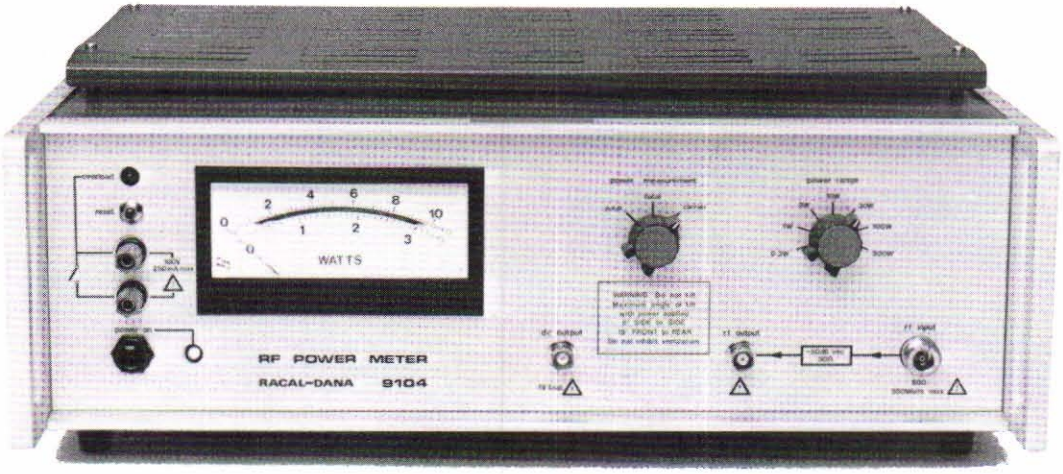
Wattmeters
High Power Absorption Wattmeter
Model 9104



Introduction

The Model 9104 is ideal for making accurate power measurements on all types of RF signals. It provides for measurement of total power, carrier power, and peak envelope power (PEP).

Applications include power measurements on CW signals as well as modulated signals such as telephone, facsimile, television, and pulsed transmissions. Carrier power of CW, AM, FM and PM signals and total or peak envelope power of AM signals (including DSB, SSB, VSB and ISB) may be easily measured.

Fast, Accurate Response

The 9104 provides true rms measurements of modulated waveforms, and the fast-responding detector allows the 9104 to be used for peaking or nulling applications when tuning transmitters or RF generators.

The linear scales provide ease of reading and improved accuracies.

Overload Immunity

One of the most important features of the 9104 is its ability to withstand excessively large inputs. You can safely apply 350 watts continuous RF power to any range without damage. In addition, the instrument can tolerate up to 600 watts for short periods on all ranges.

For additional protection, a fast acting reed relay is included. This overload relay provides a pair of front panel contacts which may be used to switch off the RF power source when a large overload occurs. Proper use of this relay will make it impossible to damage the 9104.

Attenuated Output

An attenuated RF output allows direct connection to frequency counters, modulation meters, or other test equipment, which eliminates the need for external attenuators when measuring the output of high power sources.

DC Output

The reading may be digitized by connecting the DC output to a digital voltmeter. This is a linear voltage, directly proportional to power.

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Specifications

Frequency Range: 1 MHz to 1 GHz

Measurement Functions: 1. Total Power
2. Peak Envelope Power
3. Carrier Power (on DSB AM signals)

Power Ranges: 10 mW to 300 W in 7 ranges with full scales of 300 mW, 1 W, 3 W, 10 W, 30 W, 100 W and 300 W

Maximum Input Power: 350 W continuous on any range (+35°C ambient)

Overload: 600 watts (AC + DC component) for 1 minute in any 15 minute period

Overload Relay: A pair of contacts (0.25 A, 100 V rating) available via front panel terminals

Input Impedance: 50 ohms

Input VSWR: 1.25:1 up to 150 MHz increasing to 1.3:1 at 1 GHz

Accuracy

Sinusoidal carrier 20°C to 30°C, including mismatch errors: ±3% full scale ±2% reading at 30 MHz, ±3% full scale ±7% reading; 1 MHz to 500 MHz rising linearly to ±3% full scale ±12% reading at 1 GHz

0°C to 50°C: Additional ±2% reading 1 MHz to 300 MHz
Additional ±4% reading 300 MHz to 1 GHz

Modulation Frequency Range
AM: 50 Hz to 30 kHz
FM: Unlimited

Modulation Depth Range
AM: 0-85% up to 15 kHz reducing linearly to 45% at 30 kHz
FM: Unlimited

Attenuated Output Level (into 50 Ohms): Approximately 50 dB below input signal. Source impedance 25 ohms.

DC Output: 1 volt ±0.01V at full scale on 10 scale, 1 kilohm source impedance

Operating Temperature: 0°C to +55°C

Storage Temperature: −40°C to +70°C

Humidity: 95% RH at +40°C

Power Requirements

Voltage: 90 to 130 and 180 to 260 VAC

Frequency: 45 to 440 Hz

Consumption: Approximately 6 VA

Dimensions: 177 H × 419 W × 373 D mm (7 H × 16.5 W × 14.7 D inches)

Weight: 11.75 kg (26 lb)

Ordering Information

Model 9104 High Power Absorption Wattmeter

Options

11-1367 Rack mounting kit