

# Digital Pressure and Temperature Transducers



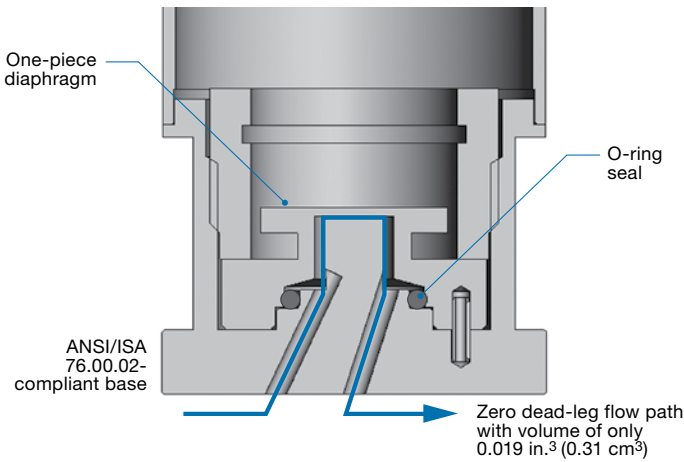
## PTX Series

- One device measures both pressure and temperature in near-real time
- ANSI/ISA 76.00.02-compliant interface compatible with Swagelok® MPC series modular system or 1/4 in. Swagelok tube fitting end connections
- IP64 ingress protection
- $\pm 1\%$  full-scale pressure measurement accuracy;  $\pm 4^\circ\text{F}$  ( $\pm 2.2^\circ\text{C}$ ) absolute temperature measurement accuracy
- Low-volume flow path and rapid purge bowl design dramatically reduce delay time in sample systems
- DeviceNet™ network interface

## PTX Series Transducers

The Swagelok PTX is a digital pressure and temperature transducer for monitoring fluid pressure and diaphragm temperature in automated fluid systems.

### Features



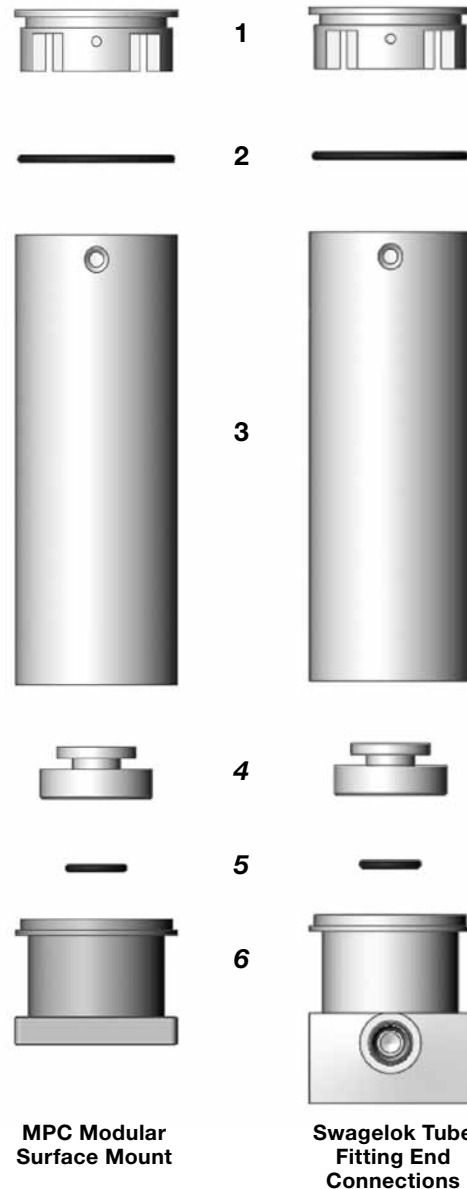
**MPC Modular Surface Mount Configuration**

- MEMS pressure-sensing technology, fast response, excellent long-term stability.
- Network connectivity allows for one cable both to power the unit and to send pressure and temperature feedback in near real time.
- One-piece machined stainless steel diaphragm.
- Innovative flow path with no dead legs in MPC modular surface mount configuration.
- UL certified for use in hazardous areas.
- Measures temperature from 23 to 158°F (-5 to 70°C).

