

PRECISION MICRO-MACHINED SILICON TRANSDUCERS AND TRANSMITTERS

Gauge Pressure, Absolute, Vacuum, Compound and Barometric Ranges
±25 mbar to 0-350 bar Ranges
10 mV/V, 0 to 10 Vdc or 4-20 mA Outputs

0.08% Accuracy Standard

PXM409 Series



- ✓ 5-Point Agency Traceable Calibration Included
- ✓ Gauge, Compound Gauge, Absolute, Vacuum and Barometric Pressure Ranges Available
- ✓ Welded Stainless Steel Construction
- ✓ 316 SS Wetted Parts
- ✓ Premium Temperature Performance
- ✓ Broad Compensated Temperature Range
- ✓ Ruggedized with Secondary Containment

The PXM409 Series use a micro-machined piezoresistive silicon element for high accuracy and all stainless steel wetted parts for durability and superior chemical compatibility. Their high accuracy combined with very high thermal compensation (0.7% typ.) over the compensated range make the PXM409 series ideal for scientific or industrial applications requiring a rugged, high accuracy transducer with very low thermal drift. They can be used in test benches, laboratory testing, engine testing, ground test stations and other industrial applications requiring



PXM409-001BGV, shown smaller than actual size.



PXM419-007BGI, shown smaller than actual size.



PXM459-002BAV, shown smaller than actual size.

durable, precision transducers. Their standard accuracy is a high industrial grade accuracy of 0.08%. The modular construction allows for fast delivery of most models (typically 2-week maximum). Models are available with gauge (relative), compound gauge, absolute, vacuum (negative gauge) and barometric pressure ranges.

SPECIFICATIONS

Accuracy: Standard ±0.08% FS, BSL, linearity, hysteresis and repeatability combined (compound ranges calibrated only in positive direction)

Operating Temperature:

mV/V Output: -45 to 121°C (-49 to 250°F)

Amplified Output: -45 to 115°C (-49 to 239°F)

Compensated Temperature Range:

25 to 350 mB: -18 to 85°C (0 to 185°F)

1 to 350 bar: -29 to 85°C (-20 to 185°F)



PXM409: 2 m (6.6') cable IP67 rating



PXM459: M12 connector IP67 rating, absolute IP65 rating, gauge



PXM419: mini DIN IP67 rating, absolute IP65 rating, gauge

Thermal Accuracy: % span shift over compensated temperature range

25 to 350 mB:

Zero: ±1.0% max

Span: ±1.0% max

1 to 350 bar:

Zero: ±0.50% max

Span: ±0.50% max

ROHS Compliant

Minimum Isolation Between Case and Terminations: 100 MΩ @ 50 Vdc

Pressure Cycles: 1 million, minimum

Long Term Stability (1-Year):

±0.1% FS typical

Shock: 50 g, 11 ms half sine shock, vertical and horizontal

Vibration: 5-2000-5 Hz 30 minute cycle, Curve L, Mil Spec 810 figure 514-2-2, vertical and horizontal

Bandwidth: DC to 1 kHz typical

Response Time: <1 ms

CE Compliant: Industrial Level

Emissions: IEC550022 Class B

Electrostatic Discharge Immunity:

IEC1000-4-2

EM Field Immunity: IEC61000-4-3

EFT Immunity: IEC61000-4-4

Surge Immunity: IEC61000-4-5

Conducted RF: IEC61000-4-6

Rate Power Frequency Magnetic Field: IEC61000-4-8

Environmental Protection:

PXM409: IP67

PXM419: IP65 gauge, IP67 Abs

PXM459: IP65 gauge, IP67 Abs

Proof Pressure Gauge/Vac/Compound:

25 mB: 10 times span

70 mB: 6 times span

170 mB to 100 bar: 4 times span

175 to 350 bar: to 500 bar max

Proof Pressure Absolute:

350 mB to 100 bar: 4 times span

175 to 350 bar: to 500 bar max

Secondary Containment; Gauge/Vac/Compound:

25 to 350 mB: to 70 bar

1 to 70 bar: to 200 bar

100 to 350 bar: to 700 bar

Absolute/Barometric:

