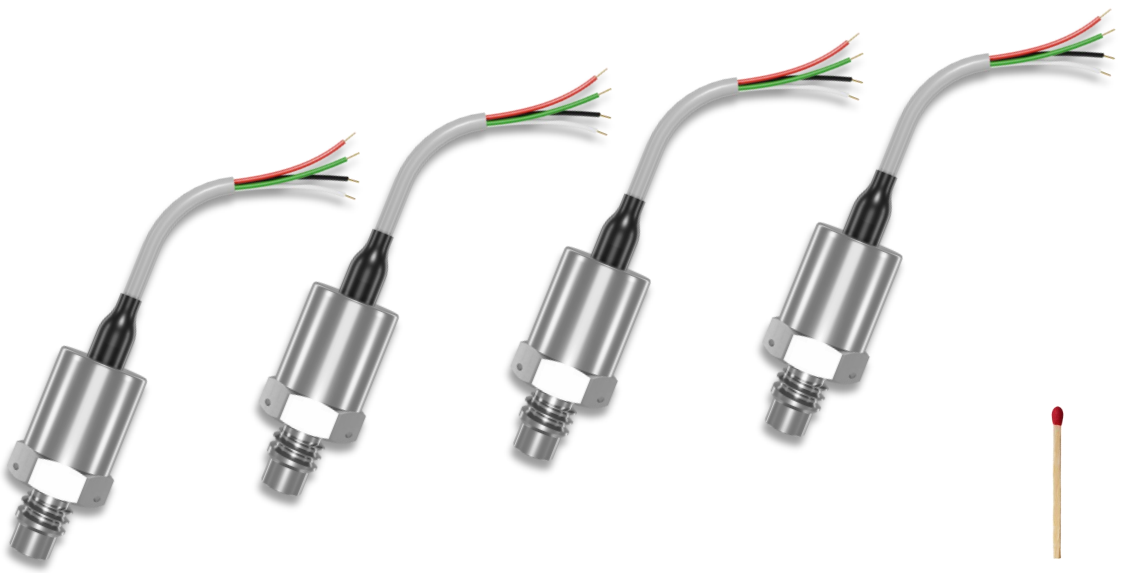


P08 Series

Miniature Pressure Transducer

XRI's P08 series pressure transducer is a small, 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 P08 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 over pressure 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

- *XR 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 Presssure[2]	2 x FS[5]	
Burst Presssure[3]	3 x FS[5]	
Working Principle	Full four arm Wheatstone bridge MEMS sensor	
Sensor Resonant Frequency	＞400KHz	

Mechanical Properties

Item	Description
Pressure Connection	See configuration guide
Vibration Sensitivity	＜1ppm FS[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	⩽15g; Cable and connector weight extra

Temperature Properties[4]

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

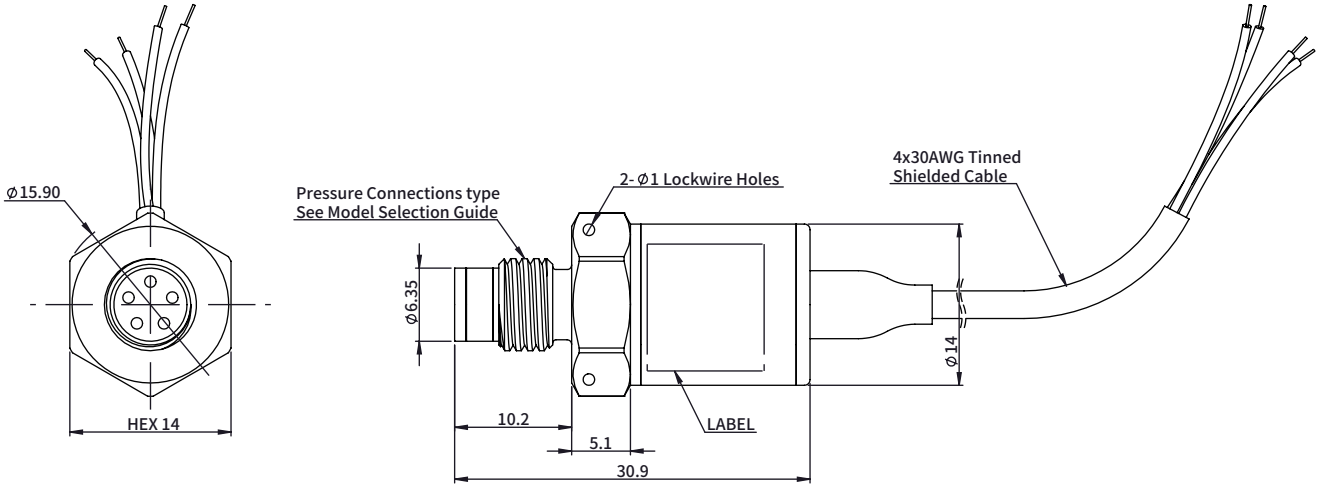
Item	Description
Excitation/Output	See configuration guide
Electrical Circuit Bandwidth	EA、EB MEMS sensor resonant frequency ⩾ 400KHz
	ED Electrical Circuit bandwidth approx 5Hz @3DB
Actual Frequency Response	EA、EB ⩽ MEMS sensor resonant frequency @3DB
	ED ⩽ 5Hz @3DB
	Note: Transducer frequency response 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 ＞ 5000Ω
Output Impedance	EA、EB 5000Ω (Typical)
	ED ＜ 150Ω
Long-term Stability	Typically within ±0.1%FS[5]
Electrical Connection	See configuration guide, customizable

