MICROMACHINED SILICON MODULAR PRESSURE SENSOR

NEW

Configurable—High Accuracy—High Temperature Performance For Industrial, Test and Measurement, and Aerospace Applications

Low Pressure from 10 in-H_2O to 2.5 psi and Standard Ranges from 5 to 5000 psi

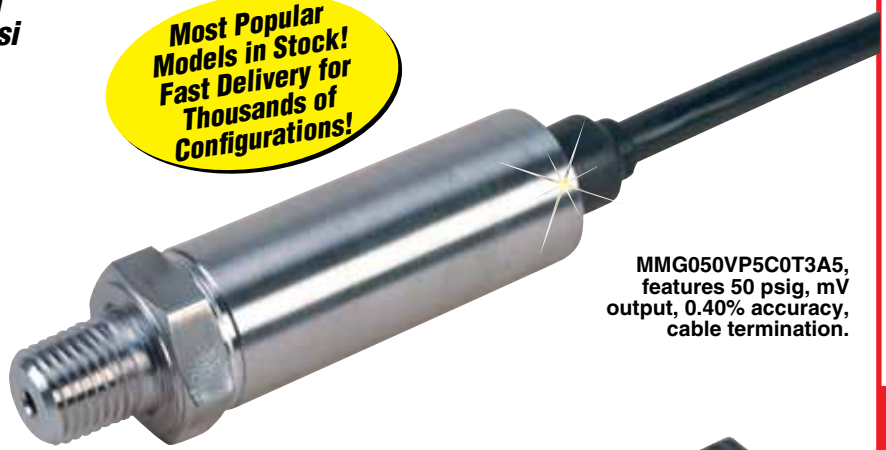
Metric Ranges: 25 mbar to 350 bar

Most Popular Models in Stock! Fast Delivery for Thousands of Configurations!

MM Series Pressure Transducers

MADE IN USA · NIST · CE · RoHS

Standard Optional



MMG050VP5C0T3A5, features 50 psig, mV output, 0.40% accuracy, cable termination.

B

- Customer Selectable Features
- Fast Delivery
- High Accuracy
- Up to ±0.03% Linearity
  - Available Accuracies:
    - ±0.05% FS BSL Accuracy
    - ±0.08% FS BSL Accuracy
    - ±0.20% FS BSL Accuracy
    - ±0.40% FS BSL Accuracy
- Premium Temperature Performance
- Broad Compensated Range
- Gage, Absolute, Barometric, Vacuum,
  - Compound and Differential
    - 5-Point NIST Traceable Calibration

MMG100C1P5C6T3A5, features 100 psig 4 to 20 mA output, 0.40% accuracy, mini DIN termination.

MMG10WVP3C1T2A2, features 0 to 10 in-H_2O, mV output, 0.08% accuracy, twist-lock termination.

All models shown actual size.

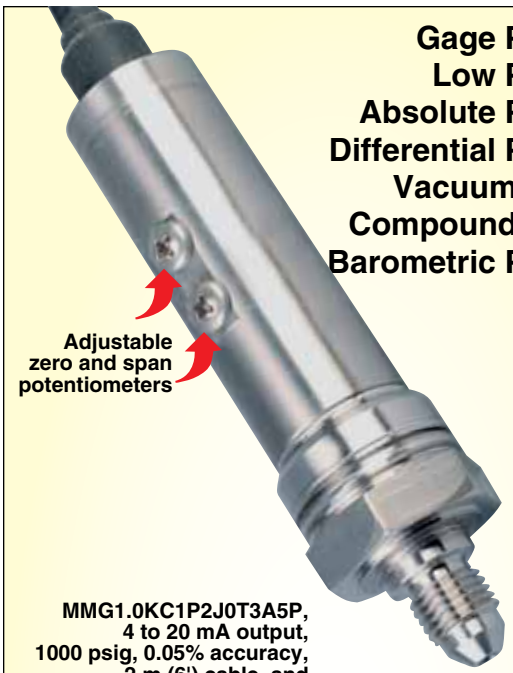
1 Week Delivery on Custom Configurations

MMDWU015VP5C1T3A5, features 15 psid, mV output, 0.40% accuracy, twist-lock termination.

