Resistance Anodize Trimmer System — “MiniRATS”

- accurate, economical tantalum-resistor trimming
- complete — trims and tests
- wide range — 10 Ω to 1 MΩ
- precise — 0.01-Ω resolution, 0.02% accuracy
- fast — 0.5% in ½ second

A complete solution The General Radio MiniRATS is particularly useful for design and small-lot production jobs. Despite its economy and small size, the MiniRATS is a complete system that includes an anodizing current supply, measurement bridge, and all necessary control circuitry. The entire installation procedure comprises only making a few connections to your probing device.

Operation is equally simple: Set eight direct-reading lever switches for the desired final resistance value; set three other controls for the anodizing current, pre-trim anodizing voltage, and measurement rate. Half a second later, your resistor is trimmed. With the Kelvin and guard connections, you can trim small values with ease, even in networks with shunt paths.

Front-panel indicators provide a check on the process. One lamp warns of pretrimmed resistance values too high to be processed, another signals when the process is complete, and a meter indicates the anodizing voltage during the trim operation. Anodizing current can also be turned off and the unit used as a precision resistance bridge if need be — simply at the flick of a switch.

The simplified diagram shows the major elements of the MiniRATS and the external probes attached to the resistor to be trimmed (R). The measurement probes are shown as closed arrows and are connected for six-terminal guarded-Kelvin measurements. This allows resistors to be trimmed in closed-delta configurations and thus eliminates the need to break a resistor chain or to bond resistors together after trimming. Unguarded 4-terminal Kelvin connections and simple 2-terminal measurements are also possible.

SPECIFICATIONS
- Resistance: 10 Ω to 1 MΩ in 0.01-Ω steps; set by 8 in-line-readout lever switches.
- Accuracy: ±0.02% ±50 mΩ, from 100 Ω to 100 kΩ; ±0.1%, from 10 kΩ to 1 MΩ.
- Display: METER: 0 to 250 V, indicates anodizing voltage. INITIAL VALUE LAMP: Lights during pre-trim; extinguishes when oxide-film breakdown reaches from 0 to 100 V as set by rear-panel control; remains lit if initial value is too high for trim. FINAL VALUE LAMP: Lights during trim, extinguishes when final resistance value is reached.
- Anodizing Current: 0.01 to 10 mA in ten 1-2-5 steps with compliance voltage to 270 V. Applied for 80% of trim/measurement cycle initially, 20% when resistance is within 2% of final value. Current shuts off automatically when trim is complete or pre-trim value is too high.

Measurement: RATE: 2 to 41 measurements/s, continuously variable. TERMINALS: 7, i.e., 1 anodizing cathode, 6 guarded-Kelvin terminals. (4-terminal unguarded Kelvin or simple, 2-terminal connections can also be used.)

Supplied: Power cord, two 14-pin type 57 plugs to mate with rear socket for probes.

Mechanical: Convertible bench cabinet. DIMENSIONS (w x h x d): 17x3.88x11.75 in. (432x98x298 mm). WEIGHT: 13 lb (6 kg) net, 18 lb (8.5 kg) shipping.

Description
Resistance Anodize Trimmer

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