

# Model P-30 Precision Pressure Transmitter Model P-31 with Non-Clogging Flush Diaphragm

WIKA Datasheet P-30, P-31

## Applications

- Test benches
- Calibration technology
- Laboratories and maintenance shops
- Machine building

## Special Features

- 0.1% accuracy with no additional temperature error between 50 ... 140 °F (10 ... 60°C)
- 0.05% accuracy available
- 1 kHz measuring rate for fast data acquisition
- Space saving, compact design
- Internal USB interface connection for calibration and adjustment

## Description

### High precision

The P-30 provides non-linearity of up to 0.04% of span (B.F.S.L.) for precise measurement in critical applications. Each instrument is provided with a test report at no additional cost. Other test certificates are available.

### Fast digital data processing

Active temperature compensation of the P-30 is provided by microprocessor-controlled digital signal processing and internal temperature measurements. There is no additional temperature error between 50 ... 140 °F (10 ... 60 °C). The advanced digital processing circuitry provides a measuring rate of up to 1 ms and is comparable to analog output pressure transmitters.

The P-30 can be quickly and easily calibrated using the internal USB service interface and optional EasyCom 2009 configuration software. The software also provides for zero and span point adjustments.



Model P-30 Precision Pressure Transmitter

### Compact design

The robust, compact design allows the P-30 to be installed into standard 19" test racks or cabinets with limited space.

### Many optional features

Pressure ranges are available from 100 INWC to 15,000 PSI. Vacuum, absolute, compound and other engineering units are available to meet specific requirements. A variety of electrical, process connections, and signal outputs are also available.

The P-31 features a flat, non-clogging flush diaphragm for use with slurries or crystalizing media that may clog the orifice of the P-30.

## Specifications Model P-30, P-31

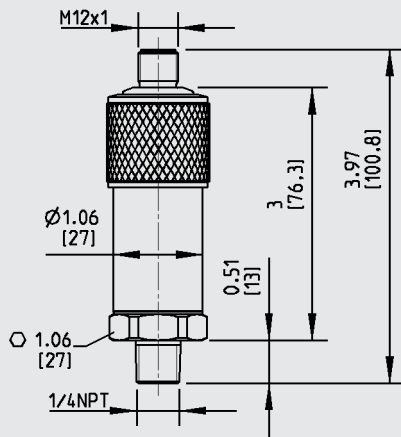
Pressure ranges	psi (InWC)	(100")	5	10	15	25	30	60	100	160	250	
Over pressure safety	psi		30	60	70	150	150	250	500	500	1160	
Burst pressure	psi		35	70	87	175	175	300	600	600	1400	
Pressure ranges	psi		500	1000	1500	2000	3000	5000	8000	10000 <sup>1)</sup>	15000 <sup>1)</sup>	
Over pressure safety	psi		725	1740	2900	4640	7250	11600	17400	21750	21750	
Burst pressure	psi		1400	8000	11600	15000	17400	24650 <sup>2)</sup>	34800 <sup>2)</sup>	43500	43500	
Pressure ranges	bar		0.25	0.4	0.6	1	1.6	2.5	4	6	10	16
Over pressure safety	bar		2	4	5	10	10	17	35	35	80	
Burst pressure	bar		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 ranges and absolute pressures are available} {compound ranges: minimum span 6psi (400 mbar) for example. -200 mbar ... +200 mbar}												
<sup>1)</sup> Only Model P-30. <sup>2)</sup> For Model P-31: the value specified in the table applies only when sealing is accomplished using the sealing ring underneath the hex. Otherwise a maximum of 22000 PSI (1500 bar) applies.												
Materials												
■ Wetted parts												
» Model P-30	Stainless steel (pressure ranges > 300 psi additional 2.4711 / UNSR 30003)											
» Model P-31	Stainless steel; O-Ring: NBR {FPM/FKM or EPDM}											
■ Case	Stainless steel											
Internal transmission fluid <sup>3)</sup>	Synthetic oil											
<sup>3)</sup> Does not apply for P-30 with pressure ranges > 300 psi												
Power Supply U+	U+ in VDC	9 ... 30 (14 ... 30 with signal output 0 ... 10 V)										
Signal output and maximum load RA	RA in Ohm	4 ... 20 mA, 2-wire					RA ≤ (U+ - 9 V) / 0.02 A					
		0 ... 20 mA, 3-wire					RA ≤ (U+ - 9 V) / 0.02 A					
		4 ... 20 mA, 3-wire					RA ≤ (U+ - 9 V) / 0.02 A					
		0 ... 5 V, 3-wire					RA > 5 k					
		0 ... 10 V, 3-wire					RA > 10 k					
Adjustability												
■ zero	% of span	-5 ... +20 {adjustment using optional EasyCom 2009 software}										
■ span	% of span	-20 ... +5 {adjustment using optional EasyCom 2009 software}										
Measuring rate	ms	1 (with 3-wire); 2 (with 2-wire)										
Warm-up time	min	< 10										
Insulation voltage	VDC	500										
Accuracy 5)	% of span	≤ 0.10 in the range 50 ... 140 °F(10 ... 60 °C) {< 0.05 at 68 °F / 20 °C} 6)										
5) Includes non-linearity, hysteresis, zero point and full scale error (corresponds to measurement error per IEC 61298-2). Calibrated in vertical mounting position with pressure connection facing down												
6) Not available in compound ranges and pressure ranges ≤ 6 PSI												
Non-linearity	% of span	≤ 0.04					(BFSL) according to IEC 61298-2					
1-year stability	% of span	≤ 0.1					(at reference conditions)					
Permissible temperatures:												
■ Medium	-4 ... +221 °F					-20 ... +105 °C						
■ Ambient	-4 ... +176 °F					-20 ... +80 °C						
■ Storage	-40 ... +185 °F					-40 ... +85 °C						
Rated temp. range	-4 ... +176 °F					-20 ... +80 °C						
Temperature coefficients within rated temp range	(the temperature error between 50 ... 140 °F (10 ... 60 °C) is already included in the above accuracy statement)											

