



Pressure &

Vacuum Measurement Solutions

WWW.MKSINST.COM

## Type DMB (45°C)

### i-BARATRON® DIGITAL CAPACITANCE MANOMETER

The MKS Type DMB i-Baratron® Capacitance Manometers are RoHS-compliant dual-output products with both ODVA™-certified DeviceNet™ digital communications and legacy 0-10VDC analog output signals. Available in three different operating temperatures for different applications, the DMB products use an efficient microprocessor-based digital structure that provides exceptional stability and repeatability under demanding conditions such as semiconductor manufacturing equipment. The DMB manometers use the patented MKS all-welded Inconel® diaphragm sensor, which has exceptionally high resistance to corrosion from common process chemicals and is able to tolerate bursts of pressure to as much as 45 psia (310 kPa) without suffering physical damage or permanent calibration shifts. Two different models of the product are available: DeviceNet™ digital communications or legacy 0-10VDC analog output. On DeviceNet models, main power and communications are fed through a bayonet-style 5-pin electrical connector on the top surface of the Baratron. On analog versions, power input and output are available on either a 9-pin or 15-pin D-sub-miniature electrical connector also on the top surface of the product. The product's sensor is internally heated and regulated to 45°C, and offers full-scale pressure ranges from 1000 to 0.1 Torr (133 to 0.013 kPa). The product is CE marked and is compliant with current EU RoHS (Restriction of Hazardous Substances) regulations.

### Features & Benefits

- Excellent long-term stability
- Internal operating temperature of 45°C improves stability and increases resistance to process contamination
- Full-scale pressure ranges from 1000 to 0.1 Torr (133 to 0.013 kPa) for precise measurement of low pressures
- All-Inconel sensor offers extremely high resistance to corrosion from common process gases
- Fast warm-up time allows system to be available for production sooner
- High overpressure specification of 45 psia (310 kPa) prevents shifting or permanent calibration changes
- Electronics are microprocessor-based for best accuracy and repeatability
- Choice of ODVA-approved DeviceNet digital communications or 0-10VDC analog output
- OneTouch zero pushbutton
- CE approved and RoHS-compliant



# Specifications

## Performance

Sensor Type	Capacitance Manometer
Pressure Ranges (Torr Full Scale)	0.1, 0.25, 1, 2, 10, 100, 1000
Measurement Resolution	0.001% F.S. on digital output
Accuracy (non-linearity, hysteresis and non-repeatability)	1 to 1000 Torr range; 0.12% of Reading <1 Torr ranges; 0.15% of Reading
Temperature Coefficients	
Zero	1 to 1000 Torr; 0.002% of F.S./°C <1 Torr; 0.005% of F.S./°C
Span	0.02% of Reading/°C
Sensor Temperature	45°C
Ambient Operating Temperature	15° to 40°C
Warm-up Time	2 Hours for 1 - 1000 Torr F.S. 4 Hours for <1Torr F.S.

## Mechanical

Materials Exposed to Gases	Inconel® or Inconel® and S.S. fittings
Volume (P <sub>x</sub> side)	6.3cc
Overpressure Limit w/o Damage	45 psia (310 kPa)
Fittings	
Standard	1/2" (12.7mm) tubulation
Optional	Swagelok® 8 VCR® (female), Swagelok 4 VCR (female), mini-CF rotatable, NW 16 KF

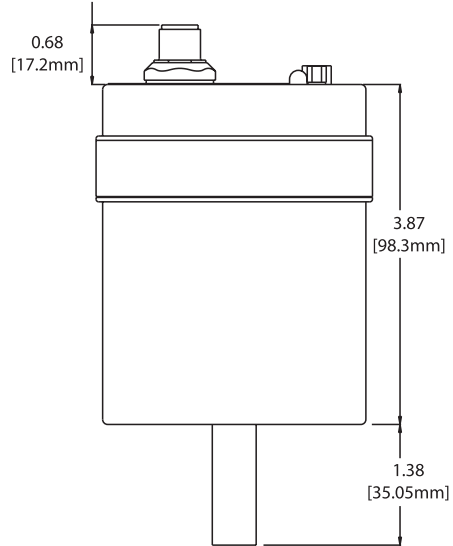
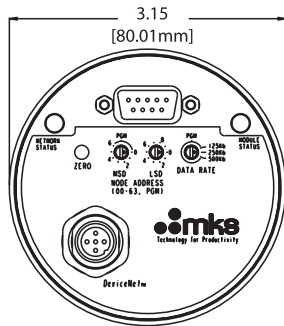
## Electrical

