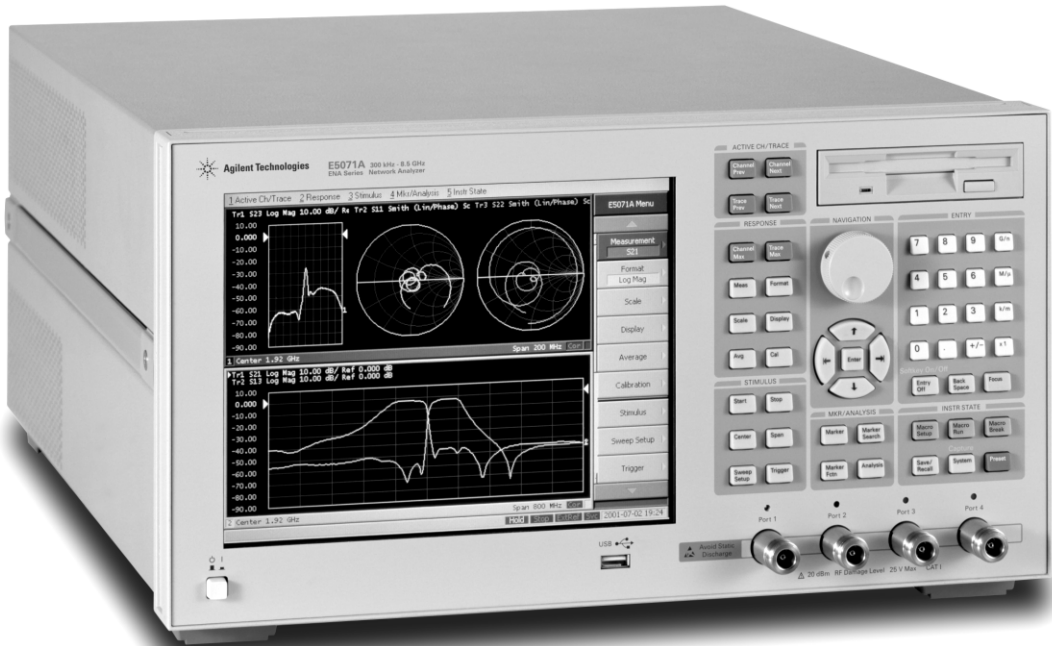


Agilent E5070A, E5071A ENA Series 2, 3 and 4 Port RF Network Analyzers

Configuration Guide

E5070A 300 kHz to 3 GHz
E5071A 300 kHz to 8.5 GHz



This configuration guide describes standard configurations, options, accessories and peripherals for the ENA Series RF network analyzers. Refer to the ENA Series Technical Specifications for a complete description of the ENA Series RF network analyzers.

Ordering guide for the ENA Series

This guide is intended to assist you in the ordering process. Additional information and products (such as calibration kits and cables) are described throughout this document.

= Choose ONE and ONLY one

= Choose any combination

Step 1: Choose a frequency range

- 300 kHz to 3 GHz, choose E5070A
- 300 kHz to 8.5 GHz, choose E5071A

Step 2: Choose the number of test ports and source power range

- 2 ports with standard power range (-15 dBm to 0 dBm), choose Option 213
- 2 ports with extended power range (-50 dBm to 0 dBm), choose Option 214
- 3 ports with standard power range (-15 dBm to 0 dBm), choose Option 313
- 3 ports with extended power range (-50 dBm to 0 dBm), choose Option 314
- 4 ports with standard power range (-15 dBm to 0 dBm), choose Option 413
- 4 ports with extended power range (-50 dBm to 0 dBm), choose Option 414

Step 3: Would you like a high-stability time base?

- Yes, choose Option 1E5
- No, standard stability time base

Step 4: Would you like a touch screen?

- Yes, choose Option 016
- No, standard color LCD

Step 5: Would you like any rack mount accessories?

- Rack mount kit only, choose Option 1CM
- Front handle kit only, choose Option 1CN
- Rack mount and front handle kit, choose Option 1CP

Step 6: Would you like to delete any standard accessories?

- Delete a keyboard, choose Option 1A2
- Delete a mouse, choose Option 1CS

Step 7: Choose a language of the manual or delete a manual set

- Add English manual set, choose Option ABA
- Add Japanese manual set, choose Option ABJ
- Delete a manual set, choose Option 0B0

Step 8: Step 8: Would you like additional manual sets?

