# Pressure Transmitter for Precision Measurement
# Model P-10, standard version
# Model P-11, flush diaphragm



## Applications

- Automation engineering
- Test bench construction
- Laboratories
- Maintenance shops

## Special Features

- Accuracy < 0.1 % (optionally 0.05 %) of span
- No additional temperature error in the range 0 ... 50 °C
- Digital data processing
- Pressure ranges 0 ... 250 mbar to 0 ... 1000 bar
- Fully welded, stainless steel diaphragml


**Fig. left Pressure transmitter P-10 with key pad**
**Fig. right Pressure transmitter P-11 with flying leads**

## Description

### High precision

Pressure transmitters with an accuracy of 0.1% (or 0.05%) are mainly used for testing, calibration and service applications as well as in the process technology and in laboratories.

### Digital signal processing

The digital data processing of the precision pressure transmitter P-1X ensures outstanding values regarding linearity and repeatability. System-related temperature errors occurring usually in pressure measuring instruments are compensated by the temperature sensor integrated in the process connection in combination with the digital data processing via microprocessor. This guarantees a total temperature error of less than 0.1% in the range of 0 ... 50 °C.

### Easy zero point adjustment

Due to the use of sensor elements with a very high long-term stability a recalibration is not necessary during normal operation. Should a recalibration be necessary for process reasons, the pressure transmitter P-1X can be equipped with a key pad for easy zero point adjustment.

### Software EasyCom

Another option is the communication software EasyCom. This software makes an easy calibration of zero and span possible.

### Flush version

The model P-11, flush diaphragm series, is especially designed for measuring media that is highly viscous, crystallizing or contains particulates.



Data Sheets showing similar devices:
Pressure Transmitter for Precision Measurement with Digital Output RS 232; Model D-1X; see data sheet PE 81.33

## Specifications Model P-10 / P-11

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure ranges | bar | 0.25 | 0.4 | 0.6 | 1 | 1.6 | 2.5 | 4 | 6 | 10 | 16 |
| Over pressure safety | bar | 2 | 2 | 4 | 5 | 10 | 10 | 17 | 35 | 35 | 80 |
| Burst pressure | bar | 2.4 | 2.4 | 4.8 | 6 | 12 | 12 | 20.5 | 42 | 42 | 96 |
| Pressure ranges | bar | 25 | 40 | 60 | 100 | 160 | 250 | 400 | 600 | 1000 [1] | |
| Over pressure safety | bar | 50 | 80 | 120 | 200 | 320 | 500 | 800 | 1200 | 1500 | |
| Burst pressure | bar | 96 | 400 | 550 | 800 | 1000 | 1200 | 1700 [2] | 2400 [2] | 3000 | |
| | {Vacuum, gauge pressure, compound range, absolute pressure are available} | | | | | | | | | | |
| | {compound ranges: minimum span 400 mbar, z.B. -200 mbar ... +200 mbar} | | | | | | | | | | |
| | [1] Only Model P-10. | | | | | | | | | | |
| | [2] For Model P-11: the value specified in the table applies only when sealing is realised with the sealing ring underneath the hex. Otherwise max. 1500 bar applies. | | | | | | | | | | |

| | | | |
|---|---|---|---|
| Materials | | (other materials see WIKA diaphragm seal program) | |
| ■ Wetted parts | | | |
| » Model P-10 | | Stainless steel | (pressure ranges > 25 bar additional 2.4711) |
| » Model P-11 | | Stainless steel | {Hastelloy}; O-Ring: NBR {FPM/FKM or EPDM} |
| ■ Case | | Stainless steel | {key pad plastic} |
| Internal transmission fluid [3] | | Synthetic oil {Halocarbon oil for oxygen applications} | |
| | | {Listed by FDA for Food & Beverage} | |
| | [3] Not for P-10 with pressure ranges > 25 bar | | |
| Power Supply $U_B$ | $U_B$ in VDC | 14 < $U_B$ ≤ 30 (10 ... 30 with signal output 4 ... 20 mA, 2-wire) | |
| Signal output and | $R_A$ in Ohm | 4 ... 20 mA, 2-wire | $R_A$ ≤ ($U_B$ – 10 V) / 0.02 A |
| maximum load $R_A$ | | 0 ... 20 mA, 3-wire | $R_A$ ≤ ($U_B$ – 14 V) / 0.02 A |
| | | 4 ... 20 mA, 3-wire | $R_A$ ≤ ($U_B$ – 14 V) / 0.02 A |
| | | 0 ... 5 V, 3-wire | $R_A$ > 5 k |
| | | 0 ... 10 V, 3-wire | $R_A$ > 10 k |
| Adjustability | | | |
| ■ zero | % | -5 ... +20 (0 ... +20 with 0 ... 20 mA) | |
| | | {adjustment via setting keys or software EasyCom} | |
| ■ span | | -5 ... +5 {adjustment via software EasyCom} | |
| Internal measuring rate | Hz | 100 [4] | |
| | [4] 50 Hz with pressure ranges ≤ 1 bar or compound pressure ranges ≤ 3 bar span | | |
| Warm-up time | min | < 10 | |
| Insulation voltage | VDC | 500 | |
| Accuracy [5] | % d. Spanne | ≤ 0.10 im Bereich 0 ... 50 °C {< 0.05 bei 20 °C} [6] | |
| | [5] Including non-linearity, hysteresis, zero point and full scale error (corresponds to error of measurement per IEC 61298-2). Adjusted in vertical mounting position with lower pressure connection. | | |
| | [6] Cannot be manufactured for: compound ranges and pressure ranges ≤ 0.4 bar. | | |
| Non-linearity | % of span | ≤ 0.04 | (BFSL) according to IEC 61298-2 |
| 1-year stability | % of span | ≤ 0.1 | (at reference conditions) |

