



Pressure &

Vacuum Measurement Solutions

WWW.MKSINST.COM

## E27F

### BARATRON® TEMPERATURE REGULATED CAPACITANCE MANOMETER WITH ETCH SENSOR

The E27F is the solution for etch process-induced drift. Based on the industry-standard Baratron capacitance manometer, MKS has developed structures in the sensor that nearly eliminate the deposition of process byproducts on the diaphragm, which minimizes drift. The E27F Baratron 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. This capacitance manometer 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 Incone® for excellent resistance to corrosive gases. The contemporary stainless steel package provides a cleanroom-compatible product. The product is inter-changeable 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 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
- 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

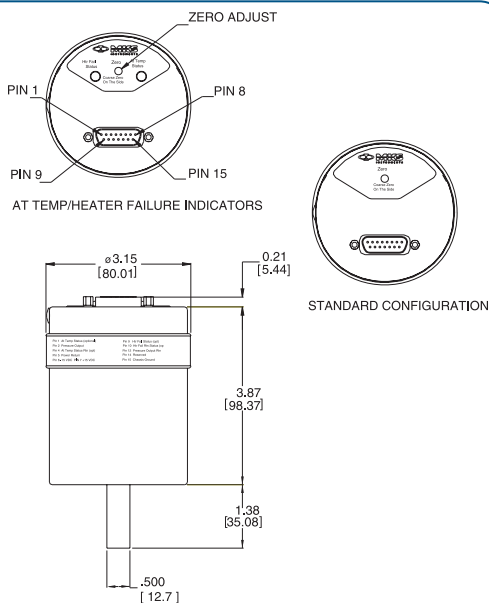
#### Compatible

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



# Specifications and Ordering Information

<b>Full Scale Ranges</b>	0.02, 0.05, 0.1, 0.25, 1, 2, 10, 20, and 100 Torr
<b>Resolution</b>	0.001% of F.S. (0.002% of F.S. for 0.02 and 0.05 Torr)
<b>Accuracy</b>	0.12% of Rdg., 0.15% for 0.25, 0.1, and 0.05 Torr, 0.25% for 0.02 Torr (including non-linearity, hysteresis, and non-repeatability)
<b>Temperature Coefficients</b>	
Zero	0.002% of F.S./°C for 1 - 100 Torr ranges; 0.005% of F.S./°C for 0.25 and 0.1 Torr, 0.015% of F.S./°C for 0.05 Torr, 0.03% of F.S./°C for 0.02 Torr
Span	0.02% of Rdg./°C
<b>Ambient Operating Temperature</b>	15°C to 40°C
<b>Volume</b>	6.3 cc
<b>Warm-Up Time</b>	2 hours for 1 Torr and higher, 4 hours for < 1 Torr
<b>Overpressure Limit</b>	45 psia (310 kPa) or 120% F.S., whichever is greater
<b>Materials Exposed to Gases</b>	Inconel®
<b>Input Power Required</b>	±15 VDC ±5% @ 0.25 Amps (max.)
<b>Output Signal</b>	Pressure: 0 to +10 VDC into >10K Ω load
<b>Optional Features LED's and Switches</b>	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
<b>Fittings</b>	CE
<b>Compliance</b>	
<b>Specifications for Semiconductor Switch</b>	
<b>Current Charge Capacity</b>	120mA max.
<b>Switch on Resistance</b>	20 Ω max. @ 120mA, 50°C
<b>Open Circuit Voltage</b>	28V max.



## Dimensional Drawing —

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

## Ordering Code Example: E27F01TBC1B

	Code	Configuration
<b>E27F</b>	E27F	E27F
<b>Pressure Range Full Scale - Torr</b>		
0.02	U2T	01T
0.05	U5T	
0.1	.1T	
0.25	RET	
1	01T	
2	02T	
10	11T	
20	21T	
100	12T	
<b>Fittings</b>		
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	
<b>Accuracy (see specifications for applicability)</b>		
0.12% of Reading	C	C
0.15% of Reading	D	
0.25% of Reading	E	
<b>Options</b>		
Standard Configuration, vertical calibration (ranges ≥ 1 Torr)	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	
<b>Connector</b>		
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