# Strain Gage Simulator

## FEATURES

- 5 Decade selector switches
- Resistance range: 30.00 to 1111.10 Ω in 0.01 Ω steps
- High precision resistors used throughout to ensure excellent stability
- Accuracy 0.02% of setting
- Simulates tension and compression strain for most widely used strain gage resistance values
- Simulates a broad range of RTDs for instrumentation setup and calibration
- A precision decade resistor for accurately simulating the behaviour of strain gages and RTDs


A precision decade resistor for accurately simulating the behavior of strain gages and RTDs

## DESCRIPTION

The V/E-40 Strain Gage Simulator is an accurate, stable, compact, five-decade resistor specially designed to simulate the behaviour of strain gages and RTDs, and for use in a broad range of measurement and calibration applications.

As a precision strain gage simulator, the V/E-40 can be used to measure nonlinearity of the instrumentation in quarter bridge operation, or to verify instrument calibration over the anticipated measurement range. It is also well suited to measuring desensitization of the strain gage circuit due to the finite resistance of the strain gage leadwire system.

In a similar manner, the V/E-40 can be temporarily substituted for an RTD over a resistance range of 30.00 to 1111.10 Ω to verify calibration of temperature measurement instrumentation.

The V/E-40 can also be used in conjunction with a conventional Wheatstone bridge strain indicator to measure arbitrary resistances between 30.00 and 1111.10 Ω or to eliminate Wheatstone bridge nonlinearity effects when measuring high post-yield strains in quarter-bridge operation. In this mode, the resistance or strain gage to be measured is connected as one arm of a Wheatstone bridge, the V/E-40 is used as a decade resistor in an adjacent arm, and the strain measuring instrument as a null detector.

Other applications include use as an investigative tool to troubleshoot faulty strain gage installations, or as a precision decade resistor.

## SPECIFICATIONS

All specifications are nominal or typical @ +23°C unless noted.

| PARAMETER | SPECIFICATION |
|---|---|
| **ACCURACY** | 0.02% of reading |
| **STABILITY** | ±3 ppm/°C maximum |
| **RESISTANCE RANGE** | 30.00 to 1111.10 Ω in 0.01 Ω steps |
| **MAXIMUM CURRENT** (to meet accuracy and repeatability specifications) | • 120 Ω: 65 mA<br>• 350 Ω: 55 mA<br>• 1000 Ω: 25 mA |
| **ENVIRONMENTAL** | |
| Temperature: | +0°F to +120°F (-18°C to +49°C) |
| Humidity: | Up to 70%, non-condensing |
| **CASE** | |
| Material: | Aluminum case |
| Size: | 3-7/8 H x 9-1/8 W x 3-1/8 D in (98 x 232 x 89 mm) |
| **WEIGHT** | 1.9 lb (0.85 kg) |

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