Note: *BSL = Best Straight Line.*

ONE SOURCE FOR ALL YOUR PRESSURE MEASUREMENT APPLICATIONS

Gage Pressure
Low Pressure
Absolute Pressure
Differential Pressure
Vacuum Ranges
Compound Ranges
Barometric Pressure



Adjustable zero and span potentiometers

MMG1.0KC1P2J0T3A5P, 4 to 20 mA output, 1000 psig, 0.05% accuracy, 2 m (6') cable, and optional potentiometers.

MMG100C1P5C6T3A5, features 100 psig 4 to 20 mA output, 0.40% accuracy, mini DIN termination.

All models shown actual size.

MMS20A015C1P31T6A5, 15 psia 4 to 20 mA output, 2" sanitary fitting, 0.08% accuracy, twist-lock termination.

omega.com®

OMEGA®

OMEGA has developed a rapid delivery system for its new Micro Machined Silicon product line.

You can have your pick of pressure ports, electrical connections, pressure range and units, thermal range and accuracy and accessories like trim pots. There are over 1-million possible combinations. OMEGA can deliver reasonable quantities of almost any combination within 5 working days. We have an easy-to-use configurator online at **omega.com** where you can select the transducer with the exact specifications for your project.

We also have the most popular configurations stocked for same day shipment!

OMEGA's micro-machined piezoresistive pressure transducers have a proven record in high performance commercial, automotive, test and measurement and aerospace applications. The piezoresistive process uses strain gages molecularly embedded into a highly stable silicon wafer. The silicon wafer is diced into individual die which each contain a full strain gage bridge. The die is mounted in a sealed chamber protected from the environment by glass to metal seals and a pressure sensitive stainless steel diaphragm. A small volume of silicone oil transfers the pressure from the diaphragm to the strain bridge. The construction provides a very rugged transducer with exceptional accuracy, stability and thermal effects.

A unique design ruggedizes the transducers by providing secondary fluid containment in the event of a diaphragm rupture.

- **Five Accuracies**
- **Ninety-Two Pressure Ranges**
- **Ten Electrical Outputs**
- **Four Thermal Ranges**
- **Fourteen Pressure Ports**
- **Five Electrical Terminations**
- **Over 1,000,000 Combinations!**

MM SERIES

MMG1.0KC1P4J0T3A5P, 4 to 20 mA output, 1000 psig, 0.20% accuracy with potentiometers.

MMG100C1P5C6T3A5, features 100 psig, 4 to 20 mA output, 0.40% accuracy, mini DIN termination.

MMG1.0KC1P2C2T3A5, features 1000 psig, 4 to 20 mA output, 0.05% accuracy, cable termination with ½ NPT conduit fitting.

B

CABLE CONNECTION			
COLOR	mV	5/10V	mA
BLACK	– EXC	Common	– EXC
WHITE	+ SIG	+ Out	+ CAL
GREEN	– SIG	SHUNT	SHUNT
RED	+ EXC	+ EXC	+ EXC

M12, MINI DIN AND SOLDER PINS CONNECTION			
PIN	mV	5/10V	mA
1	+ EXC	+ EXC	+ Supply
2	– EXC	Common	– Supply
3	+ OUT	+ Output	NC
4	– OUT	NC	NC

TWIST-LOCK CONNECTION			
PIN	mV	5/10V	mA
A	+ EXC	+ EXC	+ EXC
B	– EXC	Common	– EXC
C	+ OUT	+ OUT	+ SHUNT
D	– OUT	+ SHUNT	+ SHUNT
E	NC	NC	NC
F	NC	NC	NC

COMMON SPECIFICATIONS G/A/V/CG/BARO

Approvals: RoHS and CE
Calibration: 5-point NIST traceable
Bandwidth: DC to 1 kHz typical
Response Time: < 1 ms
CE Compliant: IEC61326
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
Minimum Resistance Between Body and Any Wire: 100 MΩ @ 50 Vdc
Weight: 115 to 200 g (4 to 7 oz) (depending upon configuration)

Environmental

Operating Temperature: -45 to 121°C (-49 to 250°F)
Protection:
Cable: 2 m (6') IP67
mini DIN: IP65
Twist-Lock and M12: IP65
Conduit 2 m (6') Cable with ½ NPT Conduit Fitting: IP67

