
HP 8753E RF Vector Network Analyzer

Configuration Guide

30 kHz to 3 or 6 GHz

For flexibility in specifying a network analyzer solution that meets your exact needs, an HP 8753E system may be ordered as multiple items. This guide should be used with the *HP 8753E Technical Specifications*, which has a full description of the items listed in this configuration guide.

System Configuration Summary

This summary lists the main components required to form a basic measurement system. Options or peripherals may be added to provide enhanced capability, data storage, or copies of the analyzer's data or display. This configuration guide provides descriptions of product options and compatible accessories. Information on HP 8753E systems begins on page 2. Service and support products for the HP 8753E are listed on the page seven.

Basic Measurement Systems

Full S-parameter measurements

- HP 8753E network analyzer (S-parameter test set included)
- Test port return cables, 50 or 75 ohms
- Calibration kit for applicable connector type

System with user-selected test set

- HP 8753E network analyzer
 - Option 011 deletes built-in test set
- S-parameter test set
- Test port return cables for selected test set
- Calibration kit for applicable connector type

Standard HP 8753E

- HP 8753E** network analyzer
Integrated network analyzer with built-in color LED display, S-parameter test set, disk drive, and 30 kHz to 3 GHz synthesized source. A standard (50 ohm) HP 8753E has two 7mm test ports. Included with each instrument is an operating and programming manual set and a 3-year return-to-HP service warranty.

Network Analyzer Options

- Option 002** harmonic measurement capability
For measuring swept second and third harmonic responses.
Option 006 extends harmonic measurement capability to 6 GHz.
- Option 006** 6 GHz frequency extension
Provides source and receiver operation to 6 GHz.
Do not order Option 006 with Option 075.
- Option 010** time-domain capability
For viewing reflection and transmission responses in time or distance domain.
- Option 011** deletes built-in test set
Removes test set components and allows direct access to the R, A, and B receiver inputs via type-N connectors.
Source start frequency limited to 300 kHz. Do not order Option 011 with Option 075.
- Option 075** 75-ohm impedance
Replaces the standard 50 ohm test set with a 75 ohm test set.
Test ports are 75-ohm type-N connectors. Do not order Option 075 with Option 006 or Option 011.
- Option 1DT** deletes display
Removes front-panel display for use in automated test environments. No upgrade exists to install the display at a later date.
- Option 1D5** High-stability frequency reference
Provides improved frequency accuracy over time and with temperature variation.
- Option 0B0** deletes operating manual set
- Option 0B1** adds extra operating manual set
- Option 0BW** adds assembly-level service manual
- Option 0BV** adds component-level service information package
- Option 0BX** adds assembly-level service manual and component-level information package
- Option 1CM** rack-mount kit without handles
- Option 1CP** rack-mount kit with handles
- Option 1BN** MIL-STD 45662A calibration certification
- Option 1BP** MIL-STD 45662A calibration with test data
- Option UK6** commercial calibration certificate with test data
- Option W01** converts three-year return-to-HP warranty to one-year on-site warranty, where available. Check with nearest HP service center.

The following options provide manuals that are partially or completely translated into the specified languages, depending on the region.

- Option AB0** Chinese manual
- Option AB1** Korean manual
- Option AB2** Chinese manual
- Option ABD** German manual
- Option ABE** Spanish manual
- Option ABF** French manual
- Option ABJ** Japanese manual
- Option ABZ** Italian manual

Measurement Accessories

Accessories are available in these connector types: 3.5-mm, 7-mm, 50 ohm type-N, 75 ohm type-N, and type-F. A standard HP 8753E or one equipped with Option 075 includes a built-in test set. A calibration kit and test port cables should be added for a complete measurement system. For an HP 8753E Option 011 network analyzer, you also need to add a power splitter or test set.

Test port cables are used to connect to the device under test. Calibration kits include standards, such as open/short circuits and loads, which are measured by the network analyzer for increased measurement accuracy. A verification kit is used to verify system performance.

50-Ohm Device Measurements

Test Port Cables

- HP 11857D** 50-ohm 7-mm test port return cables
A pair of 610-mm (24 in) cables, for use with the standard HP 8753E network analyzer or the HP 85046A and HP 85047A test sets.
- HP 11851B** 50-ohm type-N RF cable set
For systems based on an HP 8753E Option 011. Includes three phase-matched 610-mm (24 in) cables and one 860-mm (34 in) cable. Used with the HP 11850C and HP 11667A power splitters.

Calibration Kits

Choose a kit for each connector type to be used.

