

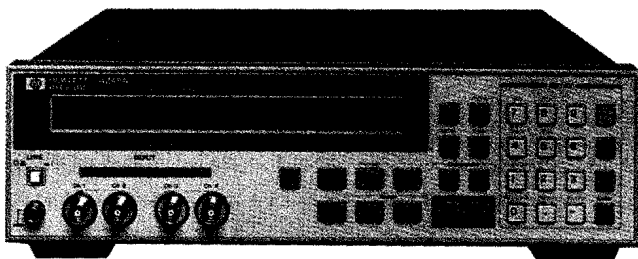


## COMPONENT MEASUREMENT

### 4-Channel High-Resistance Meter

**HP 4349A**

- Designed for capacitor measurements
- 4-channel input
- High-speed measurement: 11 ms
- Fast settling time
- High-speed contact check
- Comparator function



#### HP 4349A 4-Channel High-Resistance Meter

The HP 4349A 4-channel high-resistance meter is HP's highest-throughput high-resistance meter for production testing of capacitors.

#### High Throughput

To verify component reliability, capacitor manufacturers need to test capacitor insulation resistance at different voltages. The 4-channel configuration permits simultaneous testing of 4 capacitors with different test voltages. This configuration reduces the investment cost when compared to a single-channel instrument. The HP 4349A's 11 ms 4-channel simultaneous measurement improves the test throughput in a capacitor production line. For insulation resistance testing for capacitor manufacturers, capacitor charge time is a key factor in slowing down measurement time. The HP 4349A's front end has a 1 k  $\Omega$  input impedance that allows the instrument to reduce the capacitor's charge time, and thus increases test throughput. The Contact Check function verifies that the signal path between the handler and the device under test (DUT) is optimal for a measurement. Contact Checking maintains automatic handler/DUT integrity while keeping system throughput high.

#### System Integration

The built-in comparators for all 4 channels and the HP-IB/handler interface make system integration with automatic handlers and computers a fast and clean process.

#### Specifications

(See data sheet for complete specifications.)

#### Measurement functions

**Measurement parameters:** I (dc current), R (dc resistance)

**Note:** The HP 4349A has no test voltage source. It needs an external voltage source for resistance measurements. (The HP 4349A converts current measurement data into resistance with the test voltage data entered into memory.)

**Number of test channels:** 4 channels (Option 001: 2 channels). Each channel measures simultaneously by the trigger.

**Test voltage data entry:** 0.1000 to 1000.0 V (5 digits)

**Ranging:** Auto and manual

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

**Delay time:** 0 to 9999 ms in 1 ms steps

**Test cable lengths:** 2 m maximum

**Measurement time:** Short and long

**Averaging:** 1 to 256

#### Measurement Range/Accuracy

| Parameter   | Measurement Range                     | Basic Accuracy               |
|-------------|---------------------------------------|------------------------------|
| I           | 1 pA to 100 $\mu$ A                   | 2%                           |
| R (in ohms) | $1 \times 10^3$ to $1 \times 10^{15}$ | 2% + voltage source accuracy |

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

| Mode  | Time (typical) |
|-------|----------------|
| Short | 11 ms          |
| Long  | 31 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 OPEN:** Eliminates measurement errors due to leakage current in the test fixture for each test channel.

**Comparator function:** HIGH/IN/LOW for the measurement parameter of each test channel.

#### Contact check function

Contact failure between the test fixture and device can be detected.

**Available DUT type:** Capacitive DUT only

#### Required condition

**DUT capacitance:**  $\geq 0.5$  pF + 5% of residual stray capacitance

**Residual stray capacitance of the fixture:**  $\leq 50$  pF

**Additional time for contact check:** 2 ms

#### Other functions

**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 (except dc bias) are automatically memorized ( $\geq 72$  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 and no contact for each channel, index, end-of-measurement and alarm. Input signals include: keylock and external trigger.

#### General Specifications

**Power requirements:** 90 to 132 V or 198 to 264 V, 47 to 66 Hz, 45 VA maximum

**Operating temperature:** 0 to  $55^\circ$  C

**Dimensions:** 320 mm W  $\times$  100 mm H  $\times$  450 mm D (12.6 in  $\times$  3.94 in  $\times$  17.72 in)

**Weight:** 6.5 kg (14.3 lb)

#### Ordering Information

**HP 16117D** Low-Noise Test Lead (1 m, Triax Connector)

**HP 4349A** 4-Channel High-Resistance Meter