input impedance</b>	> 10 kOhm
<b>Bridge resistance, (typ.)</b>	3 kOhm
<b>Supply voltage, (typ. / max.)</b>	10 / 15 V DC

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## 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, FEP, PE

(1) Hastelloy (C-276) on request

## Accessories

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### Cable socket connector

<b>HART001</b>	Cable Socket Connector
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### Overview

<b>10.00.0091</b>	Accessories overview
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## Additional documents

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### Operating and safety instructions

	Article number
<b>10.88.0369</b>	DMM030

## Ordering information

		X. XXXX.	XXXX.	XX.	XXX
<b>Type</b>					
	TM	21			
<b>Pressure type</b>					
	Gauge	1			
	Absolute (vacuum)	2			
	Sealed gauge	3			
<b>Pressure measuring range</b>					
	50 mbar ... <100 mbar	XX			
	100 mbar ... 600 bar	XX			
	> 600 bar	XX			
	Negative ranges, offset, special adjustment	99			
<b>Process connection</b>					
	G 1/4 F, (Fig. 1)	00			
	1/4 NPT M, (Fig. 9)	10			
	1/2 NPT M, (Fig. 8)	19			
	G 1/4 M, (Fig. 2)	11			
	G 1/4 flush diaphragm, (4)	21			
	G 1/4 M, manometer DIN 16288, (Fig. 3)	12			
	G 1/2 M, (Fig. 4)	13			
	G 1/2 M Hastelloy C276, (3)	41			
	G 1/2 M, frontal diaphragm, (Fig. 5), (4)	14			
	G 1/2 M, frontal diaphragm in Hastelloy C276, (3)	37			
	G 1/2 M, flush diaphragm, (Fig. 6), (4)	15			
	G 1/2 M, manometer DIN 16288, (Fig. 7)	16			
	G 1/2 with bore Ø 14mm	17			
	Customized	99			
<b>Electrical connection</b>					
	DIN-43650 with metal threaded part, demountable, IP 65 (Fig. 10) (1)		01		
	Binder 723, 5-pin, IP 67, (Fig. 11), (1)		03		
	Binder 723, 5-pin, demountable, IP 67, (Fig. 12), (1)		43		
	MIL C26482, 10-6, IP 40, (Fig. 13), (1)		06		
	PE cable, black, IP 67, (Fig. 14)		13		
	PUR cable, black, IP 67(Fig. 14)		15		
	FEP cable, black, IP 67		21		
	FEP cable, (high temperature), black, IP 67		11		
	Customized connection available		99		
<b>Output signal</b>					
	0 ... 10 mV (11)		10		
	0 ... 25 mV (11)		11		
	0 ... 35 mV (11)		12		
	0 ... 50 mV (11)		13		
	0 ... 100 mV (11)		14		
	0 ... XXX mV (customized)		99		
<b>Accuracy</b>					
	≤ 600 bar ≤ ± 0.5 % FS			0	
	≤ 600 bar ≤ ± 0.25 % FS (on request)			1	
	> 600bar ≤ ± 1 % FS			5	
	> 600bar ≤ ± 0.5 % FS			0	
<b>Temperature range</b>					
	0 ... 70°C compensated (allowed process temperature: -40 ... 150°C)			0	

-25 ... 100°C compensated (allowed process temperature: -40 ... 150°C)				7	
-25 ... 85°C compensated (allowed process temperature: -40 ... 150°C)				5	
Customized				9	
<b>Option 1</b>					
Throttle					A
Special oil filling: Anderol Food (for food applications)					G
Special oil filling: AS100 (suitable for media temp. -55 ... 150°C)					J
Special oil filling: PAO4 (sans silicone)					Q
Pressure connection elastomerfree					N
Pressure connection welded					V
<b>Option 2</b>					
Electronics packed in gel: Gauge pressure					C
Electronics packed in gel: Absolute pressure					D
<b>Option 3</b>					
Version titanium					K
Seals: Viton (standard)					U
Seals: EPDM					S
Seals: Kalrez					T

(1) Cable socket connector not included

(3) Nur mediumberührende Teile

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

(3) mbar, PSI, kPa etc. disponible

# Technical drawings

## Pressure Connections

Fig. 1

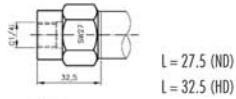


Fig. 2

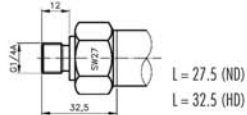


Fig. 3

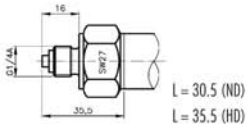


Fig. 4

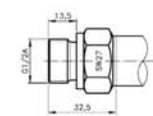


Fig. 5

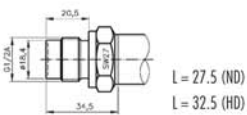


Fig. 6

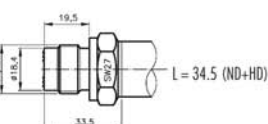


Fig. 7

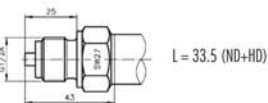


Fig. 8

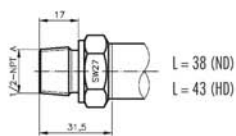
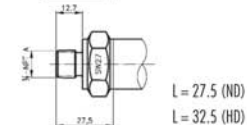


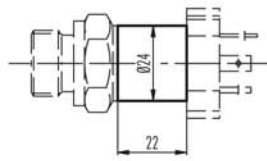
Fig. 9



L = 31.5 (ND)  
L = 36.5 (HD)

## Dimensions

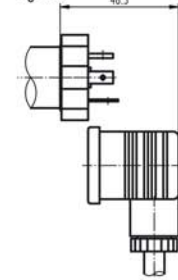
Version for media temperature up to 150°C



ND = low pressure ≤ 30 bar  
HD = high pressure > 30 bar

## Electrical Connections

Fig. 10



Pin	TM
1	+Vin
2	+Out
3	GND
Earth	-Out

Fig. 11

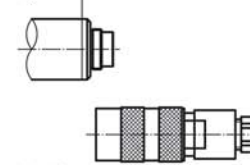
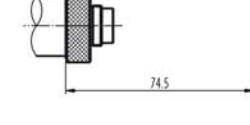
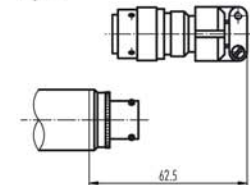


Fig. 12



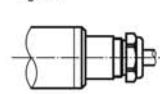
Pin	TM	TM/Ex
1	+Out	+Out
2	-Out	-Out
3	+Vin	+Vin
4	GND	GND
5		EP

Fig. 13



Pin	TM	TM/Ex
A	+Vin	+Vin
B	GND	GND
C	+Out	+Out
D	-Out	-Out
E		EP

Fig. 14



Colour	TM	TM/Ex
white	+Vin	+Vin
yellow	GND	GND
brown	+Out	+Out
green	-Out	-Out
gray		EP

Specifications may change without notice.

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