| | | | |
|---|---|---|---|
| Permissible temperature of | | | |
| ■ Medium *) | | -20 ... +80 °C | -4 ... +176 °F |
| ■ Ambience | | -20 ... +80 °C | -4 ... +176 °F |
| ■ Storage | | -40 ... +85 °C (-20 ... +85 °C with keys) | -40 ... +185 °F (-4 ... +185 °F with keys) |
| Compensated temp. range | | -20 ... +80 °C | -4 ... +176 °F |
| Temperature coefficients within | | (the temperature related deviations in the range 0 ... 50 °C (32 ... 122 °F) | |
| compensated temp range | | are already covered by the accuracy above) | |
| ■ Mean TC of zero | % of span | ≤ 0.1 / 10 K | |
| ■ Mean TC of range | % of span | ≤ 0.1 / 10 K | |
| CE-conformity | | | |
| ■ Pressure equipment directive | | 97/23/EC | |
| ■ EMC directive | | 2004/108/EEC, EN 61 326 Emission (Group 1, Class B) and Immunity (industrial locations) | |
| Shock resistance | g | < 100 accordint to IEC 60068-2-27 | (mechanical shock) |
| Vibration resistance | g | < 5 according to IEC 60068-2-6 | (vibration under resonance) |
| Wiring protection | | | |
| ■ Short-circuit proofness | | Sig+ towards UB- | |
| ■ Reverse polarity protection | | UB+ towards UB- | |
| Weight | kg | Approx. 0.3 | |

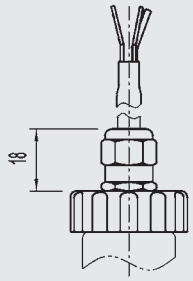
*) In an oxygen version model P-11 is not available. In an oxygen version model P-10 is only available with media temperatures between -20 … +60 °C / -4 … +140° F.
{ } Items in curved brackets are optional extras for additional price.

## Dimensions in mm

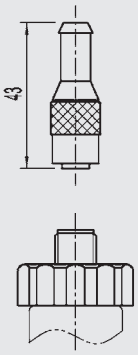
Ingress Protection IP per IEC 60 529. The ingress protection classes specified only apply while the pressure transmitter is connected with female connectors that provide the corresponding ingress protection.

### Electrical connections

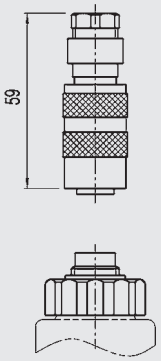
Flying leads
conductor cross section
0.5 mm² / AWG 20 with end splices, conductor outer diameter approx. 6.8 mm,
IP 67
Order code: DL



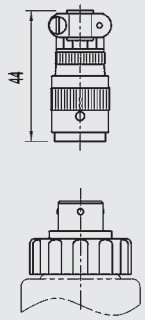

Circular connector
4-pin M 12x1,
IP 67
Order code: M4
*)




{Circular connector
M 16x0.75, 5-pin}
IP 65
Order code: B5
*)

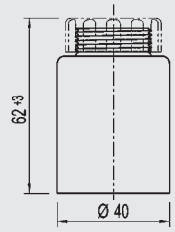


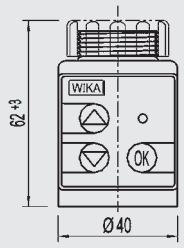

{Bayonet connector
6-pin}
IP 67
Order code: C6
*)