Electrical Connection Definition

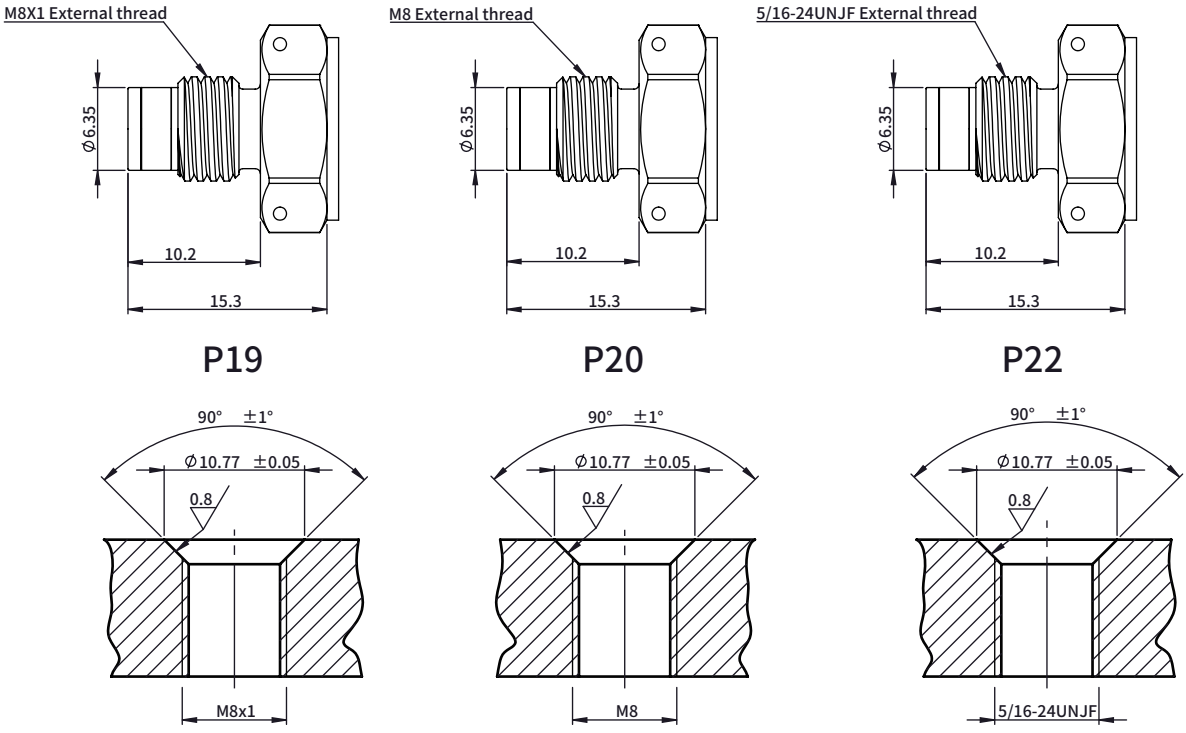
Connection Type	Pin or wire color	Purpose		
		EA	EB	ED
E8	Red	Vin+	Vin+	Vin+
	Green	Vout+	Vout+	Vout+
	White	Vout-	Vout-	
	Black	Vin-	Vin-	Vin-

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



Mounting Torque: 0~35MPaA, 10N.m
35~70MPaA, 22N.m

O-Ring: ID 6.07mm, Cross Section Diameter 1.63mm, O-Ring property needs be compatible to measurement media types

Configuration guide

Base Model P08

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

P19 M8x1 External Thread

P20 M8 External Thread

P22 5/16-24 UNJF 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
(0-70)	MPaA	Absolute
(0-70)	MPaS	Sealed Gage

Special requests

S： Refer to the purchase contract

Example: P08 -EB -E8 -P19 -TA -A1 -CA -(0-20) MPaA -S