



P05 Series

Miniature Pressure Transducer

XRI's P05 series pressure transducer is a miniature, multi-function, high-precision pressure sensor, utilizing advanced micro-machined silicon MEMS technology, unique oil-filled sensing capsule, robust EMI anti-interference design, stainless steel internal and external parts. All make P05 a pressure sensor with high precision, high reliability, and suitable for a variety of measurement applications. It's small, with a selectable pressure range and strong overpressure protection capability. The sensor can provide a variety of different electrical output methods. Currently, this series offers absolute and sealed gauge measurement modes.

About Us

- XRI Innovation, Inc. (XRI) is a vertically integrated company aimed at reaching the pinnacle of sensing-with innovative and modern designs and manufacturing technologies.
- XRI is committed to offering high-end products with technology innovation, quality control and production efficiency.
- Portfolio includes pressure, temperature, flow, position, displacement, rotational speed, gas and others. The products are positioned for high-end applications, especially in aerospace, precision manufacturing, oil and gas and transportation vehicles.
- XRI adheres to the principle that company employees as a team are the most valuable asset, and focuses on building a company that values reliability, devotion and innovation.
- XRI firmly believes that 'Satisfying Customers' Wants is the Primary Mission of XRI.

XRI is a "continuous improvement" company. Its product [datasheets](#) evolve as technology advances. Most update versions are on www.XRIINC.com

Specifications

Physical properties

Item	Description
Range ¹	Absolute or Sealed gage
Unit	MPa PSI
Measurement Range	0-2 0-300
	0-5 0-700
	0-10 0-1500
	0-35 0-5000
	0-70 0-10000
	Note: Other non-standard ranges or units can be customized
Accuracy (Combined Non-Linearity, Hysteresis and Repeatability ⁷)	A1: 0.2% FS ⁵ BFSL A2: 0.1% FS ⁵ BFSL *Other choices available upon request
Over Pressure ²	2 x FS ⁵
Burst Pressure ³	3 x FS ⁵

Mechanical Properties

Item	Description
Pressure Connection	See configuration guide
Vibration Sensitivity	< 1ppmFS ⁵ /g
Vibration Resistance	20g, Max 10-2500Hz; Shock<20ms
Housing Material	Typically 316L/17-4PH (*Other choices available upon request)
Test Medium	All gases and fluids compatible with 316L/17-4PH
Weight	≤ 13g; Cable and connector weight extra

Temperature Properties⁴

Item	Description	
Compensated Temperature Range	-40°C~125°C or within this range	
Operating and Storage Temperature Range	-55°C~150°C	
Temperature Change Coefficient or Total Error Band ⁷	EA, EB	
	Thermal Zero Shift	< ±1.5% FS ⁵ /100°C
	Thermal Sensitivity Shift	< ±1.5% FS ⁵ /100°C
	ED	
	Total Error Band ⁶	<0.5% FS ⁵ /100°C

Electrical Properties

Item	Description
Excitation/Output	See configuration guide
Electrical Circuit Bandwidth	EA, EB MEMS sensor resonant frequency ≥ 400KHz
	ED Electrical Circuit bandwidth approx 5Hz @3DB
Actual Frequency Response	EA, EB are limited by the acoustic characteristics of the cavity. Fluids medium is approx 5KHz @3DB
	ED ≤ 5Hz @3DB Note: Transducer frequency response is also related to how the transducer is installed. See XRI's official website www.XRIINC.com—Application Notes Section or consult XRI's after-sales service department for details.
Power-up Time	EA, EB < 1ms
	ED < 200ms
Zero and Full Scale Output (Room Temperature)	Within ±5% of nominal value *Other choices can be customized
Insulation Resistance	≥ 100MΩ @50VDC
Dielectric Strength	Leakage current ≤ 5mA @50VAC RMS
Max operating current	ED < 25mA
Input Impedance	EA, EB > 5000 Ω
Output Impedance	EA, EB 5000 Ω (Typical)
	ED < 150 Ω
Long-term Stability	Typically within ±0.1%FS ⁵
Electrical Connection	See configuration guide, customizable

Electrical Connection Definition

Connection Type	Pin or wire color	Purpose		
		EA	EB	ED
E8	Red	Vin+	Vin+	Vin+
	Green	Vout+	Vout+	Vout+
	White	Vout-	Vout-	
	Black	Vin-	Vin-	Vin-

1: Offers composite ranges such as from 5-100kPa Absolute Pressure.

2: Pressure exposure not exceeding proof pressure does not affect transducer performance.

3: Burst Pressure is a safety upper limit. Over this value transducer may be permanently damaged.

