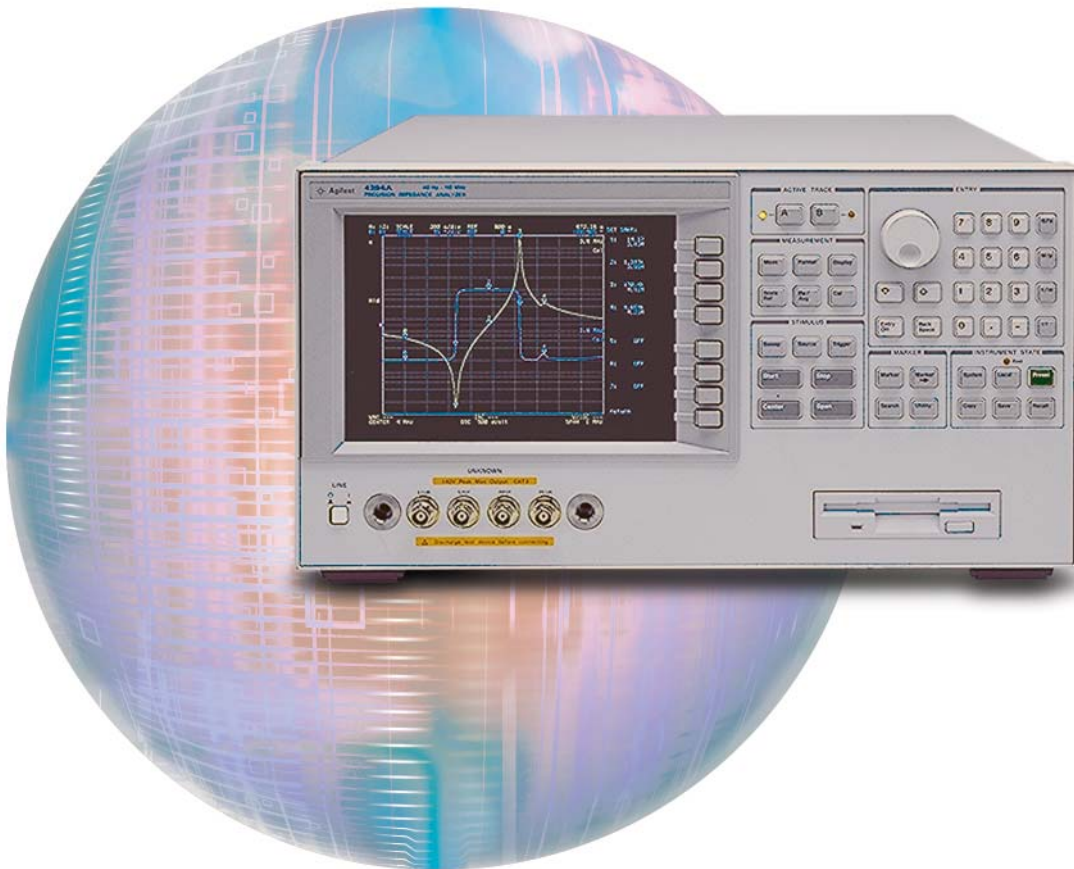


Agilent 4294A Precision Impedance Analyzer, 40 Hz to 110 MHz

Configuration Guide



Agilent Technologies

Ordering Guide

The following steps will guide you through configuring your 4294A.

Standard Furnished Item

Description	Additional Information
CD-ROM Manual	Contains Operation and Programming manuals in PDF. See documentation option for printed manuals.
100 ohm resistor	100 Ω load resistor module for 4-terminal pair extension. See Available Accessories (General/Miscellaneous Measurement Accessories) for additional information.
Power Cable	
Certificate of Calibration	

Note: The following are not furnished: Printed copies of Operation Manual, Programming Manual, I-Basic User's Handbook, Test Fixture and Keyboard. Refer to Accessory Option, Documentation Option and Available Accessories for the selection of these items.

