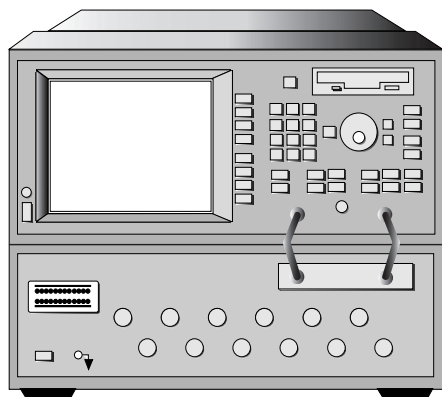
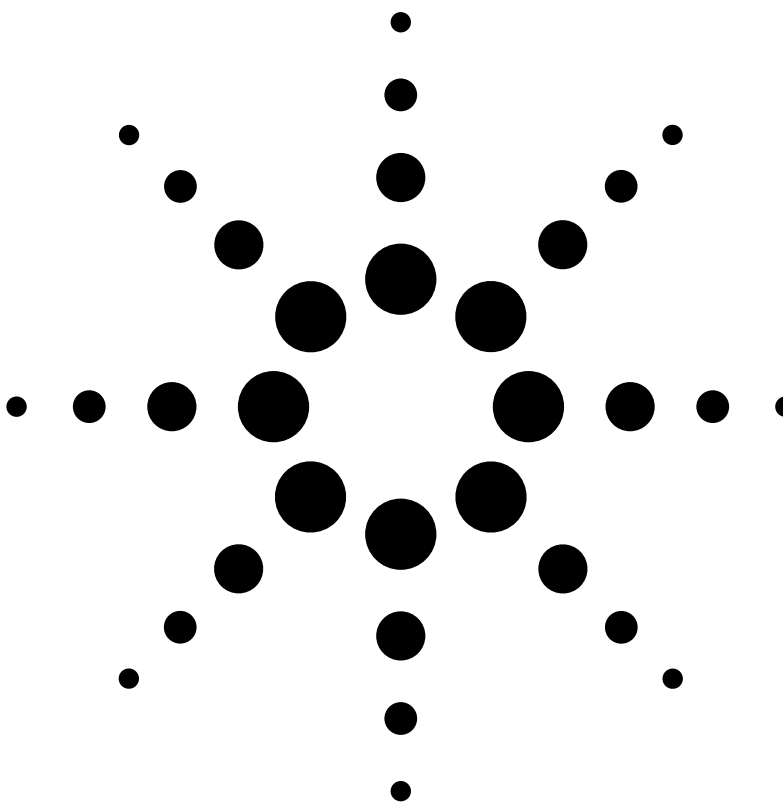


# Agilent Technologies

## 87075C 75 ohm Multiport Test Sets

### Configuration Guide



### 87075C 75 ohm multiport test sets, 3 MHz to 1.3 GHz

This configuration guide describes standard configurations, options, accessories, firmware upgrades, and service and support products. Agilent 87075C multiport test sets are designed to operate with the 8712E family of network analyzers. Selected information on the 75 ohm 8712ET, 8712ES, 8714ET, and 8714ES is included. For more information about these test sets and network analyzers, please read the following documents:

|   |            |
|---|------------|
| 87075C Technical Specifications               | 5968-4767E |
| 87075C Brochure (color)                       | 5968-4766E |
| 8712E series RF VNA Technical Specifications: | 5967-6314E |
| 8712E series RF VNA Configuration Guide:      | 5967-6315E |
| 8712E series RF VNA Brochure:                 | 5967-6316E |

For additional information, please contact an Agilent representative at one of the offices listed on the back page of this guide.