350 mB: to 70 bar

1 to 70 bar (Includes Barometric Ranges): to 200 bar

100 to 350 bar: to 700 bar

Wetted Parts: 316L SS

Electrical Terminations

PXM409: 2 m (6.6') cable

PXM419: mini DIN with mating connector

PXM459: M12 4-pin

Pressure Port: G $\frac{1}{4}$ standard

Weight: 115 to 200 gm depending upon configuration

Electrical Outputs

mV/V Output:

Output: 10 mV/V ratiometric

Supply Voltage: 5 to 10 Vdc (5 mA @ 10 Vdc)

Zero Balance:

Ranges > 170 mB: ±0.5% typ (1% max)

Ranges ≤ 170 mB: ±1% typ (2% max)

Span Setting:

Ranges > 170 mB: ±0.5% typ (1% max)

Ranges ≤ 170 mB: ±1% typ (2% max)

Input/Output Resistance: 5000 Ω ±20%

Voltage Output:

Output: 0 to 10 Vdc

Supply Voltage: 15 to 30 Vdc @ 10 mA (±10 Vdc or compound)

Zero Balance:

Ranges > 170 mB: ±0.5% typ (1% max)

Ranges ≤ 170 mB: ±1% typ (2% max)

Span Setting:

Ranges > 170 mB: ±0.5% typ (1% max)

Ranges ≤ 170 mB: ±1% typ (2% max)

Current Output:

Output: 4 to 20 mA (zero pressure = 12 mA on compound ranges)

Supply Voltage: 9 to 30 Vdc (9 to 20 Vdc above 105°C) max loop resistance = (Vs-9) x 50 Ω

Zero Balance:

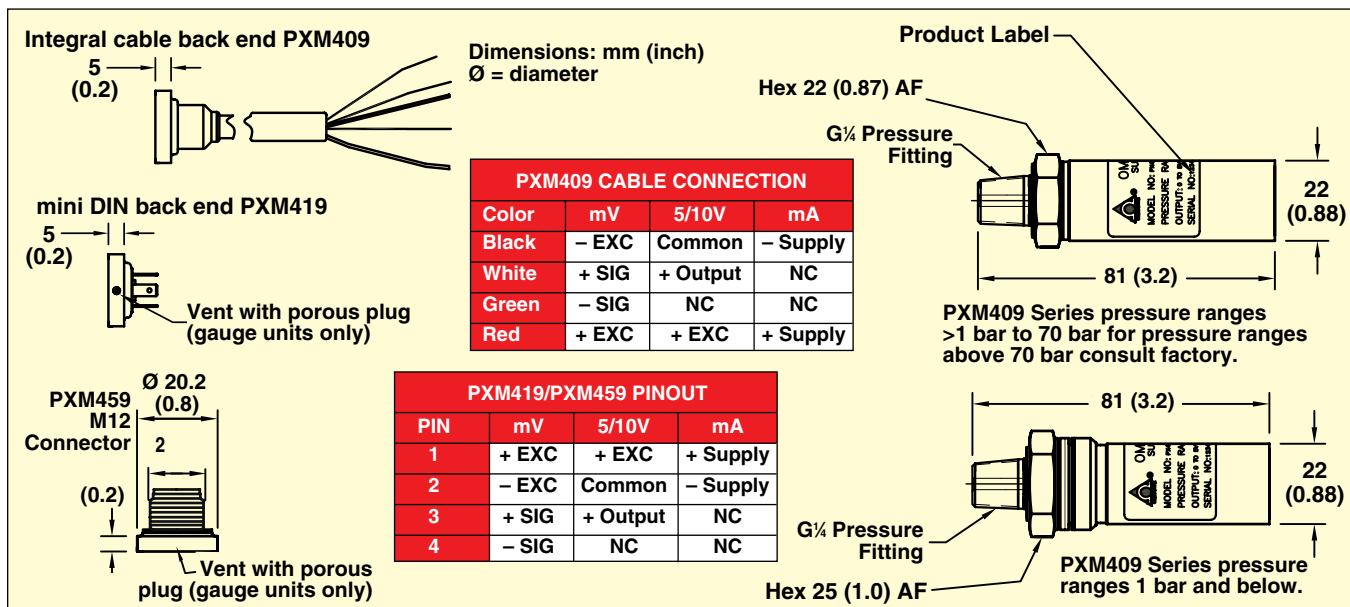
Ranges > 170 mB: ±0.5% typ (1% max)