Step 1. Choose Hardware Option (Mandatory)

Description	Option No.	Requires	Not Compatible	Additional Information
Standard Frequency Reference	4294A-800	None	4294A-1D5	Standard Frequency Reference is installed.
High Stability Frequency Reference	4294A-1D5	None	4294A-800	This option improves the frequency accuracy and stability of the 4294A. BNC Adapter is supplied with 4294A-1D5.
Bottom Feet	4294A-801	None	4294A-802	Includes Bottom Feet
No Bottom Feet	4294A-802	None	4294A-801	No Bottom Feet

Note: Refer to Hardware Upgrade for retrofit information on the above options.

Step 2. Choose Accessory Option (If not required, go to Step 3)

Description	Option No.	Requires	Not Compatible	Additional Information
Rackmount Kit	4294A-1CM	None	4294A-1CP	Adds Rackmount kit
Front Handle Kit	4294A-1CN	None	4294A-1CP	Adds Front Handle kit
Handle/Rackmount Kit	4294A-1CP	None	4294A-1CM 4294A-1CN	Adds Handle/Rackmount kit
Keyboard	4294A-810	None	None	Adds Keyboard

Note: Refer to Hardware Upgrade for retrofit information on the above options.

Step 3. Choose Documentation Option (If not required, go to Step 4)

Description	Option No.	Additional Information
U.S. - English Localization	4294A-ABA	Printed manuals. 4294A-ABA/ABJ contains the Operation Manual, Programming Manual, I-Basic User's Handbook and Sample Program Disk.
Japan - Japanese Localization	4294A-ABJ	
Service Manual	4294A-0BW	Printed copy of service manual

Step 4. Choose Calibration Certificate Option (If not required, go to Step 5)

Description	Option No.	Additional Information
ISO 17025 compliant calibration	4294A-1A7	ISO 17025 compliant calibration
ANSI Z540 Compliant Calibration	4294A-A6J	ANSI Z540 compliant calibration

Step 5. Choose Warranty Plan

1-year Return-to-Agilent Warranty and Service Plan are standard. For extended warranty options and additional information, contact your local Agilent sales office or visit the Agilent home website.

Hardware Upgrade

Option No.	Description	Upgrade Model No. or Equivalent Part Number	Customer Installable	Requires (Instrument must already include the following)	Not Compatible	Additional Information
4294A-1D5	High Stability Frequency Reference	4294U-1D5	No	4294A-800	None	Installable at service center only
4294A-801	Bottom Feet	5041-9167 1460-1345 5021-2840 5041-9173	Yes	4294A-802	None	Required Qty 4 Required Qty 2 Required Qty 4 Required Qty 2
4294A-1CM	Rackmount Kit	5063-9216	Yes	None	4294A-1CP	
4294A-1CN	Front Handle Kit	5063-9229	Yes	None	4294A-1CP	
4294A-1CP	Handle/ Rackmount Kit	5188-4430	Yes	None	4294A-1CM 4294A-1CN	
4294A-810	Keyboard (Mini-DIN)	1150-7970	Yes	None	None	

Available Accessories – General/Miscellaneous Measurement Accessories

Description	Model Number	Requires (Instrument must already include the following)	Additional Information
Impedance Probe Kit	42941A	None	40 Hz-110 MHz Impedance Probe Kit. Contains Pin Probe, Spare Pin Set, BNC-SMB Adapter, 3.5 mm Short and Load terminations, clip lead, grounding lead, carrying case and Operation and Service manual.
	42941A-ABA	None	U.S. – English localization
	42941A-ABJ	None	Japan – Japanese localization
4-Terminal to 7 mm Terminal Adapter	42942A	None	40 Hz – 110 MHz Terminal Adapter for using RF component test fixtures such as the 16092A, 16192A, 16194A, 16196A/B/C/D and 16197A. Operation Note is furnished.
	42942A-700	None	Adds 7 mm open/short/load terminations set
	42942A-ABA	None	U.S. – English localization
	42942A-ABJ	None	Japan – Japanese localization
	Test Leads	16048G	None
	16048G-001	None	Adds BNC Bracket
	16048G-ABA	None	U.S. – English localization
	16048G-ABJ	None	Japan – Japanese localization