Mechanical

Wetted Parts: 316L stainless steel
Media: Compatible with 316L SS
Pressure Cycles: 1 million minimum
Long Term Stability (1-Year): ±0.1% FS typical
Shock: 50 g, 11 mS half sine, vertical and horizontal axis
Vibration: 5-2000-5 Hz, 30 minute cycle, curve L, mil-spec 810 figure 514-2-2, vertical and horizontal axis
Overpressure Gage Pressure:
10-in H_2O: 10 times span
1 psi: 6 times span
2.5 psi to 3500 psi: 4 times span
5000 psi: 15,000 psi max
Overpressure Absolute Pressure:
5 psia: 6 times span
2.5 psia to 3500 psia: 4 times span
5000 psia: 15000 psi max

Secondary Containment

Gage/Diff/Vac/Compound:
10 in-H_2O to 5 psi: To 1000 psi
15 to 1000 psi: To 3000 psi
1500 to 5000 psi: To 15,000 psi
Absolute/Barometric:
5 to 1000 psi: To 6000 psia
1500 to 5000 psi: To 15,000 psia

Excitation

3 mV/V: 10 Vdc (ratiometric 5 to 10 Vdc)
10 mV/V: 10 Vdc (ratiometric 5 to 10 Vdc)
0 to 5 Vdc: 10 to 30 Vdc @ 10 mA
0 to 10 Vdc: 15 to 30 Vdc @ 10 mA
4 to 20 mA: 9 to 30 Vdc (9 to 20 Vdc above 229°F)
Bipolar Amplifiers: Same as corresponding outputs from above—compound and some differential pressure models

MM SERIES SANITARY PROCESS SENSORS

Using Micro-Machined Silicon Technology
10 mV/V, 0 to 5 Vdc, 4 to 20 mA Outputs

Gage Pressure: 10 inH$_2$O to 600 psi (25 mb to 41 bar)
Absolute Pressure: 5 to 600 psi (345 mb to 41 bar)
Compound Gage: ±10 inH$_2$O to ±15 psi (±25 mb to ±1 bar)
Vacuum (Negative Gage): 0 to -10 inH$_2$O to 0 to -15 psi (25 mb to 1 bar)
Barometric Ranges: 0 to 32 inHg to 26 to 32 inHg

Sanitary Pressure Transducers and Transmitters

MADE IN USA · NIST Standard · CE · 3A 74-03 · RoHS

- **High, 0.08% Accuracy**
- **Solid State Sensor for Durability**
- **Excellent Long Term Stability**
- **Welded Stainless Steel Construction**
- **316L SS Wetted Parts**
- **Shock and Vibration Rated**
- **High Overpressure Rating**
- **Ruggedized with Secondary Containment System**

The MM Series micro-machined silicon transducers with 1½ or 2" sanitary fittings are ideal for pressure or level CIP applications in food processing, beverage or bio/pharmaceutical applications as well as industrial applications that require a rugged, high accuracy transducer. The micro-machined silicon sensor provides a transducer with excellent long term stability. The modular construction allows for fast delivery of most configurations and fittings.

PX429S15-015GV, shown smaller than actual size.

PX419S20-100AV, shown smaller than actual size.

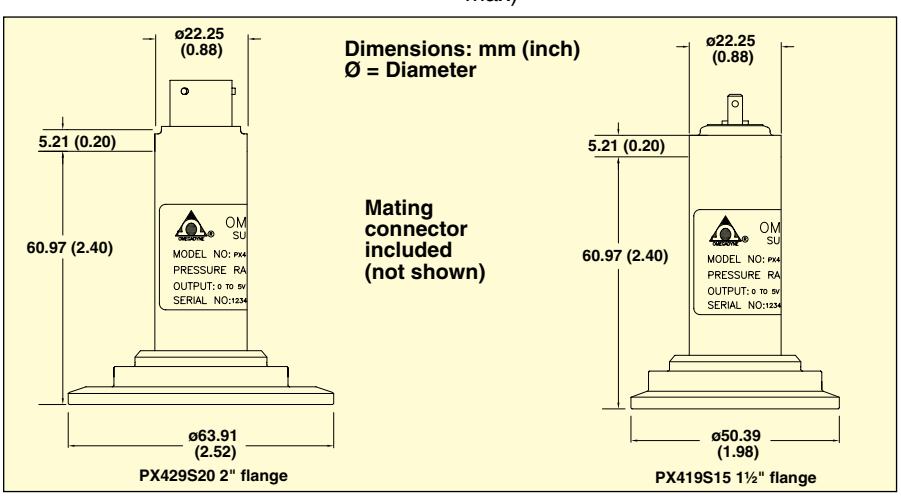
COMMON SPECIFICATIONS SANITARY

Accuracy: 0.4% to 0.05% best straight line (linearity, hysteresis and repeatability combined) compound gage models calibrated in positive direction only

