

PROGRAMMABLE PRESSURE TRANSMITTER PTM (2-wire)

**40****CE**

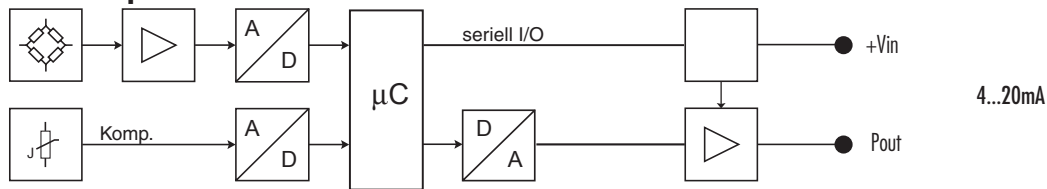
Features

- Piezoresistive measuring element
- Pressure range adjustable up to 1:4 from -5% to +105% FS
- Measuring ranges between 0...100 mbar and 0...1000 bar available
- Pressure units selectable
- Adjustable damping
- Reverse polarity- and short circuit-protected
- Medium temperature up to 150°C (optional)

Typical applications

- Mechanical and systems engineering
- Process and control engineering
- Food & beverage technology
- Mobile hydraulics
- Testing, measuring and control technology

Technical specifications



| Pressure range | [bar] | 0.05 ... 0.5 | > 0.5 ... 2 | > 2 ... 25 | > 25 ... 600 | > 600 ... 1000 |
|---|-------------|---|-------------------------------|------------|---|----------------|
| Overload | | 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 |
| Burst pressure | | ≥ 200 bar | ≥ 200 bar | ≥ 200 bar | ≥ 850 bar (optionally up to 1500 bar) | ≥ 1500 bar |
| Temperature error | [± % FS/°C] | | | | | |
| Zero | 0...70°C | ≤ 0.06 ³⁾ | ≤ 0.03 | ≤ 0.015 | ≤ 0.015 | 0.015 |
| | -25...85°C | ≤ 0.08 ⁴⁾ | ≤ 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 |
| Total error ¹⁾ | [± % FS] | | | | | |
| Actively compensated (typ./max.) | -10...50°C | ≤ 0.15/0.3 (≤ 200 mbar: 0.3/0.6) | ≤ 0.15/0.3 | ≤ 0.1/0.15 | ≤ 0.1/0.15 | 0.1/0.15 |
| | -25...85°C | ≤ 0.65/0.7 (≤ 200 mbar: 0.65/0.8) | ≤ 0.65/0.7 | ≤ 0.55/0.7 | ≤ 0.55/0.7 | ≤ 0.55/0.7 |
| Characteristic curve deviation ²⁾ | | ≤ ± 0.25% FS, ≤ 500 mbar ≤ ± 0.1% FS, > 500 mbar | | | | |

Electrical specifications

| | | |
|--|---------------------------|--|
| Supply voltage | Range: | 9...33 V DC |
| | Supply-voltage influence: | < 0.1% FS |
| Analogue output | Resolution: | ≤ ± 0.025% FS |
| | Output at 4 mA: | adjustable from -5% FS...105% FS |
| | Output at 20 mA: | adjustable from -5% FS...105% FS |
| | Span: | adjustable from 25% FS...110% FS, min. 50 mbar |
| | Adjustable damping: | 100 ms, 1 s, 10 s, (standard = approx. 30 ms) |
| Permissible load resistance | | $R_L = U_o [V] \cdot 6.6V / 0.02A$ |
| Load-resistance influence | | < 0.1% FS |
| Programming interface ⁵⁾ | | VART199, including PC program (VART244) |

Materials

| | |
|--|---|
| Pressure connection, diaphragm, housing | Stainless steel 1.4435 (316L), other materials (e.g. titanium) on request |
| Seals (standard) | Viton (for other materials, see ordering information) |

Electromagnetic compatibility

| | Standard | Level | Typical sources of interference |
|-------------------|---|---------------------------------|---------------------------------|
| Emissions: | | | |
| EN 61000-6-3 | Generic emission standard | | |
| EN 55022 | Emission, class B | | |
| Immunity: | | | |
| 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) ⁶⁾ | Lightning |