- Extra English manual set, choose Option 800
- Extra Japanese manual set, choose Option 801

Step 9: Would you like a commercial calibration certificate (ANSI Z540 compliant) with test data?

- Yes, choose Option A6J
- No

Step 10: Would you like an additional warranty for a total of 5 years?

- Yes, choose Option W50
- No

Agilent ENA Series

RF network analyzer

The ENA Series is an integrated RF network analyzer with 2-, 3- or 4-port S-parameter test set, synthesized RF source, 10.4-inch color LCD, floppy and hard disc drives. Included with the each ENA Series is a keyboard, mouse, hard copy and CD-ROM manual set, and 1-year return-to-Agilent service warranty.

- E5070A 300 kHz to 3 GHz
- E5071A 300 kHz to 8.5 GHz

Options

Test ports and source power range options

- Option 213** 2-port S-parameter test set, standard power range (-15 dBm to 0 dBm)
- Option 214** 2-port S-parameter test set, extended power range (-50 dBm to 0 dBm)
- Option 313** 3-port S-parameter test set, standard power range (-15 dBm to 0 dBm)
- Option 314** 3-port S-parameter test set, extended power range (-50 dBm to 0 dBm)
- Option 413** 4-port S-parameter test set, standard power range (-15 dBm to 0 dBm)
- Option 414** 4-port S-parameter test set, extended power range (-50 dBm to 0 dBm)

Display option

- Option 016** touch screen color LCD
Adds touch screen capability to the standard 10.4-inch color LCD.

Frequency stability option

- Option 1E5** high stability time base
Replace standard time base reference with a higher stability unit.

Accessories options

- Option 1CM** rack mount kit
Adds a rack mount kit (part number 5063-9216) for use without handles.
- Option 1CN** front handle kit
Adds a front handle kit (part number 5063-9229) for use analyzer with handles.
- Option 1CP** rack mount kit with front handles
Adds a rack mount kit (part number 5063-9223) for use with previously supplied handles.
- Option 1A2** delete keyboard
- Option 1CS** delete mouse

Included documentation

- Option ABA** add English manual set
- Option ABJ** add Japanese manual set
- Option 0B0** delete manual set

Additional documentation

- Option 800** extra English manual set
- Option 801** extra Japanese manual set

Certification option

- Option A6J** ANSI Z540 compliant calibration

Service and support options

- Option W32** 3-year return-to-Agilent commercial calibration agreement
- Option W34** 3-year return-to-Agilent standards-compliant calibration agreement
- Option W50** Extends return-to-Agilent service warranty to 5 years
- Option W52** 5-year return-to-Agilent commercial calibration agreement
- Option W54** 5-year return-to-Agilent standards-compliant calibration agreement

For online information about Agilent's service and support products visit:
www.agilent.com/find/tm_services

Measurement accessories

A complete line of RF test accessories can be found in the Agilent RF and Microwave Test Accessories Catalog (literature number 5968-4314EN) or by visiting www.agilent.com/find/mta

Accessories are available in these connector types: 50 ohm Type-N, 3.5 mm, 7 mm, and 7-16. Test port cables and a calibration kit should be added for a complete measurement system. A verification kit is used to verify corrected system performance.

Test-port cables

Test port cables are used to connect the network analyzer to the device under test.

- **N6314A** 50 ohm Type-N RF cable, 300 kHz to 9 GHz
Includes one 610 mm (24 in) cable with male connectors (part number 8120-8862)
- **N6315A** 50 ohm Type-N RF cable, 300 kHz to 9 GHz
Includes one 610 mm (24 in) cable with both female and male connectors (part number 8121-0027)

Calibration kits

Mechanical calibration kits include standards, such as opens, shorts and loads, which are measured by the network analyzer for increased measurement accuracy.

Electronic calibration (ECal) kits replace mechanical calibration standards with one solid-state calibration module that is controlled by the network analyzer to present many different impedances to the test ports. A full two-port calibration can be performed quickly with a single connection. This technique reduces operator errors and connector wear and abrasion.

Choose a calibration kit for each connector type to be used.

