

Product Datasheet - Technical Specifications



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Keysight Technologies

E4980A Precision LCR Meter

20 Hz to 2 MHz

E4980AL Precision LCR Meter

20 Hz to 300 kHz/500 kHz/1 MHz

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 20 Hz to either 300 kHz, 500 kHz or 1 MHz frequency range LCR meter. The E4980AL is a distributor preferred product.

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.	Additional Information
Handler Interface	E4980A-201	Adds handler interface
Scanner Interface	E4980A-301	Adds scanner interface
No Interface	E4980A-710	Attaches blank panel to the expansion slots

Notes:

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.

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

E4980A Ordering Guide (continued)

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

Description	Option No.	Additional Information
Power and DC Bias Enhancement	E4980A-001	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.
DCR Measurement	E4980A-200	Adds a DC resistance measurement. (mandatory option)

Note: 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.
Rackmount Kit	E4980A-1CM

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

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

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-201	Handler Interface	E4980AU-201	No	None	None	Installable at service center only
E4980A-301	Scanner Interface	E4980AU-301	No	None	None	Installable at service center only
E4980A-1CM	Rackmount Kit	5063-9241	Yes	None	None	

Note: 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 ^{1,4}	Installable at service center only
E4980A-007 ⁴	Standard Model	E4980AU-007	No	E4980A-005 ⁴	None	Installable at service center only
E4980A-200	DCR Measurement	E4980AU-200	No	None	E4980A-001 ²	Installable at service center only

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

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.

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

4. E4980A-002, E4980A-005 and E4980A-007 are not available with new purchase.

Application Software

Option No.	Description	Supported Fixtures	Additional Information
N1500A-006	Parallel Plate/ Inductance Method Up to 120 MHz	16451B 16452A	Operation frequency is up to 2 MHz with E4980A. Can run on an external PC. Transportable with dongle key.

Available Accessories – General Measurement Accessories

Description	Model Number	Additional Information
SMD Test Fixture	16034E	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	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	U.S. – English localization ¹
	16034G-ABJ	Japan – Japanese localization ¹
SMD Test Fixture	16034H	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.
Test Fixture	16047A	For axial or radial lead device. Operation and Service Manual is furnished.
	16047A-701	Adds Shorting plate
Test Fixture	16047E	For axial or radial lead device
	16047E-ABA	U.S. - English localization ¹
	16047E-ABJ	Japan – Japanese localization ¹
Test Leads	16048A	BNC connector leads; 0.94 m. BNC connector bracket and Operation and Service Manual are furnished.
Test Leads	16048D	BNC connector leads; 1.89 m. BNC connector bracket and Operation and Service Manual are furnished.
Test Leads	16048E	BNC connector leads; 3.8 m. BNC connector bracket and Operation and Service Manual are furnished.
Tweezers Test Fixture	16334A	For SMD; ≤ 10 mm L. Tweezers type; cable length 1 m. Shorting block and Operation and Service Manual are furnished.
Kelvin Clip Leads	16089A	2 large clips. 5 Hz - 100 kHz. Choose mandatory option 16089A-800 or C20. Operation and Service Manual is furnished.
	16089A-800	Cable length: 1 m (standard)
	16089A-C20	Cable length: 2 m
Kelvin Clip Leads	16089B	2 medium clips. 5 Hz - 100 kHz. Choose mandatory option 16089B-800 or C20. Operation and Service Manual is furnished.
	16089B-800	Cable length: 1 m (standard)
	16089B-C20	Cable length: 2 m
Kelvin IC Clip Leads	16089C	2 IC clips. 5 Hz - 100 kHz. Cable length 1 m. Operation and Service Manual is furnished.
External Voltage Bias Fixture	16065A	± 200 V dc max., for axial or radial lead device. Shorting plate and Operation and Service Manual are furnished.
Dielectric Test Fixture	16451B	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	U.S. – English localization ¹
	16451B-ABJ	Japan – Japanese localization ¹
Liquid Test Fixture	16452A	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. (16048A or 16452-61601 Test Leads recommended)
Test Leads	16048G, BNC (m-m) adapter × 4 (p/n 1250-0216 × 4)	Heat-proof test leads for use with the 16452A. Temperature range: -20 ° to +150 °C

