



430E

BARATRON® ABSOLUTE INDUSTRIAL PRESSURE TRANSMITTER

MKS Instruments, the recognized leader in capacitance manometer technology, now offers the 430E Baratron® absolute pressure transmitter for use in industrial pressure and vacuum measurement applications where explosion-proof ratings are required for safe operation. The 430E uses a new dual-electrode sensor that offers significant improvements in temperature compensation and operation at higher temperatures. The net result is a very accurate and repeatable pressure/vacuum sensor that is suitable for many industrial and petrochemical processes.

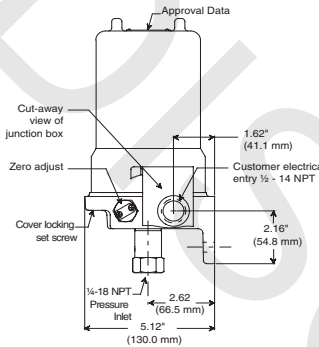
Like all MKS Baratron capacitance manometers, the 430E measures the system's total pressure directly – completely independent of the specific gas composition. The sensor measures the change in capacitance between its Inconel® diaphragm and the adjacent dual electrode disk. When the pressure or vacuum in the process chamber changes, the diaphragm deflects from its previous position, which causes a change in capacitance between the diaphragm and the electrode. That change is detected by sophisticated analog electronics, and then amplified to produce a linear output signal. This also permits MKS to specify the overall device accuracy as a percent of Reading rather than most competitive products' percent of Full Scale range – which can be up to 15x more accurate at the lower end of the measurement range of the product.

Features & Benefits

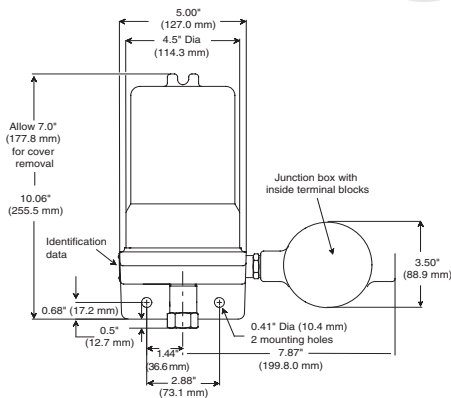
- NEMA 4 housing approved for explosion-proof applications
- Ambient operating temperature up to 50°C (125°F)
- Dual electrode design improves stability
- Full Scale pressure ranges from 1 Torr to 25,000 Torr
- Measures total pressure directly, independent of gas composition
- Percent of Reading accuracy gives a broad dynamic range and up to 15x improvement in uncertainty band compared with percent of Full Scale
- All-Inconel corrosion-resistant sensor construction
- Two-wire, 4-20 mA signal output

Specifications and Ordering Information

Side View



Front View



Dimensional Drawing —

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

Full Scale Pressure Ranges

1, 2, 10, 100, and 1000 Torr (mmHg); 100, 200, 300, 400, and 500 psia

Accuracy (includes non-linearity, hysteresis, and non-repeatability)

± 0.50% of Reading

Temperature Coefficients

Zero

0.020% Full Scale/°C

Span

0.040% Reading/°C

Operating Temperature Range

0° to 50°C (32° to 125°F)

Materials Exposed to Process Gases

Inconel, Type 316L stainless steel, and Type 304 stainless steel

Volume (Px side)

7.0 cm³

Overpressure Limit

120% of FS, or 35 psia (240 kPa) – whichever is greater

Power Required/Output Signal

+24 to 32VDC into 500Ω load; two-wire 4-20 mA out. Output signal is 4.0 mA at 0 Torr and 20.0 mA at FS range

Fitting

1/4" x 18 NPT

Compliance

NEMA 4, FM17US0326

Zero Adjustment

Continuously adjustable externally

Time Response

With snubber: 250 msec. Without snubber: 20 msec. (FM Approval voided without snubber)

Mounting Position

Panel mount or pipe mount with U-bolt, process connection down

Housing Materials

356-T6 aluminum (NEMA 4); 2-part polyurethane paint

Electrical Connection

1/2" conduit with screw terminals

Weight

6 lbs (3 kg)

Ordering Code Example: 430EA00010

Type 430E	Code	Configuration
Type Number	430E	430E
Pressure Reference	A	A
Pressure Range, Full Scale		
1 Torr	00001	00010
2 Torr	00002	
10 Torr	00010	
100 Torr	00100	
1000 Torr	01000	
100 psia	05000	
200 psia	10000	
300 psia	15000	
400 psia	20000	
500 psia	25000	



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