Economy, includes:

- open standards (male and female)
- short standards (male and female)
- fixed-termination standards (male and female)
- in-series adapters

Standard, includes the devices in the economy kit and adds:

- connector tools

Precision, includes the devices in the economy kit and adds:

- 50 ohm airline for TRL calibration
- TRL adapters
- connector tools

For devices with Type-N connectors

Mechanical calibration kits

- **85032F** economy: 30 kHz to 9 GHz. Includes:
 - 85032-60017 Type-N (m) fixed load
 - 85032-60018 Type-N (f) fixed load
 - 85032-60013 Type-N (m) open
 - 85032-60014 Type-N (f) open
 - 85032-60016 Type-N (m) short
 - 85032-60015 Type-N (f) short
- **Option 100** adds:
 - 85032-60021 Type-N (f) to Type-N (f) adapter
- **Option 200** adds:
 - 85032-60019 Type-N (m) to Type-N (m) adapter
- **Option 300** adds:
 - 85032-60020 Type-N (m) to Type-N (f) adapter
- **Option 500** adds:
 - 85054-60001 Type-N (f) to 7 mm adapter (two included)
 - 85054-60009 Type-N (m) to 7 mm adapter (two included)
- **85054D** economy: 45 MHz to 18 GHz. Includes:
 - 85054-60025 Type-N (m) short
 - 85054-60026 Type-N (f) short
 - 85054-60027 Type-N (m) open
 - 85054-60028 Type-N (f) open
 - 85054-60031 Type-N (f) to 7 mm adapter
 - 85054-60032 Type-N (m) to 7 mm adapter
 - 85054-60037 Type-N (f) to Type-N (f) adapter
 - 85054-60038 Type-N (m) to Type-N (m) adapter
 - 85054-60046 Type-N (m) fixed load
 - 85054-60047 Type-N (f) fixed load

Electronic calibration kits

- **85092C** RF ECal: 300 kHz to 9 GHz, 2 ports. Includes:
 - **Option MOF** module with:
 - 85092-60008 Type-N (f) to Type-N (m) RF ECal module
 - **Option 00M** module with:
 - 85092-60009 Type-N (m) to Type-N (m) RF ECal module
 - **Option 00F** module with:
 - 85092-60010 Type-N (f) to Type-N (f) RF ECal module
 - **Option 00A** adds:
 - 85054-60037 Type-N (f) to Type-N (f) adapter
 - 85054-60038 Type-N (m) to Type-N (m) adapter
- **N4431A** RF ECal module: 300 kHz to 9 GHz, 4 ports.
 - **Option 020**
Adds four Type-N (f) module port connectors
 - **Option UK6**
Commercial calibration certification with test data

For device with 3.5 mm or SMA connectors

Mechanical calibration kits

- ❑ **85033E** economy: 30 kHz to 9 GHz. Includes:
 - 85033-60016 3.5 mm (m) load
 - 85033-60017 3.5 mm (f) load
 - 85033-60018 3.5 mm (m) open
 - 85033-60019 3.5 mm (f) open
 - 85033-60020 3.5 mm (m) short
 - 85033-60021 3.5 mm (f) short
 - 8710-1761 torque wrench
- ❑ **Option 100** adds:
 - 85027-60005 3.5 mm (f) to 3.5 mm (f) adapter
- ❑ **Option 200** adds:
 - 85027-60007 3.5 mm (m) to 3.5 mm (m) adapter
- ❑ **Option 300** adds:
 - 85027-60006 3.5 mm (m) to 3.5 mm (f) adapter
- ❑ **Option 400** adds:
 - 1250-1744 3.5 mm (f) to Type- N 50 ohm (m) adapter
 - 1250-1743 3.5 mm (m) to Type- N 50 ohm (m) adapter
 - 1250-1745 3.5 mm (f) to Type- N 50 ohm (f) adapter
 - 1250-1750 3.5 mm (m) to Type- N 50 ohm (f) adapter
- ❑ **Option 500** adds:
 - 1250-1746 3.5 mm (m) to 7 mm adapter (two included)
 - 1250-1747 3.5 mm (f) to 7 mm adapter (two included)
- ❑ **85052C** precision TRL: 45 MHz to 26.5 GHz. Includes:
 - 00902-60003 3.5 mm (m) fixed load
 - 00902-60004 3.5 mm (f) fixed load
 - 85052-60006 3.5 mm (m) short
 - 85052-60007 3.5 mm (f) short
 - 85052-60008 3.5 mm (m) open
 - 85052-60009 3.5 mm (f) open
 - 85052-60032 3.5 mm (f) to 3.5 mm (f) adapter
 - 85052-60033 3.5 mm (m) to 3.5 mm (m) adapter
 - 85052-60034 3.5 mm (f) to 3.5 mm (m) adapter
 - 85052-60035 3.5 mm short TRL line
 - 85052-60036 3.5 mm long TRL line
- ❑ **85052D** economy: 45 MHz to 26.5 GHz. Includes:
 - 00902-60003 3.5 mm (m) fixed load
 - 00902-60004 3.5 mm (f) fixed load
 - 85052-60006 3.5 mm (m) short
 - 85052-60007 3.5 mm (f) short
 - 85052-60008 3.5 mm (m) open
 - 85052-60009 3.5 mm (f) open
 - 85052-60012 3.5 mm (f) to 3.5 mm (f) adapter
 - 85052-60013 3.5 mm (f) to 3.5 mm (m) adapter
 - 85052-60014 3.5 mm (m) to 3.5 mm (m) adapter

