



Pressure &

Vacuum Measurement Solutions

WWW.MKSINST.COM

627E/628E/E27E/E28E

HEATED ABSOLUTE BARATRON® CAPACITANCE MANOMETER WITH ETHERNET COMMUNICATIONS

The Ethernet-enabled 627E and 628E Baratron® capacitance manometers can now network with Ethernet hubs and other devices for local or network diagnostics without disassembly or removal from the host system. Like other MKS Ethernet-equipped products, the 62xE Series manometer includes embedded Internet browser software that allows it to communicate with any Windows®-based PC. Since the Ethernet port operates in parallel to the standard analog communications, the device can be diagnosed on a real-time basis during processing – a huge benefit for users who perform their own system analysis and troubleshooting. Even for users who do not use Ethernet networking, the 627E and 628E also have external LEDs to give a fast intuitive guide to the device's status. The 627E and 628E models use the MKS standard capacitance sensor, while the E27E and E28E models are equipped with the MKS patented etch baffle that greatly reduces manometer drift in processes with condensable byproducts.

Features & Benefits

- Industry-leading accuracy and repeatability
- Standard product includes both analog and Ethernet communications for use in existing and latest generation of networked process tools
- Ethernet communications are real-time and can be run in parallel with analog communications, allowing in-situ diagnostics of device and process – no cable disconnection required
- Embedded Internet web browser communicates with any Windows-based PC
- Standard intuitive Graphical User Interface (GUI) with complete set of diagnostic routines that can be used for the device or the process
- Easy-to-understand external indicators for immediate device status information
- Full Scale pressure ranges from 1,000 Torr to 0.10 Torr
- Operating temperatures of 45°C or 100°C for use in difficult semiconductor, display manufacturing, and biopharmaceutical processes
- Available with either standard sensor or patented etch baffle for most applications
- Pin-to-pin compatible with other heated analog Baratron® capacitance manometers and some competitive products



Heated to either 45°C or 100°C, the 62xE models are for use in a wide range of semiconductor manufacturing and other related processes. Improving on the class-leading accuracy and repeatability synonymous with the Baratron brand, the 62xE models offer better than 0.10% of Reading for many configurations. Full Scale ranges from 1,000 Torr (19.3 psia) to 0.10 Torr (0.13 mbar) give the product the widest application range of any capacitance manometer, and its standard Inconel® sensor has exceptional resistance to corrosion from aggressive gases. The 627E and 628E are also available with the patented MKS particle sump that prevents condensable byproducts from difficult processes from depositing on the diaphragm and causing drift. Lastly, the 627E and 628E retain their proven analog communications, making it literally a “drop-in” retrofit into existing processing systems.

The embedded Graphical User Interface (GUI) is capable of very detailed analyses of both the Baratron capacitance manometer and the chamber upon which it is mounted. Upon initially connecting a Windows PC, the user will see the Device Status screen (Figure 1), which gives a quick “at-a-glance” summary of the Baratron manometer including the pressure, status, and general product information. The user can then move to the Plot screen (Figure 2) that shows a real-time plot of the actual pressure that the Baratron manometer sees in the process chamber. This is a particularly powerful function that can be used for detailed process and system diagnostics. Since this mode can display transient pressure changes occurring as fast as 100 milliseconds, it can be used to troubleshoot and diagnose a wide variety of process system issues. Examples include improper isolation valve operation, pressure control instabilities, DC or RF power supply variations, process chemistry issues, and even vacuum pump operation. The Baratron manometer GUI also continuously tracks its own function in areas such as temperature, current draw, and microprocessor operation - and reports back to you via the GUI the problem and when it happened (Figure 3). That helps you to get the processing system back on-line and generating revenue faster. The PC must have Internet Explorer v6.0 or later with Java® RunTime Environment version 1.5 to 1.7. Java RunTime Environment may be downloaded from www.java.com.

Power, speed, and intelligence are all available in the 627E and 628E Baratron capacitance manometers. That is what you expect from the worldwide leader in capacitance manometers and that is what MKS gives you.