Calibration: 5-point NIST traceable calibration with zero and span values, calibrated in horizontal direction

Zero Balance: ±0.5% FS typical ±1% max (for ranges ≤2.5 psi ±1% typ. ±2% max)

Span Setting: ±0.5% FS typical ±1% max (for ranges ≤2.5 psi ±1% typ. ±2% max)



Operating Temperature Range:
-15 to 115°C (-5 to 240°F)

Compensated Temperature Range:
Ranges ≤ 5 psi: 4.4 to 60°C (40 to 140°F)
Ranges > 5 psi: -4 to 85°C (25 to 185°F)

Temperature Compensation:

Zero and Span Shift Over Compensated Range
Ranges ≤ 25 psi:
Zero: 1.00%
Span: 0.70%
Range = 5 psi:
Zero: 0.80%
Span: 0.50%
Ranges > 5psi:
Zero: 0.50%
Span: 0.50%
26B & 26HB Barometric Range:
Zero: 0.90%
Span: 0.50%

Minimum Isolation Between Case and Output Terminations:
100M Ω @ 50 Vdc

Pressure Cycles: 1 million, min

Long Term Stability (1-Year): ±0.1% FS typ.

Shock: 50 g, 11 mS half sine shock, (under test)

Vibration: ±20 g (under test)

Bandwidth: DC to 1 kHz typical

Response Time: <1 mS

Fill Fluid: NEOBEE M5 food grade

Approved to 3A Sanitary Specification 74-03

CE Compliant: Meets industrial emissions and immunity standard IEC61326 for industrial locations

High Accuracy Pressure Transducers

Piezoresistive Design With High Temperature Performance

All images shown smaller than actual size.

Cable style.

PX409S Series

PX409 Cable Connection			
Color	mV	5/10V	mA
Black	– EXC	Common	– Supply
White	+ SIG	+ Output	NC
Green	– SIG	NC	NC
Red	+ EXC	+ EXC	+ Supply

mini DIN and M12 style.

PX419S Series

PX459S M12 connector.

PX419/PX459 Pinout			
Pin	mV	5/10V	mA
1	+ EXC	+ EXC	+ Supply
2	– EXC	Common	– Supply
3	+ SIG	+ Output	NC
4	– SIG	NC	NC

Twist-lock style.

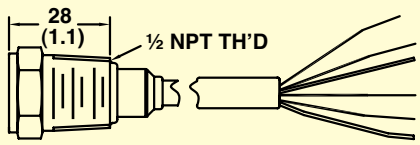
PX429S Series

PX429 Twist-Lock Pinout			
Pin	mV	5/10V	mA
A	+ EXC	+ EXC	+ Supply
B	– EXC	Common	– Supply
C	+ SIG	+ Output	NC
D	– SIG	NC	NC
E	NC	NC	NC
F	NC	NC	NC

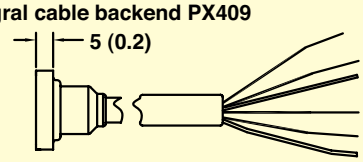
NC = No Connection.

Dimensions: mm (inch)

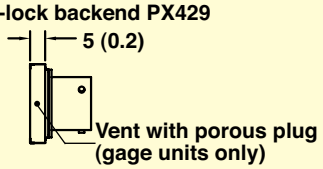
Conduit backend PX409C



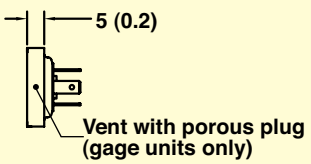
Integral cable backend PX409



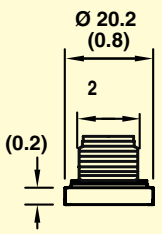
Twist-lock backend PX429



mini DIN backend PX419



2 connector bac end



Environmental Protection:
IP65 or IP67 depending upon electrical termination

Pressure Rating:
½ and 2" Tri-Grip™ (compatible with Tri-Clamp®)