- HP 85031B** 7-mm calibration kit
Contains fixed loads, and open/short circuit.
- HP 85032B** 50-ohm type-N calibration kit
Contains fixed loads, open and short circuits, and 7-mm to type-N adapters for both connector sexes for use with 7-mm test port cables.
- HP 85033D** 3.5-mm calibration kit
Contains fixed loads, one-piece open and short circuits, and 7-mm to 3.5-mm adapters for both connector sexes for use with 7-mm test-port cables.
- HP RF ECal-series** electronic calibration modules and PC software.
This product family provides electronic calibration (ECal) capability. With ECal, the usual calibration kit standards are replaced by one solid-state calibration module that can be programmed by a Windows®-based PC to present many different impedances to the test ports. A full two-port calibration can be done with a single connection in a few minutes and reduces errors and wear on connectors. HP RF ECal requires the HP 85090-series calibration modules in the appropriate connector type as well as a PC running Windows 95® or NT 4.0.

Verification Kit

- HP 85029B** 7-mm verification kit
Includes attenuators and mismatch attenuator with data on a 3.5 inch disk for use in confirming accuracy enhanced system measurement performance, traceable to national standards. Test procedure is provided in the service manual. For use with a standard HP 8753E, or with systems including an HP 8753E Option 011 and an HP 85046A, or HP 85047A test set. The HP 85031B 7mm calibration kit and HP 11857D test port cables are also required.

Adapters

- HP 11853A** 50-ohm type-N accessory kit
Contains type-N male to type-N male adapters, type-N female to type-N female adapters, and type-N male and female shorts.
- HP 11854A** 50-ohm BNC accessory kit
Contains type-N to BNC adapters for both connector sexes and a BNC male short.

75-Ohm Device Measurements

Test-Port Cables

- HP 11857B** 75-ohm type-N test-port cables
A pair of 610 mm (24 in) cables, for use with the HP 8753E Option 075 or the HP 85046B S-parameter test set.
- HP 11851B** 50-ohm type-N RF cable kit
For systems based on an HP 8753E Option 011. Includes three phase-matched 610-mm (24 in) cables and one 860 mm (34 in) cable. Used with the HP 11850C and HP 11667A power splitters.
- HP 11857F** 75-ohm type-F cables
N(m) to F(m) part number 8120-8396 and N(m) to F(f) part number 8120-8397. 1 each.

Calibration Kits

- HP 85036B** 75-ohm type-N calibration kit
Contains 75-ohm fixed loads, open/short circuits, and adapters.
- HP 85039B** type-F calibration kit
Includes male/female standards and precision adapters N(f) to F(m), N(m) to F(f), F(m) to F(m) and F(f) to F(f).
 - Option 00M** male standards kit
Includes male standards and precision F(m) to F(m) adapter
 - Option 00F** female standards kit
Includes female standards and precision F(f) to F(f) adapter

Minimum Loss Pads and Adapters

- HP 11852B** 50 to 75-ohm minimum loss pad (300 kHz to 3 GHz)
Adapts from 50 ohm type-N female to 75 ohm type-N male. Nominal insertion loss is 5.7 dB.
 - Option 004** provides 50-ohm type-N male and 75-ohm type-N female connectors.
- HP 11855A** 75-ohm type-N accessory kit
Contains 75-ohm type-N male to type-N male adapters, type-N female to type-N female adapters, type-N male and female shorts, and type-N male termination.
- HP 11856A** 75-ohm BNC accessory kit
Contains 75-ohm type-N to 75-ohm BNC adapters for both connector sexes, a BNC male short and BNC male termination.

Test Sets (for use with HP 8753E Option 011)

S-parameter test sets can measure the characteristics of a two-port device in the forward and reverse directions with a single connection.

50-Ohm Device Measurements

- HP 85046A** 50-ohm S-parameter test set
300 kHz to 3 GHz. Requires the HP 11857D 7-mm test-port return cables for two-port device measurements. Includes a test set interconnect cable and four RF cables to connect to the HP 8753E Option 011.
 - Option 009** substitutes mechanical transfer switch
 - Option 913** rack-mount kit, HP part number 5062-4069
- HP 85047A** 50-ohm S-parameter test set
300 kHz to 6 GHz. Requires the HP 11857D 7 mm test-port return cables for two-port device measurements. Includes a test set interconnect cable and four RF cables to connect to the HP 8753E Option 011.
 - Option 009** substitutes mechanical transfer switch
 - Option 913** rack-mount kit, HP part number 5062-4069

- HP 11850C** 50-ohm type-N three-way power splitter
300 kHz to 3 GHz. Requires the HP 11851B RF cable kit.
- HP 11667A** 50-ohm type-N two-way power splitter
DC to 18 GHz. Requires the HP 11851B RF cable kit.
- HP 86205A** 50-ohm RF bridge, 300 kHz to 6 GHz.
- HP 86207A** 75-ohm RF bridge, 300 kHz to 3 GHz.

