



Agilent E4991A RF Impedance/Material Analyzer

Configuration Guide



Agilent Technologies

Ordering Guide

The following steps will guide you through configuring your E4991A.

Standard Furnished Item

Description	Additional Information
CD-ROM Manual	Includes Operation and Programming manuals in PDF. See documentation option for printed manuals.
7-mm calibration kit with torque wrench	Contains Open, Short, 50 Ω Load and Low-loss Capacitor terminations and torque wrench.
Power Cable	
Certificate of Calibration	

Note: The following are not furnished: Printed copy of Operation and Service Manual, Test Fixture, Keyboard and Mouse. Refer to Accessory Option, Documentation Option and Available Accessories for the selection of these items.

Step 1. Choose Hardware Option – Frequency Reference (Mandatory)

Description	Option No.	Requires	Not Compatible	Additional Information
Standard Frequency Reference	E4991A-800	None	E4991A-1D5	Standard Frequency Reference.
High Stability Frequency Reference	E4991A-1D5	None	E4991A-800	Adds High Stability Frequency Reference.

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

Step 2. Choose Hardware Option – DC bias (If not required, go to Step 3)

Description	Option No.	Requires	Not Compatible	Additional Information
DC Bias Source	E4991A-001	None	None	Adds DC Bias Source.

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

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

Description	Option No.	Requires	Not Compatible	Additional Information
Material Measurement Firmware	E4991A-002	None	None	Adds Material Measurement Firmware for permittivity and permeability measurements. This option is required to use the 16453A and 16454A.

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

Step 4. Choose Accessory Option – Test Kit (If not required, go to step 5)

Description	Option No.	Requires	Not Compatible	Additional Information
Temperature Characteristic Test Kit	E4991A-007	None (The 16194A and 82357B are recommended)	None	Adds Temperature Characteristic Test Kit. The kit contains heat-resistant coaxial cable, RF extension cable, heat-resistant coaxial termination set, test head stand, fixture stand, terminal adapters and VBA sample program for temperature characteristics measurement.
Probe Station Connection Kit	E4991A-010	None	None	Adds Probe Station Connection Kit. The kit contains test head with 1 m extension cable and terminal adapters, which are required to interconnect the E4991A and semiconductor probe station.

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

Step 5. Choose Accessory Option - General/Miscellaneous Accessories (If not required, go to step 6)

Description	Option No.	Requires	Not Compatible	Additional Information
Keyboard	E4991A-810	None	None	PS/2 Keyboard for simplifying measurement setup and programming.
Mouse	E4991A-820	None	None	PS/2 Mouse for simplifying measurement setup and programming.
Rackmount Kit	E4991A-1CM	None	None	Not installable simultaneously with E4991A-1CP.
Front Handle Kit	E4991A-1CN	None	None	Not installable simultaneously with E4991A-1CP
Handle/Rack Mount Kit	E4991A-1CP	None	None	Not installable simultaneously with E4991A-1CM or 1CN.

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

Step 6. Choose Documentation Option (If not required, go to step 7)

Description	Option No.	Additional Information
U.S. - English Localization	E4991A-ABA	Printed manuals are not furnished. Order documentation option if required.
Japan - Japanese Localization	E4991A-ABJ	
Service Manual	E4991A-0BW	

Step 7. Choose Calibration Certificate Option (If not required, go to step 8)

Description	Option No.	Additional Information
17025 Compliant Calibration	E4991A-1A7	ISO 17025 compliant calibration with test data.
ANSI Z540 Compliant Calibration	E4991A-A6J	ANSI Z540 compliant calibration.

Step 8. 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
E4991A-1D5	High Stability Frequency Reference	E4991U-1D5	No	None	E4991A-800	Installable at service center only
E4991A-001	DC Bias Source	E4991U-001	No	None	None	Installable at service center only
E4991A-007	Temperature Characteristic Test Kit	E4991U-007	No	None	None	Installable at service center only
E4991A-010	Probe Station Connection Kit	E4991U-010	No	None	None	Installable at service center only
E4991A-810	Keyboard	1150-7970	Yes	None	None	
E4991A-820	Mouse	1150-7799	Yes	None	None	
E4991A-1CM	Rackmount Kit	5063-9216	Yes	None	None	
E4991A-1CN	Front Handle Kit	5063-9229	Yes	None	None	
E4991A-1CP	Handle/Rack Mount Kit	5188-4430	Yes	None	None	

Note: For details of the upgrade information, refer to product homepage on the Agilent home website.

Software Upgrade

Option No.	Description	Upgrade Model No. or Equivalent Part Number	Customer Installable	Requires (Instrument must already include the following)	Not Compatible	Additional Information
E4991A-002	Material Measurement Firmware	E4991U-002	No	None (The 16453A or 16454A is required for measurement)	None	Installable at service center only

Note: For firmware update and upgrade information, refer to product homepage on the Agilent home website.

