

# Series 937B

## Digital Combination Vacuum Gauge System



The Series 937B combination vacuum gauge system is part of the MKS family of vacuum gauges. It is the third generation of the very successful 937 Series. The 937B will operate and display as many as six sensors simultaneously, and each controller can be configured to the user's gauging requirements. This highly flexible product enables a wide range of gauging technologies, tailoring the system to each individual application. The Series 937B combines the sensor technologies of the cold cathode, hot cathode, standard Pirani, convection Pirani, MKS Baratron® capacitance manometer and absolute Piezo sensors to measure from ultra-high vacuum to above atmospheric pressure.

### Product Features

- Provides simultaneous readout for a combination of up to six vacuum gauges
- Wide measurement range of  $10^{-11}$  to 20,000 Torr
- Intuitive menu for ease of setup
- Large easy to read backlit display
- Configurable for up to six heated MKS Baratron capacitance manometers
- Twelve independent relay set points for improved process control with variable hysteresis
- Computer Interface: RS232, RS485 (built in) and Profibus DPV1 (optional)
- Independent, buffered, combined and standard analog outputs for each channel
- Gas-type sensitivity allows sensors to be used for rough leak detection
- Leak test function with bar graph display and audio alarm



### Key Benefits

- User-configurable for units of pressure in Torr, millibar, Pascal, or microns
- Operates hot and cold cathodes, Baratron capacitance manometers, Piezo and Pirani sensors for maximum flexibility
- Fast response cold cathode card protects vacuum system in the event of a sudden pressure rise
- Field upgradeable
- Modular design

## The Controller

The 937B controller is designed for versatility, reliability and economy. The large, easy to read, liquid crystal display provides readout for up to six sensors simultaneously. The back lit LCD display, intuitive menus and simple push button front panel, allows for ease in setup of the 937B.

The 937B, enables the use of any sensor card in each of the sensor card slots. The 937B can be configured with up to three hot or cold cathode type gauges, or three dual sensor cards for a maximum of six gauge connections.

## Set Points

Twelve independently adjustable set points are standard. This allows for the automation of process related functions. The set point values are nonvolatile and remain unchanged after power down or power failure. They are easily viewed and configured in the channel set up screen. The 937B also includes an adjustable control set point that turns the cold cathode or hot cathode gauges power off or on, at the desired pressures, extending the sensor's life.

## Leak Test

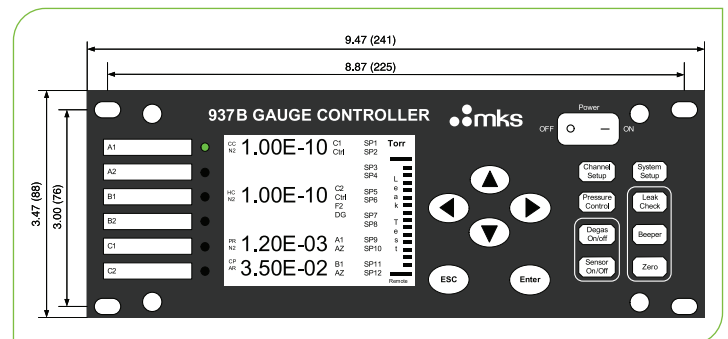
The leak test mode includes a bar graph and variable audible alert to assist in locating leaks within a system. The function operates with the cold cathode, hot cathode, Pirani, and convection sensors. By taking advantage of differences in tracer gas sensitivity, this provides an excellent tool for helping locate coarse system leaks.

## Analog Output Signals

The controller provides analog output signals accessible on the rear panel connector. Three types of analog signals are available. Unprocessed analog signals are used to provide the fastest response times. The logarithmic output voltages are scaled so that 0.6 Volts equals one decade of pressure. Combination output can be created by combining up to three sensors with a combined range from  $10^{-11}$  to 20,000 Torr.

## Digital Signals

In addition to analog outputs, the 937B communicates digitally for direct computer communication with built in connections for RS232 or RS485. A communication slot in the 937B chassis accepts an optional Profibus DPV1 board. The 937B can communicate with a host computer using either of these ports. Remote control of set points and cold cathode high voltage disable are some of the many features available with communications options.



