

**Aumictech**

Test & measurement • bought, sold, repaired, calibrated

Data Sheet

August 14, 2026

HP / AGILENT

HP / Agilent 4291A RF Impedance/Material Analyzer

HP Agilent 4291A RF Impedance/Material Analyzer The HP/Agilent 4291A RF impedance/material analyzer measures surface-mount components and dielectric/magnetic materials using a direct current-voltage technique rather than reflection-only methods. Public OEM summaries specify a synthesizer sweep from 1 MHz to 1.8 GHz with 1 mHz resolution, basic impedance accuracy of $\pm 0.8\%$, a 1.8 m error-less cable to the test station, and dual measurement channels with color split display. RF impedance of chip R/L/C and resonators, permittivity/permeability material evaluation, bias-dependent impedance with optional DC bias, and equivalent-circuit extraction of RF passives. The HP/Agilent 4291A RF impedance/material analyzer measures surface-mount components and dielectric/magnetic materials using a direct current-voltage technique rather than reflection-only methods. Public OEM summaries specify a synthesizer sweep from 1 MHz to 1.8 GHz with 1 mHz resolution, basic impedance accuracy of $\pm 0.8\%$, a 1.8 m error-less cable to the test station, and dual measurement channels with color split display. RF impedance of chip R/L/C and resonators, permittivity/permeability material evaluation, bias-dependent impedance with optional DC bias, and equivalent-circuit extraction of RF passives.



MODEL HP / Agilent 4291A	CALIBRATION Available on request
CONDITION Used	STATUS In stock
RFQ / SKU 4291A	LISTING https://aumictechlabs.com/products/4291a-2/

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 • 811210 • 541380

This unit

The HP/Agilent 4291A RF Impedance/Material Analyzer is a precision instrument designed for accurate impedance measurements of electronic components, circuits, and materials at radio frequencies. It delivers reliable data for R&D and quality control. The analyzer features a wide frequency range, high accuracy, and versatile measurement capabilities, making it suitable for characterizing capacitors, inductors, resistors, and other components. It also supports material measurements, providing insights into dielectric and magnetic properties.

Features & description

From manufacturer datasheet

Built-in equivalent circuit analysis with five circuit models

IBASIC automatic level control for constant voltage test conditions Optional DC bias and Option 1D5 precision frequency reference Technical Specifications Frequency Range: 1 MHz to 1.8 GHz Frequency Resolution: 1 mHz Basic Impedance Accuracy: $\pm 0.8\%$ Test Station Cable Length: 1.8 m error-less cable Measurement Channels: 2 OSC Level Open 1 MHz to 1 GHz: 0.2 mVrms to 1 Vrms OSC Level Open 1 GHz to 1.8 GHz: 0.2 mVrms to 0.5 Vrms OSC Level Short 1 MHz to 1 GHz: 4 μ Arms to 20 mArms OSC Level Short 1 GHz to 1.8 GHz: 4 μ Arms to 10 mArms OSC Level 50 Ohm 1 MHz to 1 GHz: -67 dBm to 7 dBm OSC Level 50 Ohm 1 GHz to 1.8 GHz: -67 dBm to 1 dBm Frequency Stability 0 to 40 C: less than ± 1 ppm class DC Bias Optional: up to ± 40 V and 100 mA class (configuration dependent) Alternate DC Bias Note: some summaries list ± 35 V Impedance Parameters: $|Z|$, $|Y|$, phase, R, X, G, B, Lp, Ls, Cp, Cs, D, Q, deviation Gain Phase Parameters: amplitude, phase, group delay Material Fixtures Temperature: -55 C to +200 C class DUT Fixture Size Range: 0.5 mm to 20 mm class Storage: built-in floppy LIF or MS-DOS Display: color CRT split display with memory traces Remote Interface: GPIB Equivalent Circuit Models: five built-in models

4291A Characteristics / Specifications

PARAMETER	VALUE
Frequency Range	1 MHz to 1.8 GHz
Frequency Resolution	1 mHz
Basic Impedance Accuracy	±0.8%
Test Station Cable Length	1.8 m error-less cable
Measurement Channels	2
OSC Level Open 1 MHz to 1 GHz	0.2 mVrms to 1 Vrms
OSC Level Open 1 GHz to 1.8 GHz	0.2 mVrms to 0.5 Vrms
OSC Level Short 1 MHz to 1 GHz	4 uArms to 20 mArms
OSC Level Short 1 GHz to 1.8 GHz	4 uArms to 10 mArms
OSC Level 50 Ohm 1 MHz to 1 GHz	-67 dBm to 7 dBm
OSC Level 50 Ohm 1 GHz to 1.8 GHz	-67 dBm to 1 dBm
Frequency Stability 0 to 40 C	less than ±1 ppm class
DC Bias Optional	up to ±40 V and 100 mA class (configuration dependent)
Alternate DC Bias Note	some summaries list ±35 V
Impedance Parameters	$ Z $, $ Y $, phase, R, X, G, B, Lp, Ls, Cp, Cs, D, Q, deviation
Gain Phase Parameters	amplitude, phase, group delay
Material Fixtures Temperature	-55 C to +200 C class
DUT Fixture Size Range	0.5 mm to 20 mm class
Storage	built-in floppy LIF or MS-DOS
Display	color CRT split display with memory traces
Remote Interface	GPIB
Equivalent Circuit Models	five built-in models
Fixture Compensation	advanced calibration and error compensation

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Specifications

Specifications

PARAMETER	VALUE
Frequency Range	1 MHz to 1.8 GHz
Frequency Resolution	1 mHz
Basic Impedance Accuracy	±0.8%
Test Station Cable Length	1.8 m error-less cable
Measurement Channels	2

OSC Level Open 1 MHz to 1 GHz: 0.2 mVrms to 1 Vrms
OSC Level Open 1 GHz to 1.8 GHz: 0.2 mVrms to 0.5 Vrms
OSC Level Short 1 MHz to 1 GHz: 4 uArms to 20 mArms
OSC Level Short 1 GHz to 1.8 GHz: 4 uArms to 10 mArms
OSC Level 50 Ohm 1 MHz to 1 GHz: -67 dBm to 7 dBm
OSC Level 50 Ohm 1 GHz to 1.8 GHz: -67 dBm to 1 dBm

Specifications

PARAMETER	VALUE
Frequency Stability 0 to 40 C	less than ±1 ppm class
DC Bias Optional	up to ±40 V and 100 mA class (configuration dependent)
Alternate DC Bias Note	some summaries list ±35 V
Impedance Parameters	Z , Y , phase, R, X, G, B, Lp, Ls, Cp, Cs, D, Q, deviation
Gain Phase Parameters	amplitude, phase, group delay
Material Fixtures Temperature	-55 C to +200 C class
DUT Fixture Size Range	0.5 mm to 20 mm class
Storage	built-in floppy LIF or MS-DOS
Display	color CRT split display with memory traces
Remote Interface	GPIB
Equivalent Circuit Models	five built-in models
Fixture Compensation	advanced calibration and error compensation

Notes
Numeric values from Keysight/Agilent/HP 4291A product summaries and TIIIPS specification extracts. Confirm Option 1D5 and DC-bias option on the installed unit before stating bias/reference limits.

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

788 S 500 E, Pleasant Grove, UT 84062
sales@aumictech.com · +1 (484) 841-9341
<https://aumictechlabs.com>

NIST-traceable calibration · SAM registered ·
30-day returns
NAICS 423690 · 811210 · 541380
Generated August 14, 2026

Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.