

Adjustable Differential Pressure Transmitter

For the process industry with HART® communication

Pressure ranges -7 / +7 mbar to 0 – 70 bar

Suitable for high static pressure

PTDi

HART
COMMUNICATION PROTOCOL

Application

The precision pressure transmitter PTDi is suitable for precisely measuring and monitoring differential pressures and positive pressures of liquid as well as gaseous media for pressure ranges from -7 / +7 mbar to 0 – 70 bar.

A piezoresistive resistance silicon sensor, which is separated from the medium by the membrane and a special manometric liquid, serves as measuring element. The special design of the measuring cell guarantees pressure shock and overload resistance up to 420 bar – depending on the version. The case is made of die-cast aluminum or stainless steel 316¹⁾ with degree of protection IP66. It is equipped with an integrated LC display (adjustable horizontally/vertically) and can be rotated by 0 – 340° relative to the sensor. The SIL2 version is optionally available.

The mounting of chemical seals is possible, e.g. for the petrochemical industry (see model overview 7000 and the data sheets of heading 7, e.g. data sheet 7500).

Construction

- Measurement accuracy $\leq \pm 0.075\%$
- HART® communication
- Analogue output signal: 2-wire 4...20 mA, linear
- Static pressure 250 bar (type C)
- Turn-down 1:10 to 1:25²⁾
- PED conformity 2014/68/EU

Standard Versions

Process Connection

Type C: 4 threads 1/4" NPT female at the cover flanges
(oval flanges) made of 316L
2 plugs with vent screw 1/4" NPT
8 fixing threads M10

Measuring Cell/Sensor

Piezoresistive measuring cell
Diaphragm stainless steel 316L
Sealing FPM

Case

Die-cast aluminum with display

Pressure Ranges

Measuring spans from -7 / +7 mbar up to ± 70 bar
See table page 2

Operation

Pressure range, zero point adjustment, characteristic curve and damping rate are adjustable on the device

Output Signal

Analogue: 2-wire 4...20 mA
Digital: HART® communication

Electrical Connection

M20x1.5 screwed cable gland
Connecting terminals in the case for 6 to 12 mm (0.24 to 0.47")

Load Impedance

$RL < (U_B - 15 \text{ V}) / 0.0225 \text{ A}$



Supply Voltage

15...55 V DC ($\pm 25\%$)

Measurement Accuracy

$\leq \pm 0.075\%$ in the adjusted range (FSO)
(within the compensated range)

Temperature Caused Error

$\leq \pm 0.05\%$ (FSO) / 10 °C but not larger than $\pm 0.25\%$ (FSO)
compensated range -25 °C to +80 °C (-13 °F to +176 °F)

Transport, Storage and Operating Temperature

-25 °C to +85 °C (-13 °F to +185 °F)

Reference Temperature

+20 °C (+68 °F)

Long-term Stability

$\leq \pm 0.025\%$ (FSO) / a (at reference conditions)

Static Pressure

Max. 420 bar

Zero Drift due to Static Pressure

0.01 % (FSO) / 10 bar

0.02 % (FSO) / 10 bar (for measuring span ± 7 mbar and ± 25 mbar)

Position of Installation / Position of Connection

Any

Degree of Protection (DIN EN 60529/IEC 529)

IP66

CE Conformity

DIN EN 61 326-1:2013

DIN EN 61 000-6-2: 2005

¹⁾ optional

²⁾ depending on nominal pressure range

Measuring Ranges, Options, Special Versions, Accessories and Ordering Information

Measuring Ranges

Measuring range	Nominal measuring ranges	Minimum set range	Turn-down	Max. static pressure		
				Standard (type C)	High pressure (type C)	Type P/PN
1	0 – 70 bar	0 – 7 bar	1:10	250 bar	413 bar	70 bar
2	0 – 16 bar	0 – 1.6 bar	1:10	250 bar	413 bar	40 bar
3	0 – 2.5 bar	0 – 0.2 bar	1:12.5	250 bar	413 bar	40 bar
4	0 – 1 bar	0 – 50 mbar	1:20	250 bar	413 bar	40 bar
5	0 – 250 mbar	0 – 10 mbar	1:25	250 bar	413 bar	40 bar
6 ¹⁾	–500 / +500 mbar	–50 / +50 mbar	1:10	250 bar	413 bar	40 bar
7	–100 / +100 mbar	–5 / +5 mbar	1:20	250 bar	413 bar	40 bar
8	–5 / +70 mbar	–2 / +2 mbar	1:18	250 bar	413 bar	40 bar
9	–25 / +25 mbar	–1 / +1 mbar	1:25	200 bar	–	40 bar
10	–7 / +7 bar	–0.5 / +0.5 mbar	1:14	20 bar	–	–
11 ¹⁾	–1 / +2 bar	–0.2 / +0.2 bar	1:10	40 bar	–	40 bar
12 ¹⁾	–1 / +16 bar	–1 / +1.6 bar	1:10	40 bar	–	40 bar

Options

- Process connections type P: 2x M20x1.5, type PN: 2x 1/4" NPT female
- 8x fixing threads 7/16" UNF (type C)
- Gold-plated membranes (Au)
- Membranes made of Hastelloy C276
- PTFE or NBR sealings at the cover flange
- Nameplate stainless steel, fixed on the case
- Tag stainless steel with TAG number
- Case stainless steel, IP66, with display
- Degree of protection IP67
- Version for oxygen applications
- Turn-down factory-set according to customer requirements
- Version with higher accuracy $\leq \pm 0.05\%$
- SIL2 version
- Static pressure 413 bar (type C)

