

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 < 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

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.

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 UB	UB in VDC	14 < UB ≤ 30 (10 ... 30 with signal output 4 ... 20 mA, 2-wire)									
Signal output and maximum load RA	RA in Ohm	4 ... 20 mA, 2-wire					RA ≤ (UB - 10 V) / 0.02 A				
		0 ... 20 mA, 3-wire					RA ≤ (UB - 14 V) / 0.02 A				
		4 ... 20 mA, 3-wire					RA ≤ (UB - 14 V) / 0.02 A				
		0 ... 5 V, 3-wire					RA > 5 k				
		0 ... 10 V, 3-wire					RA > 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 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	≤ 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.

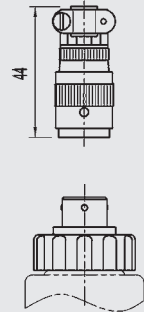
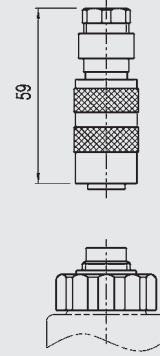
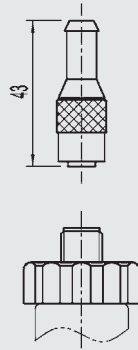
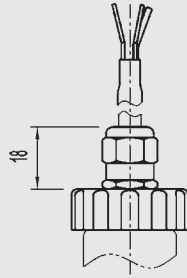
Electrical connections

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

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

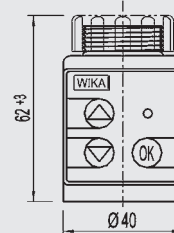
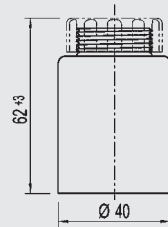
{Circular connector
M 16x0.75, 5-pin}
IP 65
Order code: B5
*)

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



Others on request

Case



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

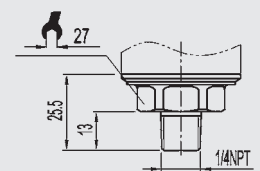
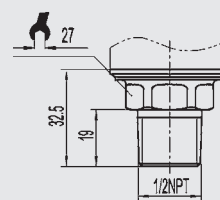
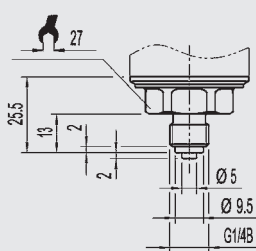
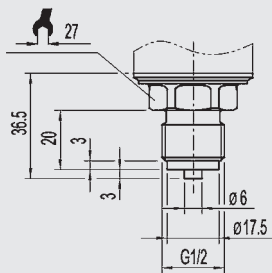
Pressure connections P-10

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

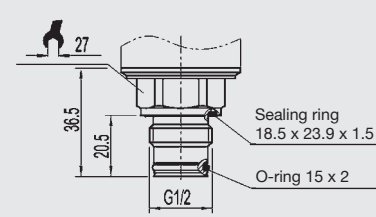
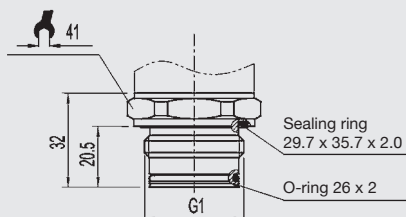


Others on request

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.

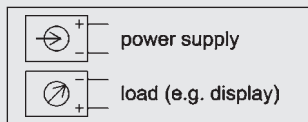
For tapped holes and welding sockets please see Technical Information IN 00.14 for download at www.wika.de -Service

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

Wiring details

	2-wire	3-wire
Flying leads with 1.5 m length		
Circular connector M 12x1		
Circular connector 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

Specifications and dimensions given in this leaflet represent the state of engineering at the time of printing. Modifications may take place and materials specified may be replaced by others without prior notice.



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