## Specifications Model P-30, P-31 cont'd

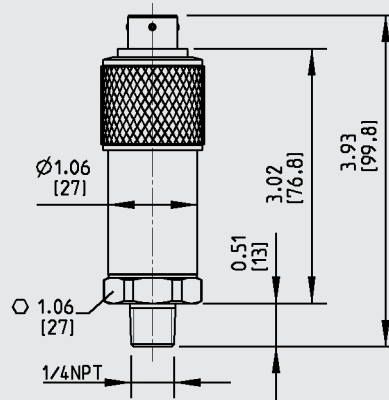
Mean TC of zero	% of span	≤ 0.1 / 10 K
Mean TC of span	% of span	≤ 0.1 / 10 K
RoHS-conformity		Yes (not available with bayonet connector)
CE-conformity		
■ Pressure equipment directive		97/23/EC
■ EMC directive		2004/108/EEC, EN 61 326 Emission (Group 1, Class B) and Immunity (industrial locations)
Shock resistance	g	200 according to IEC 60068-2-27 (mechanical shock)
Vibration resistance	g	10 according to IEC 60068-2-6(vibration under resonance)
Wiring protection		
Short-circuit protection		S+ to U-
Reverse polarity protection		U+ to U-
Weight	oz (g)	Approx. 10.6 (300)