75 Ohm Device Measurements

- HP 85046B** 75-ohm S-parameter test set
300 kHz to 2 GHz. Requires the HP 11857B 75-ohm test-port return cables.
Includes a test set interconnect cable and four RF cables to connect to the HP 8753E Option 011.
 - Option 009** Substitutes mechanical transfer switch
 - Option 913** Rack-mount kit, HP part number 5062-4069
- HP 11850D** 75-ohm type-N three-way power splitter
300 kHz to 2 GHz. Includes three HP 11852B 50 to 75 ohm minimum loss pads for use with the HP 8753E Option 011 (50 ohms). Requires the HP 11851B RF cable kit.

Accessories

RF Limiter

Externally attaches to one or both parts of the analyzer. Provides protection against potential high-power transients from external devices.

- HP 11930A** APC-7
- HP 11930B** Type-N

Probe

- HP 85024A** high-frequency probe
Provides high-impedance in-circuit test capability, from 300 kHz to 3 GHz.

Amplifier

- HP 8347A** RF power amplifier
Used to set leveled output power or increase system dynamic range, from 100 kHz to 3 GHz.

Power Meters

For accurate control of leveled test-port power. Requires an HP 8480-series power sensor and an HP-IB cable for connection to the HP 8753E.

- HP 436A** power meter
- HP 437B** power meter
- HP 438A** dual-channel power meter
- HP EPM 441A** power meter

Keyboard

- HP D4950B Option ABA** keyboard with mini-DIN cable
- HP part number C1405-60015** mini-DIN to DIN adapter
The keyboard with cable and adapter can be connected to the HP 8753E's DIN interface to form a remote front panel and to provide a quicker, more convenient way to enter titles, labels, and file names. Both of these parts are required and must be ordered separately.

System Rack and Related Accessories

- HP 85043D** system rack kit
132 cm (52.0 in) high x 60 cm (23.6 in) wide x 90.5 cm (35.6 in) deep. Supplied with anti-static mat (part number 85043-80013), support rails, rack-mounting hardware and power distribution system.
 - Option 230** 220/240 volt operation
- HP part number 85043-80013** anti-static mat kit

Retrofit Kits

Upgrade kits for adding capabilities to the HP 8753E.

- ❑ **HP 8753EU Option 002** harmonic measurement upgrade kit
Includes installation at a local HP service center. The serial number of the HP 8753E to be retrofitted must be specified when ordering this kit.
- ❑ **HP 8753EU Option 006** 6 GHz upgrade kit for HP 8753E
Adds Option 006 to an HP 8753E that does not have Option 011. Includes installation at a local HP service center. The serial number of the HP 8753E to be retrofitted must be specified when ordering this kit. Do not use with an HP 8753E that has Option 011 or Option 075.
- ❑ **HP 8753EU Option 011** 6 GHz upgrade kit for HP 8753E Option 011
Adds Option 006 to an HP 8753E with Option 011. Includes installation at a local HP service center. The serial number of the HP 8753E to be retrofitted must be specified when ordering this kit. Do not use with an HP 8753E that has Option 075.
- ❑ **HP 8753EU Option 010** time-domain upgrade kit
The serial number of the HP 8753E to be retrofitted must be specified when ordering this kit. Installation is not included.
- ❑ **HP 8753EU Option 1D5** high-stability frequency reference retrofit kit. Installation is not included.

Upgrade kits for adding capabilities to the HP 8753D.

- ❑ **HP 11883A** harmonic measurement upgrade kit
Includes installation at a local HP service center. The serial number of the HP 8753D to be retrofitted must be specified when ordering this kit.
- ❑ **HP 11884B** 6 GHz upgrade kit for HP 8753D
Adds Option 006 to an HP 8753D that does not have Option 011. Includes installation at a local HP service center. The serial number of the HP 8753D to be retrofitted must be specified when ordering this kit. Do not use with an HP 8753D that has Option 011 or Option 075.
- ❑ **HP 11884C** 6 GHz upgrade kit for HP 8753D Option 011
Adds Option 006 to an HP 8753D with Option 011. Includes installation at a local HP service center. The serial number of the HP 8753D to be retrofitted must be specified when ordering this kit. Do not use with an HP 8753D that has Option 075.
- ❑ **HP 85019B** time-domain upgrade kit
The serial number of the HP 8753D to be retrofitted must be specified when ordering this kit. Installation is not included.
- ❑ **HP Part number 08753-60236** high-stability frequency reference retrofit kit.
Installation is not included.

