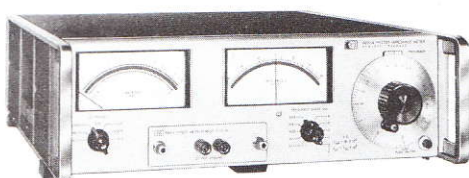


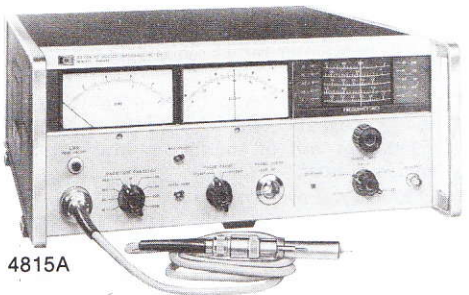
COMPONENT TEST

Vector impedance meters, RX meter

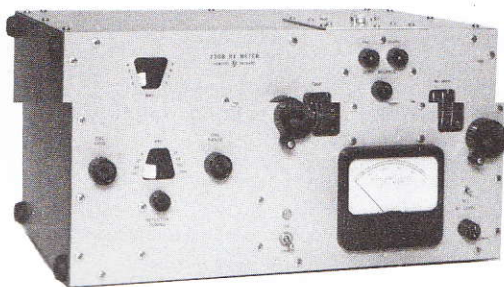
Models 4800A, 4815A, and 250B



4800A



4815A



250B

Model 4800A

HP's 4800A measures the vector impedance of components, complex networks, and other two-terminal devices. Besides measuring vector impedance, the 4800A measures component values. At frequencies that are decade multiples of $\frac{1}{2}\pi$, as marked on the frequency dial, L and 1/C are read directly if the phase is approximately $\pm 90^\circ$, respectively. R is equal to the impedance magnitude at frequencies where the phase is approximately 0° . The vector impedance meter also yields Q and inductor values by using either $f_0/\Delta f$, $R_p/\omega L$ or the $\omega L/R_s$ technique.

Specifications

Frequency characteristics

Range: 5 Hz to 500 kHz in five bands: 5 to 50 Hz, 50 to 500 Hz, etc.

Accuracy: $\pm 2\%$, 50 Hz to 500 kHz; $\pm 4\%$, 5 to 50 Hz; $\pm 1\%$ at 15.92 on frequency dial from 159.2 Hz to 159.2 kHz; $\pm 2\%$ at 15.92 Hz.

Impedance measurement characteristics: 1 ohm to 10 megohms in seven decade ranges from X1 to X10 M. Accuracy is $\pm 5\%$ of reading.

Phase angle measurement characteristics: 0° to $\pm 90^\circ$ in 5° increments. Accuracy is $\pm 6^\circ$.

Direct capacitance measurement capabilities: 0.1 pF to 10 000 uF direct reading at decade multiples of 15.92 Hz. Accuracy is $\pm 7\%$ of reading at decade multiples of 15.92 Hz. Accuracy is $\pm 7\%$ of reading for D less than 0.1 at 159.2 Hz to 159.2 kHz.

Direct inductance measurement capabilities: 1 uH to 100 000 H direct reading at decade multiples of 15.92 Hz. Accuracy is $\pm 7\%$ of reading for Q greater than 10 from 159.2 Hz to 159.2 kHz.

Measuring terminal characteristics: both terminals above ground, neither may be grounded. Calibration resistor and shield provided.

Size: 133 H $\times$ 426 W $\times$ 467 mm D ($5\frac{1}{4}'' \times 16\frac{3}{4}'' \times 18\frac{3}{8}''$).

Weight: net, 10.8 kg (24 lb). Shipping, 13.5 kg (30 lb).

Power: 115 or 230 V $\pm 10\%$, 48 to 440 Hz, 30 VA.

