



HP 436A



HP 436A Power Meter

The HP 436A Power Meter is a general-purpose digital power meter intended for manual and automatic radio-frequency (RF) and microwave-power measurements. It is compatible with the entire series of HP 8480 thermocouple and diode power sensors.

The HP 436A measures either absolute or relative power. It displays absolute power in either watts or dBm, and relative power in dB. The HP 436A offers intuitive and straightforward manual operation as well as optional HP-IB programmability (Option 022).

Specifications

Frequency Range: 100 kHz to 110 GHz, sensor dependent

Power Range: -70 to +44 dBm (100 pW to 25 W), sensor dependent

Accuracy

Instrumentation

Watt mode: $\pm 0.5\%$

dBm mode: ± 0.02 dB ± 0.001 dB^{°C}

dB (REL) mode: ± 0.02 dB ± 0.001 dB^{°C}

Zero: Automatic, operated via front panel switch

Zero set: $\pm 0.5\%$ of full scale on most sensitive range, typical

Zero carry over: $\pm 0.2\%$ of full scale when zeroed on the most sensitive range

Power reference: Internal 50 MHz oscillator with Type-N female connector on front panel (or rear panel, Opt 003)

Power output: 1.0 mW. Factory set to $\pm 0.7\%$ traceable to the U.S. National Institute of Standards and Technology

Accuracy: $\pm 1.2\%$ worst case ($\pm 0.9\%$ rss) for one year

Supplemental Characteristics

Recorder Output: Linearly proportional to indicated power with 1 volt corresponding to full scale and 0.316 volts to -5 dB; 1 k Ω output impedance, BNC connector

Power Consumption: 100, 120, 220, 240V (+5%, -10%), 48 to 66 Hz, and 360 to 440 Hz; <20 VA (<23 VA with Opt 022)

HP-IB Function Codes: AH1, C0, DC2, DT0, LE0, P0, RL2, SH1, SR0, T3, TE0

Weight: Net, 4.5 kg (10 lb); shipping, 5.5 kg (12 lb)

Size: 134 mm H \times 213 mm W \times 279 mm D (5.2 in \times 8.4 in \times 11.0 in)

Accessories

Furnished: HP 11730A, 1.5-m (5-ft) power sensor cable; 2.3-m (7.5-ft) power cable

Available: To select and substitute nonstandard lengths for power sensor cables, see page 178. HP 5061-9657 rackmount adapter kit (one HP 436A by itself).

Ordering Information

HP 436A Power Meter

Opt 003 Reference oscillator output on rear panel only

Opt 022 Digital Input/Output, fully HP-IB compatible

Opt 908 Kit for rackmounting one HP 436A

- Ideal for ATE applications
- Dual power sensors
- Innovative ratio & difference measurements



HP 438A



HP 438A Power Meter

The HP 438A Power Meter is a dual-channel power meter designed specifically for ATE systems. The compact front panel saves critical rack space, while the dual channel design allows simple and accurate measurements of the ratio and difference of power levels from two separate sensors. This meter is compatible with the HP 8480 Series of thermocouple and diode power sensors.

HP-IB capability is standard on the HP 438A. For U.S. Air Force Modular Automatic Test Equipment (MATE) system application, Option 700 provides the HP 438A with the internal capability to be controlled by the MATE Control Interface Intermediate Language (CIIL).

Specifications

Frequency Range: 100 kHz to 110 GHz, sensor dependent

Power Range: -70 to +44 dBm (100 pW to 25W), sensor dependent. Uses HP 8480 Series power sensors

Instrumentation Accuracy

Single channel: $\pm 0.5\%$ (watt mode) or ± 0.02 dB (dBm mode)

Dual channel: $\pm 1\%$ (watt mode) or ± 0.04 dB (dBm mode)

Zeroing: Automatic, $\pm 0.5\%$ of full scale on most sensitive range

Power Reference

Power output: 1.00 mW. Factory set to $\pm 0.7\%$, traceable to the U.S. National Institute Standards and Technology

Accuracy: $\pm 1.2\%$ worst case ($\pm 0.9\%$ rss) for 1 year

Connector: front panel Type-N female (also rear panel Opt 002)

Supplemental Characteristics

Recorder Output: Linearly proportional to indicated power in watts. One volt corresponds to full scale; 1 k Ω output impedance. BNC rear panel female connector

Line Voltage: 100, 120, 220, or 240 Vac +5% -10%. 100 and 120 volts, 48 to 66 Hz and 300 to 440Hz. 220 and 240 volts, 48 to 66 Hz only

Power Requirements: 65 VA, 35 watts, maximum

HP-IB Interface Codes: SH1, AH1, T5, TE0, L4, LE0, SR1, RL1, PP1, DC1, DT1, C0

Weight: Net, 5.9 kg (13 lb); shipping, 9.1 kg (20 lb)

Size: 89 mm H \times 213 mm W \times 418 mm D (3.5 in \times 8.4 in \times 16.8 in)

Accessories

Furnished: HP 11730A, 2 each, 1.5-meter (5-ft) power sensor cables. Power cable, 1 each, 2.4 meters (7.5 ft). Mains plug matches destination requirements.

Available: To select and substitute nonstandard lengths for power sensor cables, see page 178.

Ordering Information

HP 438A Dual Channel Power Meter

Opt 002 Rear Panel Sensor Connector (in parallel with front panel) and additional reference oscillator with rear panel output

Opt 700 Internal MATE Programming