Digital	
Protocol	DeviceNet™, Group 2
Electrical connector	5-pin, sealed micro-style male connector with anti-rotation device
Data rate/Network length	Data rate (user-selectable) 125 Kbps, 500m (1,640 ft.) 250 Kbps, 250m (820 ft.) 500 Kbps, 100m (328 ft.)
Level of filtering	User software adjustable
Digital functions	Read pressure Set trip points and hysteresis Select units: Torr, Pa, mbar, inH <sub>2</sub> O, psi Set zero Reset factory defaults Monitor transducer trip point status Change user tags and device address
Data rate switch	4 positions: 125, 250, 500K, PGM (programmable over the network)
MAC ID switches	2 switches, 10 positions; 0,0 to 6,3 are hardware ID numbers; 7,0 to 9,9 are software ID numbers (6,4 to 6,9 are unused and, if selected, will default to hardware ID number 6,3)
Network message control	Master/slave information flow
Input power	11 to 25 VDC @ ≤14 watts
Network size	Up to 64 nodes
Network topology	Linear (trunkline/dropline) power and signal on same network cable
Analog I/O	
Input power	+24VDC or +/-15VDC @ 300 mA max
Analog output signal	0-10 VDC into >10K Ω load
Output connector	9-pin D-subminiature or 15-pin D-subminiature depending on configuration
Visual Communication Indicators	LED network status (green/red) LED module status (green/red)
Regulatory Approvals	Fully compliant to EMC Directive 2004/108/EC
Restriction of Hazardous Substances	Fully compliant to RoHS Directive 2002-95-EC

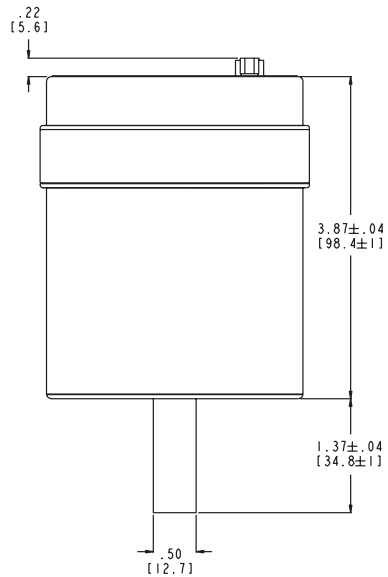
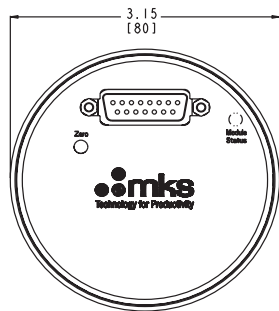


# Dimensional Drawings

## DeviceNet Models



## Analog Models



### Dimensional Drawings —

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



# Ordering Information

Ordering Code Example: DMB11TBACJNH633	Code	Configuration
Type DMB i-Baratron® Digital Capacitance Manometer (45°C)	DMB	DMB
<b>Ranges</b>		
0.10 Torr	.1T	11T
0.25 Torr	RET	
1 Torr	01T	
2 Torr	02T	
10 Torr	11T	
20 Torr	21T	
100 Torr	12T	
500 Torr	52T	
1000 Torr	13T	
<b>Fittings</b>		
Straight Tube	BA	BA
4 VCR Female	CD	
8 VCR Female	CE	
Mini-CF, rotatable	HA	
NW 16 KF	GA	
8 VCO Female	DA	
<b>Accuracy</b>		
0.12% of Reading (1 - 1000 Torr)	C	C
0.15% of Reading (0.10 and 0.25 Torr ranges)	D	
<b>Temperature</b>		
45°C	J	J
<b>Options</b>		
None	N	N
Etch-style sensor (<100 Torr ranges only)	E	
<b>Calibration Type</b>		
No Special Requirement, 1 Torr and above	N	H
Horizontal Cal, <1 Torr	H	
Vertical Cal <1 Torr	V	
<b>Interface/Connector</b>		
DeviceNet/Micro Style, Male (CE)	6	6
0-10VDC analog output, 9-pin D-subminiature, +24VDC or +/-15VDC	F	
0-10VDC analog output, 15-pin D-subminiature, +24VDC or +/-15VDC	H	
<b>Firmware Revision</b>		
Version 3.3 digital (DeviceNet models only)	33	33
Version 5.4 analog (Analog models only)	54	



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