

Keysight Technologies

E4980A Precision LCR Meter

20 Hz to 2 MHz

E4980AL Precision LCR Meter

20 Hz to 300 kHz/500 kHz/1MHz

Configuration Guide



E4980A/E4980AL Configuration Guide Introduction

This guide helps you to define the options and accessories for the E4980A and E4980AL precision LCR meters.

The E4980A is the model number of the 20 Hz to 2 MHz frequency range LCR meter. The E4980AL is the model number of the low frequency options (20 Hz to 300 kHz/500 kHz/1 MHz) of the E4980A. This is a distributor preferred product and the model number E4980AL is used only for ordering and shipment purpose. The actual unit of the E4980AL is labeled as the E4980A (not E4980AL), hence for Keysight Technologies, Inc. service and post-sales support, refer to the model number E4980A.

For configuring options, see this page for the E4980A, and page 8 for the E4980AL.

E4980A Ordering Guide

The following steps will guide you through configuring your E4980A.

Standard Furnished Item	
Description	Additional Information
CD-ROM	Contains User's Guide (in PDF) and Sample Program. See documentation option for printed manuals.
CD-ROM	Contains Keysight IO Libraries Suite (the latest versions).
USB Cable	USB (Type A) to USB (Type Mini-B) cable
Power Cable	
Certificate of Calibration	

Note: Test Fixture and printed copy of User's Guide are not furnished. See 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
Bias Current Interface	E4980A-002	None	001 (See Notes 1 and 2)	Adds a digital interface to allow the E4980A to control the 42841A Bias Current Source. (The 42841A was discontinued in December 2012.)
Handler Interface	E4980A-201	None	None (See Note 2)	Adds handler interface
Scanner Interface	E4980A-301	None	None (See Note 2)	Adds scanner interface
No Interface	E4980A-710	None	None (See Note 2)	Attaches blank panel to the expansion slots

Note 1: The E4980A-001 and E4980A-002 can be installed in the same unit but cannot be operated simultaneously.

Note 2: Up to 2 interfaces can be installed in the expansion slots on the rear panel. When no interface is added, two of the E4980A-710 are installed.
When one interface is added, that interface and the E4980A-710 are installed.

Note 3: Refer to Hardware Upgrade for retrofit information on the above options.

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

Description	Option No.	Requires	Not Compatible	Additional Information
Power and DC Bias Enhancement	E4980A-001	None	002 (See Note 1)	Increases test signal level range to 20 V/100 mA rms max. Adds internal DC bias function controllable from 0 ± 40 V/± 100 mA dc, 2nd DC source, and Rdc/Vdc/Idc measurement functions.
Entry Model	E4980A-005	None	None	Low-priced version. Same as basic model except for difference in measurement time (slow speed).
DCR Measurement	E4980A-200	None		Adds a DC resistance measurement. (mandatory option)

Note 1: The E4980A-001 and E4980A-002 can be installed in the same unit but cannot be operated simultaneously.

Note 2: Refer to Software Upgrade for retrofit information on the above options.

Step 3. Choose General/Miscellaneous Accessory Option (If not required, go to Step 4)

Description	Option No.	Requires	Not Compatible	Additional Information
Rackmount Kit	E4980A-1CM	None	None	

Note: Front Handle Kit and Handle/Rack Mount Kit are not available.

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

Description	Option No.	Additional Information
U.S. - English Localization	E4980A-ABA	Printed manuals are not furnished. Order documentation option if required.
Japan - Japanese Localization	E4980A-ABJ	

Step 5. Choose Calibration Certificate Option (If not required, go to Step 6)

Description	Option No.	Additional Information
ISO 17025 Compliant Calibration	E4980A-1A7	ISO 17025 compliant calibration
ANSI Z540 Compliant Calibration	E4980A-A6J	ANSI Z540 compliant calibration

Step 6. Choose Warranty Plan

3-year Return-to-Keysight warranty and service plan are standard. For extended warranty options and additional information, contact your local Keysight sales office or visit the Keysight 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
E4980A-002	Bias Current Interface	E4980AU-002	No	None	001 (See Note 1)	Installable at service center only
E4980A-201	Handler Interface	E4980AU-201	No	None	None	
E4980A-301	Scanner Interface	E4980AU-301	No	None	None	
E4980A-1CM	Rackmount Kit	5063-9241	Yes	None	None	

Note 1: The E4980A-001 and E4980A-002 can be installed in the same unit but cannot be operated simultaneously. The 42841A was discontinued in December 2012.

