



Figure 1-1. Model 415E SWR Meter

Table 1-1. Specifications

Sensitivity: 0.15 μ Vrms for full-scale deflection at maximum bandwidth (1 μ Vrms on high impedance crystal input).

Noise: At least 7.5 dB below full scale at rated sensitivity and 130-Hz bandwidth with input terminated in 100 or 5000 ohms. Noise figure less than 4 dB.

Range: 70 dB in 10- and 2-dB steps.

Accuracy: ± 0.05 dB/10-dB step; maximum cumulative error between any two 10-dB steps, ± 0.10 dB; maximum cumulative error between any two 2-dB steps, ± 0.05 dB. Linearity: ± 0.02 dB on expanded scales, determined by inherent meter resolution on normal scales.

Input: Unbiased low and high impedance crystal (50 to 200 and 2500 to 10,000 ohm optimum source impedance respectively for low noise); biased crystal (1V into 1K); low and high current bolometer (4.5 and 8.7 mA $\pm 3\%$ into 200 ohms), positive bolometer protection. Input connector, BNC female.

Input Frequency: 1000 Hz, adjustable 7%. Other frequencies between 400 and 2500 Hz available on special order.

Bandwidth: Variable, 15 to 130 Hz. Typically less than 0.5-dB change in gain from minimum to maximum bandwidth.

Recorder Output: 0 to 1 Vdc into an open circuit from 1000 ohms source impedance for ungrounded recorders. Output connector, BNC female.

Amplifier Output: 0 to 0.3 Vrms (NORM), 0 to 0.8 Vrms (EXPAND) into at least 10,000 ohms for ungrounded equipment. Output connector, dual banana jacks.

Meter Scales: Calibrated for square-law detectors. SWR: 1 to 4, 3.2 to 10 (NORM); 1 to 1.25 (EXPAND). DB: 0 to 10 (NORM); 0 to 2.0 (EXPAND). Battery: change state.

Meter Movement: Taut-band suspension, individually calibrated mirror-backed scales; expanded dB and SWR scales greater than 4-1/4 inch (108 mm) long.

RFI: Conducted and radiated leakage limits are below those specified in MIL-1-6181D.

Power: 115 or 230 volts $\pm 10\%$, 50 to 400 Hz, 1 watt. Optional rechargeable battery provides up to 36 hours continuous operation.

Weight: Net, 9-1/2 lb (4.3 kg), 11 lb (4.9 kg) with battery.

Options:

01, 001. Rechargeable battery installed.

02, 002. Rear-panel input connector in parallel with front-panel connector.