

Type 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.

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

Pressure &

Vacuum Measurement Solutions

WWW.MKSINST.COM



Specifications and Ordering Information

Full Scale Ranges

Resolution

Accuracy

Temperature Coefficients

Zero

Span

Ambient Operating Temperature

Sensor Operating Temperature

Maximum Overpressure

Maximum Line Pressure

Materials Exposed to Gases

Px side

Pr side

Volume

Fittings

Standard

Optional

Power Required

Outputs

Electrical Connector

1, 10, 20, 100, 1000, 5000, 10000, 15000, 20000, 25000 mmHg

(other engineering units available on request)

0.01% of F.S.

±0.15% of Rdg. (± temperature coefficients)

0.008% of F.S./°C for 1 Torr

0.005% of F.S./°C > 1 Torr

0.02% of Rdg./°C

5° to 40°C

Temperature controlled at 45°C

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.)

40 psig (275 kPa)

Inconel®

Inconel, Ceramic, Palladium, Stainless Steel, Glass

Px side: 7.0 cc Pr side: 19.0 cc

½" OD (12.7 mm) diameter tube

Swagelok® 8 VCR® female, NW 16 KF, mini-CF rotatable (High pressure units, 5000 to 25000 mmHg F.S., are available with certain fittings; consult factory for a complete listing.)

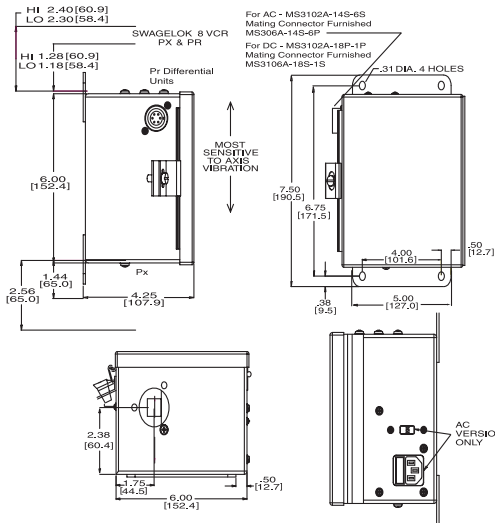
115/230 VAC, 50/60 Hz

0 to 10 VDC into > 10K Ω load and 4 to 20 mA into < 500 Ω load

Mating connector P/N MS306A-14S-6S; MKS Connector Kit 220C-AC-K1

Ordering Code Example: 220DD00100A2B

Type 220DD	Code	Configuration
Type 220DD	220DD	220DD
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	
NW 16 KF	D	
Power Input Code		
115/230 VAC	2	2
Signal Input Code		
0-10 VDC and 4-20 mA	B	B



Dimensional Drawing —

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



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