¹⁾ Total temperature error including characteristic curve deviation

²⁾ Characteristic curve deviation as per DIN 16086 start-point setting, including hysteresis and repeatability

³⁾ 50–99 mbar: ≤ 0.12

⁴⁾ 50–99 mbar: ≤ 0.16

⁵⁾ Please order separately

⁶⁾ Only variants with optional overvoltage protection (lightning protection)

Ordering information

| | | 40 | X | XXXX | XXXX | XX | XXX |
|---------------------------------------|--|-------|---|------|------|----|-----|
| Type | PTM | 40 | | | | | |
| Pressure type | Relative pressure | 1 | | | | | |
| | Absolute pressure (vacuum) | 2 | | | | | |
| | Overpressure | 3 | | | | | |
| Pressure range | 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 | | | |
| Pressure connection | 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 (Fig. 8) | | | | | 10 | |
| | 1/2" NPT male (Fig. 9) | | | | | 19 | |
| | Customized pressure connection | | | | | 99 | |
| Electrical connection | DIN 43650 connector (screw-down) ²⁾ (Fig. 10) | IP 65 | | | | | 01 |
| | Binder 723 connector, 5-pin ²⁾ (Fig. 11) | IP 67 | | | | | 03 |
| | Binder 723 connector, 7-pin ²⁾ (Fig. 11) | IP 67 | | | | | 04 |
| | MIL C26482 connector, (10-6) ²⁾ (Fig. 13) | IP 40 | | | | | 06 |
| | Lumber RSF4 connector (M12x1), 4-pin (Fig. 14) | IP 65 | | | | | 07 |
| | PE cable ^{3) 4)} (Fig. 15) | IP 67 | | | | | 13 |
| | PUR cable ³⁾ (Fig. 15) | IP 67 | | | | | 15 |
| | Teflon cable ³⁾ (Fig. 15) | IP 67 | | | | | 21 |
| | Customized connection | | | | | | 99 |
| Output signal | 4...20 mA | | | | | | 05 |
| | 4...20 mA with overvoltage protection (lightning protection) | | | | | | 08 |
| Characteristic curve deviation | ≤ ± 0.25% FS (for pressure ranges ≤ 500mbar) | | | | | | 1 |
| | ≤ ± 0.1% FS (for pressure ranges > 500mbar) | | | | | | 2 |
| Temperature range | 0...70°C (-10...50°C compensated, permitted medium temp. 0...80°C) | | | | | | 0 |
| | -25...85°C compensated (permitted medium temp. -25...100°C) | | | | | | 1 |
| | -25...85°C compensated (permitted medium temp. -25...150°C) | | | | | | 2 |
| Options | Throttle ¹⁾ | | | | | | A |
| | Moulded electronics: Relative-pressure sensors | | | | | | C |
| | Absolute-pressure and overpressure sensors | | | | | | D |
| | Special oil filling in TD: for food applications | | | | | | G |
| | Halocarbon (for oxygen applications) | | | | | | H |
| | AS100 (suitable for medium temp. -25...100°C) | | | | | | J |
| | PA04 (silicon-free) | | | | | | Q |
| | Seals: Viton (standard) | | | | | | U |
| | EPDM | | | | | | S |
| | Kalrez | | | | | | T |
| | Temperature calibration active | | | | | | E |
| | Titanium version | | | | | | K |

