

KEYSIGHT TECHNOLOGIES (AGILENT HP)

4284A

The Keysight (formerly Agilent / Hewlett-Packard) 4284A is an industry-standard precision LCR meter designed for component and material measurement. Featuring a wide 20 Hz to 1 MHz test frequency range and an exceptional basic accuracy of 0.05%, it is widely used in R&D, production, and quality assurance environments. The instrument supports versatile measurement setups with optional high-power test signals and DC bias capabilities.

SPECIFICATIONS

General

Interfaces	GPIO (IEEE-488)
Display	Dot-matrix LCD
Warm-up Time	30 minutes
Removable Storage	Memory card slot (JEIDA standard) for instrument states
Internal Setup Storage	10 instrument states

Physical

Power Supply	100 / 120 / 220 / 240 V $\pm 10\%$, 47 - 66 Hz, 200 VA max
Operating Temperature	0 to 55 °C
Dimensions (W×H×D)	426 × 177 × 498 mm
Weight	15 kg

Measurement Range and Accuracy

Basic Accuracy	0.05%
Impedance ($ Z $, R, X) Measurement Range	0.01 m Ω to 99.9999 M Ω
Admittance ($ Y $, G, B) Measurement Range	0.01 nS to 99.9999 S
Dissipation Factor (D) Measurement Range	0.000001 to 9.99999
Quality Factor (Q) Measurement Range	0.01 to 99999.9
Phase Angle (Theta) Measurement Range	-180.000° to 180.000°
Error Correction/Calibration	Open, Short, Load
Cable Length Compensation	0 m, 1 m (2 m and 4 m with Option 006)

Measurement Parameters

Primary Measurement Parameters	$ Z $, $ Y $, L, C, R, G
Secondary Measurement Parameters	D, Q, θ , X, B, Rs (ESR), Rp
Display Digits/Resolution	6 digits

Test Signal Characteristics

Test Frequency Range	20 Hz to 1 MHz
Test Frequency Resolution	8610 selectable frequencies
Test Frequency Accuracy	±0.01%
Test Signal Voltage Range	5 mVrms to 2 Vrms (up to 20 Vrms with Option 001)
Test Signal Current Range	50 µArms to 20 mArms (up to 200 mArms with Option 001)
Output Impedance	100 Ω (nominal)
DC Bias Voltage Range (Standard)	0 V, 1.5 V, 2 V

Options and Accessories

High Power DC Bias Option	±40 V DC (Option 001)
Power Amplifier Option	Option 001 (increases test signals to 20 Vrms / 200 mArms and bias to ±40 V)
Handler Interface Option	Option 201 or 202
Scanner Interface Option	Option 301

Measurement Speed and Triggering

Measurement Time Modes	Short, Medium, Long
Trigger Modes	Internal, Manual, External, Bus
Trigger Delay Range	0 to 60.000 s
Averaging (Number of Measurements)	1 to 256

Advanced Features and Functions

List Sweep Points	10 points
List Sweep Parameters	Test Frequency, Test Signal Voltage/Current, DC Bias Voltage/Current
Comparator / Bin Sorting	Supported
Number of Bins	10 bins (9 pass, 1 fail)
Continuous Memory / State Storage	10 instrument states

Interfaces and Connectivity

Remote Programming Interface	GPIOB
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Physical and Environmental

Storage Temperature Range	-40 to 70 °C
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Measurement Ranges

Capacitance (C) Measurement Range	0.01 fF to 9.99999 F
Inductance (L) Measurement Range	0.01 nH to 99.9999 kH

Measurement Features

Equivalent Circuit Modes	Series, Parallel
Deviation Measurement	Δ (absolute deviation) and $\Delta\%$ (percent deviation)
Automatic Level Control (ALC)	Voltage and Current (Maintains constant signal level across DUT)

Inputs & Outputs

Measurement Terminals	4-terminal pair (BNC)
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Options & Accessories

Bias Current Interface (Option 002)	Enables connection to 42841A Bias Current Source (up to 40 A DC)
External DC Bias Current Capability	Up to 40 A (requires Option 002, external 42841A Bias Current Source, and appropriate fixture)
Extended Cable Length Compensation	2 m and 4 m lengths (requires Option 006)

Power

Power Consumption	200 VA max
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Features

Test Signal Level Monitor	Voltage (V) and Current (I) monitor across/through DUT
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APPLICATIONS

Precision LCR measurement for components and materials in R&D, incoming inspection, and production.

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