



# Thermocouple Gauges; 1 to 2000 mTorr, 531 Tube



Panel Mount Indicator on left  
1/4 DIN Dual Set Point Controller on right



Photo shows Bench Mount Cabinet with  
optional carry handle and 3 position gauge  
tube selector switch.

- **Reliable T/C Gauge 1 to 2000 mTorr (Microns)**
- **Use With VRL-531 or Varian 531 Gauge Tubes**
- **Indicator Only or Indicator with 2 Set Points**
- **Stainless Tubes & Special Flanges Available**
- **Gauge Tube Cables Up to 500 Feet (150 m)**
- **0 to 5 Volt Output For Computer I/O or Control**
- **Fits Same Cutout As Hastings, Televac & Varian**

Vacuum Research's thermocouple vacuum gauge is a simple and low cost instrument for vacuum measurement in the popular 1 to 2000 mTorr range (microns). A 0 to 5 VDC analog output is standard on both the indicator and dual set point controller models. Operates with the gauge tubes listed below or any Varian 531 or 536 tube.

## Thermocouple Gauge Tubes

The VRL-531 tubes are direct plug-in replacements for the Varian 531 & 536 gauge tubes. No adjustment to your instrument is required; just plug them in. There is no fragile plastic header, and no easy-to-break plastic key. The result of 30 years of vacuum gauge experience, all tubes have stainless steel bodies with metal key and connector pins. For outdoor applications select our 'SS' version which has stainless steel connector pins as well as our standard all stainless steel body.

## Specifications

**Pressure Range:** 1 to 2000 milliTorr (1 to 2000 Microns). Air/N<sub>2</sub>

**Accuracy:** Better than ± 2 mTorr from 1 to 20 mTorr. Better than 5% from 20 to 2000 mTorr.

**Response Time:** Less than 1 sec. from 1 mTorr up to 2000 mTorr.

**Analog Output:** 0 to 5 VDC into 10 K ohms minimum.

**T/C Fail:** Indicates gauge tube disconnected.

**Gauge Tube:** Gauge tubes available with 1/8 inch NPT, NW-16, VCR-4, 1.33 O.D. Conflat® flanges and all stainless steel bodies. This instrument also operates with Varian 531 or 536 thermocouple gauge tubes.

**Bakeout Temperature:** 100 °C (212 °F) in air or vacuum.

**Power:** For controller, specify 100 to 120 volts or 200 to 240 volts, 50/60 Hz. For indicator, any voltage from 90 to 240 volts, 50/60 Hz.

**Relays on Controller Model:** Separate relays for each set point. Form C, SPDT, contacts rated 3 amps non-inductive at voltages up to 250 VAC. Not available on indicator models.

**Indicator Mounting Dimensions:** See rear of this catalog.

**Controller:** 1/4 DIN panel mount is standard. Jack screws included.

**Cables:** 10 ft. (3 m) gauge tube cable with connector and 6 ft. line cord provided. Extension cables available.

**Extension Cables:** No change in calibration with up to 500 ft. (150 m) of 18 gauge wire or up to 50 ft (15 m) of 24 gauge wire.

**Net Weight:** Indicator: 0.5 lbs. (0.2 kg); Controller: 1.4 lbs. (0.6 kg).

**Ship Weight:** Indicator: 2 lbs. (0.9 kg); Controller: 3 lb. (1.4 kg).

## Ordering Information

### Dual Set Point Controller; 1 to 2000 mTorr

Thermocouple gauge, 1 to 2000 mTorr range with 0 to 5 VDC analog output plus 2 adjustable set points each with its own SPDT relay. Contacts are rated 3 Amps at up to 220 VAC non-inductive. 1/4 DIN enclosure with panel mounting jack screws included. Gauge tube not included.

P/N 8810-2CONT-115V (for operation on 100 to 120V, 50/60 Hz) . . . . \$451.  
P/N 8810-2CONT-220V (for operation on 200 to 240V, 50/60 Hz) . . . . \$451.

### Indicator; 1 to 2000 mTorr

Thermocouple gauge, 1 to 2000 mTorr range with 0 to 5 VDC analog output, operates with any line power between 90 and 240 volts, 50 or 60 Hz. Gauge tube not included. See drawing at rear of Gauge Catalog for dimensions. P/N 8801-INDIC-90-240V (for 90 to 240 V 50/60 Hz. operation) . . . . \$228.

### Bench Mount Stand with Carrying Handle for Indicator

5.3 in. wide X 4 in. F to B X 4.7 in. High (6.7 in. H with handle extended) (134 X 100 X 120 mm) P/N: 902112 . . . . \$48.

### 3 Position Thermocouple Gauge Indicator; 1 to 2000 mTorr

Includes 3 cables 10 ft. (3m) long bench mount stand and carry handle. Gauge tubes not included cable length to 500 ft. (60 m) available P/N: 902293. . . . \$364.

**5 Position Thermocouple Gauge Indicator; 1 to 2000 mTorr** similar to above 3 position indicator. P/N 902294. . . . \$413.

**VRL Thermocouple Gauge Tubes** are interchangeable with Varian 531 & 536. All parts in contact with the process are stainless steel: cup, stem, and flange. The connector pins are nickel plated Kovar.

VRL-531 1/8" NPT Stainless Steel Body, P/N: 531 SS304 1/8PT . . . . \$66.

VRL-531 NW 16 Stainless Steel Body, P/N: 531 SS304 NW16. . . . \$111.

VRL-531 NW-25 Stainless Steel Body, P/N: 531 SS304 NW25. . . . \$111.

VRL-531 VCR-4 Female, SS Body, P/N: 531 SS304 VCR4F . . . . \$126.

VRL-531 1.33 in. O.D. Conflat® SS Body, P/N: 531 SS304 1.33CF . . . . \$111.

VRL-531 1/2" OD Stem, SS Body, P/N: 531 SS304 1/2OD . . . . \$66.

VRL-531 2.75 Conflat® SS Body, P/N: 531 SS304 2.75CF . . . . \$117.

VRL-531 VCR-8 Female, SS Body, P/N: 531 SS304 VCR8F . . . . \$117.

**All Stainless Steel Gauge Tubes For Outdoor Applications Or Wherever The Use Of 304 SS Is Appropriate.** All wetted parts as well as all external parts and connector pins are 304 SS. 3/4 in. OD, NW-16, Conflat®, and special flanges can be provided. Add "SS" suffix to any tube P/N and to standard tube price: . . . . add \$42.