Fitting: 600 psi using suitable clamp

Over Pressure: 4 x rated pressure to maximum rated flange pressure

Secondary Containment: 6 x rated pressure to a maximum of 2000 psi (not in clamp)

Wetted Parts:
316L SS

Weight: 285 g (10 oz)

OUTPUT SPECIFICATIONS

Specifications (mV/V Output)

Output: 10 mV/V: ratiometric 5 to 10 Vdc

Supply: 5 to 10 Vdc

Specifications (Amplified Voltage Output)

Output/Supply:

0 to 5 Vdc: 10 to 30 Vdc

0 to 10 Vdc: 15 to 30 Vdc

Specifications (4 to 20 mA Output)

Output/Supply:

Output: 4 to 20 mAdc

Supply: 9 to 30 Vdc
[9 to 20 Vdc above 105°C (229°F)]
max loop res Ω = (Vs-9) x 50

B

USB Output Sanitary Fitting Pressure Transducer

Connect Directly to Your PC or Laptop

Gage, Absolute, Compound Gage, Vacuum and Barometric Pressures 10 inH2O to 600 psi (25 mb to 41 bar)

MM Sanitary USB Series

MADE IN USA · NIST Standard · CE · 3A 74-03 · RoHS

USB SANITARY SPECIFICATIONS

Accuracy: 0.08% typical best straight line, 0.14% max (linearity, hysteresis and repeatability combined) compound gage models calibrated in positive direction only

Calibration: 5-point NIST traceable calibration with zero and span values calibrated in horizontal direction

Zero Balance: ±0.5% FS typical ±1% max (for ranges ≤2.5 psi ±1% typical ±2% max)

Span Setting: ±0.5% FS typical ±1% max (for ranges ≤2.5 psi ±1% typical ±2% max)

Operating Temperature Range: -15 to 95°C (-5 to 203°F)

Compensated Temperature Range:
- **Ranges ≤ 5 psi:** 4.4 to 60°C (40 to 140°F)
- **Ranges > 5 psi:** -4 to 85°C (25 to 185°F)

Temperature Compensation

Zero and Span Shift Over Compensated Range:
- **Ranges ≤2.5 psi:**
  - **Zero:** 1.00%
  - **Span:** 0.70%
- **Range = 5 psi:**
  - **Zero:** 0.80%
  - **Span:** 0.50%
- **Ranges > 5psi:**
  - **Zero:** 0.50%
  - **Span:** 0.50%
- **26B/26HB Barometric Range:**
  - **Zero:** 0.90%
  - **Span:** 0.50%

Minimum Isolation Between Case and Output Terminations: 100M Ω @ 50 Vdc

Pressure Cycles: 250,000, minimum

Long Term Stability (1-Year): ±0.1% FS typical

Shock: 50 g, 11 mS half sine shock, (under test)

Vibration: ±20 g (under test)

Bandwidth: DC to 3 Hz typical

A to D Conversion: 14 bit

Response Time: <1 mS

Fill Fluid: NEOBEE M5 food grade

Approved to 3A Sanitary Specification 74-03

CE Compliant: Meets industrial emissions and immunity standard IEC61326

Environmental Protection: IP65

Pressure Rating: ½ and 2" Tri-Grip™

Fitting: 600 psi using suitable clamp

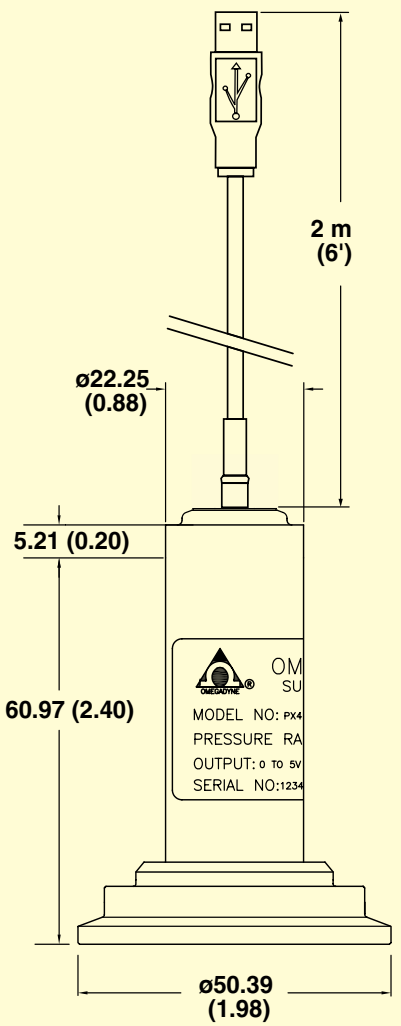
Over Pressure: 4 x rated pressure to maximum rated flange pressure

Secondary Containment: 6 x rated pressure to a maximum of 2000 psi (not in clamp)

Wetted Parts: 316L SS

Weight: 285 g (10 oz)

Dimensions: mm (inch)
Ø = Diameter



PX419S15 1½" flange

FREE SOFTWARE INCLUDED!

