Pressure & Vacuum Measurement Solutions

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E28F

HEATED (100°C) ABSOLUTE BARATRON® CAPACITANCE MANOMETER WITH ETCH SENSOR

The E28F 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 E28F is heated to 100°C, accurate to 0.25% of Reading and includes updated temperature control electronics to provide superior long-term stability and repeatability. Optional heater and temperature status LED/switches indicate that the heater (which maintains the sensor temperature to 100°C) is in control. The E28F is available in Full Scale ranges down to 50 mTorr (0.07 mbar) to accommodate today's lower process pressures.

Based on established Baratron capacitance manometer technology, the sensor's wetted surfaces are Inconel® for excellent resistance to corrosive gases. The contemporary stainless steel package provides a cleanroom-compatible product. The product is interchangeable with earlier 128, 628A, 628B, 628D, E28B, and E28D Baratron capacitance manometers and can be used with MKS power supplies, display units and pressure controllers, or the user's compatible power supply/readout devices.

Features & Benefits

Accurate

- Excellent long-term stability
- Percent of Reading accuracy for more precise output signal in lower pressure ranges
- Full Scale ranges as low as 50 mTorr (0.07 mbar) for precise measurement of low pressure processes
- Measures total pressure directly, independent of gas composition

Robust

- All-Inconel corrosion-resistant wetted surfaces
- Patented fluorine friendly etch baffle available upon request
- Integrated sump (US patent #5,822,685) provides particle protection
- Faster warm-up time
- Visual and electrical status of temperature and heater control circuit
- High overpressure rating for improved reliability

Compatible

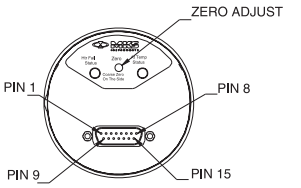
- Cleanroom-compatible stainless steel package
- Compatible with earlier Baratron capacitance manometers, MKS power supply/readout modules, and pressure controllers

Specifications and Ordering Information

Full Scale Ranges	0.05, 0.1, 0.25, 1, 2, 10, 20, and 100 Torr
Resolution	0.001% of Full Scale (0.002% of Full Scale for 0.05 Torr)
Accuracy	0.25% of Reading (including non-linearity, hysteresis, and non-repeatability), 0.5% for <1 Torr and 0.05 Torr
Temperature Coefficients	
Zero	0.002% of Full Scale/°C for 1-100 Torr ranges; 0.01% of Full Scale/°C for 0.1 Torr and 0.02% of Full Scale/°C for 0.05 Torr
Span	0.02% of Reading/°C
Ambient Operating Temperature	15°C to 50°C
Volume	6.3 cc
Warm-Up Time	2 hours for 1 Torr and higher, 4 hours for < 1 Torr
Overpressure Limit	45 psia (310 kPa) or 120% Full Scale, whichever is greater
Materials Exposed to Gases	Inconel®
Input Power Required	±15 VDC ±5% @ 0.6 Amps (max.)
Output Signal	Pressure: 0 to +10 VDC into >10K Ω load
Optional Features LED's and Switches	Temperature status: one semiconductor switch will turn "ON" and corresponding green LED will be "ON" when the instrument is at temperature. Heater status: second semiconductor switch will turn "OFF" when heater failure occurs and corresponding bi-color LED will be blinking red, otherwise light will remain green.
Fittings	Standard: 1/2" (12.7 mm) OD tube. Optional: 8 VCR® and 8 VCO® female, NW16 KF and NW25 KF, 1.33" OD CF and 2.75" OD CF
Compliance	CE

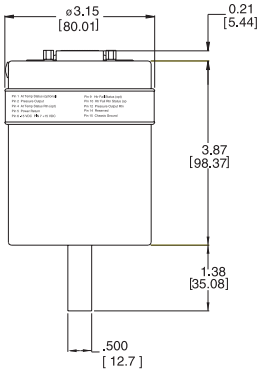
Specifications for Semiconductor Switch

Current Charge Capacity	120mA max.
Switch on Resistance	20 Ω max. @ 120mA, 50°C
Open Circuit Voltage	28V max.



AT TEMP/HEATER FAILURE INDICATORS

STANDARD CONFIGURATION



Dimensional Drawing —

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

Ordering Code Example: E28F01TBE1B	Code	Configuration
E28F	E28F	E28F
Pressure Range Full Scale		
0.05	U5T	01T
0.1	.1T	
0.25	RET	
1	01T	
2	02T	
10	11T	
20	21T	
100	12T	
Fittings		
1/2" (12.7 mm) OD tube	A	B
8 VCR female	B	
1.33" OD CF	C	
NW16 KF (range < 5000 Torr)	D	
8 VCO female	E	
2.75" OD CF	L	
NW25 KF (range < 5000 Torr)	Q	
Accuracy		
0.25% reading (ranges ≥ 1 Torr)	E	E
0.50% reading (ranges < 1 Torr)	F	
Options		
Standard Configuration, vertical calibration	1	1
Optional Temperature/Heater Status, vertical calibration	2	
Standard Configuration, horizontal calibration (ranges < 1 Torr only)	5	
Optional Temperature/Heater Status, horizontal calibration (ranges < 1 Torr only)	6	
Connector		
15 pin Type "D" with Thread Lock	B	B
15 pin Type "D" with Slide Lock	P	

MKS Instruments, Inc.
Global Headquarters

2 Tech Drive, Suite 201
Andover, MA 01810

Tel: 978.645.5500
Tel: 800.227.8766 (in U.S.A.)
Web: www.mksinst.com

MKS Instruments, Inc.
Pressure & Vacuum Measurement Solutions

Six Shattuck Road
Andover, MA 01810

Tel: 978.975.2350

E28F - 12/18

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