Technology for Productivity

HPS® Products

Series 979B

WIDE MEASUREMENT VACUUM TRANSDUCER
COMBINING PIRANI AND HOT CATHODE TECHNOLOGIES

The Series 979B Atmosphere-to-Vacuum (ATV) transducer is a general purpose vacuum transducer that provides a wide measurement range from 10^{-10} Torr to atmospheric pressure. The 979B combines both the MEMS-based MicroPirani™ and the miniaturized hot cathode sensors in a single housing for simplified gauge integration. The 979B can be operated via digital communication (RS232 or RS485) or as an autonomous analog unit. Degas and filament select can be controlled via digital communication, push button control from the top panel or analog connections.

Features and Benefits

- Single transducer provides a wide measurement range of 10^{-10} Torr to atmosphere
- 2 in 1 sensor eliminates complex manifold, wiring and control requirements
- Both analog and digital communication for ease of operation
- MicroPirani is automatically zeroed during pump down cycle for improved accuracy
- MicroPirani technology allows for hot cathode filament control at lower pressures for improved filament life
- Two yttria-coated filaments designed for extended life
- Patented degas function for ease of control and extended filament life
- Mountable in any orientation for easy installation
- Smoothed analog output (0.5 VDC per decade) for simplified integration
- 3 user configurable relays for process control

- Can be use as a standalone transducer or with the PDR900 display and controller for easy set up
- RoHS and CE Compliant

Applications

The Series 979B is ideal for measuring from atmosphere to UHV. Typical applications include semiconductor, thin film coating, analytical instrumentation and high energy physics. These applications require long term stability and accuracy and will benefit from the MEMS sensor technology and microprocessor based digital technology. The multi-sensor design makes the Series 979B ideal for system integrators and equipment manufacturers in these markets.

Customers requiring both a power supply and display can use the 979B with the PDR900 Series 900 Controller.
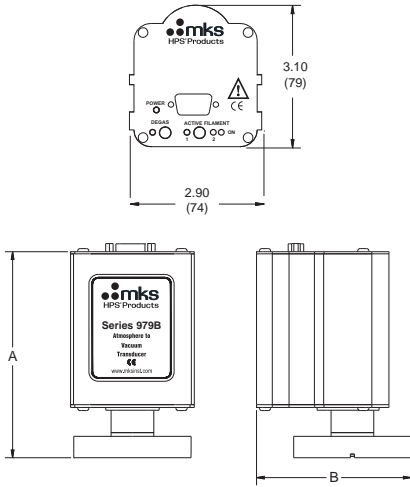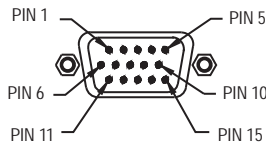
Dimensions

Flange	A	B
2.75" CF	4.82(122)	3.62(92)
1.33" CF	5.52(140)	2.91(74)
NW 16 KF	5.15(131)	2.83(72)
NW 25 KF	4.37(111)	3.03(77)
NW 40 KF	4.37(111)	3.33(85)

Dimensions: inch (mm)

Pinout

PIN 1 — PIN 5
PIN 6 — PIN 10
PIN 11 — PIN 15

1 - RS485 (-); RS232 TX
2 - RS485 (+); RS232 RX
3 - +24V
4 - Power Ground
5 - Analog Output (+)
6 - Analog Output (-)
7 - Relay 1 NO
8 - Relay 1 Com
9 - Degas Status
10 - Filament Select
11 - Relay 2 Com
12 - Relay 2 NO
13 - Degas On
14 - Relay 3 Com
15 - Relay 3 NO

Specifications

Sensor Type	Bayard-Alpert/MicroPirani
Measuring Range	5×10^{-10} Torr to Atmosphere
Set Point Range	5.0×10^{-10} to 100 Torr
Calibration Gas	Nitrogen
Operating Temperature Range	0° to 40°C (32° to 104°F)
Maximum Bakeout Temperature	85°C (185°F)
Communication	RS232 / RS485
Controls	Pressure units, baud rate, address, factory default, user tag, degas, RS485 test, gas correction, emission current, setpoint functions: value, hysteresis, direction, enable; filament functions: power, protect, selection, control setpoint, gas type
Status	Pressure reading and units, setpoint, filament, active filament, filament operating time, transducer temperature, user tag, model, device type, serial number, firmware and hardware versions
Analog Output	0.5 VDC to 7 VDC, 0.5 VDC/decade
Relays	3 relays, SPST
Relay Contact Rating	1A @ 30VAC/DC, resistive load
Power Requirements	24 VDC, 15 Watts
Accuracy (Typical)	10^{-9} to 10^{-3} Torr ± 20% of reading 10^{-3} to 100 Torr ± 5% of reading
Repeatability (Typical)	10^{-9} to 10^{-3} Torr ± 5% of reading 10^{-3} to 100 Torr ± 2% of reading
Degas	Electron Bombardment, 3 W max power
X-Ray Limit	3×10^{-10} Torr
Overpressure Limit	1500 Torr
Installation Orientation	Any
Internal Volume	1.40 in.^{3} (23 cm^3) maximum
Materials Exposed to Vacuum	304 stainless steel, silicon, SiO_2, SiN_4, gold, Viton®, glass, tungsten, platinum clad molybdenum, yttria-coated iridium, epoxy resin.
Electronic Casing	Aluminum
Weight (with KF25 Flange)	0.93 lbs. (422 g)
CE Certification	EMC Directive 2004/108/EC

Ordering Information:

Part Number	Description	Price
979B-11	Series 979B Transducer, 1⅓" CF, RS232	
979B-12	Series 979B Transducer, 1⅓" CF, RS485	
979B-21	Series 979B Transducer, 2¾" CF, RS232	
979B-22	Series 979B Transducer, 2¾" CF, RS485	
979B-31	Series 979B Transducer, NW 16 KF, RS232	
979B-32	Series 979B Transducer, NW 16 KF, RS485	
979B-41	Series 979B Transducer, NW 25 KF, RS232	
979B-42	Series 979B Transducer, NW 25 KF, RS485	
979B-51	Series 979B Transducer, NW 40 KF, RS232	
979B-52	Series 979B Transducer, NW 40 KF, RS485	

Accessories

PDR900-11-US	PDR900 Single Channel Controller, RS232/485, US power cord	
100013620	Cable, PDR900 to 979B, 10 ft (3M), RS232	
100013671	Cable, PDR900 to 979B, 10 ft (3M), RS485	
100014510	NW16KF Centering ring with 100µm filter and Viton O-ring*	
100014515	NW25KF Centering ring with 100µm filter and Viton O-ring*	
100014520	NW40KF Centering ring with 100µm filter and Viton O-ring*	

* Recommended on inlet flange of 979B to protect sensors from particulates when used in harsh environments. Other filter sizes available upon request.

MKS Global Headquarters

2 Tech Drive, Suite 201
Andover, MA 01810

Tel: (978) 645.5500
Tel: (800) 227.8766 (in USA)
Web: www.mksinst.com
Email: mks@mksinst.com

MKS Vacuum Technology

HPS® Products
5330 Sterling Drive
Boulder, CO 80301

Tel: (303) 449.9861
Tel: (800) 345.1967 (in USA)

MKS Denmark ApS

Ndr. Strandvej 119G
DK-3150 Hellebaek
Denmark

Tel: +45 4492 9299
Email: mksdenmark@mksinst.com

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