Others on request

### Case

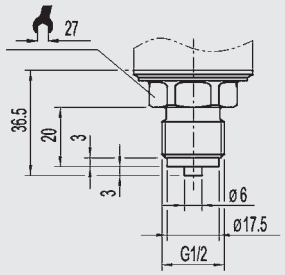


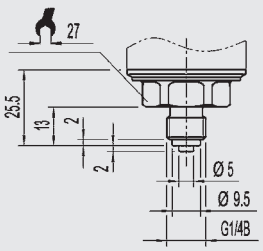

{key pad for zero point adjustment}
For this option the ingress protection
is IP 40.

### Pressure connections P-10

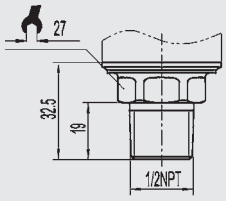
G 1/2
Order code: GD



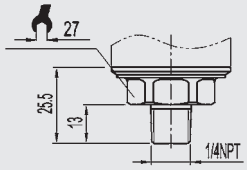

G 1/4
Order code: GB




1/ 2 NPT
per „Nominal size for US standard tapered pipe thread NPT“
Order code: ND



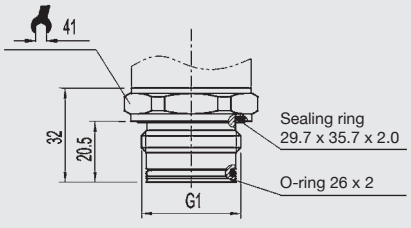

1/ 4 NPT
per „Nominal size for US standard tapered pipe thread NPT“
Order code: NB



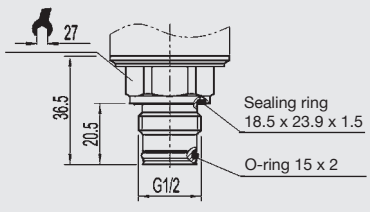

Others on request

### Pressure connections P-11, flush diaphragm

G 1B
0 ... 0.25 up to 0 ... 1.6 bar
Order code: 85




G 1/2 B
0 ... 2.5 up to 0 ... 600 bar
Order code: 86

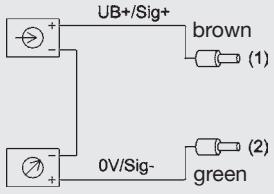
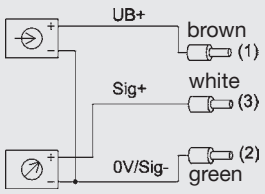
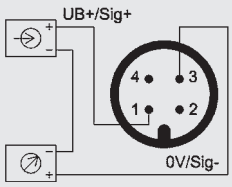
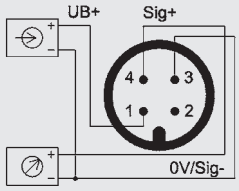
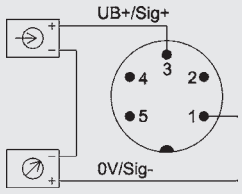
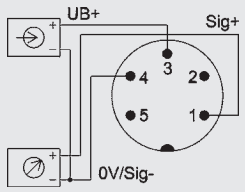
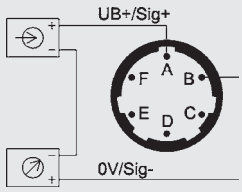
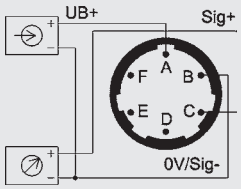



Others on request

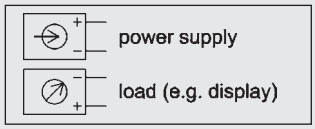
For installation and safety instructions see the operating instructions for this product.
For tapped holes and welding sockets please see Technical Information IN 00.14 for download at www.wika.de -Service

*) Connectors are not included in delivery.
{ } Items in curved brackets are optional extras for additional price.

## Wiring details

| | 2-wire | 3-wire |
|---|---|---|
| Flying leads<br>with 1.5 m length |  |  |
| Circular connector<br>M 12x1 |  |  |
| Circular connector<br>M 16x0.75 |  |  |
| Bayonet connector |  |  |

**Legend:**




| Accessories | Order-No. |
|---|---|
| Software EasyCom, incl. cable set 9-pin Sub-D for internal service interface | 7133507 |

### Further information

You can obtain further information (data sheets, instructions, etc.) via Internet address www.wika.de





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