

KEYSIGHT TECHNOLOGIES (AGILENT HP)

4275A

The Keysight (Agilent HP) 4275A is a multi-frequency, high-performance LCR meter designed for precision component testing in the high-frequency range from 10 kHz to 10 MHz. Featuring a basic accuracy of 0.1% and a flexible four-terminal pair configuration, the 4275A supports multi-spot test frequencies, adjustable test signal levels, and comprehensive secondary parameter calculations, making it ideal for both laboratory research and automated production environments.

SPECIFICATIONS

General

Interfaces	HP-IB (GPIB) (Option 101), External Trigger Input (Rear BNC), DC Bias Monitor Output (Rear BNC), External DC Bias Inputs (Rear panel)
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Physical

Power Supply	100 V / 120 V / 220 V ($\pm 10\%$), 240 V (+5% to -10%), 48 to 66 Hz, ≤ 135 VA
Operating Temperature	0 to 55 °C °C
Dimensions (W×H×D)	425.5 mm × 177 mm × 498 mm mm
Weight	15 kg kg
Cooling	Forced air by built-in fan

Measurement Functions

Primary Parameters	L, C, Z
Secondary Parameters	D, Q, ESR, G, X, B, Phase Angle
Equivalent Circuit Modes	Auto, Series, Parallel
Ranging Modes	Auto, Manual
Deviation Measurement Modes	Difference (Δ), Percent Difference ($\Delta\%$)
Test Terminals Configuration	Four-terminal pair configuration with guard terminal
Parameter Combinations	L-D, L-Q, L-R, L-G, C-D, C-Q, C-R, C-G, Z -theta, R-X, G-B

Test Signal

Test Frequency Range	10 kHz to 10 MHz
Standard Spot Frequencies	10 kHz, 20 kHz, 40 kHz, 100 kHz, 200 kHz, 400 kHz, 1 MHz, 2 MHz, 4 MHz, 10 MHz
Test Signal Level Range	1 mV to 1 Vrms
Test Signal Level Control	Continuously variable in 3 ranges
Frequency Accuracy	$\pm 0.01\%$
Source Impedance	100 Ω nominal

User Interface & Display

Self Test

Front panel initiated self-test diagnostics

Input & Output

DC Bias Monitor

Bias voltage monitor output on BNC connector for both internal and external biases

Measurement Speed & Triggering

Trigger Modes

Internal, External, Manual

Measurement Speed Modes

Normal, Fast

Measurement Accuracy

Basic Accuracy

0.1%

Measurement Ranges

Capacitance Range (C)

0.01 fF to 199.99 μ F

Inductance Range (L)

0.01 nH to 19.999 H

Impedance Range ($|Z|$)

0.01 m Ω to 19.999 M Ω

Resistance Range (R, ESR)

0.01 m Ω to 19.999 M Ω

Reactance Range (X)

0.01 m Ω to 19.999 M Ω

Dissipation Factor Range (D)

0.0001 to 9.900

Quality Factor Range (Q)

0.01 to 9900

Conductance Range (G)

0.01 nS to 19.999 S

Susceptance Range (B)

0.01 nS to 19.999 S

Phase Angle Range

-180.00° to +180.00°

Correction & Calibration

Zero Correction

Open and short circuit compensation

System Options

Option 001

Internal DC Bias (0 to ± 35 V continuously variable)

Option 101

HP-IB (GPIB) Interface

Power & Physical

Line Voltage Requirements

100 V, 120 V, 220 V ($\pm 10\%$), 240 V (+5%, -10%)

Line Frequency Range

48 Hz to 66 Hz

Warm-up Time

30 minutes

Display

Maximum Display Resolution

5-1/2 digits

Monitor Functions

Voltage Monitor Accuracy

$\pm(10\%$ of reading + 1 mV)

Current Monitor Accuracy

$\pm(10\%$ of reading + 10 μ A)

Inputs & Outputs

External Trigger Input	TTL level, negative-going edge, $\geq 1\ \mu\text{s}$ pulse width
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Measurement Control

Cable Length Compensation Settings	0 m, 1 m
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Power

Maximum Power Consumption	165 VA (with all options installed)
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Environmental

Storage Temperature Range	-40 °C to +75 °C
Operating Humidity Range	$\leq 95\% \text{ RH @ } 40\text{ °C}$
Maximum Operating Altitude	4562 m (15,000 ft)

DC Bias

Option 001 DC Bias Voltage Accuracy	$\pm(0.5\% \text{ of setting} + 20\text{ mV})$
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Connectivity

HP-IB Interface Capability Codes	SH1, AH1, T5, L4, SR1, RL1, DC1, DT1, PP0, C0, TE0, LE0
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Options

Option 002 Multi-step Signal Level	1 mV to 1.00 V rms (1 mV steps from 1 mV to 100 mV, 10 mV steps from 100 mV to 1 V)
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Measurement Monitor

Voltage Monitor Range	1.00 mV to 1.00 V
Current Monitor Range	1.00 μA to 10.00 mA

Performance

Measurement Speed (Short Mode)	140 ms (at $\geq 100\text{ kHz}$) to 190 ms (at 10 kHz)
Measurement Speed (Medium Mode)	160 ms (at $\geq 100\text{ kHz}$) to 210 ms (at 10 kHz)
Measurement Speed (Long Mode)	280 ms (at $\geq 100\text{ kHz}$) to 370 ms (at 10 kHz)
Test Signal Level Accuracy	$\pm(10\% + 10\text{ mV})$ (at standard 0.1 V to 1.0 V levels)

TECHNOLOGY

Multi-Frequency LCR Meter

APPLICATIONS

High-frequency electronic component and material characterization

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.