

# Pressure Transmitter for Precision Measurement

## Model P-10, standard version

## Model P-11, flush diaphragm

WIKA Data Sheet PE 81.32

### Applications

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

### Special Features

- Accuracy  $\leq 0,1\%$  (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 diaphragm



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

### Description

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.

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.

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.

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

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

## 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 <sup>1)</sup>	
Over pressure safety	bar	50	80	120	200	320	500	800	1200	1500	
Burst pressure	bar	96	400	550	800	1000	1200	1700 <sup>2)</sup>	2400 <sup>2)</sup>	3000	
		{Vacuum, gauge pressure, compound range, absolute pressure are available}									
		{compound ranges: minimum span 400 mbar, z.B. -200 mbar ... +200 mbar}									
Materials		(other materials see WIKA diaphragm seal programm)									
■ Wetted parts		Stainless steel									
➢ Model P-10		Stainless steel {Hastelloy C4}; O-Ring: NBR {EPDM, Viton}									
➢ Model P-11		Stainless steel {key pad plastic}									
■ Case		Synthetic oil									
Internal transmission fluid		Only for pressure ranges up to 25 bar or Model P-11 (flush diaphragm units)									
		{Halocarbon oil for oxygen applications} <sup>3)</sup>									
		{Listed by FDA for food industry}									
Power supply $U_B$	DC V	$14 < U_B \leq 30$ (10 ... 30 with signal output 4 ... 20 mA, 2-wire)									
Signal output and maximum load $R_A$		0 ... 20 mA, 3-wire $R_A \leq (U_B - 14 \text{ V}) / 0.02 \text{ A}$ with $R_A$ in Ohm and $U_B$ in Volt									
		4 ... 20 mA, 2-wire $R_A \leq (U_B - 10 \text{ V}) / 0.02 \text{ A}$ with $R_A$ in Ohm and $U_B$ in Volt									
		4 ... 20 mA, 3-wire} $R_A \leq (U_B - 14 \text{ V}) / 0.02 \text{ A}$ with $R_A$ in Ohm and $U_B$ in Volt									
		{0 ... 5 V, 3-wire} $R_A > 5 \text{ kOhm}$									
		{0 ... 10 V, 3-wire} $R_A > 10 \text{ kOhm}$									
Adjustability											
■ zero	%	-5 ... +20 (0 ... +20 with 0 ... 20 mA)									
		{adjustment via setting keys or software Easy Com 2.0}									
■ span	%	-5 ... +5 {adjustment via software Easy Com 2.0}									
Internal measuring rate	Hz	100									
Warm-up time	min	< 10									
Accuracy <sup>4)</sup>	% of span	$\leq 0.10$ in the range 0 ... 50 °C / 32 ... 122 °F {< 0,05 at 20 °C / 68 °F} <sup>5)</sup>									
Reproducibility	% of span	$\leq 0.03$									
1-year stability	% of span	$\leq 0.1$ (at reference conditions)									
Permissible temperature of											
■ Medium		-20 ... +80 °C					-4 ... +176 °F				
■ Ambient		-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 in compensated temp range		(the temperature related deviations in the range 0 ... 50 °C (32 ... 122 °F) are already covered by the accuracy above)									
■ Mean TC of zero	% of span	$\leq 0.1 / 10 \text{ K}$									
■ Mean TC of range	% of span	$\leq 0.1 / 10 \text{ K}$									
CE-conformity		89/336/EWG interference emission and immunity see EN 61 326									
		97/23/EG Pressure equipment directive (Module H)									
Shock resistance	g	< 100 according to IEC 60068-2-27 (mechanical shock)									
Vibration resistance	g	< 5 according to IEC 60068-2-6 (vibration under resonance)									
Wiring protection		Protected against reverse polarity (max. 10 min.), overvoltage and short circuiting									
Ingress protection per		IEC 60 529 / EN 60 529, see page 3									
Weight	kg	Approx. 0.3									

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.

