



Wayne Kerr CORPORATION

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Innovations in Instrumentation ■ Measurement ■ Analysis ■ Synthesis ■ Control

AA221 Autobalance Adaptor

For use with B221A Universal Bridge



- Eliminates Vernier Balancing
- Direct Readings of Resistive and Reactive Terms of any Impedance
- Maintains Full 0.1% Bridge Accuracy
- Essentially Instantaneous Readings for Production Testing or Continuous Recording . . . "No Hands"!

The AA221 Autobalance Adaptor simplifies the operation of the B221A Universal Bridge by providing, on two meters, direct readings of the resistive and reactive terms of any type of impedance. The Bridge accuracy of 0.1% is maintained and the Adaptor operates over the full range of the Bridge and its Low Impedance Adaptor, i.e. from 50 microhms to 50,000 megohms on L, C and R. Design of the AA221 is based on the patented Wayne Kerr Autobalance principle, which maintains a constant balance electronically, eliminating much of the manual balancing procedure. All types of impedance measurements are thus simplified and the speed of operation increased, making the Bridge/Adaptor combination ideal for use on production testing and wherever continuous recording of impedance values is required.

When used alone, the Universal Bridge provides four-digit readings of the resistive and reactive terms of all types of impedance. The first and second digits of each reading are obtained from separate switched decade controls. The third and fourth digits are normally obtained from a continuously vernier control. The Adaptor effectively *replaces* the vernier controls, providing two-digit readings automatically on all Bridge ranges.

By suitable choice of Bridge range, the entire value of the unknown can be read from the two meters on the Adaptor. When the order of the unknown is once established, the first one or two digits can be set

up on the appropriate Bridge decade controls and the Adaptor meters will then provide continuous indication of the third and fourth digits, with ample resolution.

All the advantages associated with the Bridge are retained. For instance, long measurement leads can be used, and measurements can be made on components while still connected in a circuit. These features are of particular importance when tests are to be made on printed circuit boards or encapsulated sub-assemblies, and when measurements are needed on components situated in environmental test chambers.

The Adaptor, which is fully transistorized, incorporates an internal source operating at 1592 cps. Balance is established by means of a feedback amplifier operating in conjunction with a phase-sensitive detector and the current transformer of the B221 Bridge. The two meters indicate the magnitude to the in-phase and quadrature components feed back to maintain balance, and are read in terms of the resistive and reactive components of the unknown impedance.

The Adaptor operates from 110 and 200-250 VAC supplies. The ranges covered by the Bridge/Adaptor combination are the same as those for the Bridge alone or for the Bridge with the Q221 Low Impedance Adaptor.

SPECIFICATIONS — B221AQ/AA221

Capacitance:

0.0002 $\mu\mu$ F to 100,000 μ F

Resistance:

25 μ ohms to 50,000 megohms

Inductance:

5 m μ H to 10⁶H

Dimensions:

B221A — 17" x 11½" x 10" / AA221 — 17" x 11½" x 10"
(Both units may be rack mounted)

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