



## Series 902

### ABSOLUTE PIEZO TRANSDUCER

The HPS Series 902 piezo transducer combines the pressure measurement technology of a MEMS-based piezo sensor with integrated electronics. The 902 provides an economical, absolute measurement that is independent of gas type.

With a measurement range of 1 to 1,000 Torr full scale, the sensor is ideal for applications including semiconductor manufacturing, thin film coatings, freeze drying, lamps and light bulb production, medical devices, automotive and aerospace.

### Features & Benefits

- Measurement range of 1 to 1,000 Torr, full scale
- Low cost transducer alternative
- Compact system design with integrated electronics and sensor in one unit
- Reduced process cycle time due to sensor's fast, accurate and repeatable pressure measurements
- Sensor is suitable for harsh processes due to clean, robust design and stainless steel construction
- Ease of operation with both analog output and digital communication
- Process control from setpoint relay with fast response time
- CE marked, compliant with EMC Directive 89/336/EEC

### Description

The Series 902 Piezo transducer has a full scale range of 1,000 Torr, and measures pressure through the deflection of a stainless steel diaphragm. Using this technique, we can provide an accurate pressure measurement (<1% of reading) that is independent of gas type.

With only stainless steel exposed to the process gas, combined with its over pressure capabilities, the 902 transducer can be used in many demanding applications.

Analog output is standard with a choice of 0 to 10 or 0 to 5 VDC linear output or logarithmic output. The analog output format is selectable via the digital communication lines. Linear output is either 5 mV/Torr or 10 mV/Torr. Logarithmic output is either 1 volt per decade of pressure or 2 volts per decade of pressure.

Digital communication allows for all adjustments and monitoring to be delivered real-time, via a host computer.

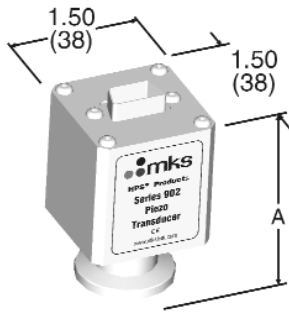
For additional process control, the 902 has a relay set point. Features of the setpoint function can be set, adjusted and monitored through the RS232/RS485 port.

An optional LED readout is available for the Series 902, which operates through the 0 to 10 VDC linear analog output.



# Specifications and Ordering Information

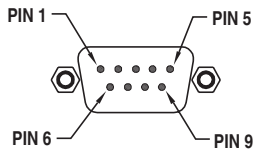
## Dimensions



Flange	A
NW 16 KF	2.26/(57)
4 (1/4") VCR®-F *	2.59/(66)
8 (1/2") VCR®-F *	2.93/(74)

Dimensions: in (mm)

## Pinout



### Series 902 Digital

- 1 - Relay NO
- 2 - Relay NC
- 3 - Power (+)
- 4 - Power (-)
- 5 - Analog Output (+)
- 6 - Relay Common
- 7 - RS485 (-) / RS232 TXD
- 8 - Analog Output (-)
- 9 - RS485 (+) / RS232 RXD

### Series 902 Analog

- 1 - Relay NO
- 2 - Relay NC
- 3 - Power (+)
- 4 - Power (-)
- 5 - Analog Output (+)
- 6 - Relay Common
- 7 - Relay Disable
- 8 - Analog Output (-)
- 9 - Relay Setpoint Voltage

## Specifications

<b>Full Scale Range (absolute)</b>	1,000 Torr
<b>Set Point Range</b>	1 to 1,000 Torr
<b>Accuracy</b> (including non-linearity, hysteresis, and non-repeatability)	< 1% of reading
<b>Temperature Coefficients</b>	
<b>Zero</b>	0.02% of F.S./°C
<b>Span</b>	0.02% of F.S./°C
<b>Resolution</b>	1 X 10 <sup>-4</sup> of F.S.
<b>Calibration Gas</b>	Gas independent
<b>Operating Temperature Range</b>	0° to 50°C (32° to 122°F)
<b>Maximum Bakeout Temperature</b>	85°C (185°F), non-operating
<b>Communication</b>	RS485 / RS232 / Analog
<b>Controls</b>	Zero adjust, span adjust, analog output, pressure units, baud rate, address, factory default, setpoint functions: value, hysteresis, direction, enable
<b>Status</b>	Absolute and differential pressure reading, units, setpoint, operating time, transducer temperature, user tag, model, device type, serial number, firmware and hardware versions
<b>Analog Output (Absolute Pressure)</b>	0 to 5 or 0 to 10 VDC, 1 K maximum output impedance linear or logarithmic
<b>Relay</b>	1 relay SPDT
<b>Relay Contact Rating</b>	1 A @ 30VAC/DC, resistive
<b>Relay Response</b>	50 msec maximum
<b>Power Requirements</b>	12 to 30 VDC, 30 mA, <.5 W max
<b>Accuracy</b>	<1% of reading
<b>Repeatability</b>	± 0.03% of full scale
<b>Overpressure Limit</b>	2,000 Torr
<b>Installation Orientation</b>	Any
<b>Internal Volume</b>	0.21 in. <sup>3</sup> (3.4 cm <sup>3</sup> )
<b>Materials Exposed to Vacuum</b>	304, 316 Stainless Steel
<b>Electronic Casing</b>	304 Stainless Steel, Aluminum
<b>Weight (with KF Flange)</b>	3.4 oz (97 g)
<b>CE Certification</b>	EMC Directive 89/336/EEC

## Ordering Information:

Part Number	Description	Price
902-1112	Series 902 Transducer, NW 16 KF, RS485	
902-1212	Series 902 Transducer, 4 VCR®-F*, RS485	
902-1312	Series 902 Transducer, 8 VCR®-F*, RS485	
902-1113	Series 902 Transducer, NW 16 KF, RS232	
902-1213	Series 902 Transducer, 4 VCR®-F*, RS232	
902-1313	Series 902 Transducer, 8 VCR®-F*, RS232	
902-1105	Series 902 Transducer, NW 16 KF, 0-10V	
902-1205	Series 902 Transducer, 4 VCR®-F*, 0-10V	
902-1305	Series 902 Transducer, 8 VCR®-F*, 0-10V	
902001	Series 902 LED Display (Torr)	
902002	Series 902 LCD Display (Torr)	
100011739	Series 902 product manual	



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