**Agilent Technologies**  
Innovating the HP Way

# Agilent 87075C 75 ohm multiport test sets

## Standard test sets include:

Three-year return-to-Agilent warranty, power cord, test-set calibration disk, as well as:

- 87050-60026** Interconnect cable (reflection port)
- 87050-60028** Interconnect cable (transmission port)
- 8120-6818** Parallel port interface cable
- 87050-90026** 87050E/87075C User's and Service Guide

## Standard test set options

(Must order one of the following options with 87075C)

- Option 006** (6 ports)
- Option 012** (12 ports)

## Additional test set options

- Option 1CM** Rack-mount kit  
Includes:
  - 87050-60027** Interconnect cable (reflection port)
  - 87050-60029** Interconnect cable (transmission port)(These cables are shipped with Option 1CM only. Use these cables if you are rack-mounting your system, or if the bottom feet of the analyzer have been removed)
- Option UK6** Commercial calibration certificate with data

## Test set documentation

- Option 0B0** delete manual
- Option 0B1** add additional manual

## Localization

Agilent often provides localized user guides in many languages for no additional charge. The user guides include information on installation, instrument functions, measurement optimization, and calibration. Check with your local sales representative to find out if a localized user guide is available for your multiport test set.

# Agilent 8712E series RF vector network analyzers

- 8712ET** transmission/reflection vector network analyzer, 300 kHz to 1.3 GHz
- 8712ES** S-parameter vector network analyzer, 300 kHz to 1.3 GHz
- 8714ET** transmission/reflection vector network analyzer, 300 kHz to 3.0 GHz
- 8714ES** S-parameter vector network analyzer, 300 kHz to 3.0 GHz

## Standard network analyzers include:

- Fully integrated synthesized source and test set
- Built-in 3.5 inch floppy disk drive
- Narrowband and broadband receivers
- LAN interface
- IBASIC programming language
- 50 ohm system impedance
- Type-N economy test-port cable
- 175 MHz demonstration bandpass filter
- Operating and programming manuals (in binder and CD-ROM format)
- Example program disks
- Three-year return-to-Agilent warranty

## Network analyzer options<sup>1</sup>

- ❑ **Option 1EC** 75 ohm system impedance  
Converts test-port impedances to 75 ohms. Test-port connector type is 75 ohm type-N female. Option 1EC required for use with 87075C multiport test sets.
- ❑ **Option 1E1** 60 dB step attenuator  
Adds a built-in 60 dB step attenuator to extend the output power range down to -60 dBm. This option only applies to the transmission/reflection analyzers (ET models), as the attenuator is standard in the S-parameter analyzers (ES models).
- ❑ **Option 1CL** keyboard  
Adds a full-size, standard PC keyboard with a mini-DIN cable (model number D4950B, Option ABA). A keyboard overlay is also included (part number 08712-80028) to aid in instrument operation using the keyboard.
- ❑ **Option 1CM** rack mount kit  
Adds a rack mount kit (without handles) for installation in a test rack.
- ❑ **Option AFP** extra 75 ohm economy cable  
Adds an extra 75 ohm economy cable and a type-N (f-f) adapter. (For high-volume applications, Option B21 is recommended.)
- ❑ **Option B21** extra 75 ohm precision cable  
Adds a (m-m) type-N 75 ohm precision cable. This rugged cable is recommended for high-volume applications. To replace the standard 50 ohm economy cable with a precision cable, order Option B23.
- ❑ **Option B23** replace 75 ohm economy cable  
Replaces standard 75 ohm economy cable with a rugged (m-m) type-N 75 ohm precision cable. This durable cable is recommended for high-volume applications.
- ❑ **Option 1FP** performance-test software (used for recalibrating instruments)
- ❑ **Option UK6** commercial calibration certificate with test data
- ❑ **Option 0Q8** factory-delivered service training

## Network analyzer documentation

- ❑ **Option 0B0** delete manual set
- ❑ **Option 0B1** add additional manual set
- ❑ **Option AVB** delete service guide
- ❑ **Option AV7** delete programming guides

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

- ❑ **Option AB1** Traditional Chinese (Taiwan) manual
- ❑ **Option AB2** Simplified Chinese (PRC) manual
- ❑ **Option ABD** German manual
- ❑ **Option ABE** Spanish manual
- ❑ **Option ABF** French manual
- ❑ **Option ABJ** Japanese manual
- ❑ **Option ABZ** Italian manual

## System 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 at [www.agilent.com/find/mta\\_catalog](http://www.agilent.com/find/mta_catalog).

## Calibration kits

Calibration kits include mechanical standards such as opens, shorts and precision loads, which are measured by the multiport system during calibration. After a calibration has been performed, subsequent measurements are more accurate.

