



**Pressure &**

**Vacuum Measurement Solutions**

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# DA03A

## HEATED (150°C OR 160°C) ABSOLUTE BARATRON® CAPACITANCE MANOMETER WITH ETHERCAT® COMMUNICATIONS

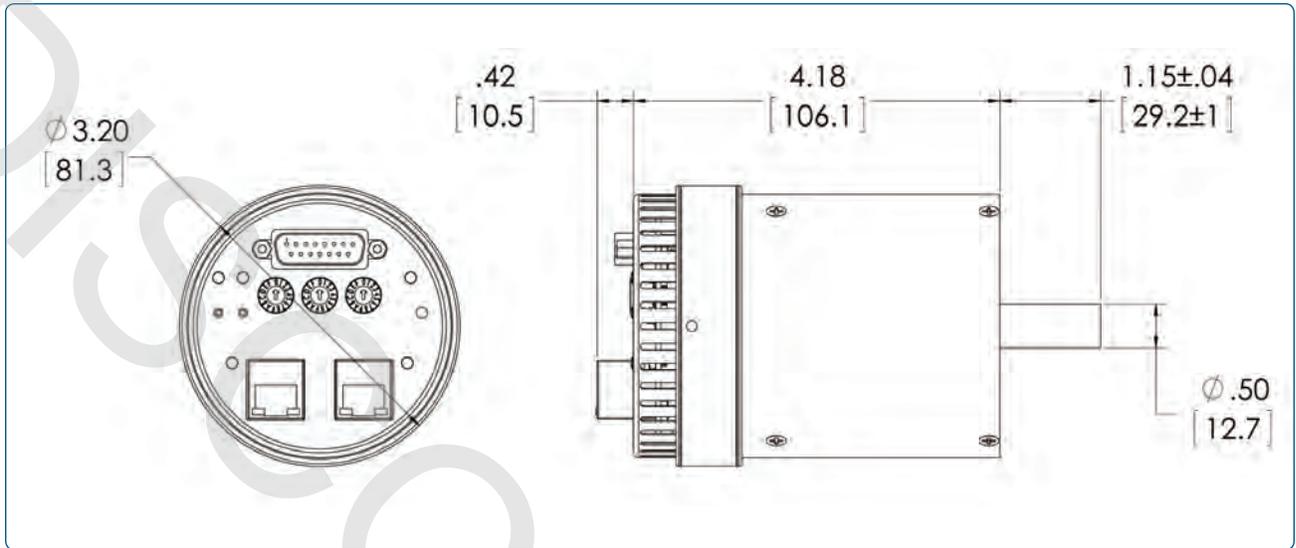
Operating at a high internal temperature, the DA03A minimizes the deposition of process byproducts within the sensor—nearly eliminating output drift caused by such contamination. The DA03A is available in operating temperatures of 150°C or 160°C, permitting use in the most demanding vacuum processes in semiconductor manufacturing such as metal etching and nitride film chemical vapor deposition (CVD).

The DA03A is completely self-contained, requiring input power of +24 VDC or ±15 VDC for operation. No separate electronics modules are used, which provides the dual benefits of reducing the amount of installation space needed while providing better performance by eliminating noise-generating interconnecting cables. Its Inconel® sensor is resistant to corrosion, and its overpressure rating of 45 psia ensures good repeatability and stability regardless of the system operating conditions. The integrated high-performance digital electronics of the DA03A also includes a fail-safe over temperature protection and LED status lamp to indicate operating state. It is available with an internally-mounted set of two (2) UL®-approved solid state trip relays for pressure and one (1) for heater failure that allows the manometer to control external equipment or components. The pressure trip relays may be adjusted by the user independently at atmospheric pressure, eliminating the need for vacuum pumps during set point adjustment.