Electronic calibration kits

- ❑ **85093C** RF ECal: 300 kHz to 9 GHz, 2 ports. Includes:
 - 85093-60008 3.5 mm (f) to 3.5 mm (m) RF ECal module
 - ❑ **Option 00M** module with:
 - 85093-60009 3.5 mm (m) to 3.5 mm (m) RF ECal module
 - ❑ **Option 00F** module with:
 - 85093-60010 3.5 mm (f) to 3.5 mm (f) RF ECal module
 - ❑ **Option 00A** adds:
 - 85052-60012 3.5 mm (f) to 3.5 mm (f) adapter
 - 85052-60014 3.5 mm (m) to 3.5 mm (m) adapter
- ❑ **N4431A** RF ECal module: 300 kHz to 9 GHz, 4 ports.
 - **Option 010**
 - Adds four 3.5 mm (f) module port connectors
 - ❑ **Option UK6**
 - Commercial calibration certification with test data

Adapters

- ❑ **11853A** 50 ohm Type-N accessory kit. Includes:
 - 1250-1472 Type-N (f) to Type-N (f) adapter (two included)
 - 1250-1475 Type-N (m) to Type-N (m) adapter (two included)
 - 11511A Type-N (f) short
 - 11512A Type-N (m) short
- ❑ **11878A** Type-N to 3.5 mm adapter kit. Includes:
 - 1250-1744 3.5 mm (f) to Type-N 50 ohm (m) adapter
 - 1250-1743 3.5 mm (m) to Type-N 50 ohm (m) adapter
 - 1250-1745 3.5 mm (f) to Type-N 50 ohm (f) adapter
 - 1250-1750 3.5 mm (m) to Type-N 50 ohm (f) adapter
- ❑ **11524A** 7 mm to Type-N (f) adapter
- ❑ **11525A** 7 mm to Type-N (m) adapter

General accessories

System racks and cases

- 5063-9229** handle kit, may be ordered as option 1CN (two included)
- 5063-9216** rack mount kit, for use without handles: may be ordered as option 1CM
- 5063-9223** rack mount kit, for use with previously supplied handles; may be ordered as option 1CP
- E3663AC** rack mount rail kit, for use with 5063-9216 or 5063-9223
- 9211-2658** transit case

Interface cables

The following GPIB cables can be used to connect the network analyzer with an external device such as a computer

- 10833A GPIB** cable, 1.0 m (3.3 ft)
- 10833B GPIB** cable, 2.0 m (6.6 ft)
- 10833C GPIB** cable, 3.0 m (9.9 ft)
- 10833D GPIB** cable, 0.5 m (1.6 ft)

Monitors

- VGA-compatible monitor

Printers

- Hewlett Packard® 930C and 948C via both USB and parallel ports

Other printers may be used with Microsoft® Windows® 98 printer driver

Literature and information

ENA Series Brochure

Literature number 5988-3765EN

ENA Series Technical Specifications

Literature number 5988-3780EN



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Printed in USA, February 1, 2004

5988-6887EN

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