Each unit includes free software that converts your PC into a strip chart recorder or data logger so readings can be saved and later printed or exported to a spread sheet file. Also included are software drivers for some of the most popular Laboratory programs.

Laptop not included.

MM SERIES
DIFFERENTIAL PRESSURE MODELS

mV/V, 0 to 5 or 0 to 10 Vdc, or 4 to 20 mA Outputs
Uni-Directional or Bi- Directional
0-10 inH$_2$O to 0-1000 psid

MM Series

MADE IN USA NIST CE RoHS

Standard

- Precision Micro-Machined Silicon Core
- 5-Point NIST Traceable Calibration
- High Stability, Low Drift
- Welded Stainless Steel Construction
- 316L SS Wetted Parts
- Premium Temperature Performance
- Broad Compensated Temperature Range
- Durable, 1 Million Cycle Life
- Ruggedized with Secondary Containment
- Customized Specifications Available

COMMON SPECIFICATIONS DIFFERENTIAL

Accuracy: 0.4% to 0.05% BSL linearity, hysteresis and repeatability combined

Minimum Resistance Between Transducer Body and Any Wire: 100 MΩ

Operating Temperature:
mV/V and 5 to 10 Vdc Output: -45 to 121°C (-49 to 250°F)
mA Output: -45 to 115°C (-49 to 239°F)

Compensated Temperature Range:
10 inH$_2$O to 5 psi: -17 to 85°C (1 to 185°F)
15 to 1000 psi: -29 to 85°C (-20 to 185°F)

Thermal Accuracy:
% Span Shift over compensated temperature range

	Zero	Span
10 inH$_2$O to 1 psi:	±1.00%	±1.00%
2.5 to 1000 psi:	±0.50	±0.50%

Pressure Cycles: 1 million minimum

Long Term Stability (1-Year): ±0.1% FS typical

Bandwidth: DC to 1 kHz typical

Response Time: <1 ms

CE Compliant: Meets EN1326-1: 2006 for industrial locations

Shock: 50 g, 11 mS half sine, vertical and horizontal axis

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

Wet Wet:
Wetted Parts: 316L stainless steel

Wet Dry:
Positive Side: 316L stainless steel
Negative Side: Clean, dry, non-ionic gases

Line/Static Pressure: 500 psi max applied to both sides simultaneously

Proof Pressure (Differential):
10 inH$_2$O range = 10 times range
1 psi range = 6 times range
2.5 to 750 psi ranges = 4 times range
1000 psi range = 3 times range