3) Media temperature for oxygen version: -30 ... +60 °C / -22 ... 140 °F (P-11 up to max. 160 bar)  
Cannot be manufactured for absolute pressure ranges < 1 bar abs.

4) Including linearity, hysteresis and reproducibility.

Limit point calibration in vertical mounting position with lower pressure connection.

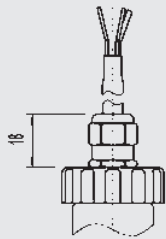
5) Cannot be manufactured for: compound ranges and pressure ranges  $\leq 0,4$  bar

{ } Items in curved brackets are optional extras for additional price.

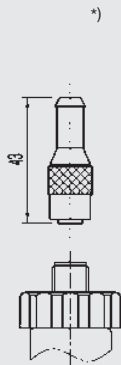
# Dimensions in mm

## Electrical connections

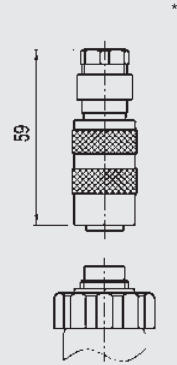
Flying leads  
IP 67  
Order code: DL



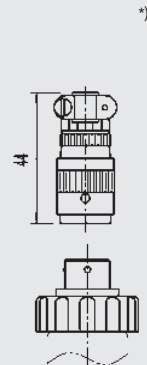
Circular connector  
4-pin M 12x1,  
IP 67  
Order code: M4



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

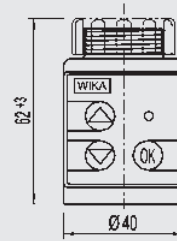
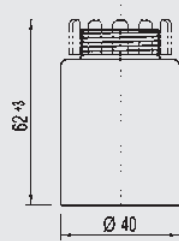


{MIL-connector  
6-pin}  
IP 67  
Order code: C6



Others on request

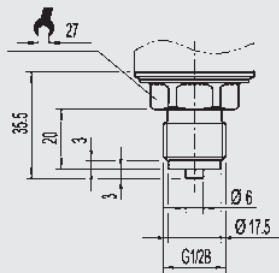
## Case



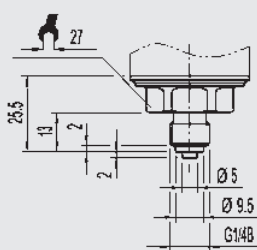
{key pad for zero point adjustment}  
For this option the ingress protection  
is IP 40.

## Pressure connections P-10

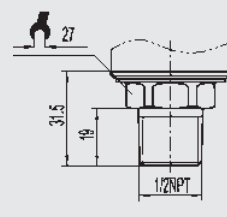
G 1/2  
Order code: GD



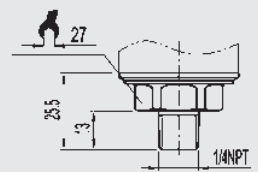
G 1/4  
Order code: GB



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



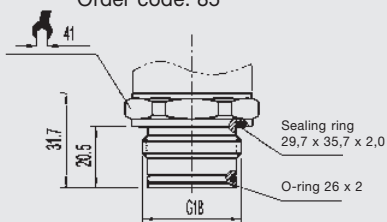
1/4 NPT  
per „Nominal size for  
US standard tapered  
pipe thread NPT“  
Order code: NB