Available Accessories - Measurement Accessories

Description	Model Number	Requires (Instrument must already include the following)	Additional Information
Parallel Electrode SMD Test Fixture	16196A	—	For 1608 (mm) / 0603 (inch) SMD up to 3 GHz
	16196A-710	—	Add Magnifying lens and tweezers
	16196A-ABA	—	U.S. - English localization
	16196A-ABJ	—	Japan - Japanese localization
Parallel Electrode SMD Test Fixture	16196B	—	For 1005 (mm) / 0402 (inch) SMD up to 3 GHz
	16196B-710	—	Add Magnifying lens and tweezers
	16196B-ABA	—	U.S. - English localization
	16196B-ABJ	—	Japan - Japanese localization
Parallel Electrode SMD Test Fixture	16196C	—	For 0603 (mm) / 0201 (inch) SMD up to 3 GHz
	16196C-710	—	Add Magnifying lens and tweezers
	16196C-ABA	—	U.S. - English localization
	16196C-ABJ	—	Japan - Japanese localization
Parallel Electrode SMD Test Fixture	16196D	—	For 0402 (mm) / 01005 (inch) SMD up to 3 GHz
	16196D-710	—	Add Magnifying lens and tweezers
	16196D-ABA	—	U.S. - English localization
	16196D-ABJ	—	Japan - Japanese localization
Bottom Electrode SMD Test Fixture	16197A	—	For SMD from 1005 (mm) / 0402 (inch) to 3225 (mm) / 1210 (inch); up to 3 GHz. Device guides, EIA/EIAJ size shorting bar set, tweezers, wrench, magnifying lens, carrying case and Operation and Service Manual are furnished.
	16197A-001	—	Add 0603 (mm) / 0201 (inch) device guide
	16197A-ABA	—	U.S. - English localization
	16197A-ABJ	—	Japan - Japanese localization
High Temperature Test Fixture	16194A	—	For SMD and leaded device up to 2 GHz, Temperature range: -55 °C to +200 °C. 50 Ω working standard resistors, wrench, tweezers and Operation and Service Manual are furnished.
	16194A-010	—	Add EIA/EIAJ size shorting bar set
	16194A-701	—	Add Shorting bar set; (1 x 1 x 2.4, 1.6 x 2.4 x 2, 3.2 x 2.4 x 2.4, 4.5 x 2.4 x 2.4) mm
SMD Test Fixture	16092A	—	For SMD and leaded device up to 500 MHz. Operation Note is furnished.

Available Accessories - Measurement Accessories (continued)

Description	Model Number	Requires (Instrument must already include the following)	Additional Information
Parallel Electrode SMD Test Fixture	16192A	—	For SMD up to 2 GHz. Operation and Service Manual is furnished.
	16192A-010	—	Add EIA/EIAJ size shorting bar set
	16192A-701	—	Add Shorting bar set; (1 x 1 x 2.4, 1.6 x 2.4 x 2, 3.2 x 2.4 x 2.4, 4.5 x 2.4 x 2.4) mm
	16192A-710	—	Add Magnifying lens and tweezers
DC Bias Adapter	16200B	—	External DC bias adapter; 5A max or 40V max, 1 MHz to 1 GHz. Operation and Service Manual is furnished.
	16200B-001	—	Add shorting bars and 51 Ω working standard resistors set; from 0603 (mm) / 0201 (inch) to 3216 (mm) / 1206 (inch)
Dielectric Material Test Fixture	16453A	E4991A-002	For permittivity measurement of dielectric materials up to 1 GHz
Magnetic Material Test Fixture	16454A	E4991A-002	For permeability measurement of magnetic materials up to 1 GHz
Test Fixture	16093-65003	—	Equivalent to previous 16093A; For leaded device up to 250 MHz
Test Fixture	16093-65004	—	Equivalent to previous 16093B; For leaded device up to 125 MHz
Probe Test Fixture	16094-65000	—	Equivalent to previous 16094A; For in-circuit measurement up to 125 MHz. Recommended test cable is 8120-4779.
Test Cable	8120-4779	—	7-mm connector cable recommended for using 16094-65000; Cable length 60 cm.
USB/GPIB Interface for Windows	82357B	E4991A-007	USB / GPIB interface required for controlling ESPEC chamber (SU-261) by E4991A-007.

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

Available Accessories – for Performance Test and Maintenance

Description	Model Number	Requires (Instrument must already include the following)	Additional Information
Performance Test Kit	16190B	—	7 mm performance test kit; includes Open, Short, 50 Ω Load, Air-line, calibration data, wrench and carrying case.

Note: For details of the performance test kit, refer to product page on the Agilent home website.

Literature Resource

Title	Publication Number
<i>E4991A Data Sheet</i>	5980-1233E
<i>E4991A Technical Overview</i>	5980-1234E
<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

Have Access to the following website to acquire the latest news, product and support information, application literature and more.

www.agilent.com/find/impedance

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Product specifications and descriptions in this document subject to change without notice.

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