E29H

Heated (45°C or 100°C) Absolute Baratron® Capacitance Manometer with Etch Sensor

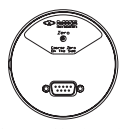
The E29H is the recommended solution for use in etch processes. MKS has implemented solutions within the manometer's pressure sensing element to minimize the effects of process byproducts and process gases. For processes that generate large quantities of condensable byproducts, MKS recommends the etch baffle that significantly reduces the ability of byproducts to reach the sensor, minimizing process-induced zero drift. For very low pressure processes where fluorine burn-in is the main issue, MKS recommends the fluorine friendly etch baffle offering the ultimate in short- and long-term stability in fluorine chemistry.

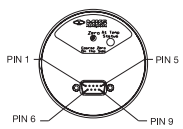
The E29H is temperature-controlled to either 45°C or 100°C, accurate to ±0.12% of Reading, and includes efficient temperature control electronics to provide superior long-term stability and repeatability. It has an optional external zero input, which accepts a voltage equal to and opposite to the zero offset, to provide a zero output at zero pressure. The optional "At Temperature" LED/switch indicates that the sensor is at the controlled temperature (either 45°C or 100°C). The E29H is available in Full Scale ranges down to 50 mTorr for 100°C and to 20 mTorr for 45°C units, to better accommodate today's lower process pressures.

Based on the well-established Baratron capacitance manometer technology, the sensor's wetted surfaces are Inconel® for corrosion resistance. The modern stainless steel enclosure provides a cleanroom compatible product. The E29H is fully compatible with earlier MKS 629A, 629B, 629D, E29B, E29D, and E29F Baratron capacitance manometers.

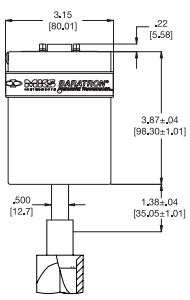
Product Features

- Excellent long-term stability in the presence of extreme etch chemistries
- Percent of Reading accuracy for more precise output signal in lower pressure ranges
- Full Scale ranges as low as 20 mTorr for precise measurement of low pressure processes
- Patented fluorine friendly etch baffle available upon request
- Integrated sump (US Patent #5,822,685) provides particle protection
- Deposition protection for extreme etch processes (Patent pending)
- Compatible with earlier Baratron® capacitance manometers, MKS power supply/readout modules, and pressure controllers


STANDARD CONFIGURATION



AT TEMP/HEATER INDICATORS



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

Key Benefits

- Measures total pressure directly, independent of gas composition
- High overpressure rating for improved reliability
- Cleanroom-compatible stainless steel package
- All Inconel corrosion resistant wetted surfaces
- Designed for use in etch process applications

Specifications		
Full Scale Ranges		0.02 (45°C only), 0.05, 0.1, 1, 2, 10, 20, 100, 1000 Torr
Resolution		0.001% of Full Scale (0.002% of Full Scale for 0.02 and 0.05 Torr)
Accuracy	**45°C** **100°C**	• 0.12% of Reading (including non-linearity, hysteresis, and non-repeatability for 1-1000 Torr range), 0.15% for 0.10, 0.05 and 0.25 Torr, 0.25% for 0.02 Torr • 0.25% (for 1-1000 Torr range), 0.50% for 0.10, 0.05 and 0.25 Torr
Temperature Coefficients	**Zero, 45°C** **Zero, 100°C** **Span**	• 0.002% of Full Scale/°C for 1-1000 Torr, 0.005% of Full Scale/°C for 0.1 Torr, 0.015% of Full Scale/°C for 0.05 Torr, 0.03% of Full Scale/°C for 0.02 Torr • 0.002% of Full Scale/°C for 1-1000 Torr, 0.01% of Full Scale/°C for 0.1 Torr, 0.02% of Full Scale/°C for 0.05 Torr • 0.02% of Reading/°C
Ambient Operating Temperature	**45°C** **100°C**	• 15-40°C • 15-50°C
Volume		6.3 cc
Warm-Up Time		2 hours for 1-1000 Torr Full Scale, 4 hours for 0.1 Torr Full Scale and lower
Overpressure Limit		45 psia (310 kPa)
Materials Exposed to Gases		Inconel
Input Power Required	**45°C** **100°C**	• ±15 VDC ±5% @ 0.25 Amps • 0.5 Amps
Output Signal		Pressure: 0 to +10 VDC into > 10K Ω load
Optional Features LEDs and Switches		"At Temperature" status semiconductor switch will turn "ON" and corresponding green LED will be "ON" when the instrument is at temperature. Option not available: 0.02 Torr/45°C and 0.05Torr/100°C External Zero allows voltage input that is equal to and opposite to a zero offset. Option not available: 0.02 Torr/45°C and 0.05 Torr/100°C
Fittings	**Standard** **Optional**	• 1/2'' (12.7 mm) tubulation • 8 VCR® and 8 VCO® female, NW16 KF and NW25 KF, 1.33'' OD CF and 2.75'' OD CF
Compliance		CE

Ordering Information: E29H01TBEJ2B	Code	Configuration
Model		
E29H	E29H	E29H
Pressure mmHg (Torr)		
0.02 (not available with 100°C) 0.05 0.1 0.2 1 2 10 20 100	U2T U5T .1T RET 01T 02T 11T 21T 12T	01T
Fittings		
1/2'' Tube 8 VCR female 1.33'' OD CF NW16 KF (range < 5000 Torr) 8 VCO female 2.75'' OD CF NW25 KF (range < 5000 Torr)	A B C D E L Q	B
Accuracy (see specifications for applicability)		
0.12% (standard 45°C: 1, 2, 10, 20, 100 Torr only) (not available with 100°C) 0.15% (standard 45°C: 0.05, 0.10 and 0.25 Torr only) (not available with 100°C) 0.25% (standard 45°C: 0.02 Torr only, std. 100°C: 1 thru 1000 Torr) 0.50% (standard 100°C: 0.05, 0.25 and 0.100 Torr)	C D E F	E
Temperature		
45°C 100°C	J L	J
Options		
Standard Configuration/Vertical Calibration Optional Heater Status Indication/Vertical Calibration External Zero/Vertical Calibration (not available on 45°C: 0.02 Torr and 100°C: 0.05 Torr) Heater Status/External Zero/Vertical Calibration (not available on 45°C: 0.02 Torr and 100°C: 0.05 Torr) Standard Configuration/Horizontal Calibration Optional Heater Status Indication/Horizontal Calibration External Zero/Horizontal Calibration (not available on 45°C: 0.02 Torr and 100°C: 0.05 Torr) Heater Status/External Zero/Horizontal Calibration (not available on 45°C: 0.02 Torr and 100°C: 0.05 Torr)	1 2 3 4 5 6 7 8	2
Connectors		
9 pin Type ''D'' with Thread Locks 9 pin Type ''D'' with Slide Locks	B P	B

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