

## PROGRAMMABLE PRESSURE TRANSMITTER PTM (RS485)

**43****CE**

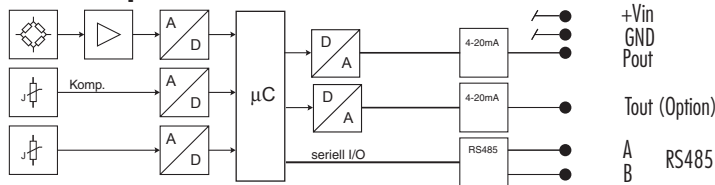
### Features

- Piezoresistive measuring element
- Adjustable 1:4 of the nominal range within -5% to +105% FS
- All pressure ranges between 0...50 mbar and 0...1000 bar available
- Pressure units adjustable
- Recalibration function for zero and span
- Adjustable time delay
- Reverse polarity- and short circuit-protected
- Interface RS485 (MODBUS)  
Output: pressure and temperature
- Active compensated (option)  
(Digital temperature compensated)

### Typical applications

- Mechanical and system engineering
- Process & Control engineering
- Food & Beverage technology
- Mobile hydraulics
- Testing, measuring and control technology

## Technical specification



Pressure ranges	[bar]	0.05 ... 0.5	> 0.5 ... 2	> 2 ... 25	> 25 ... 600	> 600 ... 1000
<b>Overload</b>		3 bar	3 x FS (but minimum 3 bar)	3 x FS	3 x FS (maximum 850 bar, optionally up to 1500 bar)	1500 bar
<b>Burst pressure</b>		≥ 200 bar	≥ 200 bar	≥ 200 bar	≥ 850 bar (optionally up to 1500 bar)	≥ 1500 bar
<b>Temperature error</b>	[± % FS/°C]					
Zero	0...70°C	0.06 <sup>2)</sup>	0.03	0.015	0.015	0.015
	-25...85°C	0.08 <sup>3)</sup>	0.04	0.02	0.02	0.02
Span	0...70°C	0.015	0.015	0.015	0.015	0.015
	-25...85°C	0.02	0.02	0.02	0.02	0.02
Actively compensated (NP+SP) (typ./max.)	-10...50°C	0.01/0.015	0.01/0.015	0.01/0.015	0.01/0.015	0.01/0.015
	-25...85°C	0.015/0.02	0.015/0.02	0.015/0.02	0.015/0.02	0.015/0.02
<b>Characteristic <sup>1)</sup> curve deviation</b>		≤ ± 0.25% FS	≤ ± 0.1% FS, ≥ 500 mbar	≤ ± 0.1% FS, Actively compensated (option)		

### Electrical specifications

<b>Supply voltage</b>	Range: Supply-voltage influence:	9...30 V DC < 0.1% FS
<b>Outputs</b>	Standard: Active compensated: Resolution: Output at 4 mA: Output at 20 mA: Span: Adjustable time delay: Temperature output (accuracy):	RS485 (pressure) and 4...20mA (pressure) RS485 (pressure and temperature) and 4...20mA (pressure and temperature) ≤ ± 0.025% (analogue output), ± 0.01% (digital output) adjustable from -5% FS...105% FS adjustable from -5% FS...105% FS adjustable from 25% FS...110% FS, min. 50 mbar 100 ms, 1 s, 10 s (standard = approx. 30 ms) ± 1°C
<b>Permissible load resistance Load-resistance influence</b>		$R_L = U_b [V] / 0.02A$ , 1 kOhm max. < 0.1% FS
<b>Protocol</b>		MODBUS (RTU, 9600 bauds)
<b>Programming interface</b>		VART199, including PC program (VART244)

### Materials

<b>Pressure connection, diaphragm, housing</b> Stainless steel <b>Seals</b> (standard)	1.4435 (316L), other materials (e.g. titanium) on request Viton (for other materials, see ordering information)
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## Electromagnetic compatibility