Available Accessories – General/Miscellaneous Measurement Accessories – continued

Description	Model Number	Requires (Instrument must already include the following)	Additional Information
Test Leads	16048H	None	2 m BNC connector leads. DC – 110 MHz. Usable with the 4294A only
	16048H-001	None	Adds BNC Bracket
	16048H-ABA	None	U.S. - English localization
	16048H-ABJ	None	Japan – Japanese localization
SMD Test Fixture	16034E	None	For SMD; (0.1 to 8)L x (0.5 to 10)W x (0.5 to 10)H mm. DC – 40 MHz. Operation and Service Manual is furnished.
SMD Test Fixture	16034G	None	For SMD; (0.1 to 5)L x (0.3 to 1.6)W x (0.3 to 1.6)H mm. DC - 110 MHz. 100 Ω SMD resistors set is furnished.
	16034G-ABA	None	U.S. - English localization
	16034G-ABJ	None	Japan – Japanese localization
SMD Test Fixture	16034H	None	For Array-type SMD; (0.1 to 5)L x (≤ 15)W x (0.6 to 3)H mm. DC – 110 MHz. 100 Ω SMD resistors set and Operation Manual are furnished.
SMD Test Fixture	16044A	None	Kelvin contact test fixture for SMD; (1.6 to 8)L x (0.8 to 8)W x (0.8 to 3)H mm. DC – 10 MHz.
	16044A-ABA	None	U.S. – English localization
	16044A-ABJ	None	Japan – Japanese localization
Test Fixture	16047A	None	For axial or radial lead device. DC – 13 MHz. Operation and Service Manual is furnished.
	16047A-701	None	Adds Shorting plate
Test Fixture	16047D	None	For axial or radial lead device. DC – 40 MHz. Operation and Service Manual is furnished.
	16047D-701	None	Adds Shorting plate
Test Fixture	16047E	None	For axial or radial lead device. DC – 110 MHz.
	16047E-ABA	None	U.S. – English localization
	16047E-ABJ	None	Japan – Japanese localization
Tweezers Test Fixture	16334A	None	For SMD; ≤ 10 mm L. Tweezers type; cable length 1 m. DC – 15 MHz. Shorting block and Operation and Service Manual are furnished.
Kelvin Clip Leads	16089A	None	2 large clips. 5 Hz – 100 kHz. Choose mandatory option 16089A-800 or C20. Operation and Service Manual is furnished.
	16089A-800	None	Cable length: 1 m (standard)
	16089A-C20	None	Cable length: 2 m
Kelvin Clip Leads	16089B	None	2 medium clips. 5 Hz – 100 kHz. Choose mandatory option 16089B-800 or C20. Operation and Service Manual is furnished.
	16089B-800	None	Cable length: 1 m (standard)
	16089B-C20	None	Cable length: 2 m

Available Accessories – General/Miscellaneous Measurement Accessories – continued

