Series 903

Inverted Magnetron Transducer
Cold Cathode Sensor

Using the inverted magnetron design principle, the Series 903 can operate at pressures much lower than a traditional cold cathode sensor, as low as 10^{-10} Torr. A unique design feature to the 903 is a second feedthrough for ion collection, ensuring accurate reading results. Since the 903 has no filament, it is resistant to vibration damage and is unaffected by sudden inrushes of air. Its rugged design and ability to efficiently operate in harsh environments provide fast, dependable, and stable pressure measurement.

The Standard 903 has one relay set point standard for process control that can be set to trip anywhere within its set point range. Set point activation status is shown with one of three LED indicators. Power and high voltage status are also indicated.

The high voltage activation feature is a convenient way for you to shut off power to the 903 locally without shutting down your entire system. Deactivating the high voltage at pressures above 10^{-2} Torr reduces the effects of contamination in the sensor.

Due to differing ionization potentials for different gases, the 903 is a simple solution for locating medium to fine leaks in vacuum systems. It complements a mass spectrometer leak detector, which is more efficient in finding smaller leaks.

Product Features

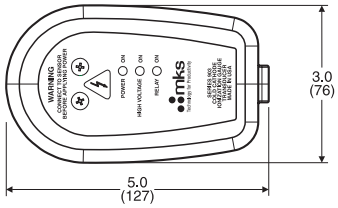
- Wide pressure measurement range from 3.0×10^{-10} to 5.0×10^{-3} Torr for high vacuum applications
- Integrated electronics for space and cost savings
- Linearized analog output
- Isolated ion collector increases sensor's resistance to effects of contamination
- High voltage can be deactivated at higher pressures to lessen the potential for sensor contamination
- One set point with LED status indicator is standard for process control
- Sensor is interchangeable without calibration
- No filament to burn out for low maintenance
- Gas-type sensitive

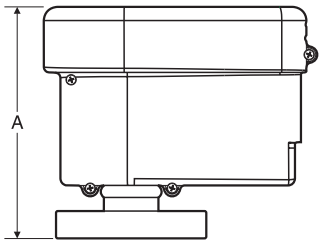
Applications

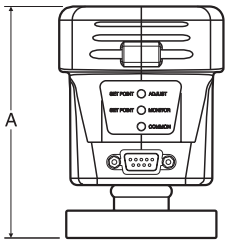
With a wide measurement range of $3x10^{-10}$ to $5x10^{-3}$ Torr, the Series 903 is well-suited for high vacuum applications, including pressure measurement of high vacuum chambers and control or start-up of high vacuum systems with its standard relay set point. It is useful as a complete pressure measurement and control system or as a module in more sophisticated pressure control environments, making it especially attractive to OEM equipment manufacturers.

The Series 903 is suitable for industrial, process, and analytical applications such as high energy physics, laser production, ion implantation, mass spectrometry, or PVD.

Specifications and Ordering Information





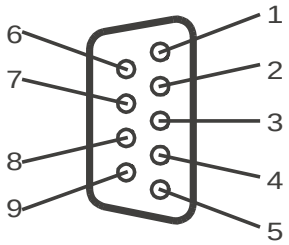


Flange	A
NW 40 KF	4.18 (106)
2¾'' CF	4.24 (108)
1'' Tube	4.03 (102)
NW 25 KF	4.18 (102)

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

Measuring Range	3.0 x 10^{-10} to 5.0 x 10^{-3} Torr
Set Point Range (Std 903 only)	1.0 x 10^{-9} to 1.0 x 10^{-3} Torr
Repeatability	Approx. 5% of reading
Calibration Gas	Air/nitrogen
Operating Temperature Range	0° to 50°C (32° to 122°F)
Maximum Bakeout Temperature	400°C (752°F) without electronics
Relative Humidity	80% maximum for temperatures less than 31°C, decreasing linearly to 50% maximum at 40°C
Relay (Std. 903 only) Contact Rating Relay Hysteresis Relay Response	1 relay set point SPDT, 1 A @ 30 VDC, resistive 150 mV < 50 msec (0 to 99%) for Dp from 5.0 x 10^{-8} to 3.0 x 10^{-4} Torr
Power Requirements	14 to 30 VDC, 3 Watts max
Output Voltage 903 (Standard) 903 (AP)	30 W maximum output impedance 1.5 to 8.7 VDC 0.5 to 7.7 VDC
Installation Orientation	Any
Internal Volume	0.9 in.3 (15.0 cm^3) maximum
Materials Exposed to Vacuum	304 and 302 stainless steel, aluminum, Inconel® X-750, glass, alumina ceramic
Display LED Indications 903 (Standard) 903 (AP)	 Set point (red), high voltage (yellow), and power (green) Vacuum (red), high voltage (yellow), and power (green)
Electronic Casing	ABS plastic, UL94-5V flame rating (with conductive coating)
Weight (with CF Flange)	2.3 lb (1.04 kg)
Compliance	CE

Part Number	Description
109030001	Series 903 Transducer, NW 40 KF
109030002	Series 903 Transducer, 2 3/4'' CF
109030003	Series 903 Transducer, 1'' Tube
109030004	Series 903 Transducer, NW 25 KF
104230101	Sensor Rebuild - KF 40
104230102	Sensor Rebuild - 2 3/4'' CF
104230103	Sensor Rebuild - 1'' Tube
104230104	Sensor Rebuild - KF 25
100002353	Internal Rebuild Kit



PinOuts

Standard		Alternate	
1	Relay - NO	1	HV enable
2	Relay - NC	2	- VIN
3	+ VIN	3	Analog Output (+)
4	- VIN	4	+ VIN
5	Analog Output (+)	5	no conn
6	Relay - Common	6	no conn
7	Relay - Disable	7	Analog Output (-)
8	Analog Output (-)	8	no conn
9	HV enable	9	Status

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