

# Portable Resistance Bridges

Precision Instruments from the hands of craftsmen! Here is a complete line of bridges designed to meet specific requirements for measuring resistance in several configurations. Each is equipped with our exclusive solid state null detector featuring sensitivities compatible with the extremely high resolution designed into each instrument, as well as high resistance to both electrical and mechanical shock. Continuously adjustable controls allow the user to select sensitivities required for any specific application. All Biddle bridges are calibrated against standards referred to the National Bureau of Standards. Every instrument is assembled and calibrated with the greatest possible care.

### Wheatstone Bridges

These bridges measure medium values of resistance ranging from  $1\Omega$  to  $11.111M\Omega$ . They are offered in a wide selection of models which feature various levels of accuracy and resolution.

### Kelvin Bridges

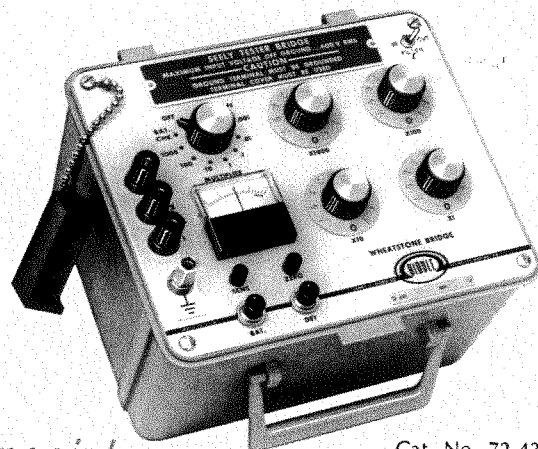
Low values of resistance ranging from  $0.1\mu\Omega$  to  $1111\Omega$  are measurable with these bridges; all use the four-terminal method of measurement. There are two models available which may be used for a variety of applications.

### Resistance Temperature Bridge

Biddle offers this instrument for reading temperatures directly from resistance temperature sensors. The bridge has a resistance range of 0 to  $1111.1\Omega$  and is suitable for use with 2, 3, or 4-lead sensors.

### Strain Gage Bridge

This bridge is designed for use with the Carlson-type gage. It can also be used with 2 or 3-lead resistance sensors, and for low resistance measurements up to  $111.1\Omega$ .



Special

Cat. No. 72-431

## WHEATSTONE BRIDGE

This standard Bridge has the additional design features for safe use in measuring resistance of ac energized windings with a Seely Tester. The measuring circuit is electrically isolated to withstand rated input voltage of 600 volts RMS off ground. In addition, the null detector amplifier has very effective input filtering with a 60 Hz rejection ratio of 10,000 to 1 or better. The instrument includes a safety ground terminal on top panel.

**RANGE:** 0.1 ohm to 11.1 megohms.

**LIMIT OF ERROR:**  $\pm(0.1\%$  of reading + 0.01 ohm).

**MEASURING DIALS:** Four-decade rheostat arms in steps of 10 (1000 + 100 + 10 + 1) ohms.

### CURRENT RATING:

RHEOSTAT DECADE	CURRENT (Rated Accuracy)	CURRENT (Maximum)
1000 $\Omega$	7 mA	16 mA
100 $\Omega$	23 mA	50 mA
10 $\Omega$	70 mA	150 mA
1 $\Omega$	230 mA	500 mA

### MULTIPLIER DIAL FUNCTIONS:

Ratio Arm -7 multipliers: 0.001, 0.01, 0.1, 1, 10, 100, 1000.  
Battery Check position. OFF position.

**BINDING POSTS: FOUR:** two for  $R_x$ , one for use as 4-dial resistance box, one ground terminal. Removable cover protects operator from high voltage.

**KEYS AND SWITCHES:** Two lock-down type Keys: Battery, and Detector.

**FILTER SWITCH:** Filtering may be switched in or out—provides additional damping when testing motors under pulsating loads such as compressors.

**NULL DETECTOR:** Solid state, high-gain, controlled bandwidth amplifier drives rugged zero-center taut-band meter.  
Sensitivity: 20 microvolts, adjustable from Full to 30 to 1 reduction.

Resolution: 0.01% or better to  $1\Omega$  to  $10K\Omega$ , 0.03% at  $100K\Omega$ , 0.3% at  $1M\Omega$ .

Noise: Less than  $10\mu V$  peak-to-peak (0.01 to 10 Hz).

Overload: 35V continuous without damage.

Zero Control:  $\pm 200\mu V$  minimum.

Meter:  $1\frac{1}{2}$ " size, scale 10-0-10, 20 divisions.

Dimensions:  $9" \times 7\frac{1}{2}" \times 6\frac{1}{2}"$  (23 x 19 x 16.5 cm). Weight 6 lbs. (2.7 kg). High Impact Case with hinged removable lid; handle, and light grey aluminum panel.

### BATTERIES:

Measuring Circuit: 3  $1\frac{1}{2}$  V "D" cells.

Detector: 2 9 V Burgess 2U6 or Eveready 216 (NEDA 1604); life exceeds 400 hours.