226B

Differential Baratron® Capacitance Manometer

The 226B is a differential version of the industry-standard Baratron® Capacitance Manometer. It is designed to accurately measure differential pressures and vacuum from 1000 to 0.2 Torr (133 to 0.027 kPa). This product, which operates at ambient temperature, is highly accurate and repeatable, permitting its use in industrial and electronic control systems in many different applications. The patented capacitance sensor is built entirely from Inconel® nickel alloys on its measurement side, which offers superior corrosion resistance over long periods of time. Because the sensor operates by measuring the capacitance shift between a diaphragm exposed to the process and an electrode disk (rather than measuring the property of the gas), it is not sensitive to gas composition, and thus eliminates the need for gas-specific correction factors. The product can be used to measure either the true differential pressure or vacuum between two locations, or the reference side of the product can be left open to provide a true reference to local atmospheric pressure. Applications include air and gas flow measurements for filters and analytical systems, downstream pressure control in thin film processing systems, and automated leak testing systems.

The 226B provides a high-level analog output signal that is linear with pressure. It can operate on either ±15 VDC or +24 VDC input voltage, and it offers four (4) different analog output signals for use in nearly any control or data acquisition system. The product can be equipped with any of twelve (12) different fittings on either the measurement or reference sides, including common industrial and semiconductor-industry standards like VCR®, NW-KF, VCO®, and NPT. The sensor and electronics are mounted in a rugged industrial-grade housing that has high immunity and isolation from RF and EM interference.

Product Features

- Fully-welded Inconel diaphragm sensor offers high resistance to corrosion for use in many difficult applications – no mercury, silicone, or hydrocarbon-based fluids are used
- Differential measurement ranges from 1000 to 0.2 Torr (133 to 0.027 kPa) allows accurate, repeatable characterization of very small pressure drops and flow rates
- Four different analog output signals available (0-10V, 0-5V, 0-1V, and 4-20 mA) in either unidirectional or bidirectional calibrations

Key Benefits

- Direct pressure measurement is not affected by gas composition
- Input voltage of either ±15 VDC or +24 VDC for use in a wide variety of processing systems
- Rugged, industrial-grade design suitable for use in applications with high levels of RF/EM interference

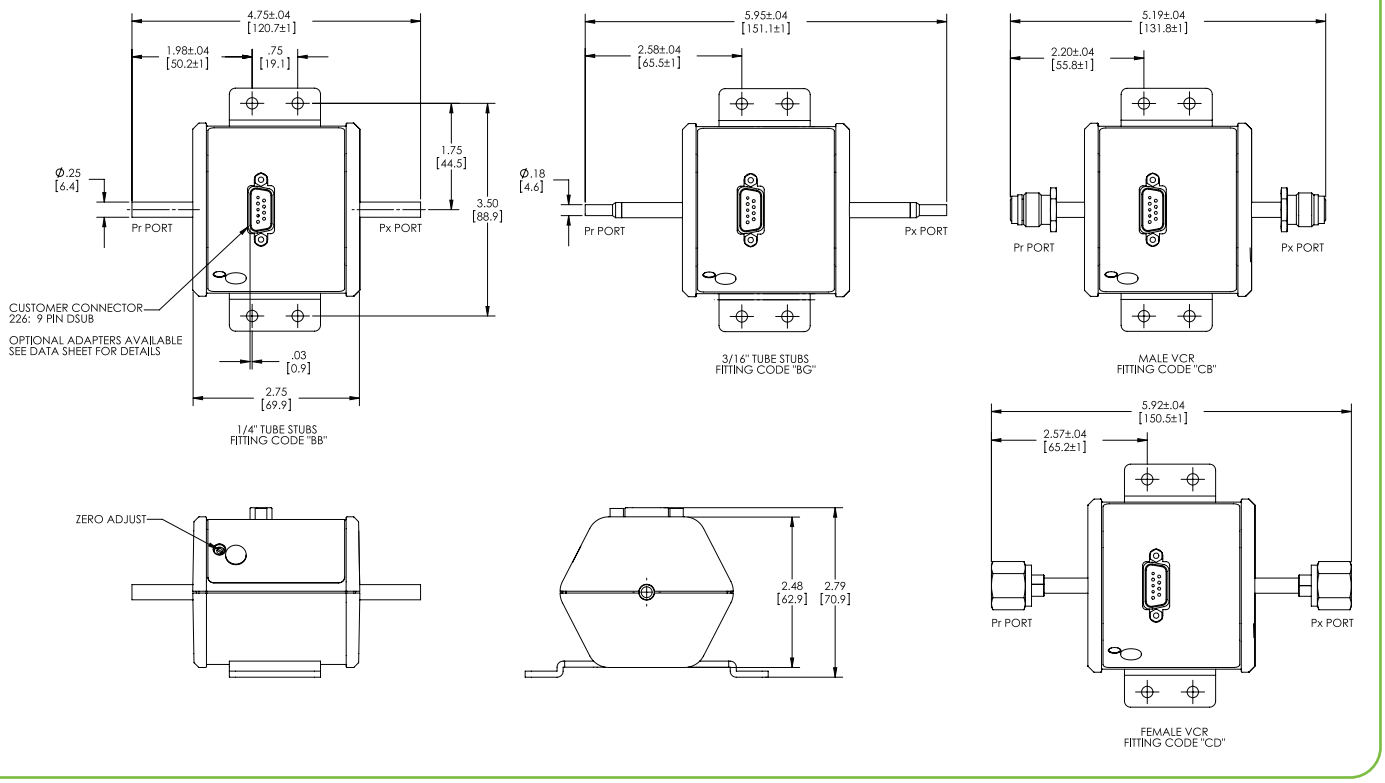
Specifications	
Full Scale Ranges	0.2, 1, 2, 5, 10, 20, 50, 100, 200, and 1000 Torr and equivalents in kPa, mbar, inches H_2O, and cm H_2O
Resolution	0.01% of Full Scale
Accuracy[1]	• 0.50% of Full Scale unidirectional or bidirectional standard • 0.30% of Full Scale unidirectional or bidirectional • 0.30% of Reading (unidirectional calibrations only)
Temperature Coefficient **Zero** **Span**	 • 0.1% Full Scale/°C for standard accuracy specification • 0.04% of Reading/°C
Ambient Operating Temperature	0° to 50°C
Maximum Overpressure **Measurement Side** **Reference Side**	 • 120% of Full Scale or 20 psi (140 kPa), whichever is higher • 120% of Full Scale
Maximum Line Pressure	40 psig (275 kPa)
Materials Exposed to Process Gases **Measurement Side** **Reference Side**	 • Inconel • Inconel, ceramic, palladium, stainless steel, glass
Sensor Internal Volume **Measurement Side** **Reference Side**	 • 1.4 cm^3 • 9.0 cm^3
Input Power	±15 VDC (±5%) or +13 VDC to +30 VDC @ 25 mA, ripple less than 20 mV
Output Signal	0 - 1 VDC, 0 - 5 VDC, 0 - 10 VDC[1] > 10 k Ω load; or 2-wire 4-20 mA from +24 VDC supply into < 500 W load
Electrical Connector	9-pin D-subminiature standard, terminal block and flying leads optional
Fittings[2] **Standard** **Optional**	 • ¼'' OD (6.4 mm) tubes • 3/16'' OD (4.8 mm) tubes, 4 male VCR®, 4 female VCR, 4 male VCO®, 4 female VCO, NW16-KF, 1.33'' OD (33.8 mm) Conflat®, 1/8'' male and female NPT, 1/4'' male and female NPT
Compliance[3]	CE, SEMI S2-0706

