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Pressure & Vacuum Measurement Solutions

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Type 220DA

BARATRON® GENERAL PURPOSE ABSOLUTE CAPACITANCE MANOMETER

The MKS Type 220DA Baratron® General Purpose Absolute Manometer offers a reliable, accurate, inexpensive solution to measuring low absolute pressures.

Operating on the variable capacitance technique, the 220DA 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 sealed at a high vacuum reference so absolute pressure is measured. The diaphragm deflects with changing absolute pressure, causing a capacitance change between the diaphragm and the adjacent electrode assembly. The capacitance change 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 Type 220DA sensor is temperature controlled at 45°C for enhanced zero and span stability.

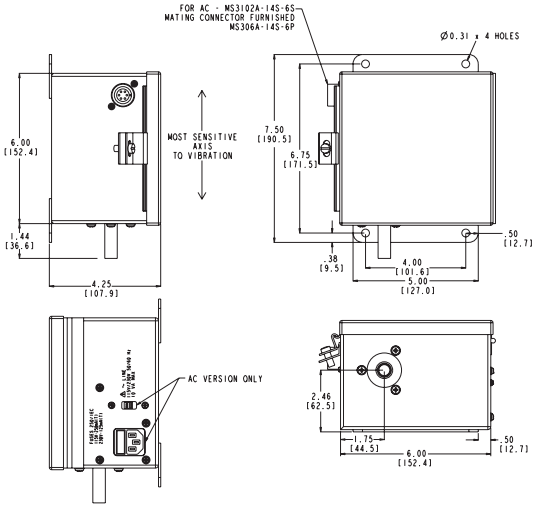
All components are housed in a rugged, NEMA 1 enclosure for protection when used in harsh environments. Two outputs, 0-10 VDC and 4-20 mA, are provided for interfacing with common process controllers.

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 capacitance manometers required to cover a wide range of pressures
- NEMA 1 enclosure provides sensor protection in harsh operating environments
- Sensor is temperature controlled at 45°C for stable performance
- Simultaneous 0 to 10 VDC and 4 to 20mA outputs interface with common process control systems

Specifications and Ordering Information

Full Scale Ranges	1, 10, 20, 100, 1000, 5000, 10000, 15000, 20000, 25000 mmHg (other engineering units available on request)
Resolution	0.01% of F.S.
Accuracy	±0.15% of Rdg. (± temperature coefficients)
Temperature Coefficients	
Zero	0.008% of F.S./°C for 1 Torr 0.005% of F.S./°C > 1 Torr
Span	0.02% of Rdg./°C
Ambient Operating Temperature	15° – 40°C
Sensor Operating Temperature	Temperature controlled at 45°C
Maximum Overpressure	35 psia
Materials Exposed to Gases	
Px side	Inconel®
Volume (Px)	7.0 cc
Fittings	
Standard	½" OD (12.7 mm) diameter tube
Optional	Swagelok® 8 VCR® female, NW16-KF, mini-CF rotatable (High pressure units, 5000 to 25000 mmHg F.S., are available with certain fittings; consult factory for a complete listing.)
Power Required	115/230 VAC, 50/60 Hz
Outputs	0 to 10 VDC into > 10K Ω load and 4 to 20 mA into < 500 Ω load
Electrical Connector	Mating connector P/N MS306A-14S-6S; MKS Connector Kit 220C-AC-K1



Dimensional Drawing —

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

Ordering Code Example: 220DA00100A2B

Type 220DA	Code	Configuration
Type 220DA	220DA	220DA
Pressure Range Full Scale		
1	00001	00100
10	00010	
20	00020	
100	00100	
1000	01000	
5000	05000	
10,000	10000	
15,000	15000	
20,000	20000	
25,000	25000	
Fittings		
½" OD (12.7 mm) diameter tube	A	A
Swagelok 8 VCR female	B	
Mini-CF, rotatable	C	
NW16-KF	D	
Power Input Code		
115/230 VAC	2	2
Signal Input Code		
0-10 VDC and 4-20 mA	B	B

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