## Dimensional Drawing

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

## Pirani Sensors

In Pirani-type sensors, vacuum measurement is based on thermal conductivity of the gas. The sensor tube contains a fine wire that is maintained at a constant temperature. Heat transferred from the wire relates to the amount of gas present and is used to indicate pressure. There are two types of Pirani tubes that can be run on the 937B. Both the standard and convection enhanced Pirani's are shielded and CE approved.

## Convectron® Pirani – Series 275

MKS Convectron® gauges have been the world-standard convection-enhanced Pirani gauge for over 35 years and are used in thousands of vacuum processes to accurately measure pressure from atmosphere to  $10^{-3}$  Torr. To assure the highest level of accuracy and gauge-to-gauge reproducibility, every Convectron gauge is individually calibrated at the factory, thereby making controller adjustment unnecessary.

## Convection Enhanced Pirani - Series 317

The convection Pirani style sensor design enhances heat transfer through convection at higher pressures. This sensor will read continuously with full resolution from  $1 \times 10^{-3}$  Torr to 1,000 Torr, providing a continuous readout above 100 Torr. A 250°C bakeable version is available upon request.

## Capacitance Manometers

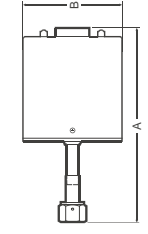
Capacitance manometers supported by the 937B controller include the MKS Baratron® Series 722, 626 and 627D. Capacitance manometers measure pressure directly by measuring the deflection of a thin Inconel® diaphragm. Capacitance manometers are widely known for their accuracy and reliability and are available in Full-Scale ranges from 20,000 Torr to 0.02 Torr with three decades of reading when connected to the 937B.



### 937B Controller Specifications

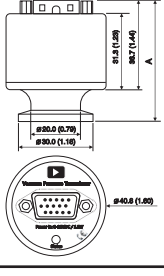
<b>Measurement Range</b>	1.0 x 10 <sup>-11</sup> to 20,000 Torr 1.0 x 10 <sup>-11</sup> to 2.7 x 10 <sup>-4</sup> mbar 1.0 x 10 <sup>-9</sup> to 2.7 x 10 <sup>-6</sup> Pascal 1.0 x 10 <sup>-8</sup> to 2.0 x 10 <sup>-7</sup> microns
<b>Operating Temperature</b>	5° to 40° C (41° to 104°F)
<b>Storage Temperature</b>	-10° to 55°C (14° to 131°F)
<b>Relative Humidity</b>	80% max for temperatures less than 31°C, decreasing linearly to 50% maximum at 40°C
<b>Power Requirement and Consumption</b>	150 watts maximum 100 - 240 VAC 50/60 Hz
<b>Set Point Relays</b>	Twelve pressure dependent set points; SPDT relays, contact rating 2 amps @ 30 Vac
<b>Output</b>	Buffered, log linear & linear output for each channel & channel combinations
<b>Front Panel Controls</b>	Power on-off switch, setup and operational commands can be accessed via the keypad
<b>Display</b>	320x240 color QVGA TFT LCD with back lighting. Up to 6 pressure displays. Display indicators for unit of measure, calibration functions, user calibration, set points, gauge position indicators
<b>Leak Test</b>	Relative logarithmic bar graph display and variable rate audio signal
<b>Insulation Coordination</b>	Over voltage Category II, Pollution Degree 2
<b>Controller Weight</b>	8 lbs (3.6 kg)
<b>Compliance</b>	CE

### Capacitance Manometer (Baratron®)

Dimension A (in./mm)	626B/627D	722B	
NW 16 KF	5.18 (132)	4.70 (119)	
1 1/3" CF	5.05 (128)	4.57 (116)	
1/2" Tube	4.93 (125)	4.75 (121)	
8 VCR-F* (low range)	6.05 (154)	5.57 (142)	
8 VCR-F* (high range)	6.14 (156)	5.66 (144)	
8 VCO-F*	6.05 (154)	5.57 (142)	
<b>Dimension A</b>			
Weld Stub		3.94 (100)	
<b>Dimension B</b>	2.56 (65)	1.50 (38)	

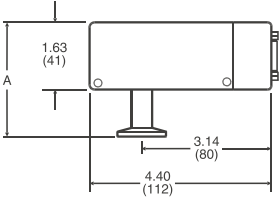
\*VCR® or VCO®-compatible parts may be used.