Standard	Level	Typical interference	
<b>Emissions:</b>			
EN 61000-6-3 EN 55022	Generic emission standard Emission, class B		
<b>Immunity:</b>			
EN 61000-6-2	Generic immunity standard		
EN 61000-4-2	Electrostatic discharge	4 kV contact, 8 kV air	
EN 61000-4-3	Radiated electromagnetic field	10V/m, 80-1000 MHz, 80% AM 1kHz	Radio sets, wireless phones
EN 61000-4-3	Radiated electromagnetic field (GSM)	10V/m, 950 MHz, 200 Hz on/off	Digital portable phone
EN 61000-4-4	Fast transients (burst)	2 kV	Motors, valves
EN 61000-4-6	Line-conducted electromagnetic interference	10 V, 0.15-80 MHz, 80% AM 1 kHz	Radio sets, wireless phones
EN 61000-4-5	Surge	10 kA (8/20 µs) <sup>4)</sup>	Lightning

<sup>1)</sup> Characteristic curve deviation as per DIN 16086 start-point setting, including hysteresis and repeatability

<sup>2)</sup> 50 – 99 mbar: ≤ 0.12

<sup>3)</sup> 50 – 99 mbar: ≤ 0.16

<sup>4)</sup> Only variants with optional overvoltage protection (lightning protection)

<sup>5)</sup> Please order separately

## Ordering information

		43	X	XXXX	XXXX	XX	XXX
<b>Type</b>	PTM	43					
<b>Pressure type</b>	Relative pressure	1					
	Absolute pressure (vacuum)	2					
	Overpressure	3					
<b>Pressure range</b>	0...100 mbar			00			
	0...160 mbar			01			
	0...250 mbar			02			
	0...400 mbar			03			
	0...600 mbar			04			
	0...1.0 bar			05			
	0...1.6 bar			06			
	0...2.5 bar			07			
	0...4.0 bar			08			
	0...6.0 bar			09			
	0...10 bar			10			
	0...16 bar			11			
	0...25 bar			12			
	0...40 bar		3	13			
	0...60 bar		3	14			
	0...100 bar		3	15			
	0...160 bar		3	16			
	0...250 bar		3	17			
	0...400 bar		3	18			
	0...600 bar		3	19			
0...1000 bar		3	20				
Special calibration			99				
<b>Pressure connection</b>	G 1/4" female (Fig. 1)			00			
	G 1/4" male (Fig. 2)			11			
	G 1/4" male DIN 16288 manometer (Fig. 3)			12			
	G 1/2" male (Fig. 4)			13			
	G 1/2" male, frontal diaphragm (Fig. 5)			14			
	G 1/2" male, flush diaphragm (Fig. 6)			15			
	G 1/2" male DIN 16288 manometer (Fig. 7)			16			
	1/4" NPT male			10			
	1/2" NPT male (Fig. 8)			19			
	Customized pressure connection			99			
<b>Electrical connection</b>	Connector binder 723, 7-pin <sup>2)</sup> (Fig. 10) IP 67				04		
	Connector MIL C26482, (10-6) <sup>2)</sup> (Fig. 11) IP 40				06		
	PE cable <sup>3) 4)</sup> (Fig. 12) IP 67				13		
	PUR cable <sup>3)</sup> (Fig. 12) IP 67				15		
	Teflon cable <sup>3)</sup> (Fig. 12) IP 67				21		
Customized connection				99			
<b>Output signal</b>	RS485 and 4...20mA (pressure)					62	
	RS485 and 4...20mA (pressure) with overvoltage protection					64	
	RS485 and 4...20mA (pressure and temp.) <sup>5)</sup>					65	
	RS485 and 4...20mA (pressure and temp.) with overvoltage protection <sup>5)</sup>					66	
<b>Deviation in characteristics</b>	≤ ± 0.25% FS						1
	≤ ± 0.1% FS						2
<b>Temperature range</b>	0...70°C compensated (permitted medium temp. 0...80°C)						0
	-25...85°C compensated (permitted medium temp. -25...100°C)						1
	Customized temperature range						9
<b>Options</b>	Throttle <sup>1)</sup>						A
	Moulded electronics: Relative-pressure sensors						C
	Absolute-pressure and overpressure sensors						D
	Special oil filling (transmission fluid) in TD: ASEOL Food						G
	Halocarbon						H
	Seals: Viton (standard)						U
	EPDM						S
	Kalrez						T
	Temperature calibration active						E
Special options on request						Z	