Model 4815A

The HP 4815A RF Vector Impedance Meter provides all of the convenience of "probe and read" measurements. In use, the probe is connected directly into the circuit to be evaluated, frequency is selected, and complex impedance is read. This type measurement allows a straightforward adaption to various jigs and fixtures for special measurements. Where only component values are to be determined, a quick-mount adapter is provided to allow rapid measurements. For critical component applications, the unit to be evaluated may be mounted directly in its working circuit and its value determined in its actual environment, at the frequency of interest.

Specifications

Frequency

Range: 500 kHz to 108 MHz in five bands.

Accuracy: $\pm 2\%$ of reading; $\pm 1\%$ of reading at 1.592 and 15.92 MHz.

RF monitor output: 150 mV minimum into 50 ohms.

Impedance magnitude measurement

Range: 1 ohm to 100 k Ω ; full-scale ranges: 10, 30, 100, 300, 1 k, 3 k, 10 k, 30 k, 100 k Ω .

Accuracy: $\pm 4\%$ of full scale $\pm (f/30 \text{ MHz} + Z/25 \text{ k}\Omega)\%$ of reading, where f = frequency in MHz and Z is in ohms.

Calibration: linear meter scale with increments 2% of full scale.

Phase angle measurement

Range: 0° to 360° in two ranges: 0° to 90° , 180° to 90° .

Accuracy: $\pm (3 + f/30 \text{ MHz} + Z/50 \text{ k}\Omega)$ degrees where f = frequency in MHz and Z is in ohms. Calibrated in 2° increments.

Size: 185 mm H $\times$ 483 mm W $\times$ 476 mm D ($7\frac{1}{4}'' \times 19'' \times 18\frac{3}{4}''$).

Weight: net, 17.6 kg (39 lb). Shipping 24.8 kg (55 lb).

Power: 105 to 125 V or 210 to 250 V, 50 to 400 Hz, 50 W.

Model 250B

The 250B RX Meter measures two-terminal RF impedance in terms of equivalent parallel resistance and capacitance. The self-contained instrument includes a continuously tuned 0.5 to 250 MHz oscillator, high-frequency bridge, amplifier-detector, and null indicating meter. Connections may be conveniently made to the bridge terminals which are arranged for almost zero lead length.

Specifications

RF range: 500 kHz to 250 MHz in eight bands, $\pm 2\%$ accuracy, scale increments of approximately 1%.

Measurement characteristics

Resistance: range from 15 to 100 000 ohms.

Accuracy is $\pm \left[2 + \frac{F}{200} + \frac{R}{5000} + \frac{Q}{20} \right] \pm 0.2$ ohms

F = frequency in MHz, R = RX Meter R_p reading in ohms, $Q = \omega CR \times 10^{-12}$, where C = RX Meter C_p reading in pF; resistance calibration increments of approximately 3%.

Capacitance: range 0 to 20 pF (may be extended through use of auxiliary coils); Accuracy is $\pm (0.5 \text{ pF} + 0.5F^2C \times 10^{-5})\%$ ± 0.05 pF, F = frequency in MHz, C = RX Meter C reading in pF; Calibration in 0.1 pF increments.

Inductance: range, 0.001 μ H to 100 mH (actual range depends on frequency; auxiliary resistors employed). Accuracy is same as capacitance accuracy given above.

RF measurement voltage: approximately 50 to 750 mV, depending on frequency.

Size: 263 H $\times$ 509 W $\times$ 343 mm D ($10\frac{3}{8}'' \times 20\frac{1}{16}'' \times 13\frac{1}{2}''$).

Weight: net, 18 kg (40 lb). Shipping, 22.5 kg (50 lb).

Power: 105 to 125 volts or 210 to 250 volts, 50 to 400 Hz, 66 VA.

Accessories available: 00515A Coax Adapter Kit (Type N).

Options

908: Rack Flange Kit

Ordering information

4815A RF vector impedance meter

4800A Vector impedance meter

250B RX Meter

00515A Coax Adapter Kit