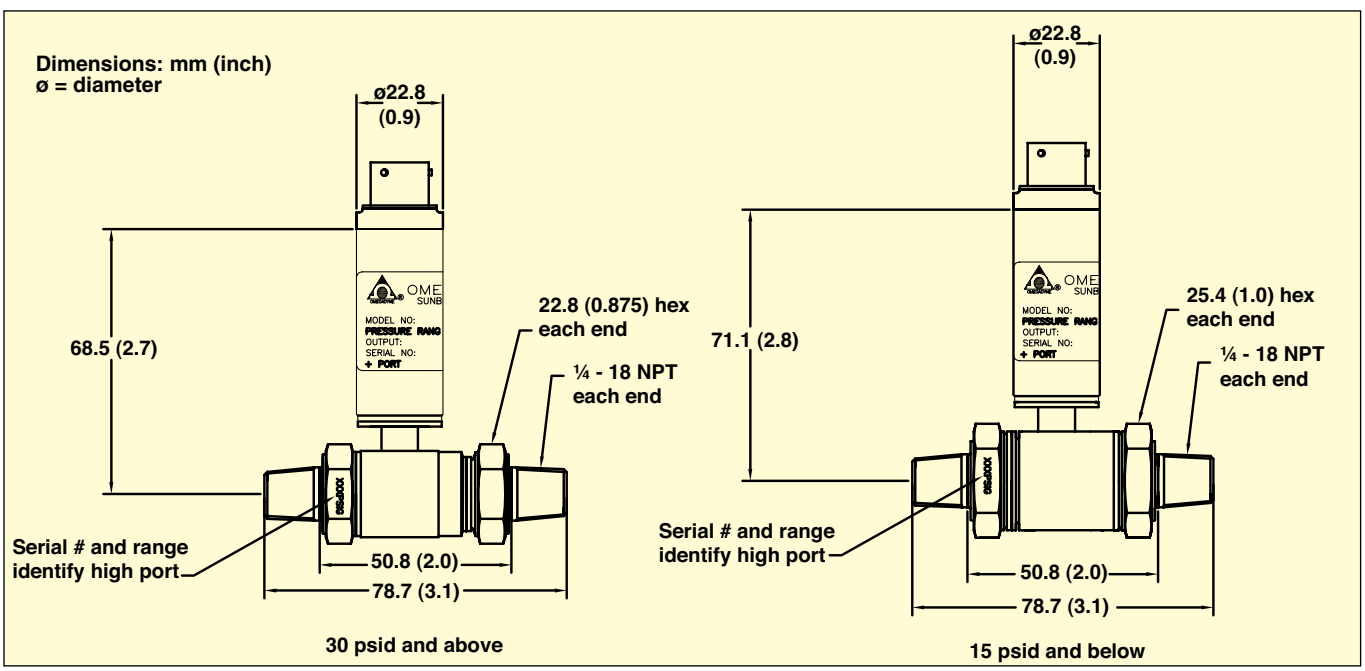
Hi Side Containment Pressure (Differential):
Ranges 10 inH$_2$O to 5 psi: to 1000 psi
Ranges 15 to 1000 psi: to 3000 psi

Pressure Ports: Select

Electrical Terminations:
PX409: 2 m (6') cable
PX409C: 2 m (6') cable with ½ NPT conduit thread
PX419: mini DIN (mating connector included)
PX429: Twist-lock, (mating connector sold separately)
PX459: M12 connector

PX429 Mating Connector: PT06F10-6S

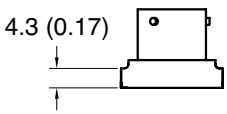
Weight: 200 g (7 oz) max



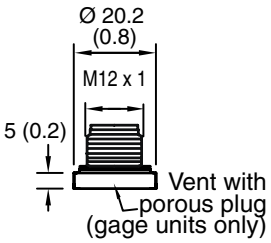
ELECTRICAL TERMINATION

6-Pin, Vented or Non-Vented Bendix

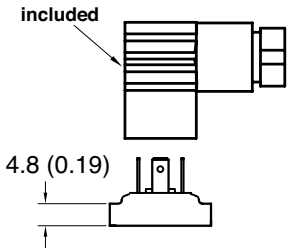
PT06F10-6S mating connector, sold separately.



