

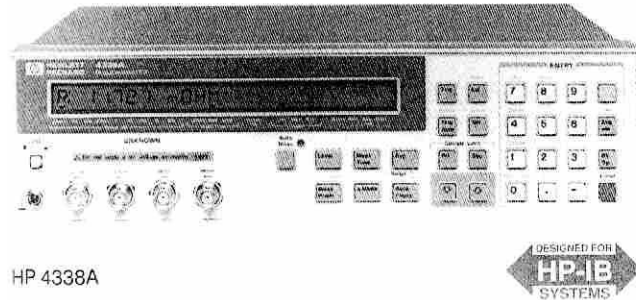
COMPONENT MEASUREMENT

Milliohmmeter

HP 4338A

- Low and selectable test signal current: 1 μ A to 10 mA
- Wide measurement range: 10 $\mu\Omega$ to 100 k Ω
- 10 $\mu\Omega$ resolution

- 1 kHz ac measurement
- High-speed measurement: 34 ms
- Built-in comparator
- Auto-measurement mode



HP 4338A



HP 4338A Milliohmmeter

The HP 4338A milliohmmeter is a precise, reliable, high-speed test tool for measurements of low resistance.

Precise, Low-Resistance Measurement

Contact failure of electromechanical components in a low-current circuit is a key issue for component reliability. The HP 4338A offers selectable low ac test signals (1 μ A to 10 mA). Users can now characterize low resistances of electromechanical components under low-current conditions. A high resolution of 10 $\mu\Omega$ allows you to determine the slightest differences in contact resistance testing of relays, switches, connectors, PC board traces and cables. The 1 kHz test signal eliminates potential errors introduced by thermoelectric effects on the device-under-test (DUT) contacts. The 1 kHz ac test signal is the best solution to evaluate the internal resistance of batteries, because it avoids dc energy consumption.

High-Speed Measurements

The high-speed (34 ms), built-in comparator and HP-IB/handler interfaces make it possible to construct a measurement system using an automatic handler and external computer to minimize production test time.

Auto-Measurement Mode

When performing gross continuity testing where the test signal level is not a significant factor in the test, the auto-measurement function allows the instrument to select an appropriate test signal and measurement range setting.

Specifications (Refer to data sheet for complete specifications.)

Measurement Function

Measurement parameters: R (ac resistance), X (reactance), L (inductance), |Z| (impedance), θ (phase [°])

Combinations: R, R-X, R-L, |Z|- θ (series mode only)

Mathematical Functions: Deviation and percent deviation

Ranging: Auto and manual

Trigger: Internal, external, manual, and HP-IB

Delay Time: 0 to 9999 ms in 1 ms steps

Measurement Time: Short, medium, and long

Averaging: 1 to 256

Test Signal Characteristics

Test frequency: 1 kHz

Frequency accuracy: $\pm 0.1\%$

Test signal level: 1 μ A, 10 μ A, 100 μ A, 1 mA, 10 mA rms

Level accuracy: $\pm 10\% + 0.2 \mu$ A

Maximum voltage across sample: 20 mV peak in any case

Measurement Range

Parameter	Measurement range
R	10 $\mu\Omega$ to 100 k Ω
X, Z	10 $\mu\Omega$ to 100 k Ω (typical)
L	10 nH to 10 H (typical)
θ	-180° to +180° C (typical)

Measurement Accuracy: $\pm 0.4\%$ Basic for R

Measurement Time: Time interval from a trigger command to the end of measurement (EOM) signal output at the handler interface port.

Mode	Time (typical)
Short	34 ms
Medium	70 ms
Long	900 ms

Display: 24 digits LCD display. Capable of displaying: measured values, control settings, comparator limits and decisions, self-test messages, and annunciations.

Correction Function

Zero SHORT: Eliminates measurement errors due to parasitic impedances in the test fixture.

Comparator Function

HIGH/IN/LOW for each primary measurement parameter and the secondary measurement parameter.

Other Functions

Superimposed dc: ± 42 Vdc maximum may be present on measurement terminals.

Save/recall: Ten instrument setups can be saved/recalled from the internal nonvolatile memory.

Continuous memory capability: If the instrument is turned off, or if a power failure occurs, instrument settings are automatically memorized (≤ 72 hours at $23 \pm 5^\circ$ C).

HP-IB interface: All control settings, measured values, and comparator information

Handler interface: All output signals are negative-logic, optically isolated open collectors.

Output signals include: HIGH/IN/LOW, index, end of measurement, and alarm. Input signals are keylock and external trigger.

General Specifications

Power Requirements: 90 to 132 V or 198 to 264 V, 47 to 66 Hz, 45 VA max

Operating Temperature: 0° to 55° C

Size: 320 mm W \times 100 mm H \times 300 mm D (12.6 in \times 3.94 in \times 11.81 in)

Weight: 4.5 kg (9.9 lb)

Furnished Accessories

Operation manual, power cable (mating cable and test leads, or HP 16338A test lead set, must be ordered separately.)

Ordering Information

HP 16338A Test Lead Set

HP 16143B Mating Cable (0.6 m)

HP 16005B Kelvin Clip Lead (0.4 m, with large clip)

HP 16005C Kelvin IC Clip Lead (0.4 m, with IC clip)

HP 16006A Pin-Type Probe Lead (0.4 m)

HP 16007A Alligator Clip Leads (0.4 m, with 2 red clips)

HP 16007B Alligator Clip Leads (0.4 m, with 2 black clips)

HP 16064B LED Display/Trigger Box

HP 4338A Milliohmmeter

Opt 009 Delete Operation Manual

Opt W30 Extended Repair Service (see page 636)

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For the most current prices and product information, contact your local Hewlett-Packard sales office - see page 665.