

Diaphragm Manometer; 1 to 1500 Torr



Photo shows the indicator with standard enclosure on the left, and dual set point controller in the 1/4 DIN enclosure on the right.

The Vacuum Research Diaphragm Manometers are compact vacuum measurement and control instruments. The sensors are available with either 316 SS or pure silicon diaphragms and any sensor can measure liquid or gas pressure as well as vacuum.

Response time is less than 400 milliseconds for full scale and sensors are available with a variety of flanges including 15 mm, VCR, and NW-16. With any sensor, these instruments offer the precision and high resolution of digital electronics at the same price as analog instruments. Both indicator and controllers are provided in 1/4 DIN or standard cylindrical enclosures.

Specifications

- Pressure Range:** 1 to 1500 Torr; ± 1 Torr (± 0.1 Torr optional).
- SS Sensor Max. Pressure w/o Damage:** 4,500 Torr, burst 6,000 Torr.
- Calibration:** Any gas, liquid or vacuum compatible with sensor materials.
- Accuracy:** 1% of reading or 2 Torr.
- Response Time:** Less than 400 msec. for response to a step change.
- Linearity:** $\pm 0.15\%$ Full Scale. Sensitivity: ± 1 Torr.
- Analog Output:** 0 to 1.500 Volt into 2000 Ohm load or higher. 2 pin connector included. 4 to 20 mA and 0 to 10 VDC output in addition to 0 to 1.500 Volt D.C. available for instruments in 1/4 DIN enclosure.
- Transducer:** See "ordering Information" below for list of transducers.
- Materials:** All parts in contact with process are 316 or 304 SS, or silicon.
- Set Point Range:** Full Scale, 1 to 1500 Torr. Repeatability: ± 2 Torr.
- Sensor Internal Volume:** 1.25 ml for SS; 0.5 ml for Silicon.
- Line Regulation:** $\pm 20\%$ change in line voltage produces less than 1% change in reading.

Ordering Information Specify 115 or 230 V 50/60 Hz or 24 VDC

- Dual Set Point Controller With Digital Display** in standard enclosure. Transducer not included. P/N: 902019 \$707.
- Dual Set Point Controller With Digital Display** in 1/4 DIN enclosure. Built to CSA standards. Transducer not included. P/N: 902094 . . . \$753.
- Digital Indicator only** in standard enclosure. Transducer not included. P/N: 902020 \$483.
- Digital Indicator only** in 1/4 DIN enclosure. Built to CSA standards. Transducer not included. P/N: 902093 \$533.
- High Resolution Option** For higher resolution, instruments can be ordered with a 4 1/2 place LED display for resolution of ± 0.1 Torr. Add suffix "Hi-Res" and P/N V801302. Additional cost \$252.
- 4 to 20 mA or 0 to 10 VDC Output** in addition to 0 to 1.5 VDC analog output. Only available for instruments in 1/4 DIN enclosure. P/N: V801082 add \$264.
- Calibrator for 1 to 1500 Torr Instruments** See page 33 for a complete description of the calibrator. P/N: 912027 \$286.
- Gauge and transducer accessories** . . . see pages 35, 36, 37 and 39.
- Transducer with Stainless Steel Diaphragm** outer case, connector pins, and wetted parts 316 stainless steel. Maximum bake-out temperature 125 °C. 1/4 in. NPT. P/N: 912022 \$478.

- 1 to 1500 Torr Range; ± 1 Torr Resolution
- ± 0.1 Torr Resolution Available as Option
- Available in 1 to 2000 mbar & 0.1 to 200 kPa
- 316 S.S. Diaphragm Measures Gas Or Liquid
- Dual Set Point Controller With 2 Relays
- Easy To Read Large Backlit Digital Display
- Linear 0 to 1.5 VDC Output; 4-20 mA Optional
- Fast Response; Less Than 400 mSec. Full Scale

The Dual Set Point Controller operates two control relays. Set point values are adjusted from the front panel and displayed on the meter. Push-to-set switches simplify display of the set point pressures. Relays have 3 Amp contacts, SPDT, and have screw terminal connectors on the rear of the instruments.

For applications that require maximum resolution a special display unit is available with a 4 1/2 place LED display. To specify this feature add to the part number "HI-RES" suffix and add \$252.00 to the price.

- Line Power:** 115 VAC, 50/60 Hz; 230 VAC optional at no additional cost.
- Wattage:** Less than 1 Watt for indicator; 2 Watts for controller.
- Temperature Effects:** When changes occur in ambient temperature between 0 °C and 50 °C, reading will change no more than $\pm 0.02\%$ per °C.
- Bakeout Temperature:** Gauge tube can be baked to 100 °C (212 °F) in air or vacuum.
- Dimensions:** DIN enclosure: 92X92 mm panel cutout, 122 mm F to B.
- Standard enclosure:** 2.75 in. diameter panel cutout, 4.8 in. F to B.
- Mounting:** Panel mounting hardware is standard. Bench mount and portable cabinets are also available, see page 39.
- Transducer Cables:** 10 ft. (3m) attached.
- Extension Cables:** Change sensor cable length without recalibration. Extensions to 500 ft. (150m) can be used. see page 39.
- Line Cord:** 3 wire, 65 inch (170 cm) attached.
- Net Weight:** Indicator 1 lb., 2 oz. (0.5 kg); Controller 1 lb., 6 oz. (0.6 kg)
- Shipping Wt.:** Indicator 2 lbs., 8 oz. (1.1 kg); Controller: 3 lbs. (1.3 kg)

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- Stainless Steel Diaphragm with VCR-8 FEM**, P/N: 902050 \$607.
- Stainless Steel Diaphragm with VCR-4 FEM**, P/N: 912219 \$606.
- Stainless Steel Diaphragm with NW-16 Flange**, P/N: 912151 . . \$539.
- Stainless Steel Diaphragm with NW-25 Flange**, P/N: 912117 . . \$539.
- Stainless Steel Diaphragm with 1.33 in. Conflat®**, P/N: 912191 \$539.
- Stainless Steel Diaphragm with 1/2 in. OD Tube**, P/N: 912210 \$539.
- Stainless Steel Diaphragm with 1/8 in. NPT**, P/N: 912129 \$539.

Transducer with Silicon Diaphragm body is 304 SS, connector pins are nickel plated Kovar®. Maximum bake-out 125 °C.					
Flange	P/N	Price	Flange	P/N	Price
1/8 in. NPT Male Thread	912091	..\$301.	3/8 in. OD Tube	912311	.. \$348.
VCR-4 Fitting	912025	.. \$374.	1/2 in. OD Tube	912211	.. \$348.
NW-16	912023	.. \$358.	NW-25	912119	.. \$358.
1.33" Conflat®, non-rotatable				912026	.. \$348.
All 304 Stainless External Parts & Pins for outdoor applications or wherever the use of 304 SS is appropriate.				add SS to P/N	add \$50.