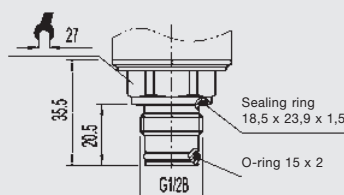
Others on request

## Pressure connections P-11, flush diaphragm

G 1  
0 ... 0,25 up to 0 ... 1,6 bar  
Order code: 85



G 1/2  
0 ... 2,5 up to 0 ... 600 bar  
Order code: 86

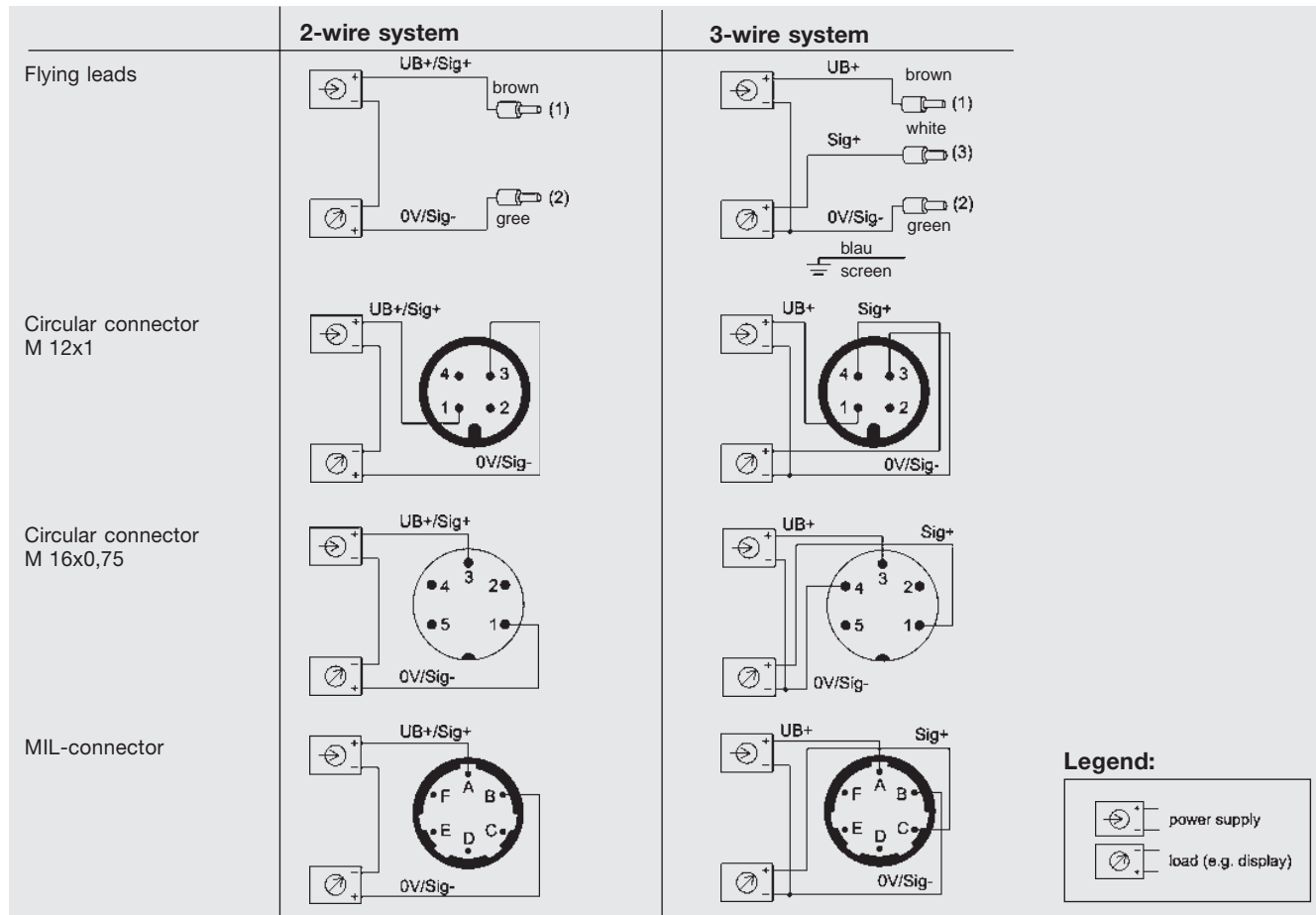


Others on request

For tapped holes and welding sockets please see data sheet IN 00.14 or [www.wika.de/download](http://www.wika.de/download)

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

## Wiring details



## Accessories

	Order-No.
Software EasyCom, incl. cable set for internal service interface	7133507

## Further informations

You can obtain further information (data sheets, instructions, etc.) via Internet address [www.wika.de](http://www.wika.de)

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