Notes:

[1] *0-10 VDC bi-directional output signal not available with +24 VDC input voltage.*

[2] *When equipped with standard 1/4-inch (6.4 mm) O.D. inlet and reference tubes.*

[3] *When used with an overall metal braided shielded cable, properly grounded at both ends.*



Dimensional Drawings

Note: Unless otherwise specified, dimensions are nominal values in inches (mm referenced).

Ordering Code Example: 226BXXXYYZZQSSTV						Code	Configuration
Model							
226B Baratron Differential Capacitance Manometer						226B	226B
Pressure Ranges (XXX)	**Torr**	**mbar**	**kPA**	**inH_2O**	**cmH_20**		
0.02	-	-	U2K	-	-	11T	11T
0.1	-	-	.1K	.1W	-		
0.2	.2T	.2M	.2K	-	.2R		
0.5	-	-	.5K	.5W	-		
1	01T	01M	01K	01W	01R		
2	02T	02M	02K	02W	02R		
5	05T	05M	05K	05W	05R		
10	11T	11M	11K	11W	11R		
20	21T	21M	21K	21W	21R		
50	51T	51M	-	51W	51R		
100	12T	12M	12K	12W	12R		
200	22T	22M	-	-	22R		
500	-	-	-	52W	-		
1000	13T	13M	-	-	13R		
Reference Side Fitting (YY)							
1/4'' OD tube						BB	CD
3/16'' OD tube						BG	
4 male VCR						CB	
4 female VCR						CD	
4 male VCO						DC	
4 female VCO						DD	
1/4'' female NPT						FA	
1/4'' male NPT						FB	
1/8'' male NPT						FE	
1/8'' female NPT						FF	
NW16-KF						GA	
1.33'' OD Conflat						HA	
Measurement Side Fitting (ZZ)							
1/4'' OD tube						BB	CD
3/16'' OD tube						BG	
4 male VCR						CB	
4 female VCR						CD	
4 male VCO						DC	
4 female VCO						DD	
1/4'' female NPT						FA	
1/4'' male NPT						FB	
1/8'' male NPT						FE	
1/8'' female NPT						FF	
NW16-KF						GA	
1.33'' OD Conflat						HA	
Accuracy (Q)							
0.50% Full Scale (standard)						F	F
0.30% Full Scale						K	
0.30% Reading (unidirectional calibrations only)						S	
Input/Output and Calibration (SS)							
±15 VDC input/0 - 1 VDC bidirectional output						B1	B2
±15 VDC input/0 - 10 VDC bidirectional output						B2	
±15 VDC input/0 - 5 VDC bidirectional output						B3	
+24-32 VDC excitation/4 - 20 mA bidirectional output						B4	
+24 VDC input/0 - 1 VDC bidirectional output						B5	
+24 VDC input/0 - 5 VDC bidirectional output						B7	
±15 VDC input/0 - 1 VDC unidirectional output						U1	
±15 VDC input/0 - 10 VDC unidirectional output						U2	
±15 VDC input/0 - 5 VDC unidirectional output						U3	
+24-32 VDC excitation/4 - 20 mA unidirectional output						U4	
+24 VDC input/0 - 1 VDC unidirectional output						U5	
+24 VDC input/0 - 5 VDC unidirectional output						U7	
Electrical Connector (T)							
9-pin D-subminiature (standard)						A	A
Terminal block adaptor, 5-post						T	
Flying lead adapter, 10 ft (3 m) length						L	
Mounting (V)							
No bracket						0	1
Mounting bracket, standard						1	
Mounting bracket, slotted						2	

www.MKSINST.com

226B_11/21