

220DD

Baratron® General Purpose Differential Capacitance Manometer



The MKS Type 220DD Baratron® General Purpose Differential Manometer offers a reliable, accurate, inexpensive solution to measuring low differential pressures.

Operating on the variable capacitance technique, the 220DD 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 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 220DD 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.

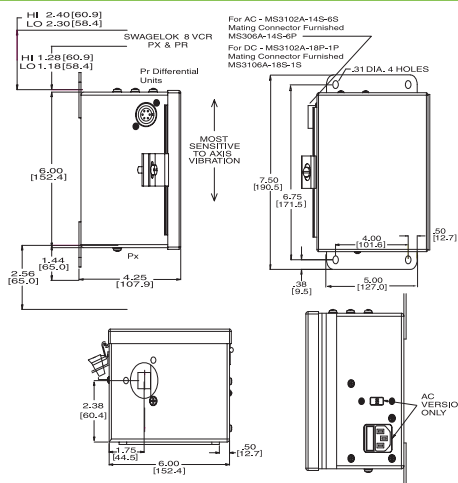
Product Features

- 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
- Sensor is temperature controlled at 45°C for stable performance



Key Benefits

- NEMA 1 enclosure provides sensor protection in harsh operating environments
- Simultaneous 0 to 10 VDC and 4 to 20mA outputs interface with common process control systems



Dimensional Drawing - Unless otherwise specified, dimensions are nominal values in inches (mm referenced).

Specifications		
Full Scale Ranges		1, 10, 20, 100, 1000, 5000, 10000, 15000, 20000, 25000 mmHg (other engineering units available on request)
Resolution		0.01% of Full Scale
Accuracy		±0.15% of Reading (± temperature coefficients)
Temperature Coefficients	Zero	• 0.008% of Full Scale/°C for 1 Torr
	Span	• 0.005% of Full Scale/°C > 1 Torr
		• 0.02% of Reading/°C
Ambient Operating Temperature		5° - 40°C
Sensor Operating Time		Temperature controlled at 45°C
Maximum Overpressure		120% of Full Scale 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 Full Scale 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 Full Scale. Consult factory for higher Pr overpressure protection.)
Maximum Line Pressure		40 psig (275 kPa)
Materials Exposed to Gases	Px side Pr side	Inconel® Inconel, Ceramic, Palladium, Stainless Steel, Glass
Volume	Px side Pr side	7.0 cc 19.0 cc
Fittings	Standard Optional	• ½" OD (12.7 mm) diameter tube • Swagelok® 8 VCR® female, NW16-KF, mini-CF rotatable (High pressure units, 5000 to 25000 mmHg Full Scale, 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

Ordering Code Example: 220DD00100A2B	Code	Configuration
Model		
220DD	220DD	220DD
Pressure Range Full Scale		
1 10 20 100 1000 5000 10,000 15,000 20,000 25,000	00001 00010 00020 00100 01000 05000 10000 15000 20000 25000	00100
Fittings		
½" OD (12.7 mm) diameter tube Swagelok 8 VCR (female) Mini-CF, rotatable NW 16 KF	A B C D	A
Power Input Code		
115/230 VAC	2	2
Single Input Code		
0 - 10 VDC and 4 - 20 mA	B	B