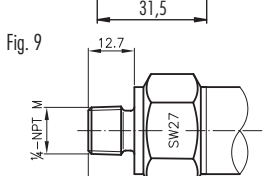
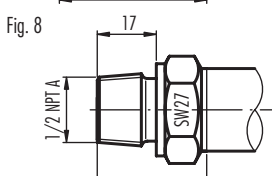
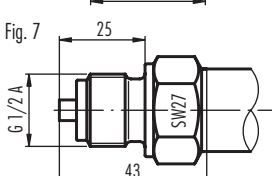
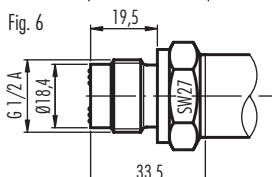
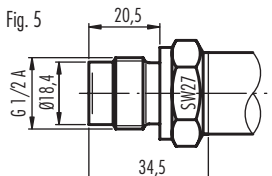
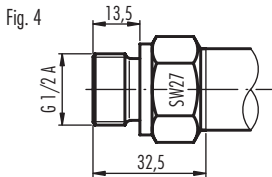
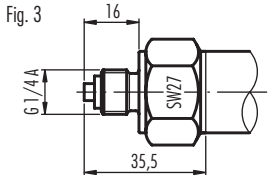
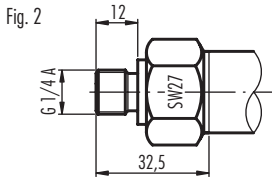
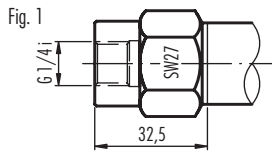
¹⁾ Only possible with pressure connections Fig. 2, Fig. 4, Fig. 7, Fig. 8 or Fig. 9

²⁾ Cable socket connector not supplied

³⁾ Please state medium and desired cable length when ordering

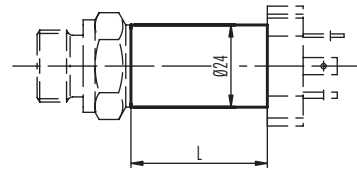
⁴⁾ Food-safe

Pressure connections



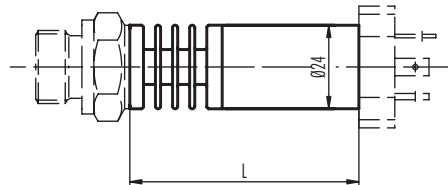
Dimensions

Variant for medium temperature up to 100°C

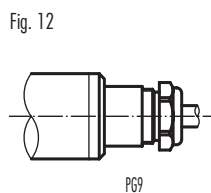


L = 74 mm for DIN 43650 connector (Fig. 10)

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



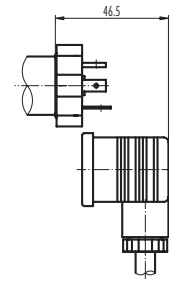
L = 101 mm for DIN 43650 connector (Fig. 10)



| Colour | 2-wire |
|--------|--------|
| white | +Vin |
| yellow | Pout |

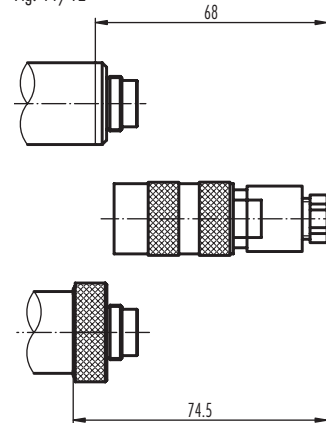
Electrical connections

Fig. 10



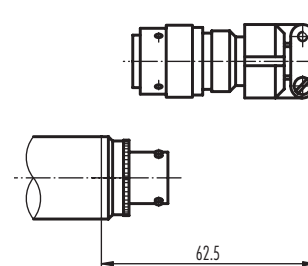
| Pin | 2-wire |
|-----|--------|
| 1 | +Vin |
| 2 | Pout |

Fig. 11/12



| Pin | 2-wire |
|-----|--------|
| 1 | Pout |
| 2 | |
| 3 | +Vin |
| 4 | |
| 5 | |

Fig. 13

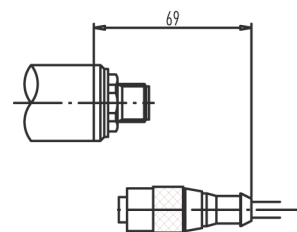


Top view of cable-socket connector



| Pin | 2-wire |
|-----|--------|
| A | +Vin |
| B | |
| C | Pout |
| D | |
| E | |
| F | |

Fig. 14



| Pin | 2-wire |
|-----|--------|
| 1 | |
| 2 | |
| 3 | Pout |
| 4 | +Vin |

Specifications may change without notice.

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05/2006