



Pressure &

Vacuum Measurement Solutions

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E27F

HEATED (45°C) ABSOLUTE BARATRON® CAPACITANCE MANOMETER WITH ETCH SENSOR

The E27F 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 E27F is temperature-controlled to 45°C, accurate to 0.12% 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 45°C) is in control. The E27F is available in Full Scale ranges down to 20 mTorr (0.03 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 127, 627B, and E27B 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 20 mTorr (0.03 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 Resolution Accuracy

0.02, 0.05, 0.1, 0.25, 1, 2, 10, 20, and 100 Torr
0.001% of Full Scale (0.002% of Full Scale for 0.02 and 0.05 Torr)
0.12% of Reading 0.15% for 0.25, 0.1, and 0.05 Torr, 0.25% for 0.02 Torr
(including non-linearity, hysteresis, and non-repeatability)

Temperature Coefficients

Zero

0.002% of Full Scale/°C for 1 - 100 Torr ranges; 0.005% of Full Scale/°C for 0.25 and 0.1 Torr, 0.015% of Full Scale/°C for 0.05 Torr, 0.03% of Full Scale/°C for 0.02 Torr

Span

0.02% of Reading/°C

Ambient Operating Temperature Volume

15°C to 40°C

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% @ 0.25 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.

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

CE

Fittings

Compliance

Specifications for Semiconductor Switch

Current Charge Capacity

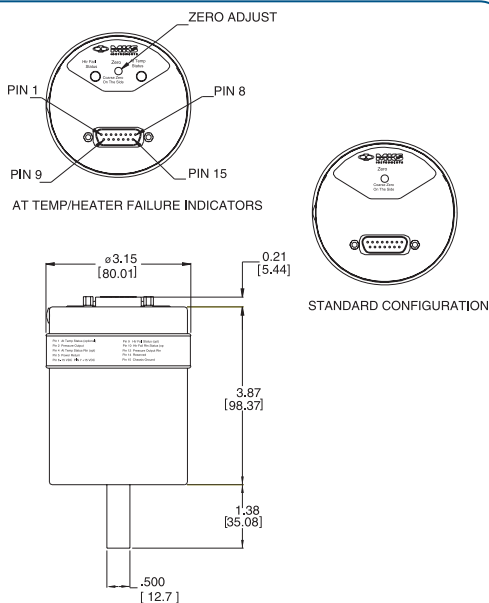
120mA max.

Switch on Resistance

20 Ω max. @ 120mA, 50°C

Open Circuit Voltage

28V max.



Dimensional Drawing —

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

Ordering Code Example: E27F01TBC1B

	Code	Configuration
E27F	E27F	E27F
Pressure Range Full Scale - Torr		
0.02	U2T	01T
0.05	U5T	
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 (see specifications for applicability)		
0.12% of Reading	C	C
0.15% of Reading	D	
0.25% of Reading	E	
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	



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