### Dimensions in inches (mm)

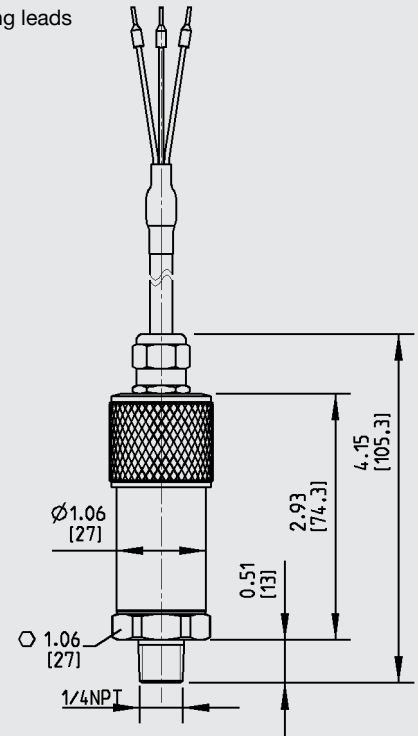
Circular connector  
M12x



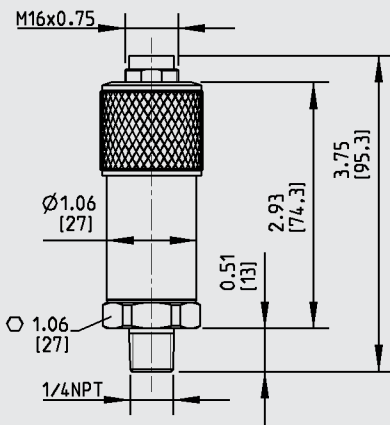
Bayonet connector



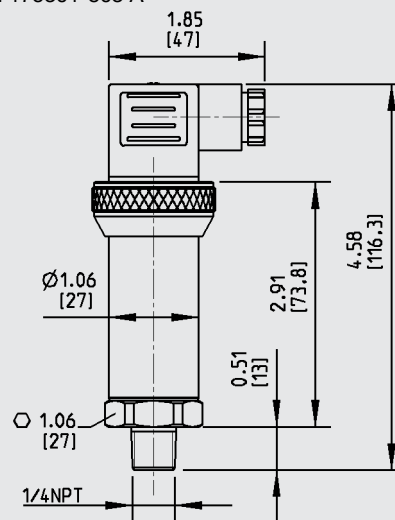
Flying leads



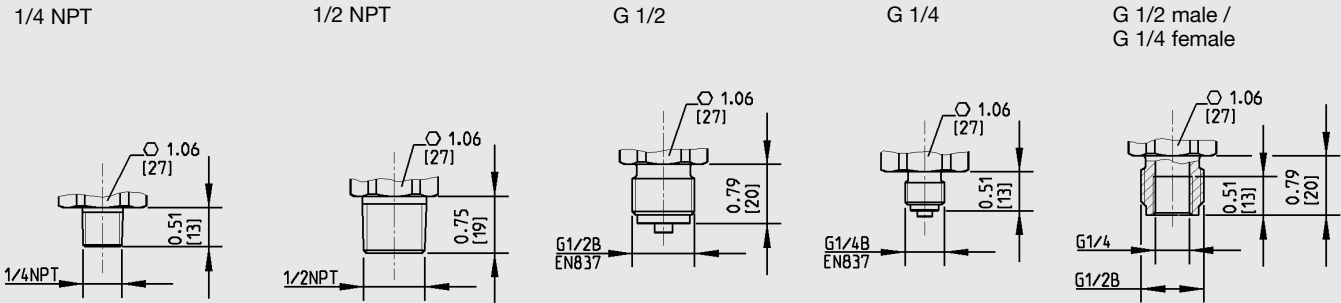
Circular connector  
M 16x0.75



L-connector  
DIN 175301-803 A

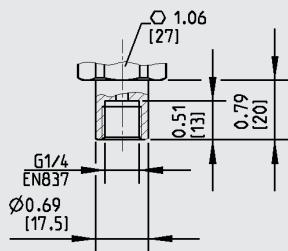


## P-30 pressure connections



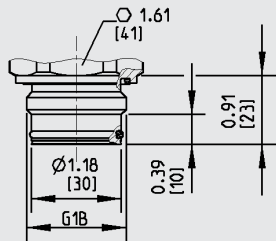
## P-30 pressure connection

G 1/4 female  
EN 837  
with sealing copper  
{stainless steel}

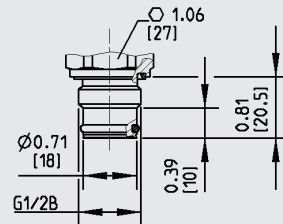


## P-31 flush diaphragm pressure connections

G 1B  
0 InWC to 30 psi  
(0 ... 0.25 up to 0 ... 1.6 bar)



G 1/2 B  
50 psi to 8000 psi  
(0 ... 2.5 up to 0 ... 600 bar)



## Electrical connections

	L-connector DIN 175301-803 A	Circular connector M12x1, 4-pins	Cable with free ends	Bayonet connector, 6-pins	Circular connector M16x0.75, 5-pins
2-wire	U+ = 1   U- = 2	U+ = 1   U- = 3	U+ = brown   U- = blue	U+ = A   U- = B	U+ = 3   U- = 1
3-wire	U+ = 1   U- = 2   S+ = 3	U+ = 1   U- = 3   S+ = 4	U+ = brown   U- = blue   S+ = black	U+ = A   U- = B   S+ = C	U+ = 3   U- = 4   S+ = 1
Cable screen	-	-	grey	-	-
Wire gauge	max AWG16 (1.5mm <sup>2</sup> )	-	AWG20 (0.5 mm <sup>2</sup> )	-	-
Cable diameter	.24 - .32" 6-8 mm	-	.27" 6.8 mm	-	-
Ingress Protection per IEC 60 529	IP 65	IP 67	IP 67	IP 67	IP 65
The ingress protection classes above only apply while the pressure transmitter is connected using female connectors that provide the corresponding ingress protection.					

## Accessories

## Order-No.

USB adaptor cable incl. Software EasyCom 2009 for internal service interface

13193075



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