Ordering Information

Please specify in your order:

Basic model	PTDi
Pressure range	e.g. –7 / +7 mbar
Process connection	e.g. type C
Output signal	2-wire 4...20 mA
Options	case stainless steel 316 with display PTFE sealing degree of protection IP67

Example: PTDi, –7 / +7 bar, type C, 2-wire 4...20 mA, case stainless steel 316 with display

Special Versions Upon Request

- Output 0...20 mA + HART®
- Output 0...5 mA + HART®
- Other process connections
- Mounted to diaphragm seal, capillary lines and cooling elements from heading 7000

Accessories

- Mounting bracket AL for 2" tube, galvanised steel
- Mounting bracket AL for 2" tube, stainless steel
- Barotec pressure calibrator (model overview 10 000) for parameterisation of the devices with display

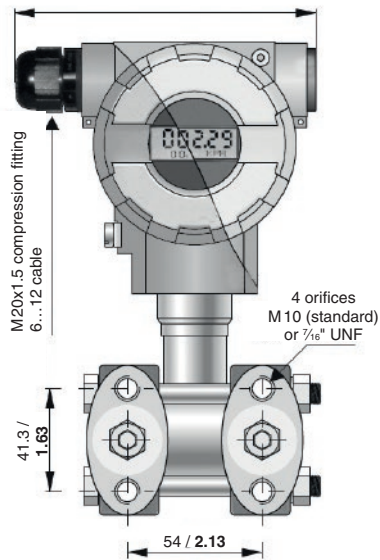
¹⁾ The pressure ranges 6, 11 and 12 can be used for level and density measurements. In addition, the pressure ranges 11 and 12 can digitally compensate oil columns up to 1.6 bar in negative direction.

Case Configuration, Process Connections, Dimensional Data (mm/inch) and Weight, Wiring Diagram

Case Configuration / Process Connections

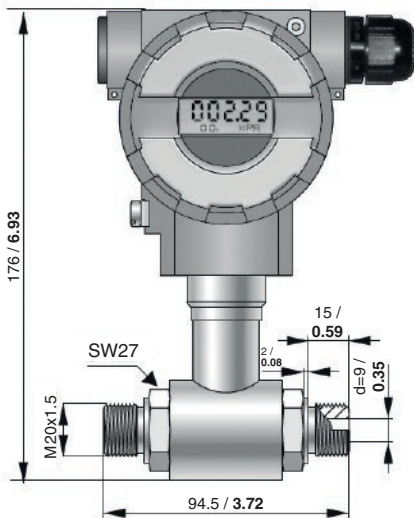
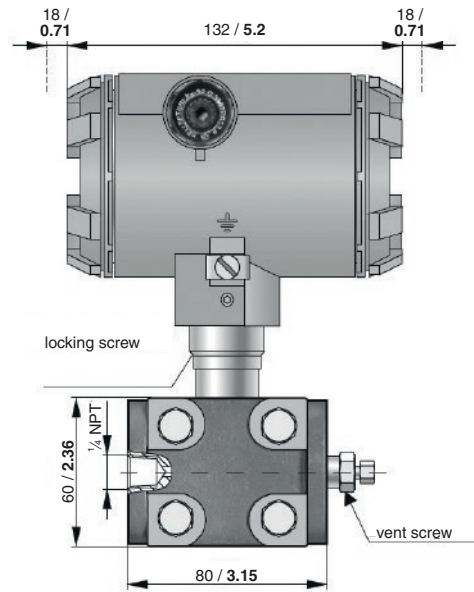
Die-cast aluminum / stainless steel 316L¹⁾

front view

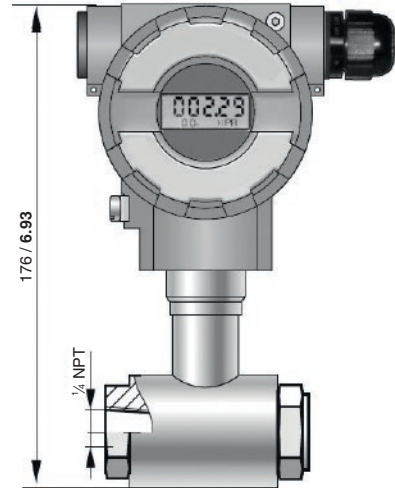


Process connection type C

lateral view left



Process connection type P

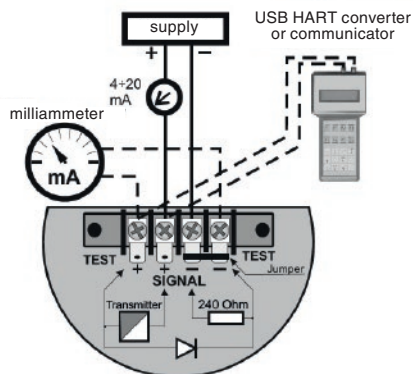


Process connection type PN

Weight

Approx. 3.2 kg (7.05 lb) (type C)

Wiring Diagram



¹⁾ optional