### 902B Absolute Piezo Diaphragm Sensor

Size	Dimension A (in./mm)	
NW 16 KF	1.93 (49.1)	
1/8" NPT-F	3.50 (89.0)	
4 (1/4") VCR-F*	3.20 (81.4)	
8 (1/2") VCR-F*	3.24 (82.4)	

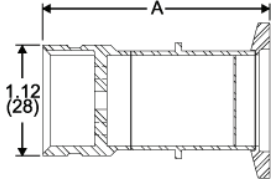
\*VCR® or VCO®-compatible parts may be used.

### 317 Convection Enhanced Pirani Sensor

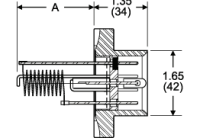
Size	A in./mm	
NW 16 KF	2.76 (70)	
NW 25 KF	2.76 (70)	
1 1/3" CF	3.06 (78)	
2 3/4" CF	2.73 (69)	
8 VCR-F*	2.83 (72)	
4 VCR-F*	2.51 (64)	
1/8" NPT-M	2.93 (74)	
15 & 18 mm	3.19 (81)	

\*VCR® or VCO®-compatible parts may be used.

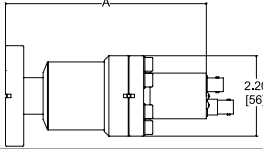
### Mini-Ion® Gauge

Size	A (in./mm)	
NW 16 KF	3.07 (78)	
NW 25 KF	2.31 (59)	
NW40 KF	2.31 (59)	
1 1/3" CF	3.45 (88)	
2 3/4" CF	2.37 (60)	
1" Tube	2.16 (55)	
3/4" Tube	3.95 (100)	

### Nude Hot Cathode Ionization Vacuum Sensor

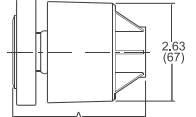
Size	Dimension A (in./mm)	
NW 40 KF	1.89 (48)	
2 3/4" CF	1.94 (49)	

### 431 Cold Cathode Sensor

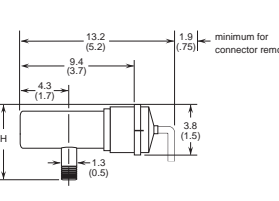
Size	A (in./mm)	
NW 25 KF	6.72 (171)	
NW 40 KF	6.32 (161)	
2 3/4" CF (non-rotatable)	6.27 (159)	
1" Tube	6.22 (158)	
8 VCR-F*	7.59 (193)	

\*VCR® or VCO®-compatible parts may be used.

### I-Mag® Cold Cathode Sensor

Size	Dimension A (in./mm)	
NW 25 KF	3.41 (87)	
NW 40 KF	3.41 (87)	
2 3/4" CF rotatable	3.47 (88)	
1" Tube	3.26 (83)	

### 275 Convectron® Pirani Sensor

Size	H (in./cm)	
NW 16 KF	2.70 (6.86)	
NW 25 KF	2.70 (6.86)	
NW 40 KF	2.70 (6.86)	
1 1/3" CF	2.50 (6.35)	
2 3/4" CF	2.50 (6.35)	
1/8"/1/2" tubulation	2.50 (6.35)	
1/4" VCR-F	2.80 (7.11)	
1/2" VCR-F	3.20 (8.13)	
3/8" VCO-M	3.10 (7.11)	

\*VCR® or VCO®-compatible parts may be used.

