

KEYSIGHT TECHNOLOGIES (AGILENT HP)

E4980A

The Keysight (formerly Agilent) E4980A Precision LCR Meter is an industry-standard benchtop instrument for component and material evaluation. It provides superior accuracy and repeatability from 20 Hz to 2 MHz, featuring a basic impedance accuracy of 0.05% and high-speed measurements down to 5.6 ms. Designed for both R&D and manufacturing environments, the E4980A supports comprehensive measurement parameters, a 201-point list sweep, and extensive PC connectivity. It is highly configurable, with options like Option 001 for 20 Vrms test signals and 40 V DC bias, as well as handler and scanner interfaces to integrate into automated test systems.

SPECIFICATIONS

General

Interfaces	LAN, USB, GPIB (Handler and Scanner interfaces optional)
Display	Color LCD
Warm-up Time	30 minutes
Recommended Calibration Cycle	1 year

Physical

Power Supply	90 to 264 V AC, 47 to 63 Hz, 150 VA max
Operating Temperature	0 to 55 °C
Dimensions (W×H×D)	374 × 105 × 390 mm
Weight	5.3 kg

Measurement Functions

Primary/Secondary Measurement Parameters	Z , Y , Ls, Lp, Cs, Cp, Rs, Rp, X, G, B, D, Q, θ_z , θ_y , Rdc, Vdc, Idc
Equivalent Circuit Modes	Series, Parallel
Mathematical Functions	Deviation (Δ), Percentage Deviation ($\Delta\%$)
Deviation Measurements	Δ (absolute difference) and $\Delta\%$ (percentage difference)

Test Signal Characteristics

Test Frequency Range	20 Hz to 2 MHz
Test Frequency Resolution	4 digits in any range
Signal Voltage Range (Vrms)	0 to 2 Vrms (Standard) / Up to 20 Vrms (with Option 001)
Signal Current Range (Irms)	0 to 20 mArms (Standard) / Up to 100 mArms (with Option 001)
Source Impedance	100 Ω

Measurement Range & Accuracy

Basic Impedance Accuracy	0.05%
Capacitance (C) Measurement Range	± 1.000000 aF to 999.9999 EF
Impedance/Resistance (R, Rs, Rp, X, Z, Rdc) Range	± 1.000000 a Ω to 999.9999 E Ω
Measurement Time (Fast)	5.6 ms
Averaging	1 to 256

Calibration & Error Correction

Correction Functions	Open, Short, Load
Cable Length Compensation	0 m, 1 m, 2 m, 4 m

DC Bias Characteristics

Internal DC Bias Voltage Range	0 V, 1.5 V, 2 V (Standard) / -40 V to +40 V (with Option 001)
Internal DC Bias Current	-100 mA to +100 mA (with Option 001)
External DC Bias Support	Up to 40 A DC with Agilent 42841A Bias Current Source

Sweep & Trigger Functions

Trigger Sources	Internal, Manual, External, Bus
Sweep Parameters	Test Frequency, Test Signal Voltage/Current, DC Bias Voltage/Current
Number of Sweep Points	201 points list sweep

Display & User Interface

Measurement Display Digits	7 digits
Comparator / Bin Sorting	9 Bins (BIN 1-9), OUT OF BINS, AUX BIN (with Option 201 Handler Interface)

Interfaces & Connectivity

Handler Interface	Available (Option 201)
Scanner Interface	Available (Option 301)

Environmental & Compliance

Storage Temperature Range	-20 °C to 70 °C
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Test Signal

Test Signal Voltage Resolution	100 μ V (0 V to 2 Vrms range)
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Connectivity

Measurement Terminals	4-terminal pair (BNC connectors)
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Power

Power Consumption	150 VA max
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Storage

Instrument State Storage	10 states in internal memory or direct to USB flash drive
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Environmental

Operating Humidity	15% to 85% RH (non-condensing)
Operating Altitude	Up to 2000 meters

Compliance

Safety Compliance	IEC 61010-1, EN 61010-1
EMC Compliance	IEC 61326-1, EN 61326-1, CISPR 11 Group 1 Class A
LXI Compliance	LXI Class C

Measurement Display Ranges

Inductance (L) Display Range	± 1.000000 aH to 9.999999 EH
Dissipation Factor (D) Display Range	± 0.000001 to 9.999999
Quality Factor (Q) Display Range	± 0.01 to 99999.99
Phase Angle (θ) Display Range	$\pm 180.0000^\circ$

Performance

Measurement Time (Medium)	88 ms (@ 1 MHz)
Measurement Time (Slow)	220 ms (@ 1 MHz)

Options & Configuration

Option 001 Functionality	Adds Rdc measurement, Vdc/I dc monitor, and ± 40 V / ± 100 mA DC bias source capabilities
Option 002 Functionality	Bias current interface (enables control of Keysight 42841A bias current source up to 40 A)

Software & Control

Programming Command Set	SCPI
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TECHNOLOGY

Precision LCR Measurement / Auto-Balancing Bridge

APPLICATIONS

Component evaluation, materials testing, impedance measurement, semiconductor C-V testing

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