Ranges ≤ 170 mB: ±1% typ (2% max)

Span Setting:

Ranges > 170 mB: ±0.5% typ (1% max)

Ranges ≤ 170 mB: ±1% typ (2% max)

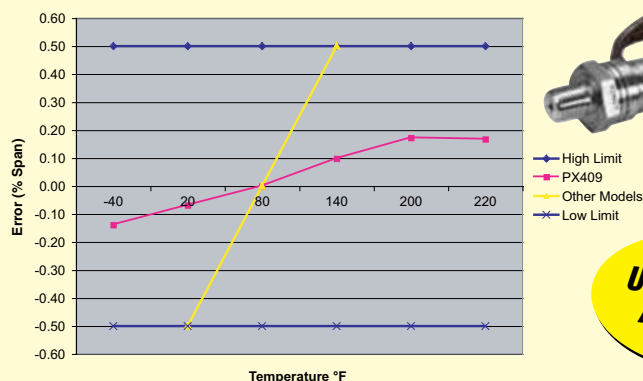


Gauge and Absolute Pressure Models



Thermal Effects -29 to 85°C (-20 to 185°F)

Span Error: 100 psig



USB Models Available

High 0.08% Accuracy Models

To Order

RANGE	MODEL NO. 0.08% ACCURACY	DESCRIPTION
GAUGE (RELATIVE) PRESSURE		
25 mbar (hPa)	PXM4[*]9-025HG[**]	25 mbar gauge pressure
70 mbar (hPa)	PXM4[*]9-070HG[**]	70 mbar gauge pressure
170 mbar (hPa)	PXM4[*]9-170HG[**]	170 mbar gauge pressure
350 mbar (hPa)	PXM4[*]9-350HG[**]	350 mbar gauge pressure
1 bar	PXM4[*]9-001BG[**]	1 bar gauge pressure
2 bar	PXM4[*]9-002BG[**]	2 bar gauge pressure
3.5 bar	PXM4[*]9-3.5BG[**]	3.5 bar gauge pressure
7 bar	PXM4[*]9-007BG[**]	7 bar gauge pressure
10 bar	PXM4[*]9-010BG[**]	10 bar gauge pressure
17.5 bar	PXM4[*]9-17.5BG[**]	17.5 bar gauge pressure
35 bar	PXM4[*]9-035BG[**]	35 bar gauge pressure
50 bar	PXM4[*]9-050BG[**]	50 bar gauge pressure
70 bar	PXM4[*]9-070BG[**]	70 bar gauge pressure
100 bar	PXM4[*]9-100BG[**]	100 bar gauge pressure
175 bar	PXM4[*]9-175BG[**]	175 bar gauge pressure
245 bar	PXM4[*]9-245BG[**]	245 bar gauge pressure
350 bar	PXM4[*]9-350BG[**]	350 bar gauge pressure
ABSOLUTE PRESSURE		
350 mbar (hPa)	PXM4[*]9-350HA[**]	350 mbar absolute pressure
1 bar	PXM4[*]9-001BA[**]	1 bar absolute pressure
2 bar	PXM4[*]9-002BA[**]	2 bar absolute pressure
3.5 bar	PXM4[*]9-3.5BA[**]	3.5 bar absolute pressure
7 bar	PXM4[*]9-007BA[**]	7 bar absolute pressure
10 bar	PXM4[*]9-010BA[**]	10 bar absolute pressure
17.5 bar	PXM4[*]9-17.5BA[**]	17.5 bar absolute pressure
35 bar	PXM4[*]9-035BA[**]	35 bar absolute pressure
50 bar	PXM4[*]9-050BA[**]	50 bar absolute pressure
70 bar	PXM4[*]9-070BA[**]	70 bar absolute pressure
100 bar	PXM4[*]9-100BA[**]	100 bar absolute pressure
175 bar	PXM4[*]9-175BA[**]	175 bar absolute pressure
245 bar	PXM4[*]9-245BA[**]	245 bar absolute pressure
350 bar	PXM4[*]9-350BA[**]	350 bar absolute pressure

[*] [**] See next page for selection.

