Type P-30 Precision Pressure Transmitter
Type P-31 with Non-clogging Flush Diaphragm

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

Type P-30 Precision pressure transmitter

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-controllled digital signal processing and internal temperature measurements. There is no additional temperature error between 50 ... 140 °F (10 … 60 °C). The advanced digital processing circuity 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.

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 crystallizing media that may clog the orifice of the P-30.

Specifications Type P-30, P-31

Pressure ranges	100 InWC	5 psi	10 psi	15 psi	25 psi	30 psi	60 psi	100 psi	160 psi	250 psi
Over pressure safety	30 psi	30 psi	60 psi	70 psi	150 psi	150 psi	250 psi	500 psi	500 psi	1,160 psi
Burst pressure	35 psi	35 psi	70 psi	87 psi	175 psi	175 psi	300 psi	600 psi	600 psi	1,400 psi
Pressure ranges	500 psi	600 psi	1,000 psi	1,500 psi	2,000 psi	3,000 psi	5,000 psi	8,000 psi	10,000 psi[1)]	15,000 psi[1)]
Over pressure safety	725 psi	1,150 psi	1,740 psi	2,900 psi	4,640 psi	7,250 psi	11,600 psi	17,400 psi	21,750 psi	21,750 psi
Burst pressure	1,400 psi	5,000 psi	8,000 psi	11,600 psi	15,000 psi	17,400 psi	24,650 psi	34,800 psi	43,500 psi	43,500 psi

Pressure ranges	0.25 bar	0.4 bar	0.6 bar	1 bar	1.6 bar	2.5 bar	4 bar	6 bar	10 bar	16 bar
Over pressure safety	2 bar	2 bar	4 bar	5 bar	10 bar	10 bar	17 bar	35 bar	35 bar	80 bar
Burst pressure	2.4 bar	2.4 bar	4.8 bar	6 bar	12 bar	12 bar	20.5 bar	42 bar	42 bar	96 bar
Pressure ranges	25 bar	40 bar	60 bar	100 bar	160 bar	250 bar	400 bar	600 bar[1)]	1,000 bar[1)]	
Over pressure safety	50 bar	80 bar	120 bar	200 bar	320 bar	500 bar	800 bar	1,200 bar	1,500 bar	
Burst pressure	96 bar	400 bar	550 bar	800 bar	1,000 bar	1,200 bar	1,700 bar	2,400 bar	3,000 bar	

Vacuum, gauge pressure, compound ranges and absolute pressures are available}
compound ranges: minimum span 6psi (400 mbar) for example. -200 mbar ... +200 mbar}

[1)] Only Type P-30.

[2)] For Type 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 22,000 PSI (1,500 bar) applies.

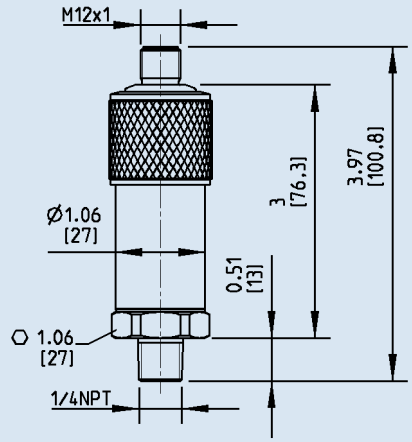
Materials	
■ Wetted parts	Stainless steel (pressure ranges > 300 psi additional 2.4711 / UNSR 30003)
» Type P-30	Stainless steel; O-ring: NBR {FPM/FKM or EPDM}
» Type P-31	Stainless steel
■ Case	Synthetic oil
Internal transmission fluid [3)]	[3)] Does not apply for P-30 with pressure ranges > 300 psi

Power Supply U+	U+ in VDC	9 ... 30 (14 ... 30 with signal output 0 ... 10 V)		
Signal output and	RA in Ohm	4 ... 20 mA, 2-wire	RA ≤ (U+ – 9 V) / 0.02 A	
maximum load RA		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		(the temperature error between 50 ... 140 °F (10 ... 60 °C)		
rated temp range		is already included in the above accuracy statement)		

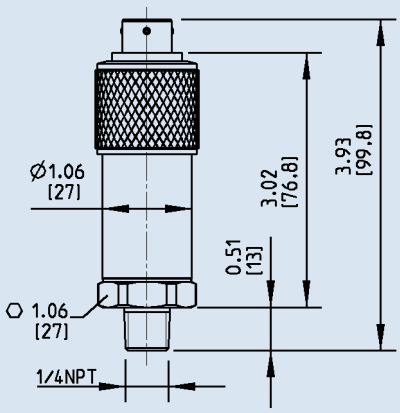
Specifications	Type P-30, P-31	
Mean TC of zero	% of span	≤ 0.1 / 10 K
Mean TC of span	% of span	≤ 0.1 / 10 K
RoHS-conformity		Yes (not available with bayonet connector)
CE-conformity		
■ Pressure equipment directive		97/23/EC
■ EMC directive		2004/108/EEC, EN 61 326 Emission (Group 1, Class B) and
		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)