Note 2: For details of the upgrade information, refer to product homepage on the Keysight 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
E4980A-001	Power and DC Bias Enhancement	E4980AU-001	No	None	002 (See Note 1)	Installable at service center only
E4980A-007	Standard Model	E4980AU-007	No	E4980A-005	None	Installable at service center only
E4980A-200	DCR Measurement	E4980AU-200	No	None	E4980A-001 (See Note 2)	Installable at service center only

Note 1: The E4980A-001 and E4980A-002 can be installed in the same unit but cannot be operated simultaneously.

Note 2: The DCR (Rdc) measurement becomes available with either E4980A-200 or E4980A-001. It is unnecessary to upgrade if the unit has the E4980A-001.

Note 3: For firmware update and upgrade information, refer to product homepage on the Keysight home website.

Available Accessories – General Measurement Accessories

Description	Model Number	Requires (Instrument must already include the following)	Additional Information
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. 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. 100 Ω SMD resistors set is furnished.
	16034G-ABA	None	U.S. – English localization ¹
	16034G-ABJ	None	Japan – Japanese localization ¹
SMD Test Fixture	16034H	None	For Array-type SMD; (0.1 to 5)L x (≤ 15)W x (0.6 to 3)H mm. 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
	16044A-ABA	None	U.S. – English localization ¹
	16044A-ABJ	None	Japan – Japanese localization ¹
Test Fixture	16047A	None	For axial or radial lead device. Operation and Service Manual is furnished.
	16047A-701	None	Adds Shorting plate
Test Fixture	16047D	None	For axial or radial lead device. Operation and Service Manual is furnished.
	16047D-701	None	Adds Shorting plate
Test Fixture	16047E	None	For axial or radial lead device
	16047E-ABA	None	U.S. – English localization ¹
	16047E-ABJ	None	Japan – Japanese localization ¹
Test Leads	16048A	None	BNC connector leads; 0.94 m. BNC connector bracket and Operation and Service Manual are furnished.
Test Leads	16048D	None	BNC connector leads; 1.89 m. BNC connector bracket and Operation and Service Manual are furnished.
Test Leads	16048E	None	BNC connector leads; 3.8 m. BNC connector bracket and Operation and Service Manual are furnished.

1. Language selection of Operation and Service Manual.

Available Accessories – General Measurement Accessories continued

Description	Model Number	Requires (Instrument must already include the following)	Additional Information
Tweezers Test Fixture	16334A	None	For SMD; ≤ 10 mm L. Tweezers type; cable length 1 m. 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
Kelvin IC Clip Leads	16089C	None	2 IC clips. 5 Hz - 100 kHz. Cable length 1 m. Operation and Service Manual is furnished.
Alligator Clip Leads	16089D	None	4 medium clips. 5 Hz - 100 kHz. Cable length 1 m. Operation and Service Manual is furnished.
Kelvin Clip Leads	16089E	None	2 large clips. 5 Hz - 100 kHz. Cable length 1 m. Operation Note is furnished.
External Voltage Bias Fixture	16065A	None	± 200 V dc max., for axial or radial lead device. 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. 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 ¹
	16451B-ABJ	None	Japan – Japanese localization ¹

1. Language selection of Operation and Service Manual.

Available Accessories – General Measurement Accessories continued

Description	Model Number	Requires (Instrument must already include the following)	Additional Information
Liquid Test Fixture	16452A	None (16048A or 16452-61601 Test Leads recommended)	Test fixture for measuring permittivity of liquid material. 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	16048G, BNC(m-m) adapter × 4 (p/n 1250-0216 × 4)	None	Heat-proof test leads for use with the 16452A. Temperature range: -20 ° to +150 °C