### MEMS Technology

The PTX utilizes MEMS (micro-electro-mechanical systems) strain and temperature gauges that are diffused molecularly into the metal diaphragm using inorganic materials and high temperatures. As the temperature is reduced, the inorganic bonding material solidifies and secures the silicon gauges into position, thus creating a one-piece sensing element. With an operating strain at less than 15 % of the metal diaphragm's yield strength, the pressure-sensing element has less fatigue, higher proof/burst pressure capability, and excellent long-term stability. The MEMS gauge outputs are linearized, scaled, and calibrated prior to delivery to the PTX network.

## Materials of Construction



Component	Material Grade/ ASTM Specification
1 Top cap	300 series SS
2 Housing O-ring	Fluorocarbon FKM
3 Housing	300 series SS
4 <i>Diaphragm with MEMS sensing element</i>	316 SS/A479
5 <i>Sensor O-ring</i>	Kalrez® 6375
6 <i>Body</i>	316 SS/A479

Wetted components listed in *italics*.

## Technical Data

**Accuracy** (includes repeatability, hysteresis, and nonlinearity)

- Pressure:  $\pm 1\%$  of full scale pressure, temperature compensated from 32 to 158°F (0 to 70°C), following setup in accordance with the Swagelok *Pressure and Temperature Transducer User's Manual*, MS-13-222.
- Temperature:  $\pm 4^\circ\text{F}$  ( $\pm 2.2^\circ\text{C}$ ) absolute accuracy

### Overrange Pressure

2 × full scale

### Burst Pressure

5 × full scale

### Operating Temperature

23 to 158°F (–5 to 70°C)

### Storage Temperature

–40 to 158°F (–40 to 70°C)

### Power

- Voltage input: 11 to 28 V (dc)
- Maximum current draw: 100 mA (dc) at 24 V (dc)

## Approvals / Compliance

- Class I, Division 2, Groups A, B, C, D. Temperature class T5
  - ANSI/ISA 12.12.01
  - UL 61010-1
  - CSA C22.2 No. 213-M
  - CSA C22.2 No. 61010-1
- DeviceNet Conformance Tested®, vendor ID 1165

## Vibration / Shock Resistance

- Vibration: sinusoidal 9 to 200 Hz, 5 g acceleration
- Vibration: random 20 to 500 Hz, 15.5 g average acceleration
- Shock: pulse 70 m/s<sup>2</sup> (7.2 g)

## Electromagnetic Compatibility

- EN 61326-1:2006
  - RF Emissions: EN 55011
  - ESD Immunity: EN 61000-4-2
  - RF Immunity: EN 61000-4-3
  - EFT Immunity: EN 61000-4-4
  - Conducted Immunity: EN 61000-4-6

## Calibration

Every Swagelok pressure transducer is factory calibrated to ensure conformance to its stated accuracy. Recalibration is not needed because of the long-term stability of the MEMS sensors and high-precision components.

## Ordering Information

Build a PTX series transducer ordering number by adding the designators as shown below.