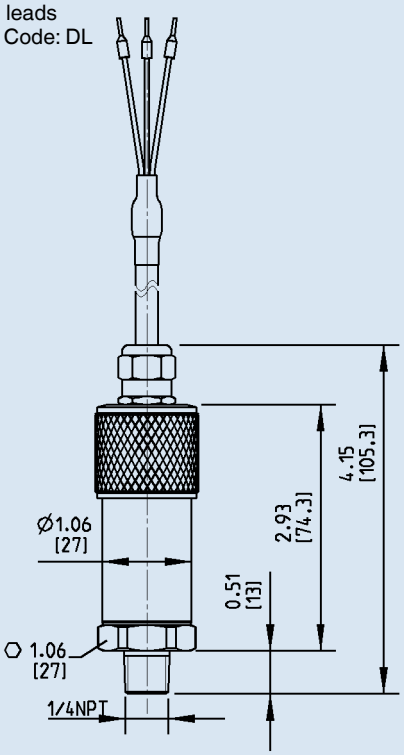
Circular connector
M12x1, 4 pin
Order Code: M4



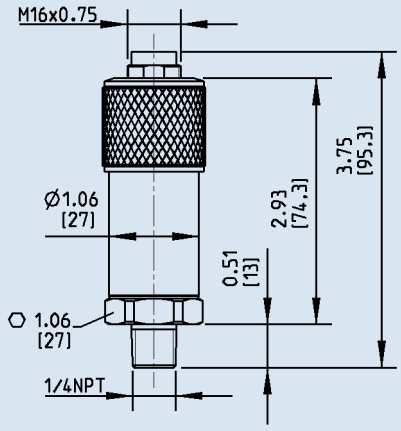
Bayonet connector, 6 pin
Order Code: C6



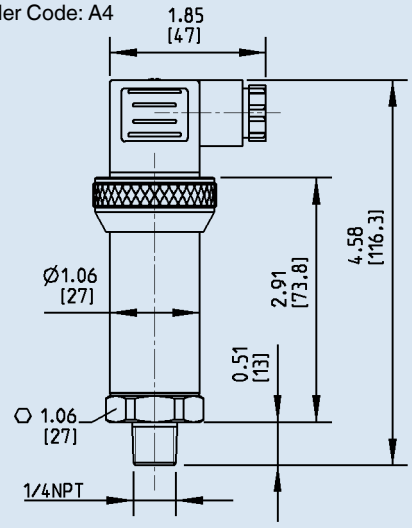
Flying leads
Order Code: DL



Circular connector
M 16x0.75
Order Code: B5

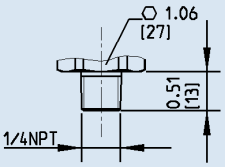


L-connector
DIN 175301-803 A
Order Code: A4

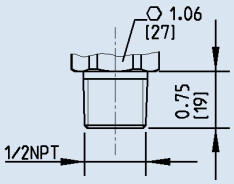


P-30 pressure connections

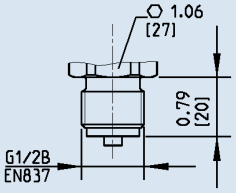
1/4 NPT Male
Order Code: NB



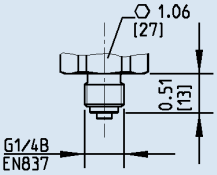
1/2 NPT Male
Order Code: ND



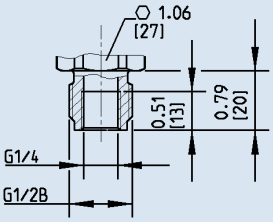
G 1/2
Order Code: GD



G 1/4
Order Code: GB

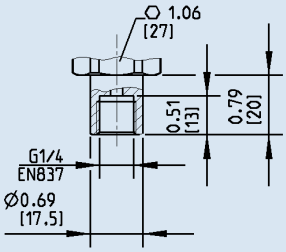


G 1/2 male /
G 1/4 female
Order Code: T4



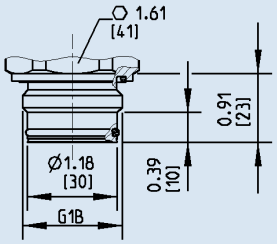
P-30 pressure connection

G 1/4 female
EN 837
with sealing copper
{stainless steel}
Order Code: TB

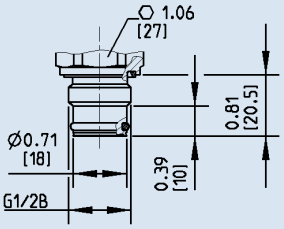


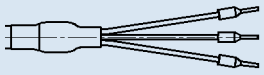
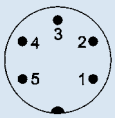
P-31 flush diaphragm pressure connections

G 1B
0 InWC to 25 psi
(0 ... 0.25 up to 0 ... 1.6 bar)



G 1/2 B
30 psi to 8,000 psi
(0 ... 2.5 up to 0 ... 600 bar)



	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 (1.5mm²)	-	AWG20 (0.5 mm²)	-	-
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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