These kits are used to upgrade HP 8753B/C systems.

- ❑ **HP 86389A** solid-state switch upgrade kit for the HP 85046A/B
Includes installation at a local HP service center. Requires HP 8753B/C with Rev. 3.0 or higher firmware, or HP 8753E Option 011.
- ❑ **HP 86389B** solid-state switch upgrade kit for the HP 85047A
Includes installation at a local HP service center. Requires HP 8753B/C with Rev. 3.0 or higher firmware, or HP 8753E Option 011.

Peripherals

The following peripherals may be used with the HP 8753E.
Other peripherals not listed here may also be compatible with these instruments.

Monitors

- D2830A - HP ERGO 1024 15 in display
- D2840A - HP ERGO 1280 17 in display
- D2845A - HP ERGO 1600 21 in display

For more information, consult our monitor web page. Its URL location is <http://www.hp.com/vectra/Products/monitors/monitors.main.html>

Printers

An external computer is not required to copy or list data from the analyzer's display to a printer. Some printers have options to specify the interface. Consult your local HP office for more details. Other printers not listed here may also be compatible. For a list of compatible printers, consult our printer-compatibility guide web page. Its URL location is <http://www.hp.com/go/pcg>

Interface Cables

Choose the appropriate cables to connect each peripheral to the network analyzer.

- HP 10833A** HP-IB cable, 1.0 m (3.3 ft)
- HP 10833B** HP-IB cable, 2.0 m (6.6 ft)
- HP 10833D** HP-IB cable, 0.5 m (1.6 ft)
- HP C2950A** Centronics (parallel) printer cable, 2.0 m (6.6 ft)
- HP C2913A** RS-232C printer cable, 1.2 m (3.9 ft)

Service and Support Products

The HP 8753E includes a three-year return-to-HP warranty at no extra charge. Customers may convert the standard three-year return-to-HP warranty to a one-year on-site warranty by ordering Option W01. Option W01 must be specified at the time of the analyzer's purchase. On-site service may not be available in all areas.

Selected service and support products are listed below. For more information on training, service, and support products for these analyzers, consult your local HP sales and service office.

Service Options

- HP 8752E Option W01** converts three-year return-to-HP service to a one-year on-site service, where available. Check with nearest HP service center.

Calibration Agreements

- HP 8753E Option W32** three-year customer-return calibration agreement
Option W32 provides return-to-HP commercial calibration in the second and third year, plus full calibration after any repair provided by HP for three full years.
- HP 8753E Option W34** Three-year customer-return standards-compliant calibration agreement
Option W34 provides return-to-HP standards-compliant calibration in the second and third year, plus full calibration after any repair provided by HP for three full years.

For more information about Hewlett-Packard test and measurement products, applications, services, and for a current sales office listing, visit our web site, <http://www.hp.com/go/tmdir>. You can also contact one of the following centers and ask for a test and measurement sales representative.

United States:

Hewlett-Packard Company
Test and Measurement Call Center
P.O. Box 4026
Englewood, CO 80155-4026
1 800 452 4844

Canada:

Hewlett-Packard Canada Ltd.
5150 Spectrum Way
Mississauga, Ontario L4W 5G1
(905) 206 4725

Europe:

Hewlett-Packard
European Marketing Centre
P.O. Box 999
1180 AZ Amstelveen
The Netherlands
(31 20) 547 9900

Japan:

Hewlett-Packard Japan Ltd.
Measurement Assistance Center
9-1, Takakura-Cho, Hachioji-Shi,
Tokyo 192, Japan
Tel: (81) 426-56-7832
Fax: (81) 426-56-7840

Latin America:

Hewlett-Packard
Latin American Region Headquarters
5200 Blue Lagoon Drive, 9th Floor
Miami, Florida 33126, U.S.A.
(305) 267 4245/4220

Australia/New Zealand:

Hewlett-Packard Australia Ltd.
31-41 Joseph Street
Blackburn, Victoria 3130, Australia
1 800 629 485

Asia Pacific:

Hewlett-Packard Asia Pacific Ltd.
17-21/F Shell Tower, Times Square,
1 Matheson Street, Causeway Bay,
Hong Kong
Tel: (852) 2599 7777
Fax: (852) 2506 9285