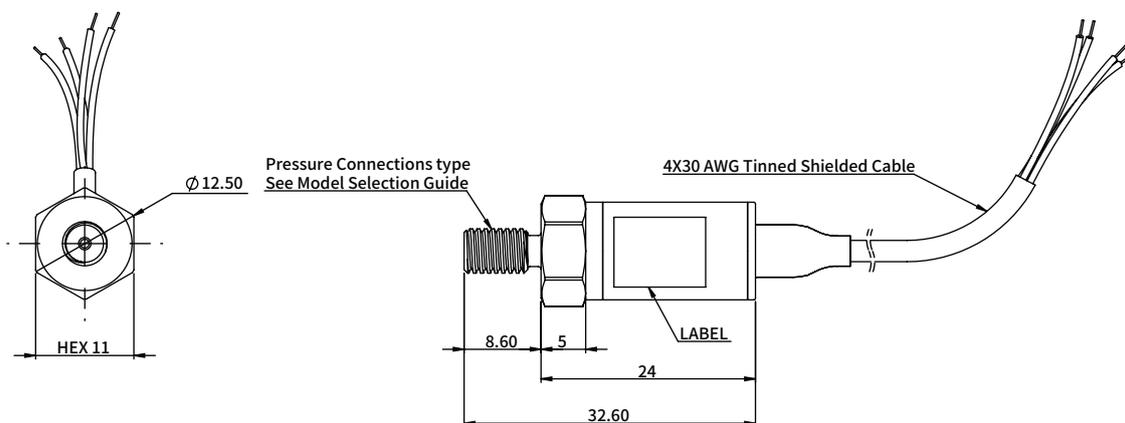
4: Temperature effects are related to sensor accuracy variations within the compensation temperature range.

5: FS= Full scale.

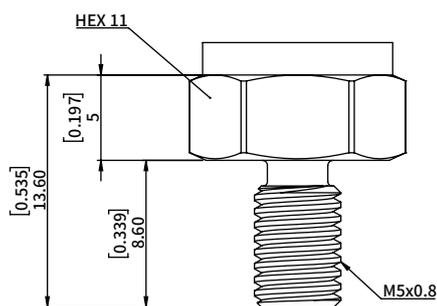
6: Error based on deviations away from the best endpoint fit straight line calibration.

7: Reference to ISA 37.1-1975(R1982).

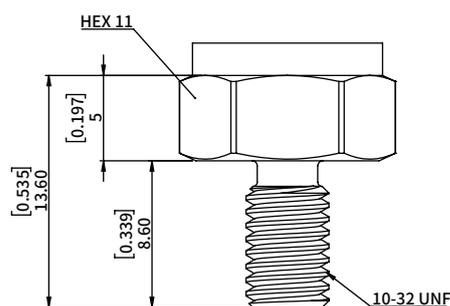
Transducer outline dimensions



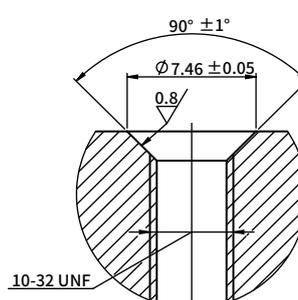
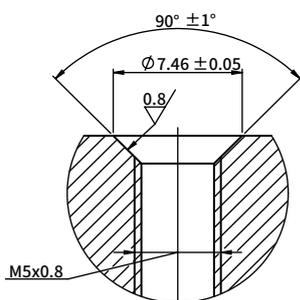
Pressure connection and Installation guide



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Mounting Torque: 0~35 MPaA, 6.5N.m

O-Ring: 3.5x1.5 mm, O-Ring property needs be compatible to measurement media types.

Configuration guide

Base Model P05

Electrical Properties

EA 0~100mv output, 10VDC supply, output proportional to supply voltage, 4-wire

EB 0~100mv output, 8-16VDC supply, output independent of supply voltage, 4-wire

ED 0.5~4.5V output, 8~32VDC power supply, high precision digital compensation, 3-wire

Electrical Connector

E8 4x30AWG (1m length) Tinned Shielded cable

Other choices available upon request

Pressure Connections

P30 M5x0.8 External Thread

P31 10-32 UNF External Thread

Other choices available upon request

Temperature Compensation

TA 25°C~80°C TE -10°C~50°C

TB -20°C~125°C TF -20°C~80°C

TC -40°C~125°C TG -40°C~80°C

Accuracy

A1 0.2%FS BFSL

A2 0.1%FS BFSL

Other choices available upon request

Calibration report

CA 6 points room temperature pressure calibration data

CB 5 temperature points pressure data

Range	Unit	Pressure types
(0-35)	MPaA	Absolute
(0-35)	MPaS	Sealed Gage

Special requests

S: Refer to the purchase contract

Example: P05 -EB -E8 -P30 -TA -A1 -CA -(0-20)MPaA -S