A    B  
 SS - PTX - D - **G050** - **SM** - K

### **A** Full-Scale Range

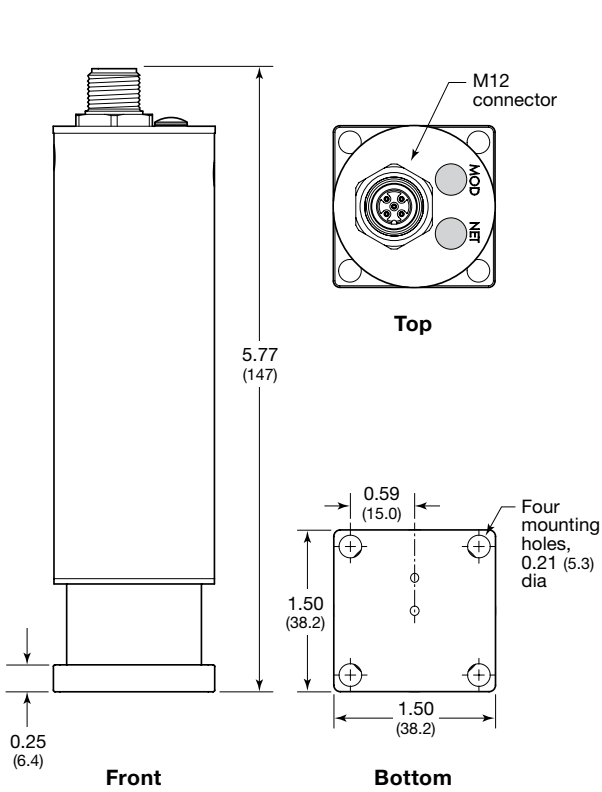
- G050** = 0 to 50 psig (3.4 bar)
- G250** = 0 to 250 psig (17.2 bar)
- G500** = 0 to 500 psig (34.4 bar)

### **B** End Connections

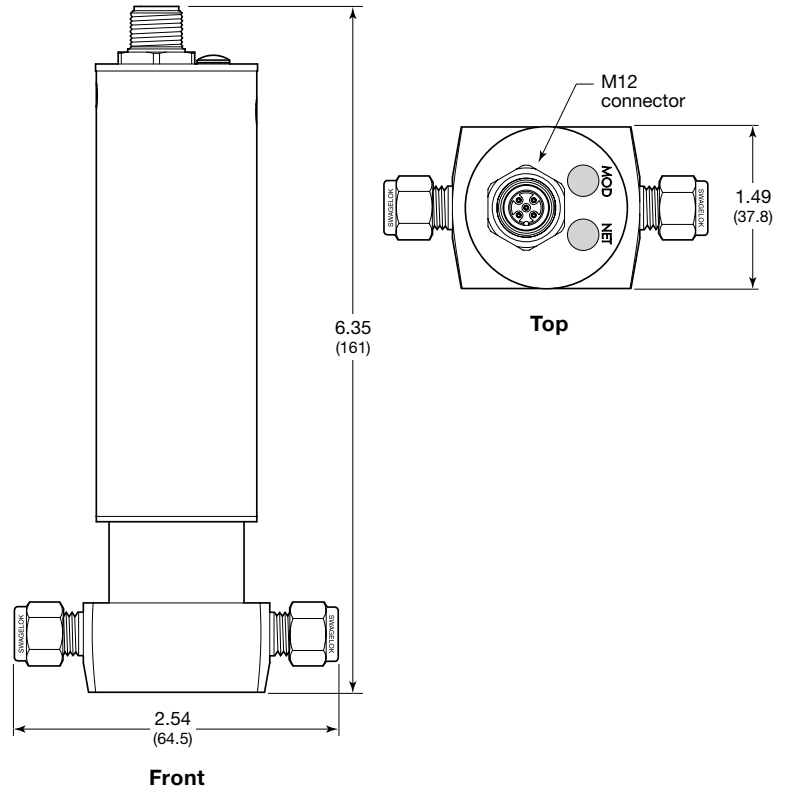
- SM** = 1.5 in. Swagelok MPC modular surface mount in accordance with ANSI/ISA 76.00.02
- S4** = 1/4 in. Swagelok tube fittings

## Dimensions

Dimensions, in inches (millimeters) are for reference only and are subject to change.



**MPC Modular Surface Mount**



**Swagelok Tube Fitting End Connections**

### Safe Product Selection

When selecting a product, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.

**Caution: Do not mix or interchange parts with those of other manufacturers.**

## Warranty Information

Swagelok products are backed by The Swagelok Limited Lifetime Warranty. For a copy, visit [swagelok.com](http://swagelok.com) or contact your authorized Swagelok representative.

Swagelok—TM Swagelok Company  
 DeviceNet, DeviceNet Conformance Tested—TM ODVA  
 Kalrez—TM DuPont  
 © 2012 Swagelok Company  
 Printed in U.S.A., AGS  
 MS-02-434, R0