# Specifications

	Cold Cathode	Hot Cathode		Convectron/Convection Enhanced Pirani	Absolute Piezo	MKS Baratron®
Models	Series 431 & I-Mag®	Mini Ion Gauge	Nude Hot Cathode Ionization Vacuum Sensor	Series 317/Series 275	Series 902B	722B, 626B and 627D
<b>Sensor Construction (materials exposed to vacuum)</b>	<b>Series 431:</b> Stainless steel, silver-copper brazing alloy, alumina ceramics, aluminum AL 6061, Elgiloy®, OFHC® copper <b>I-Mag:</b> Stainless steel, 6061 aluminum, Inconel®, glass and alumina ceramic	Yttria-coated iridium, nickel, 304 stainless steel, glass, tungsten, platinum clad molybdenum	Tungsten or yttria-coated iridium (filament), nickel, Inconel® X-750, 304 stainless steel, glass, tungsten, platinum	<b>Series 317:</b> 304 stainless steel, nickel 200, glass, platinum <b>Series 275:</b> 304 stainless steel, borosilicate glass, Kovar®, Alumina, NiFe alloy, polyimide	316 stainless steel	Inconel
<b>Measurement Range</b>	1.0x10 <sup>-11</sup> to 1.0x10 <sup>-2</sup> Torr 1.3x10 <sup>-11</sup> to 1.3x10 <sup>-2</sup> mbar 1.3x10 <sup>-9</sup> to 1.3 Pascal 1.0x10 <sup>-6</sup> to 10 Micron	1.0x10 <sup>-10</sup> to 1.0x10 <sup>-2</sup> Torr 1.3x10 <sup>-10</sup> to 1.3x10 <sup>-2</sup> mbar 1.3x10 <sup>-8</sup> to 1.3 Pascal 1.0x10 <sup>-6</sup> to 1.0x10 Micron	1.0x10 <sup>-10</sup> to 1.0x10 <sup>-2</sup> Torr 1.3x10 <sup>-10</sup> to 1.3x10 <sup>-2</sup> mbar 1.3x10 <sup>-8</sup> to 1.3 Pascal 1.0x10 <sup>-6</sup> to 1.0x10 Micron	1.0x10 <sup>-3</sup> to 1.0x10 <sup>-9</sup> Torr 1.3x10 <sup>-3</sup> to 1.3x10 <sup>-9</sup> mbar 1.3x10 <sup>-1</sup> to 1.3x10 <sup>-5</sup> Pascal 1.0x10 <sup>-6</sup> Micron	0.1 to 1000 Torr 0.13 to 1.3x10 <sup>-3</sup> mbar 13 to 1.3x10 <sup>-5</sup> Pascal	Three decades of measurement below Full Scale
<b>Resolution</b>	1% of indicated decade, except 10% below 10 <sup>-10</sup> Torr and above 10 <sup>-3</sup> Torr	1% of indicated decade	1% of indicated decade	1% of indicated decade	1% of indicated decade	1 x 10 <sup>-4</sup> of Full Scale
<b>Set Point Response</b>	120 milliseconds	120 milliseconds	120 milliseconds	120 milliseconds	100 milliseconds	120 milliseconds
<b>Set Point Range</b>	2.0x10 <sup>-10</sup> to 9.5x10 <sup>-3</sup> Torr 2.7x10 <sup>-10</sup> to 1.2x10 <sup>-2</sup> mbar 2.7x10 <sup>-8</sup> to 1.2 Pascal 2.0x10 <sup>-7</sup> to 9.5 micron	5.0x10 <sup>-10</sup> to 9.5x10 <sup>-3</sup> Torr 6.5x10 <sup>-10</sup> to 1.2x10 <sup>-2</sup> mbar 6.5x10 <sup>-8</sup> to 1.2 Pascal 5.0x10 <sup>-6</sup> to 9.5x10 <sup>-1</sup> micron	5.0x10 <sup>-10</sup> to 9.5x10 <sup>-3</sup> Torr 6.5x10 <sup>-10</sup> to 1.2x10 <sup>-2</sup> mbar 6.5x10 <sup>-8</sup> to 1.2 Pascal 5.0x10 <sup>-6</sup> to 9.5x10 <sup>-1</sup> micron	2.0x10 <sup>-3</sup> to 9.5x10 <sup>-2</sup> Torr 2.7x10 <sup>-3</sup> to 1.2x10 <sup>-2</sup> mbar 2.7x10 <sup>-1</sup> to 1.2x10 <sup>-5</sup> Pascal 2.0 to 9.5x10 <sup>-5</sup> micron	1.0 to 1.0x10 <sup>-3</sup> Torr 1.3 to 1.3x10 <sup>-3</sup> mbar 1.3x10 <sup>-2</sup> to 1.3x10 <sup>-5</sup> Pascal	Dependent on Full Scale range
<b>Reproducibility</b>	5% of indicated pressure	5% of indicated pressure	5% of indicated pressure	5% of indicated pressure	0.3% of indicated pressure	*
<b>Cables &amp; Connectors</b>	Maximum length is 300 ft <b>Series 431:</b> Cables connected via bayonet type coaxial connectors <b>I-Mag Tube Side:</b> molded connector with a positive locking bolt Controller Side: bayonet connector and threaded coaxial connector	Molded tube connector with locking mechanism, custom D-sub connector to controller, maximum length is 50 ft	Molded tube connector, custom D subconnector to controller, maximum length is 50 ft	<b>Series 317:</b> Maximum length is 500 ft 9 pin D-sub connectors, multiconductor shielded cable <b>Series 275:</b> 9 pin D-sub connectors, multiconductor shielded cable	Maximum length is 500 ft 9-pin D-sub to 9-pin D-sub	Maximum length is 50 ft 9-pin D-sub with polarized key to 15-pin D-sub
<b>Operating Temperature</b>	0° to 70°C (32° to 158°F) A high operating temperature version of the Series 431 is available. Call for information.	0° to 60°C (32° to 140°F)	0° to 60°C (32° to 140°F)	<b>Series 317:</b> 0° to 50°C (32° to 122°F) <b>Series 275:</b> 4° to 50°C (39° to 122°F)	0° to 40°C (32° to 104°F)	*
<b>Bakeout Temperature</b>	<b>Series 431:</b> 100°C (212°F) cables removed 250°C version available <b>I-Mag:</b> to 400°C (752°F) with CF flanges, with magnet and cable removed	60°C with cable attached, 300°C with CF, 150°C with KF	60°C with cable attached, 300°C with CF, 150°C with KF	<b>Series 317:</b> 100°C (212°F) shielded version *Special order version available to 250°C. <b>Series 275:</b> 150°C (302°F)	100°C (212°F), non-operating	N/A
<b>Weight</b>	<b>Series 431:</b> 2.8 lbs. (1.3 Kg) w/ CF <b>I-Mag:</b> 2.0 lbs (0.8 Kg) w/ CF	0.8 lb (360 g) CF flange	0.9 lb (400 g) CF flange	<b>Series 317:</b> 0.5 lb (200 g) <b>Series 275:</b> 3 oz (85 g)	5.9 oz (170 g)	Dependent on selected sensor*
<b>Xray Limit</b>		3 x 10 <sup>-10</sup> Torr	3 x 10 <sup>-10</sup> Torr			
<b>Sensitivity</b>		12 Torr <sup>1</sup> (±20%)	9 Torr <sup>1</sup> (±20%)			
<b>Degas Power</b>		5 W	20W			
<b>Emission Current</b>		1 mA at < 1 x 10 <sup>-4</sup> Torr, 100 µA at > 1 x 10 <sup>-4</sup> Torr, regulated to ±3%	1 mA at < 1 x 10 <sup>-4</sup> Torr, 100 µA at > 1 x 10 <sup>-4</sup> Torr, regulated to ±3%			
<b>Volume</b>	<b>Series 431:</b> 1.8 in. <sup>3</sup> (30 cm <sup>3</sup> ) max <b>I-Mag:</b> 0.9 in. <sup>3</sup> (15 cm <sup>3</sup> ) max	1.4 in. <sup>3</sup> (23 cm <sup>3</sup> )	Zero	<b>Series 317:</b> 2.0 in. <sup>3</sup> (33 cm <sup>3</sup> ) maximum <b>Series 275:</b> 2.14 in. <sup>3</sup> (35 cm <sup>3</sup> ) maximum	0.06 in. <sup>3</sup> (1.02 cm <sup>3</sup> )	Dependent on selected sensor*