<sup>1)</sup> Only possible with pressure connections fig. 2, fig. 4 or fig. 7

<sup>2)</sup> Cable socket connector not supplied

<sup>3)</sup> Please state desired cable length when ordering

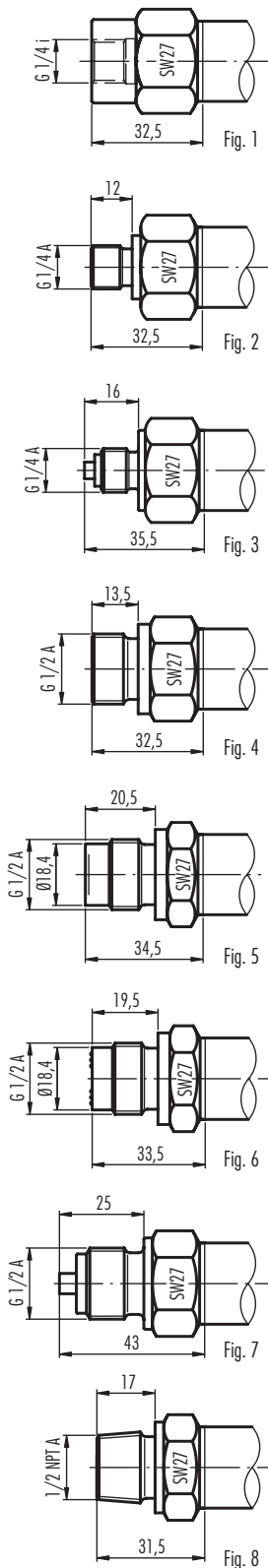
<sup>4)</sup> Food-safe

<sup>5)</sup> Only available with option E (active temperature compensation)

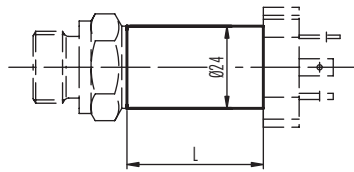
**Pressure connections**

**Dimensions**

**Electrical connections**

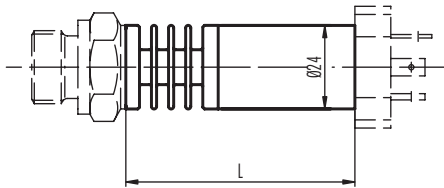


Variant for medium temperature of up to 100°C



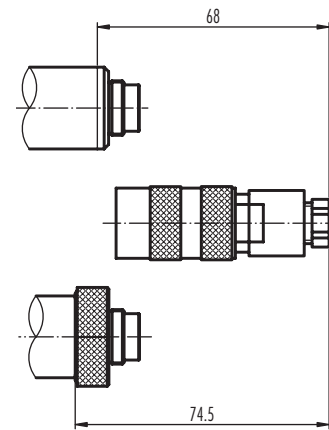
L = 94 mm, with lightning protection = 195 mm

Variant for medium temperature >100°C up to a max. 150°C



L = 121 mm, with lightning protection = 222 mm

Fig. 10



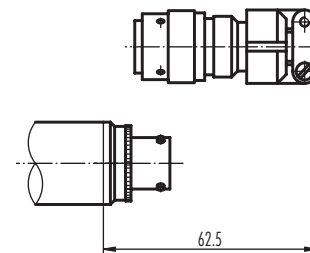
Top view of cable-socket connector



Pin RS485

- 1 Pout
- 2 Tout
- 3 +Vin
- 4 GND
- 5
- 6 A
- 7 B

Fig. 11



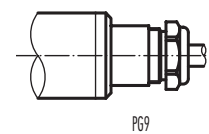
Top view of cable-socket connector



Pin RS485

- A +Vin
- B GND
- C Pout
- D Tout
- E A
- F B

Fig. 12



Colour RS485

- white +Vin
- yellow GND
- brown Pout
- pink Tout
- green A
- grey B

Specifications may change without notice.

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