### Features & Benefits

- Sensor operating temperature of 150°C or 160°C
- All-Inconel capacitance sensor
- Standard or etch sensors available
- High 45 psia overpressure rating for improved stability and repeatability
- Compact design fits small spaces
- Internally-mounted solid state process relays for external control
- Long-term performance in nitride CVD and metal etch
- Reduces installation space, and eliminates noise caused by interconnecting cables
- Insensitive to gas composition
- Performance is unaffected by occasional pressure bursts
- EtherCAT interface





**Dimensional Drawing —**

*Note: Unless otherwise specified, dimensions are nominal values in inches (mm referenced).  
For dimensions on other configurations, please contact MKS Applications Engineering.*



# Specifications

<b>Full Scale Pressure Ranges</b>	1, 2, 3, 5, 10, 20, 100, 1000 Torr (mm Hg)
<b>Accuracy</b>	0.50% of Reading
<b>Temperature Coefficients</b>	
Zero	0.004% Full Scale/°C (0.008% Full Scale/°C for 1 Torr range) for 150°C and 160°C products
Span	0.02% Reading/°C
<b>Response Time</b>	50 msec
<b>Internal Volume</b>	6.3 cm <sup>3</sup>
<b>Input Power</b>	+24 VDC or ±15 VDC, 1 amp at start up
<b>Output Signal</b>	Analog 0-10 VDC into >10 ohm load, EtherCAT
<b>Warmup Time</b>	4 hours or less
<b>Operating Temperature Range</b>	15 to 50°C
<b>Ambient Airflow Requirements</b>	
150°C and 160°C Models	50 ft/min for ambient temperatures of 45 – 50°C
<b>Resolution</b>	0.01% of Full Scale
<b>Overpressure Limit</b>	45 psia
<b>Materials Exposed to Process Gases</b>	Inconel® and Incoloy® nickel alloys
<b>Trip Relays</b>	Two (2) internally mounted process pressure trip relays, solid state, independently adjustable by customer at atmospheric pressure from 0.5% to 100% of Full Scale range. Relay capacity of 0.20 amps @ 30 VDC. Comply with UL1577 requirements. Option also includes one (1) UL-approved solid state relay for heater failure, rated at 1.0 amps @ 30 VDC.
<b>Fittings</b>	
Standard	0.50" (12 mm) OD tube
Optional	Swagelok® 8 VCR® female, 8 VCR male, NW16-KF, NW25-KF, Mini-CF
<b>Compliance</b>	CE



# Ordering Information

Ordering Code Example: DA03A11TCES36BAA0000

Model	Code	Configuration
DA03A Absolute Manometer	DA03A	DA03A
<b>Ranges</b>		
1	01	11
2	02	
3	03	
5	05	
10	11	
20	21	
100	12	
200	22	
500	52	
1000	13	
<b>Units of Measurement</b>		
Torr	T	T
Mbar	M	
Pascal	L	
<b>Fittings</b>		
½" OD Tube	BA	CE
8 VCR Female	CE	
8 VCR Male	CF	
NW16-KF	GA	
NW25-KF	GC	
Mini-CF	HA	
<b>Sensor Type</b>		
Standard	S	S
Etch (≤100 Torr)	E	
<b>Power Supply Voltage</b>		
±15 VDC	2	3
+24 VDC	3	
<b>Sensor Temperature</b>		
150°C	5	6
160°C	6	
<b>Electrical Connector<sup>1</sup></b>		
15 Pin D with Screw Locks	B	B
15 Pin D with Slide Lock Posts	P	
<b>Integral Relays<sup>2</sup></b>		
No Relays	00	AA
Trip Point A Above Set Point, Trip Point B Above Set Point <sup>3</sup>	AA	
Trip Point A Above Set Point, Trip Point B Below Set Point <sup>3</sup>	AB	
Trip Point A Below Set Point, Trip Point B Below Set Point <sup>3</sup>	BB	
Trip Point A Below Set Point, Trip Point B Above Set Point <sup>3</sup>	BA	
<b>Reserve</b>		
Reserve	0	0
<b>Calibration Orientation</b>		
Ranges 1 Torr and Above	0	0
<b>Accuracy</b>		
0.50% Reading Standard	0	0
0.25% Reading	E	
<b>Other Options</b>		
None	0	0
At Temp LED and Trip Point Relay	1	
At Temp/Heater Fail Indicator	2	

<sup>1</sup> For CE compliance, the mating electrical connector must be properly grounded.

<sup>2</sup> Engineering requires input if the relays are energized above or below the set point for standard products.

<sup>3</sup> Contact MKS Applications Engineering for sealing material recommendations.



## 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