Vacuum, Compound and Barometric Pressure Models



PXM409 SERIES SILICON WAFER TECHNOLOGY

PXM409 Series uses a highly stable silicon wafer which is micro-machined to precision tolerances and then has strain gauges molecularly embedded into it.

Strain gauges shown larger than actual size.

High 0.08% Accuracy Models

To Order		
RANGE	MODEL NO. 0.08% ACCURACY	DESCRIPTION
VACUUM (NEGATIVE GAUGE) RANGES (ZERO OUTPUT = AMBIENT)		
25 mbar (hPa)	PXM4[*]9-025HV[**]	25 mbar vacuum (negative gauge)
70 mbar (hPa)	PXM4[*]9-070HV[**]	70 mbar vacuum (negative gauge)
170 mbar (hPa)	PXM4[*]9-170HV[**]	170 mbar vacuum (negative gauge)
350 mbar (hPa)	PXM4[*]9-350HV[**]	350 mbar vacuum (negative gauge)
1 bar	PXM4[*]9-001BV[**]	1 bar vacuum (negative gauge)
COMPOUND GAUGE RANGES† (BI-DIRECTIONAL OUTPUT)		
±25 mbar (hPa)	PXM4[*]9-025HCG[**]	±25 mbar compound gauge
±70 mbar (hPa)	PXM4[*]9-070HCG[**]	±70 mbar compound gauge
±170 mbar (hPa)	PXM4[*]9-170HCG[**]	±170 mbar compound gauge
±350 mbar (hPa)	PXM4[*]9-350HCG[**]	±350 mbar compound gauge
±1 bar	PXM4[*]9-001BCG[**]	±1 bar compound gauge
BAROMETRIC (ABSOLUTE) PRESSURE RANGES		
0 to 1100 hPa	PXM4[*]9-1100HB[**]	0 to 1100 mbar barometric
550 to 1100 hPa	PXM4[*]9-550HB[**]	550 to 1100 mbar barometric
880 to 1100 hPa	PXM4[*]9-880HB[**]	880 to 1100 mbar barometric

ACCESSORIES

MODEL NO.	DESCRIPTION
CX5302	Replacement micro mini DIN connector for PXM419, 4 contacts on 9.4 mm (0.37") spacing with PG7 gland
CX5303	Micro mini DIN connector, 4 contacts on 9.4 mm (0.37") spacing with ½" conduit fitting
M12C-PVC-4-S-F-5	PVC cable, straight 4-pin M12 female connector one end, flying leads one end, 5 m (16') long
M12C-PVC-4-S-F-10	PVC cable, straight 4-pin M12 female connector one end, flying leads one end, 10 m (32') long
COMPATIBLE PANEL METERS	
DP25B-S	4-digit strain meter for mV/V transducers
DP25B-E	4-digit process meter for 10V or 4 to 20 mA transducers
DP41-B	6-digit process meter for 10V or 4 to 20 mA transducers

[*] Select Electrical Termination: 0 = 2 m (6') cable, 1 = mini DIN, 5 = M12, 4-pin male connector.

[**] Select Output: V = 10 mV/V, 10V = 0 to 10 Vdc, I = 4 to 20 mA.

† Compound range models are calibrated in the positive direction only.

Ordering Examples: PXM409-007BGV, 0.08% accuracy, 7 bar range, 10 mV/V output, cable termination.

PXM419-001BAI, 0.08% accuracy, 1 bar absolute range, 4 to 20 mA output, mini DIN termination.

PXM459-350HV10V, 0.08% accuracy, 350 mbar Vacuum (ambient to -350 mB) range, 0 to 10 Vdc output, M12 termination.