Description	Model Number	Requires (Instrument must already include the following)	Additional Information
Kelvin IC Clip Leads	16089C	None	2 IC clips; cable length 1 m. 5 Hz – 100 kHz. Operation and Service Manual is furnished.
Alligator Clip Leads	16089D	None	4 medium clips; cable length 1 m. 5 Hz – 100 kHz. Operation and Service Manual is furnished.
Kelvin Clip Leads	16089E	None	2 large clips; cable length 1 m. 5 Hz – 100 kHz. Operation Note is furnished.
External Voltage Bias Fixture	16065A	None	± 200 V dc max., for axial or radial lead device. 50 Hz – 2 MHz. Shorting plate and Operation and Service Manual are furnished.
Dielectric Test Fixture	16451B	None	Test fixture for measuring permittivity of dry solid sheet material; Cable length 1 m. DC – 30 MHz. 38 mm and 5 mm diameter electrodes for measuring bare material and two types of electrodes for measuring material with pre-formed electrodes are furnished.
	16451B-ABA	None	U.S. - English localization
	16451B-ABJ	None	Japan – Japanese localization
Liquid Test Fixture	16452A	None (16048G and four of 1250-0216 BNC(m) to BNC(m) adapters)	Test fixture for measuring permittivity of liquid material. 20 Hz – 30 MHz. Required volume of material; 3.4, 3.8, 4.8 or 6.8 ml. Temperature range: –20 ° to +125 °C. Shorting plate, spacers, SMA-BNC adapters, fixture stand, carrying case and Operation and Service Manual are furnished.
Test Leads	16452-61601	None	Heat-proof test leads for use with the 16452A. Temperature range: –20 ° to +125 °C
3-Terminal SMD Test Fixture	16043-60011	None	Equivalent to previous 16043A. DC – 110 MHz. For related options and accessories, see Note below this table.
3-Terminal SMD Test Fixture	16043-60012	None	Equivalent to previous 16043B. DC – 110 MHz. For related options and accessories, see Note below this table.
Balanced/Unbalanced 4-Terminal Converter	16314-60011	None	Equivalent to previous 16314A; Unbalanced 50 Ω to balanced 50 Ω converter for measuring balanced device or circuit. 100 Hz – 10 MHz. Shorting bar and 50 Ω resistor for Short/Load compensation and Operation and Service Manual are furnished.
100 Ω Resistor	04294-61001	None	100 Ω load resistor module for 4-terminal pair extension. Furnished with the 4294A.
Sample Program Disk	04294-18040	None	Contains sample programs in 3.5 inch disk. Furnished with 4294A-ABA/ABJ.
BNC Adapter	1250-1859	4294A-1D5	BNC adapter for 4294A-1D5

Note: For more detailed information, refer to Accessories Selection Guide for Impedance Measurements.

Available Accessories – for Calibration and Maintenance

Description	Model Number	Requires (Instrument must already include the following)	Additional Information
Open Termination	42090A	None	4-terminal pair Open termination. Required for performing calibration.
Short Termination	42091A	None	4-terminal pair Short termination. Required for performing calibration.
4-Terminal Pair Standard Capacitor Set	16380A	None	1 pF, 10 pF, 100 pF and 1000 pF standard capacitor set with carrying case. Calibration report and Operation Note are furnished.
4-Terminal Pair Standard Capacitor Set	16380C	None	0.01 μ F, 0.1 μ F and 1 μ F standard capacitor set with carrying case. Calibration report and Operation Note are furnished.
	16380C-001	None	Adds 10 μ F standard capacitor.
4-Terminal Pair Standard Resistor Set	42030A	None	9 standard resistors from 1 m Ω to 100 k Ω in decade steps; Carrying case, calibration report and Operation and Service Manual are furnished.
Performance Test Kit	16190A	None	Contains 7 mm Open, Short, 50 Ω Load terminations, calibrated air-line, wrench, calibration data diskette, carrying case and Operation Note.
4 Terminal Pair to BNC Interface Box	04294-61002	None	Terminal Adapter for test signal and DC bias performance tests

Note: For more detailed information, refer to Accessories Selection Guide for Impedance Measurements

Literature Resource

Title	Publication Number	Additional Information
<i>4294A Data Sheet</i>	5968-3809E	
<i>4294A Brochure</i>	5968-3808E	
<i>LCR Meters, Impedance Analyzers and Test Fixtures Selection Guide</i>	5952-1430E	
<i>Accessories Selection Guide For Impedance Measurements</i>	5965-4792E	
<i>Impedance Measurement Handbook</i>	5950-3000	

Note: More literature is available on the Agilent home website.

Web Resource

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