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. Needed for performing calibration.
Short Termination	42091A	None	4-terminal pair Short termination. Needed 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 μF, 0.1 μF and 1 μF standard capacitor set with carrying case. Calibration report and Operation Note are furnished.
	16380C-001	None	Adds 10 μF standard capacitor
4-Terminal Pair Standard Resistor Set	42030A	None	9 standard resistors from 1 mΩ to 100 kΩ in decade steps; Carrying case, calibration report and Operation and Service Manual are furnished.

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

E4980AL Ordering Guide

The following steps will guide you through configuring your E4980AL.

Standard Furnished Item	
Description	Additional Information
CD-ROM	Contains User's Guide (in PDF) and Sample Program. See documentation option for printed manuals.
CD-ROM	Contains Keysight IO Libraries Suite (the latest versions).
USB Cable	USB (Type A) to USB (Type Mini-B) cable
Power Cable	
Calibration of Certification	

Note: Test Fixture and printed copy of User's Guide are not furnished. See Documentation Option and Available Accessories for the selection of these items.

Step 1. Choose Frequency Option (Specify the first two digits)	
Description	Option No.
20 Hz to 300 kHz	E4980AL-03x
20 Hz to 500 kHz	E4980AL-05x
20 Hz to 1 MHz	E4980AL-10x

Step 2. Choose Interface/Calibration Certificate Option (Specify the last digit)				
Handler interface	Scanner interface	ISO 17025 calibration	ANSI Z540 calibration	Option No.
				E4980AL-xx0
		•		E4980AL-xxA
			•	E4980AL-xxB
•				E4980AL-xxC
•		•		E4980AL-xxD
•			•	E4980AL-xxE
	•			E4980AL-xxF
	•	•		E4980AL-xxG
	•		•	E4980AL-xxH
•	•			E4980AL-xxJ
•	•	•		E4980AL-xxK
•	•		•	E4980AL-xxL

Step 3. Confirm Option Number (Confirm your specified option number by the description)