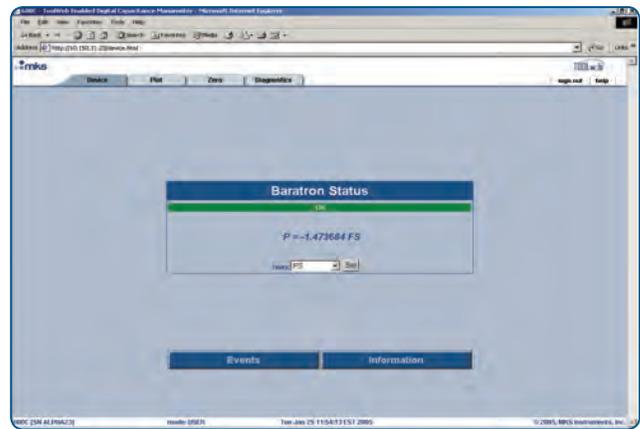


Figure 1 —
Status Page

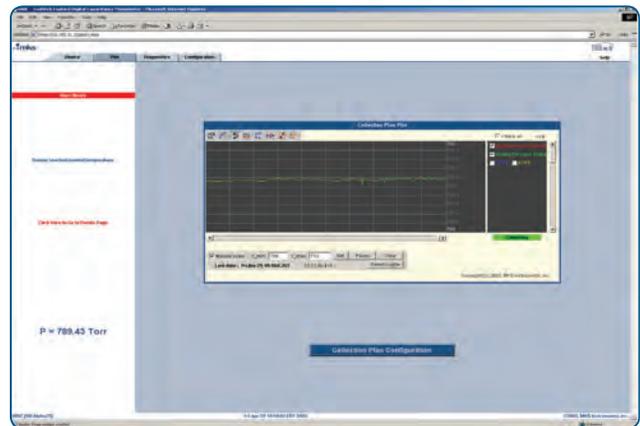


Figure 2 —
Plot Mode

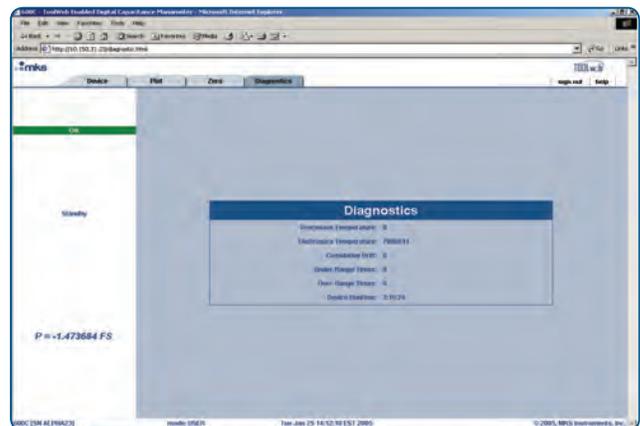


Figure 3 —
Diagnostics Mode



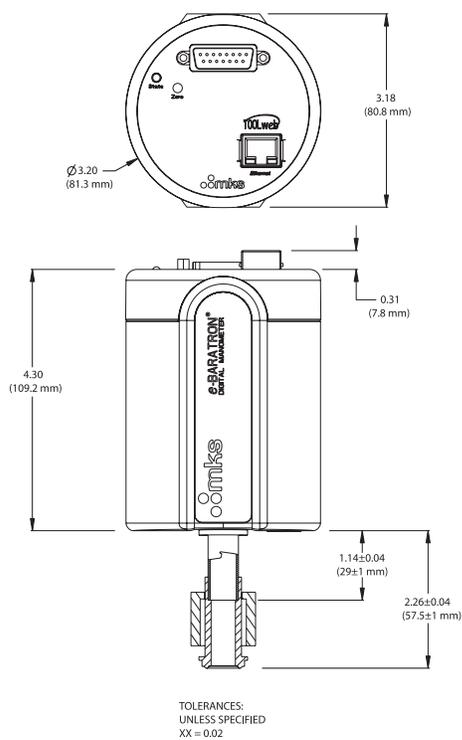
Specifications

Full Scale Ranges	0.1, 0.25, 1, 2, 10, 20, 100, 500, 1000 Torr
Resolution	0.001% Full Scale
Accuracy*	
627E and E27E	0.10% of Reading for ranges of 1 Torr or higher, 0.15% of Reading for 0.1 and 0.25 Torr ranges
628E and E28E	0.25% of Reading for ranges of 1 Torr or higher, 0.50% of Reading for 0.1 and 0.25 Torr ranges
Temperature Coefficients	
Zero	0.002% Full Scale/°C for all models of 1 Torr and higher; 0.005% Full Scale/°C for 0.1 Torr range 627E, 0.01% Full Scale/°C for 0.1 Torr range 628E
Span	0.02% Reading/°C
Ambient Operating Temperature	
45°C Models	15 to 40°C
100°C Models	15 to 50°C
Volume	6.3 cm ³
Warmup Time	2 hours for ranges of 1 Torr and higher; 4 hours for ranges below 1 Torr
Overpressure Limit	45 psia (310 kPa) or 120% of Full Scale, whichever is higher
Materials Exposed to Process Gases	Inconel
Input Power Required	
45°C Models	±15VDC ± 5% or +24VDC ± 5% @ 300 mA
100°C Models	600 mA
Output Signal	
Analog	0-10VDC into > 10 kΩ load
Digital	Ethernet
Electrical Connectors	
Analog	9 or 15-pin D-subminiature
Digital	RJ45 receptacle
External Indicators	Multicolor status LED and two (2) green LEDs for Ethernet communications status
Fittings	
Standard	0.50" (12 mm) OD tube
Optional	8 VCR® male or female, 8 VCO® female, NW16-KF, NW25-KF, and 1.33" (33.8 mm) OD Conflat®
Compliance	CE, SEMI S2-93

*Includes non-linearity, hysteresis, and non-repeatability.



Ordering Information



Dimensional Drawing —

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

Ordering Code Example: 628E11TGAC1B1

627E, standard sensor, heated to 45°C
628E, standard sensor, heated to 100°C
E27E, etch sensor, heated to 45°C
E28E, etch sensor, heated to 100°C

Code

627E
628E
E27E
E28E

Configuration

628E

Pressure Range, Full Scale

0.1
0.25
1
2
10
20
100
500
1000 (not available on E27E or E28E)

.1
RE
01
02
11
21
12
52
13

11

Engineering Units

Torr/mm Hg
mbar
kPa
Pascal

T
M
K
L

T

Fittings

Straight 0.50" (12mm) OD tube
8 VCR female
8 VCR male
8 VCR female, short tube
NW16-KF
NW25-KF
8 VCO female
Mini-CF rotatable

BA
CE
CF
CR
GA
GC
DA
HA

GA

Accuracy

0.10% Reading (see specifications for applicability)
0.15% Reading (see specifications for applicability)
0.25% Reading (see specifications for applicability)
0.50% Reading (see specifications for applicability)

C
D
E
F

C

Options

Vertical calibration
Horizontal calibration

1
5

1

Analog Electrical Connector

15-pin D-subminiature, thread lock
15-pin D-subminiature, slide lock
9-pin D-subminiature, thread lock
9-pin D-subminiature, slide lock

B
P
A
Z

B

Digital Electrical Connector

Ethernet RJ45 jack, diagnostics

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