



# Type 223

## BARATRON® GENERAL PURPOSE DIFFERENTIAL PRESSURE TRANSDUCER

The MKS Type 223 Baratron® General Purpose Differential Transducer offers a reliable, accurate, inexpensive solution to measuring low differential pressures generated by air flow in HVAC and cleanroom applications.

Operating on the variable capacitance technique, the 223 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. This capacitance change then generates an AC voltage, which the 223's signal conditioner converts into a high level DC voltage output, linear with pressure, and calibrated against a pressure standard.

The MKS Power Supply/Readout Module, or a user-supplied power supply of  $\pm 11$  to 18 VDC, is required to operate the 223.

### Features & Benefits

- All-metal sensor eliminates handling problems associated with glass, mercury, and liquid gauges
- Usable resolution of 1 part in 10,000
  - minimizes the number of transducers required to cover a wide range of pressures
- Industry standard power requirements and output signals
  - $\pm 11$  to  $\pm 18$  VDC input voltage
  - 0 to +1 or +5 VDC output linear with pressure for unidirectional
  - 0 to  $\pm 1$  or  $\pm 5$  VDC output linear with pressure for bidirectional
- Three levels of accuracy to meet your specific process control requirements
- Can be calibrated for either uni- or bidirectional applications

Pressure

& Control  
Measurement

WWW.MKSINSTR.COM



# Specifications and Ordering Information

## Full Scale Ranges

Standard  
Optional

0.2, 1, 10, 100, 1000 mmHg  
0.2, 1, 10, 100, 1000 cmH<sub>2</sub>O  
0.1, 0.25, 0.5, 5, 50, 500 inH<sub>2</sub>O (For 0.25 inH<sub>2</sub>O F.S. range, consult factory for ordering code.)

## Resolution

0.01% of F.S.

## Accuracy

0.5% of F.S., bidirectional or unidirectional  
0.3% of F.S., bidirectional or unidirectional  
0.3% of Rdg., unidirectional only

## Temperature Coefficients

Zero

For 0.5% of F.S. accuracy: 0.1% of F.S./°C  
For 0.3% of F.S. accuracy: 0.05% of F.S./°C  
For 0.3% of Rdg. accuracy: 0.05% of F.S./°C  
0.04% of Rdg./°C

Span

## Ambient Operating Temperature

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  
Pr side

Inconel®  
Inconel, Ceramic, Palladium, Stainless Steel, Glass

## Volume

Px side: 1.3 cc Pr side: 9.8 cc

## Fittings

3/16" (4.6 mm) tubulation (Consult factory if other fittings are required.)

## Power Required

±11 to 18 VDC @ 25 mA, ripple < 0.5 Volt peak to peak

## Output

For 1, 10, 100, 1000 mmHg or cmH<sub>2</sub>O: 0 to ±1 VDC into > 10K Ω load  
For 0.1, 0.25, 0.5, 5, 50, 500 inH<sub>2</sub>O: 0 to ±5 VDC into > 10K Ω load  
Other ranges or outputs available by special order; consult factory.)

## Electrical Connector

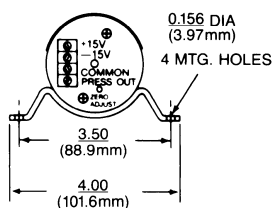
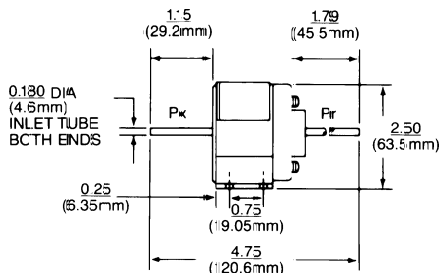
Screw terminal barrier strip

## Ordering Code Example: 223BD-00010AAB

Code

Configuration

Type 223BD General Purpose Differential Pressure Transducer	Code	Configuration
Pressure Range Full Scale	223BD	223BD
0.2 mmHg or cmH <sub>2</sub> O/ 0.1 in H <sub>2</sub> O	000.2	
1 mmHg or cmH <sub>2</sub> O/ 0.5 inH <sub>2</sub> O	00001	
10 mmHg or cmH <sub>2</sub> O/ 5 inH <sub>2</sub> O	00010	00010
100 mmHg or cmH <sub>2</sub> O/ 50 inH <sub>2</sub> O	00100	
1000 mmHg or cmH <sub>2</sub> O/ 500 inH <sub>2</sub> O	01000	
<i>(Specify required engineering unit on order.)</i>		
Fittings		
3/16" OD (4.6 mm) tube	A	A
Accuracy		
Standard: ±0.5% of F.S., bidirectional or unidirectional	A	
Optional: ±0.3% of F.S., bidirectional or unidirectional	B	A
Optional: ±0.3% of Rdg., unidirectional only	C	
Calibration		
Bidirectional	B	
Unidirectional	U	B
<i>(For bidirectional calibration, output is -F.S. VDC for -F.S. pressure and +F.S. VDC for +F.S. pressure.)</i>		



## Dimensional Drawing —

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



## Global Headquarters

90 Industrial Way  
Wilmington, MA 01887-4610

Tel: 978.284.4000  
Tel: 800.227.8766 within U.S. only  
Web: www.mksinst.com