\*For Baratron Capacitance Manometer information, please visit the MKS website at [www.mksinst.com](http://www.mksinst.com).

Base Controller	Country Code	Base Gauge Slot "A"	Gauge Choice Slot "B"	Gauge Choice Slot "C"	Communication Port
Part Code	Part Code	Part Code	Part Code	Part Code	Part Code
<b>937B</b>	<b>US</b>	<b>CC</b> Cold Cathode	<b>CC</b> Cold Cathode	<b>CC</b> Cold Cathode	<b>PF</b> Profibus
	<b>EU</b>	<b>CT</b> Dual Convection Pirani/ Standard Pirani	<b>CT</b> Dual Convection Pirani/ Standard Pirani	<b>CT</b> Dual Convection Pirani/ Standard Pirani	<b>NA</b> Blank
	<b>UK</b>				
	<b>JP</b>				
	<b>CA</b> (Canada)	<b>CM</b> Dual Baratron/Piezo	<b>CM</b> Dual Baratron/Piezo	<b>CM</b> Dual Baratron/Piezo	
	<b>HC</b> Hot Cathode Nude/ Mini-Ion Gauge	<b>HC</b> Hot Cathode Nude/ Mini-Ion Gauge	<b>HC</b> Hot Cathode Nude/ Mini-Ion Gauge		
	<b>NA</b> Blank	<b>NA</b> Blank	<b>NA</b> Blank		

The basic Series 937B includes the controller, a power cable, accessory connector kit, and instruction manual. Space is provided for up to three gauge modules and one communication module. Sample part number: 937B-US-CCCCCT-NA.

