BARATRON® GENERAL PURPOSE DIFFERENTIAL PRESSURE TRANSDUCER

The 221 Baratron® General Purpose Differential Transducer offers a reliable, accurate, inexpensive solution to measuring low differential pressures.

Operating on the variable capacitance technique, the 221 all-metal sensor contains a tensioned metal diaphragm, one side of which is exposed to the gas whose pressure is to be measured (Px side). The other side (reference, or Pr side) is adjacent to an electrode assembly which is terminated in another like port. The diaphragm deflects with changing differential pressure, causing a capacitance change between the diaphragm and the adjacent electrode assembly. The capacitance change with pressure generates an AC voltage which is amplified, demodulated, and converted into a high level DC voltage output, linear with pressure, and calibrated against a pressure standard.

The electronics of the 221 are housed remotely from the sensor, allowing it to be baked at 200°C (with interconnecting cable removed). An MKS or user-supplied power supply/readout is required to operate the 221.

Features & Benefits

- All-metal sensor eliminates handling problems associated with glass, mercury, and liquid gauges
- Useable resolution of 1 part in 10,000 — minimizes the number of transducers required to cover a wide range of pressures
- Remote electronics allow sensor to operate at temperatures up to 150°C (bakeable to 200°C with cable removed)
- Sensor is capable of handling any corrosive gases compatible with Inconel on high pressure side and Inconel, Ceramic, Palladium, Glass and Stainless Steel on reference side
Specifications and Ordering Information

Full Scale Ranges
10, 100, 1000, 5000, 10000, 15000, 20000, 25000 mmHg

Resolution
0.01% of F.S.

Accuracy
0.5% of Rdg. (± temperature coefficients)

Temperature Coefficients
Zero
0.02% of F.S./°C
Span
0.04% of Rdg./°C

Ambient Operating Temperature
Sensor
0° to 150°C (bakeable to 200°C with cable removed)

Preamplifier
0° to 50°C

Maximum Overpressure
120% of F.S. or 20 psi (140 kPa), whichever is greater

(For Full Scale ranges less than 1000 mmHg, the following restrictions apply: if high pressure is on the Px side of the sensor, the maximum differential overpressure allowable is 120% of F.S. or 20 psi, whichever is greater; if high pressure is on the Pr side of the sensor, the maximum differential overpressure allowable is 120% of F.S. Consult factory for higher Pr overpressure protection.)

Maximum Line Pressure
40 psig (275 kPa)

Materials Exposed to Gases
Px side: Inconel
Pr side: Swagelok®, Ceramic, Palladium, Stainless Steel, Glass

Volume
Px side: 7.9 cc
Pr side: 19.0 cc

Fittings
Standard
½” OD (12.7 mm) diameter tube

Optional
Swagelok® 8 VCR® female, NW 16 KF, mini-CF rotatable (High pressure units, 5000 to 25000 mmHg F.S., supplied with 8 VCR fittings only.)

±15 VDC @ 35 mA regulated ±2%

Output
0 to 10 VDC into > 10K Ω load

Electrical Connector
AMP 14-pin ribbon connectors; mks Connector Kit, 221B-K1

Ordering Code Example: 221BD00100A

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<th>Code</th>
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Pressure Range Full Scale

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Fittings

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<tr>
<td>½” OD (12.7 mm) diameter tube</td>
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<tr>
<td>Swagelok® 8 VCR® female</td>
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<td>Mini-CF, rotatable</td>
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<td>NW 16 KF</td>
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Note: Unless otherwise specified, dimensions are nominal values in inches (mm referenced).