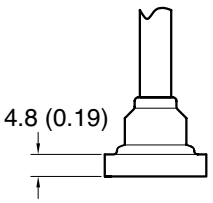
M12 Connector



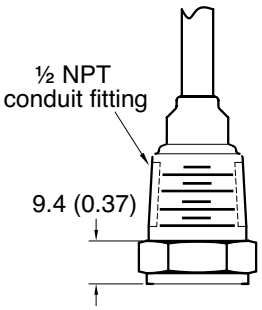
4-Pin, Vented or Non-Vented mini DIN



4-Conductor Integral Cable, 2 Meter

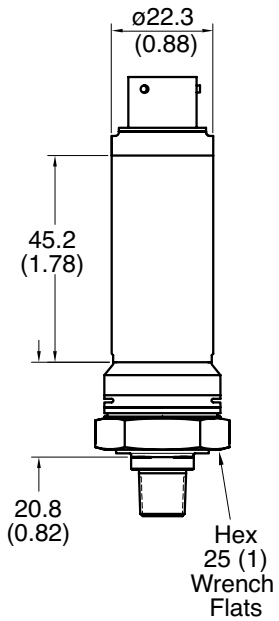


Cable with ½ NPT Conduit Fitting

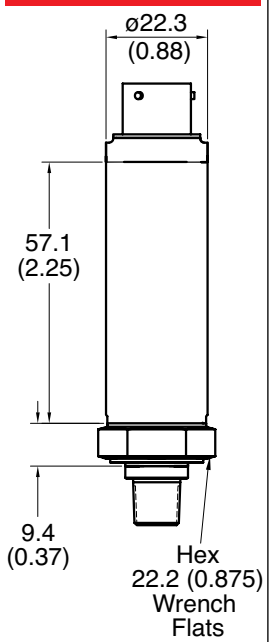


DIMENSIONS

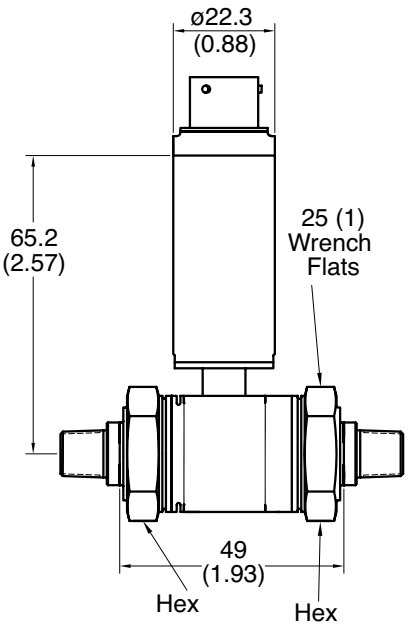
Low Range Pressure Transducer <15 psi Units



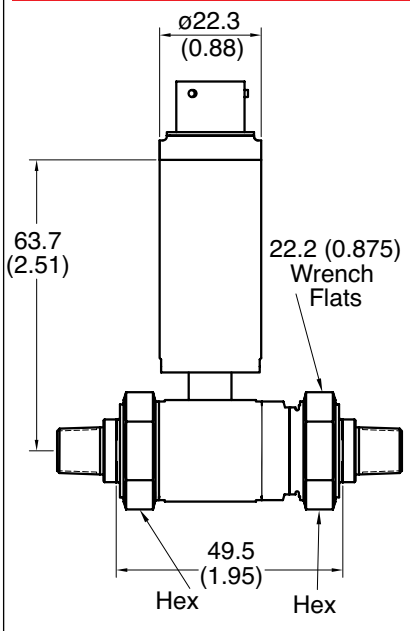
Mid Range Pressure Transducer Barometric Transducer ≥15 psi Units



Low Range Differential Pressure Transducer <15 psi Units

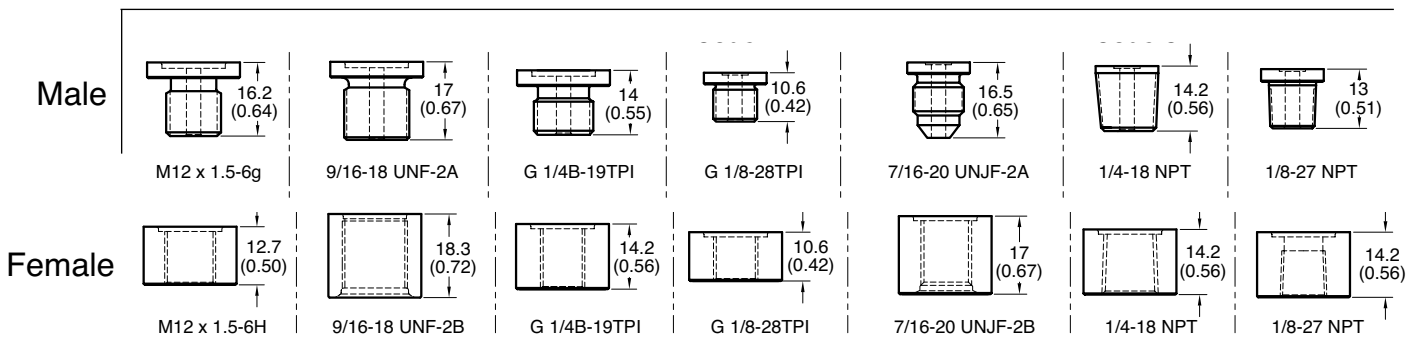


Mid Range Differential Pressure Transducer ≥15 psi Units



PRESSURE PORTS*

Ø = diameter
Dimensions: mm (inch)



**** Dimensions may vary slightly for ranges >1000 psi.***