Plug-In Controller Modules	
Part Number	Type
100018446	Cold Cathode
100015132	Dual Standard Pirani/Convection Pirani
100015267	Dual Capacitance Manometer/Piezo
100015641	Hot Cathode (Mini-Ion Gauge/Nude)
100015940	Profibus Card
Use these part numbers when purchasing boards separately for retrofit.	

Accessories	
Part Number	Type
103150001	USA power cable
RM-13	Half rack mounting kit
100006734	Rebuild kit for 431 cold cathode tube
100002353	Rebuild kit for I-Mag cold cathode
100005279	Spanner wrench for 431 rebuild
100007700	Full rack mounting kit
100016120	Adapter, SMA – F to BNC – M
100016121	Adapter, Connector, SMA – M to BNC – F

275 Convection Pirani Sensor	
Part Number	Type
275203	NW 16 KF
275071	1/8" NPT-M 1/2" tube
275282	8 VCR-F *
275256	1 1/3" CF
275238	2 3/4" CF
275196	NW 25 KF
275185	4 VCR®-F *
*VCR® or VCO®-compatible parts may be used.	

431 Cold Cathode Sensor	
Part Number	Type
104310004	NW 25 KF
104310001	NW 40 KF
104310002	2 3/4" CF
104310003	1" Tube
104310005	8 VCR®-F
*VCR® or VCO®-compatible parts may be used.	

317 Shielded Convection Pirani Sensor	
Part Number	Type
103170010SH	NW 16 KF
103170011SH	1/8" NPT-M 1/2" tube
103170012SH	8 VCR-F *
103170013SH	1 1/3" CF
103170014SH	2 3/4" CF
103170016SH	15 mm. Tube
103170018SH	18 mm. Tube
103170027SH	NW 25 KF
103170029SH	4 VCR®-F *
*VCR® or VCO®-compatible parts may be used.	

I-Mag® Cold Cathode Sensor	
Part Number	Type
104230004	NW 25 KF
104230001	NW 40 KF
104230002	2 3/4" CF
104230003	1" Tube

# Specifications

## Mini-Ion Gauge Hot Cathode Sensor

Part Number	Type
100011085	Mini-Ion Gauge Sensor, $Y_2O_3$ coated Ir filament, 1" Tube
100011111	Mini-Ion Gauge Sensor, $Y_2O_3$ coated Ir filament, 1 1/3" CF
100011112	Mini-Ion Gauge Sensor, $Y_2O_3$ coated Ir filament, 2 3/4" CF
100011113	Mini-Ion Gauge Sensor, $Y_2O_3$ coated Ir filament, NW 25 KF
100011114	Mini-Ion Gauge Sensor, $Y_2O_3$ coated Ir filament, NW 40 KF
100011118	Mini-Ion Gauge Sensor, $Y_2O_3$ coated Ir filament, NW 16 KF
100011127	Mini-Ion Gauge Sensor, $Y_2O_3$ coated Ir filament, 3/4" Tube

## Nude Hot Cathode Ionization Vacuum Sensor

Part Number	Type
100005987	Nude Tube Sensor, Tungsten, NW 40 KF
100005980	Nude Tube Sensor, Tungsten, 2 3/4" CF
100006841	Nude Tube Sensor, $Y_2O_3$ coated Ir, NW 40 KF
100006842	Nude Tube Sensor, $Y_2O_3$ coated Ir, 2 3/4" CF

## Series 902B Piezo Transducer

Part Number	Type
902B-12010	902 Transducer, NW 16 KF, RS485
902B-42010	902 Transducer, 4 VCR-F*, RS485
902B-52010	902 Transducer, 8 VCR-F*, RS485
902B-11010	902 Transducer, NW 16 KF, RS232
902B-41010	902 Transducer, 4 VCR-F*, RS232
902B-51010	902 Transducer, 8 VCR-F*, RS232

\*VCR® or VCO®-compatible parts may be used.