Option No.	Description	E4980A Option No.1
E4980AL-030	20 Hz to 300 kHz with DCR measurement	E4980A-030/710/710
E4980AL-050	20 Hz to 500 kHz with DCR measurement	E4980A-050/710/710
E4980AL-100	20 Hz to 1 MHz with DCR measurement	E4980A-100/710/710
E4980AL-03A	20 Hz to 300 kHz with DCR measurement, ISO 17025 calibration	E4980A-030/710/710/1A7
E4980AL-05A	20 Hz to 500 kHz with DCR measurement, ISO 17025 calibration	E4980A-050/710/710/1A7
E4980AL-10A	20 Hz to 1 MHz with DCR measurement, ISO 17025 calibration	E4980A-100/710/710/1A7
E4980AL-03B	20 Hz to 300 kHz with DCR Measurement, ANSI Z540 calibration	E4980A-030/710/710/A6J
E4980AL-05B	20 Hz to 500 kHz with DCR Measurement, ANSI Z540 calibration	E4980A-050/710/710/A6J
E4980AL-10B	20 Hz to 1 MHz with DCR Measurement, ANSI Z540 calibration	E4980A-100/710/710/A6J
E4980AL-03C	20 Hz to 300 kHz with DCR Measurement, Handler	E4980A-030/710/201
E4980AL-05C	20 Hz to 500 kHz with DCR Measurement, Handler	E4980A-050/710/201
E4980AL-10C	20 Hz to 1 MHz with DCR Measurement, Handler	E4980A-100/710/201
E4980AL-03D	20 Hz to 300 kHz with DCR Measurement, Handler, ISO 17025 calibration	E4980A-030/710/201/1A7
E4980AL-05D	20 Hz to 500 kHz with DCR Measurement, Handler, ISO 17025 calibration	E4980A-050/710/201/1A7
E4980AL-10D	20 Hz to 1 MHz with DCR Measurement, Handler, ISO 17025 calibration	E4980A-100/710/201/1A7
E4980AL-03E	20 Hz to 300 kHz with DCR Measurement, Handler, ANSI Z540 calibration	E4980A-030/710/201/A6J
E4980AL-05E	20 Hz to 500 kHz with DCR Measurement, Handler, ANSI Z540 calibration	E4980A-050/710/201/A6J
E4980AL-10E	20 Hz to 1 MHz with DCR Measurement, Handler, ANSI Z540 calibration	E4980A-100/710/201/A6J
E4980AL-03F	20 Hz to 300 kHz with DCR Measurement, Scanner	E4980A-030/710/301
E4980AL-05F	20 Hz to 500 kHz with DCR Measurement, Scanner	E4980A-050/710/301
E4980AL-10F	20 Hz to 1 MHz with DCR Measurement, Scanner	E4980A-100/710/301
E4980AL-03G	20 Hz to 300 kHz with DCR Measurement, Scanner, ISO 17025 calibration	E4980A-030/710/301/1A7
E4980AL-05G	20 Hz to 500 kHz with DCR Measurement, Scanner, ISO 17025 calibration	E4980A-050/710/301/1A7
E4980AL-10G	20 Hz to 1 MHz with DCR Measurement, Scanner, ISO 17025 calibration	E4980A-100/710/301/1A7
E4980AL-03H	20 Hz to 300 kHz with DCR Measurement, Scanner, ANSI Z540 calibration	E4980A-030/710/301/A6J
E4980AL-05H	20 Hz to 500 kHz with DCR Measurement, Scanner, ANSI Z540 calibration	E4980A-050/710/301/A6J
E4980AL-10H	20 Hz to 1 MHz with DCR Measurement, Scanner, ANSI Z540 calibration	E4980A-100/710/301/A6J
E4980AL-03J	20 Hz to 300 kHz with DCR Measurement, Handler/Scanner	E4980A-030/201/301
E4980AL-05J	20 Hz to 500 kHz with DCR Measurement, Handler/Scanner	E4980A-050/201/301
E4980AL-10J	20 Hz to 1 MHz with DCR Measurement, Handler/Scanner	E4980A-100/201/301
E4980AL-03K	20 Hz to 300 kHz with DCR Measurement, Handler/Scanner, ISO 17025 calibration	E4980A-030/201/301/1A7
E4980AL-05K	20 Hz to 500 kHz with DCR Measurement, Handler/Scanner, ISO 17025 calibration	E4980A-050/201/301/1A7
E4980AL-10K	20 Hz to 1 MHz with DCR Measurement, Handler/Scanner, ISO 17025 calibration	E4980A-100/201/301/1A7
E4980AL-03L	20 Hz to 300 kHz with DCR Measurement, Handler/Scanner, ANSI Z540 calibration	E4980A-030/201/301/A6J
E4980AL-05L	20 Hz to 500 kHz with DCR Measurement, Handler/Scanner, ANSI Z540 calibration	E4980A-050/201/301/A6J
E4980AL-10L	20 Hz to 1 MHz with DCR Measurement, Handler/Scanner, ANSI Z540 calibration	E4980A-100/201/301/A6J

1. The delivered unit will have this option numbers.

Step 4. Add Accessory Option

Description	Option No.	Requires	Not Compatible	Additional Information
Rackmount Kit	E4980AL-1CM			

Note: Front Handle Kit and Handle/Rack Mount Kit are not available.

Step 5. Add Documentation

Description	Option No.	Additional Information
U.S. - English Localization	E4980AL-ABA	Printed manuals are not provided for free. They need to be ordered separately if needed
Japan - Japanese Localization	E49 AL-ABJ	

Step 6. Choose Warranty Plan

Description	Option No.	Additional Information
3 year Return-to-Keysight warranty and service is standard. The extended warranty option is available. Contact your local Keysight office or visit our web site for more information.		

