

Multi-Sense® - Model 231

Wet-to-Wet, Differential, Multi-Configurable Pressure Transducer



etra's Model 231 Multi-Sense® Wet-to-Wet differential pressure transducer allinclusive design provides users with field accessible ranging, choice of output and field zeroing.

Choose from three configurable Model 231 pressure transducers: 5 up to 50 psid, 10 up to 100 psid, or 25 up to 250 psid. Each Model 231 has 4 unidirectional and 4 bidirectional switch selectable pressure ranges and can be reconfigured in the field for 0-5 VDC, 1-5 VDC, 0-10 VDC, or 4 to 20 mA output. (The 4 to 20 mA output is operable as a true 2-wire device.) The Model 231 jumper selectable port swap feature eliminates costly replumbing if the pressure transducer is improperly installed or replaced. An optional LCD display is available for on-site indication of line and differential pressure.

The Model 231 is designed with Setra's own dual pressure sensors, which incorporate thin film sensing technology. This technology offers exceptional thermal accuracy and signal linearity. Utilizing this technology, the Model 231 is resistant to long-term drift caused by dopant migration and Fermi-level effects, intrinsic in piezoresistive and silicon based technologies, which are exaggerated at elevated temperatures and by extended pressure cycling.

3-VALVE MANIFOLD

The Model 231 can be supplied with an optional 3-Valve Manifold assembly for ease of installation and maintenance. The 3-Valve

Manifold is a machined brass body requiring no internal pipe connections, thereby eliminating the risk of internal leaks. The manifold's rugged, yet compact, construction requires minimum space for installation and use. If the Model 231 is ordered with the



3-Valve Manifold, the system is shipped completely assembled and ready for wall or pipe mounting. (Order as Pressure Fitting Code 3V.)



"All-in-One"
8 Selectable Ranges...One Transducer

NOTE: Setra quality standards are based on ANSI-Z540-1. The calibration of this product is NIST traceable. Patent Pending

Applications

- Energy Management Systems
- Process Control Systems
- Flow Measurement of Various Gases or Liquids
- Liquid Level Measurement of Pressurized Vessels
- Pressure Drop Across Filters

Features

- **■** Field Selectable Output
- True 4 to 20 mA Output and 0-5, 1-5, and 0-10 VDC Output
- Field Selectable Pressure Ranges
- Field Accessible Push-Button Zero and Remote Zero
- Dual Sensors
- Hinged Cover
- Field Selectable Port Swap
- **■** Optional LCD Display
- All Cast Aluminum, NEMA 4 Rated Housing
- Meets (Conformance Standards
- **■** RoHS Compliant

Benefits

- Hinged Cover for Easy
 Access to Switch Selectable
 Features
- Dual Pressure Sensors Provide Independent High and Lo Pressures
- Optional LCD Display for In-Situ Viewing of Hi, Lo, and Differential Pressure
- Field Calibration Saves Time and Money
- Port Swap Feature Eliminates
 Replumbing Existing
 Installations
- Reduces Inventory
- Saves Installation Cost





800-257-3872

Performance Data

Accuracy RSS* (at constant temp.)

Pressure Ranges A, B, C $\pm 1.0\% FS$ Pressure Range D ±2.0% FS

Pressure Ranges

	А	В	\cup	D	Max. Line Pressure
MS1	50	25	10	5	50
MS2	100	50	20	10	100
MS3	250	125	50	25	250

Thermal Effects**

Compensated Range °F (°C) +32 to +130 (0 to +54)

Zero Shift %FS/100°F (50°C) 2.0 (1.8) Span Shift %FS/100°F(50°C) 2.0 (1.8) Warm-up Shift <0.12% FS

Response Time 1 to 5 sec. (selectable)

Maximum Line Pressure

50 psid MS1 MS2 100 psid MS3 250 psid **Proof Pressure** 2.2 x Full Scale 40 x Full Scale **Burst Pressure**

Pressure Media

Liquids or Gases Compatible with 17-4 PH Stainless Steel Note: Hydrogen not recommended for use with 17-4 H stainless steel

Model 231 Specifications

Environmental Data

Temperature

Operating* °F (°C) -4 to +185(-20 to +85)Storage °F (°C) -4 to + 185(-20 to + 85)10g from 50 Hz to 2000 Hz Vibration

Shock

*Operating temperature limits of the electronics only

Pressure media temperatures may be considerably higher or lower.

Physical Description (Model 231)

Die Cast Aluminum, Powder Coated Case

1/8-18 NPT Internal Pressure Fittings Electrical Connection 1/2 in. Conduit 4.0 x 6 x 2 in. Size

(102 x 152 x 51mm)

Weight 1.5 lb Sensor Cavity Volume 0.2 cc

Electrical Data (Voltage)

Circuit 3-Wire

Excitation 12 to 30 VDC/18 to 28 VAC

(Reverse Excitation Protected)

0 to 5 VDC Output*

> 0 to 10 VDC 1 to 5 VDC

Output Impedance 30 Ohms

Current Consumption 4 mA (typ.) at 5 VDC

> 5 mA (typ.) at 10 VDC 40 mA (typ.) at 18-28 VAC

*Calibrated into a 50K Ohm load, operable into a 5000 ohm load or greater.

Electrical Data (Current)

Circuit

(Reverse Excitation Protected)

Output* 4 to 20 mA, Clipped and

Capped

External Load 0 to 1000 Ohms Minimum supply voltage (VDC) = 12 + 0.02 x

(Resistance of receiver plus line).

Maximum supply voltage (VDC) = 30 + 0.004 x

(Resistance of receiver plus line).

*Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.

3-Valve Manifold Assembly* Physical Description

Manifold Block

Valves (3) V1 for Connection to +Port

V2 for Connection to -Port V3 for Equalizing Pressure

Valve Type 90° On/Off

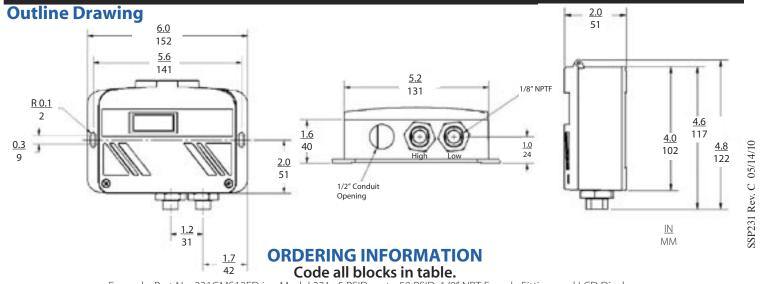
Process Connections 1/4-18 NPT Internal Thread Dimensions 6" x 11" (152mm x 279mm)

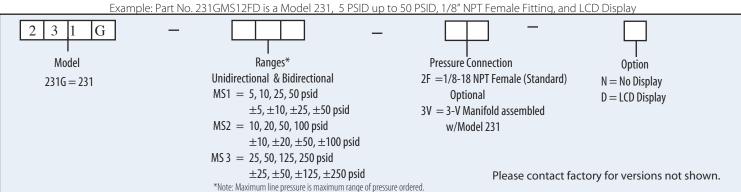
Weight

*Order assembled with the Model 231 (Code 3V) or order separately as

Accessory 231900-01.

Specifications subject to change without notice.







^{*}RSS of Non-Linearity, Non-Repeatability and Hysteresis.

^{**}Units calibrated at nominal 70°F. Maximum thermal error computed from this datum.