## 626B/627D Baratron® Absolute Capacitance Manometer

Example: 626BXXXYZ; 626B with male Type D connector  
627DXXXYZ; 627D with male Type D connector

Ranges (Torr) (XXX)	Code
0.1	.1T
0.25	RET
1	01T
2	02T
10	11T
20	21T
100	12T
500	52T
1000	13T
10000 (627D only)	14T
20000 (627D only)	24T

### Fittings (Y)

1/2" tube	A
Swagelok 4 VCR female	B
Mini-CF, rotatable	C
NW 16 KF	D
Swagelok 8 VCO® female	E
2 3/4" CF, rotatable	L
NW 25 KF	Q

### Accuracy (Z)

<b>Standard:</b> 0.25% of Rdg. (optional 0.10 Torr)	E
<b>Standard:</b> 0.50% of Rdg. (0.10 Torr)	F
<b>Optional:</b> 0.15% of Rdg. (10, 100, 1000 Torr ranges only)	D

### NOTE:

1. For gauge isolation, refer to MKS's line of Cv™ Valves and the In Situ Diagnostics Access (IDA™) Valve.

## 722B Baratron® Compact Absolute Capacitance Manometer

Example: 722BXXXYWGZ

Ranges (Torr) (XXX)	Code
10	11T
100	12T
1000	13T
10000	14T
25000	RCT

### Fittings (Y)

1/2" tube	BA
Swagelok 4 VCR female	CD
Swagelok 8 VCR female	CE
Swagelok 8 VCO® female	DA
NW 16 KF	GA
Mini-CF, rotatable	HA

### Input/Output (W)

+13 to +32 VDC input, 0-10 VDC output	2
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### Accuracy (G)

Standard: 0.5% of Rdg.	F
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### Connector (Z)

9-pin Type "D"	A
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**NOTE:** High pressure units are not available with NW 16 KF fittings. Consult High Pressure Fitting matrix or contact MKS Applications Engineering.

For complete product specifications and Baratron capacitance manometer datasheets, please visit the MKS website at [www.mksinst.com](http://www.mksinst.com). Contact Applications Engineering for other capacitance manometer options.



# Ordering Information

## 431 Cold Cathode Cables

Part Number	Type
100016217	10 ft (3.0 m)
100016218	25 ft (7.6 m)
100016219	50 ft (15.2 m)
100016220	100 ft (30.5 m)
100016221	Custom (max length 300 ft.)

## I-Mag® Cold Cathode Cables

Part Number	Type
100016295	10 ft (3.0 m)
100016296	25 ft (7.6 m)
100016297	50 ft (15.2 m)
100016298	100 ft (30.5)
100016299	Custom (max length 300 ft.)

## Mini-Ion Gauge Cables

Part Number	Type
100011106	10 ft. (3.0m)
100011107	25 ft. (7.6m)
100011108	50 ft. (15.2m)

## Nude Hot Cathode Ionization Vacuum Sensor Cables

Part Number	Type
100010909	10 ft. (3.0m)
100010910	25 ft. (7.6m)
100010911	50 ft. (15.2m)

## 275 Convectron Cables

Part Number	Type
100016980	10 ft (3.0 m)
100016981	25 ft (7.6 m)
100016982	50 ft (15.2 m)

## 317 Pirani Cables

Part Number	Type
103170006SH	10 ft (3.0 m)
103170007SH	25 ft (7.6 m)
103170008SH	50 ft (15.2 m)
103170009SH	Custom (max length 500 ft.)

## 902B Absolute Piezo Cables

Part Number	Type
100011869	10 ft (3.0 m)
100011870	25 ft (7.6 m)
100011871	50 ft (15.2 m)
100011872	Custom (max length 50 ft.)

## 626B and 627D Baratron® Cables

Part Number	Type
100007555	10 ft (3.0 m)
100007556	25 ft (7.6 m)
100007557	50 ft (15.2 m)

## 722B Baratron® Cables

Part Number	Type
100016951	10 ft (3.0 m)
100016952	25 ft (7.6 m)
100016953	50 ft (15.2 m)



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