Hardware Upgrades

Upgrade Model No. or Equivalent Part Number	Description	Option No.1	Customer Installable	Additional Information
E4980ALU-111	Upgrade kit, 500 kHz to 1 MHz for E4980A	E4980A-100	No	
E4980ALU-110	Upgrade kit, 300 kHz to 1 MHz for E4980A	E4980A-100	No	
E4980ALU-050	Upgrade kit, 300 kHz to 500 kHz for E4980A	E4980A-050	No	Installable at service center only
E4980ALU-201	Upgrade kit, Handler Interface	E4980A-201	No	
E4980ALU-301	Upgrade kit, Scanner Interface	E4980A-301	No	
5063-9241	Rackmount kit	5063-9241	Yes	

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

1. E4980A option number.

Software Upgrades

Not available

Accessory

Description	Model Number	Requires (Instrument must already include the following)	Additional Information
40Vdc External Voltage Bias Adapter	16065C		

Note: For other accessories, see the Available Accessories – General Measurement Accessories in page 5. For detailed information, refer to the Accessories Selection Guide for Impedance Measurements.

Literature Resource

Title	Publication Number	Additional Information
<i>E4980A/E4980AL Data Sheet</i>	5989-4435EN	
<i>E4980A Brochure</i>	5989-4235EN	
<i>E4980AL Brochure</i>	5991-2305EN	
<i>E4980A Technical Overview: Migrating from a Keysight 4279A to n Keysight E4980A Precision LCR Meter</i>	5989-4433EN	
<i>E4980A Technical Overview: Migrating from a Keysight 4284A to a Keysight E4980A Precision LCR Meter</i>	5989-4434EN	
<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 Keysight home website.

Web Resource

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

<http://www.keysight.com/find/impedance>

<http://www.keysight.com/find/e4980a>

<http://www.keysight.com/find/e4980al>

myKeysight

myKeysight

www.keysight.com/find/mykeysight

A personalized view into the information most relevant to you.



www.lxistandard.org

LAN eXtensions for Instruments puts the power of Ethernet and the Web inside your test systems. Keysight is a founding member of the LXI consortium.



Three-Year Warranty

www.keysight.com/find/ThreeYearWarranty

Keysight's commitment to superior product quality and lower total cost of ownership. The only test and measurement company with three-year warranty standard on all instruments, worldwide.



Keysight Assurance Plans

www.keysight.com/find/AssurancePlans

Up to five years of protection and no budgetary surprises to ensure your instruments are operating to specification so you can rely on accurate measurements.



www.keysight.com/quality

Keysight Technologies, Inc.

DEKRA Certified ISO 9001:2008

Quality Management System

Keysight Channel Partners

www.keysight.com/find/channelpartners

Get the best of both worlds: Keysight's measurement expertise and product breadth, combined with channel partner convenience.

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: www.keysight.com/find/contactus

Americas

Canada	(877) 894 4414
Brazil	55 11 3351 7010
Mexico	001 800 254 2440
United States	(800) 829 4444

Asia Pacific

Australia	1 800 629 485
China	800 810 0189
Hong Kong	800 938 693
India	1 800 112 929
Japan	0120 (421) 345
Korea	080 769 0800
Malaysia	1 800 888 848
Singapore	1 800 375 8100
Taiwan	0800 047 866
Other AP Countries	(65) 6375 8100

Europe & Middle East

Austria	0800 001122
Belgium	0800 58580
Finland	0800 523252
France	0805 980333
Germany	0800 6270999
Ireland	1800 832700
Israel	1 809 343051
Italy	800 599100
Luxembourg	+32 800 58580
Netherlands	0800 0233200
Russia	8800 5009286
Spain	0800 000154
Sweden	0200 882255
Switzerland	0800 805353
	Opt. 1 (DE)
	Opt. 2 (FR)
	Opt. 3 (IT)
United Kingdom	0800 0260637

For other unlisted countries:
www.keysight.com/find/contactus
 (BP-07-10-14)