1. Language selection of Operation and Service Manual.

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

Available Accessories – for Calibration and Maintenance

Description	Model Number	Additional Information
Open Termination	42090A	4-terminal pair Open termination. Needed for performing calibration.
Short Termination	42091A	4-terminal pair Short termination. Needed for performing calibration.
4-Terminal Pair Standard Capacitor Set	16380A	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	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	Adds 10 μ F standard capacitor
4-Terminal Pair Standard Resistor Set	42030A	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.

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	

Step 1. Choose Hardware Option (One of the frequency options is mandatory.)		
Description	Option No.	Additional Information
20 Hz to 300 kHz	E4980AL-032	
20 Hz to 500 kHz	E4980AL-052	
20 Hz to 1 MHz	E4980AL-102	
Handler Interface	E4980AL-201	Adds handler interface
Scanner Interface	E4980AL-301	Adds scanner interface
No Interface	E4980AL-710	Attaches a blank panel

Note: There are two interface slots on the rear panel. When neither the E4980AL-201 nor the E4980AL-301 is selected, two of the E4980AL-710 are selected. When either of them is selected, an E4980AL-710 is selected.

Step 2. Choose General/Miscellaneous Accessory Option (If not required, go to Step 4)	
Description	Option No.
Rackmount Kit	E4980AL-1CM

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

Step 3. Choose Documentation Option		
Description	Option No.	Additional Information
U.S. - English Localization	E4980AL-ABA	Printed manuals are not furnished. Order documentation option if required.
Japan - Japanese Localization	E4980AL-ABJ	

Step 4. Choose Calibration Certificate Option		
Description	Option No.	Additional Information
ISO 17025 Compliant Calibration	E4980AL-1A7	ISO 17025 compliant calibration
ANSI Z540 Compliant Calibration	E4980AL-A6J	ANSI Z540 compliant calibration

Hardware Upgrades

When the model number on the front panel is labeled E4980AL:

Upgrade Model No. or Equivalent Part Number	Description	Option number to add ²	Customer Installable	Additional Information
E4980ALU-113	Upgrade kit, 500 kHz to 1MHz for E4980AL-052	E4980AL-102	No	
E4980ALU-112	Upgrade kit, 300 kHz to 1MHz for E4980AL-032	E4980AL-102	No	
E4980ALU-052	Upgrade kit, 300 kHz to 500 kHz for E4980AL-032	E4980AL-052	No	Installable at service center only
E4980ALU-211	Upgrade kit, Handler Interface	E4980AL-201	No	
E4980ALU-311	Upgrade kit, Scanner Interface	E4980AL-301	No	
1CM019A	Rack mount kit	E4980AL-1CM	Yes	

When the model number on the front panel is labeled E4980A ¹:

Upgrade Model No. or Equivalent Part Number	Description	Option number to add ²	Customer	Additional Information
E4980ALU-111	Upgrade kit, 500 kHz to 1 MHz for E4980A-050	E4980A-100	No	
E4980ALU-110	Upgrade kit, 300 kHz to 1 MHz for E4980A-030	E4980A-100	No	
E4980ALU-050	Upgrade kit, 300 kHz to 500 kHz for E4980A-030	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	

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

1. The unit is ordered as the E4980AL before November 2014.
2. E4980A/AL option number.

Software Upgrades

Not available

Application Software

Option No.	Description	Supported Fixtures	Additional Information
N1500A-006	Parallel Plate/ Inductance Method Up to 120 MHz	16451B 16452A	Operation frequency is up to the frequency limit of the E4980AL. Can run on an external PC. Transportable with dongle key.

Accessory

See Available Accessories - General Measurement Accessories on Page 5. These accessories are common to both E4980A and E4980AL.

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

Note: This is an additional accessory for the E4980AL.

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>