- ❑ **85036B** type-N standard calibration kit  
Contains both male and female 75 ohm precision load, open, and short standards. Also includes phase-matched adapters for accurate measurements of non-insertable devices.
- ❑ **85036E** type-N economy calibration kit  
Contains only male 75 ohm precision load, open, and short standards.
- ❑ **85039B** type-F calibration kit  
Contains both male and female 75 ohm precision load, open, and short standards. Also includes the following precision adapters: type-N to type-F (f-m) and (m-f), and type-F (m-m) and (f-f).
- ❑ **Option 00M** male standards only  
Contains only male 75 ohm precision load, open, and short standards. Also includes a precision type-F (m-m) adapter.
- ❑ **Option 00F** female standards only  
Contains only female 75 ohm precision load, open, and short standards. Also includes a precision type-F (f-f) adapter.

1. This configuration guide lists only those network analyzer options that are applicable for use when measuring multiport devices. For a full list of network analyzer options, refer to the 8712E series RF VNA configuration guide, publication number 5967-6315E.

## Cables

Test port cables are used to connect the test set or the network analyzer to the device under test. One economy test port cable is shipped with each 8712E series network analyzer as a standard accessory. Test port cables are not shipped with the 87075C test set. Precision test port cables are recommended to ensure high measurement accuracy.

### ❑ **Economy (m-m) test port cable**

(part number 8120-6468)

Economy 75 ohm 0.61 m (2 ft.) cable. Comes with male type-N connectors on both ends.

### ❑ **Precision (m-m) test port cable**

(part number 8120-8898)

Precision 75 ohm 0.61 m (2 ft.) cable. Comes with male type-N connectors on both ends. RF performance includes SWR < 1.1 (up to 2 GHz) and high isolation.

### ❑ **Precision (m-f) test port cable**

(part number 8121-0002)

Precision 75 ohm 0.61 m (2 ft.) cable. Comes with type-N male and type-N female connectors. RF performance includes SWR < 1.1 (up to 2 GHz) and high isolation.

### ❑ **11857B** precision test port cable set

Precision 75 ohm 0.61 m (2 ft.) cables for testing insertable devices with type-N connectors. Includes type-N (m-m) and (m-f) cables. RF performance includes SWR < 1.1 (up to 2 GHz), high isolation, and phase-matching to within  $\pm 2$  degrees at 2 GHz. Option B24 eliminates phase-match specifications.

### ❑ **11857F** type-N-to-type-F test port cables

Type-N-to-type-F test port cables for testing insertable devices with type-F connectors. Includes type-N-to-type-F (m-m) and (m-f) cables. Option 00M includes only the (m-m) cable, and Option 00F includes only the (m-f) cable.

## Adapters

### ❑ **11852B** type-N 50-to-75-ohm minimum-loss pad

This impedance-matching attenuator is used to convert a 75 ohm test port to 50 ohms. One end has a 75 ohm male type-N and the other end has a 50 ohm female type-N connector connector. Nominal insertion loss is 5.7 dB.

### ❑ **11855A** type-N accessory kit

Contains 75 ohm type-N (m-m) and (f-f) adapters, type-N female short, and type-N male load.

### ❑ **11856A** BNC accessory kit

Provides the components generally required for measuring devices with 75 ohm BNC connectors (up to 2 GHz). Contains four type-N-to-BNC adapters in all combinations of connector sexes, plus a male BNC short.

### ❑ **Type-N female-to-female adapter**

(part number 1250-1529)

Can be used to connect two 75 ohm male type-N cables together. Suitable for use with economy and precision cables.

### ❑ **Precision adapters**

❑ **85039-60010** Type-N (m) to Type-F (f)

❑ **85039-60011\*** Type-N (f) to Type-F (m)

❑ **85039-60013\*** Type-N (m) to Type-F (f)

❑ **85039-60014** Type-N (f) to Type-F (f)

❑ **85039-60002\*** Type-F (f) to Type-F (f)

❑ **85039-60006\*** Type-F (m) to Type-F (m)

❑ **85039-60012** Type-F (m) to Type-F (f)

\*included in 85039B calibration kit

### ❑ **Commercial adapters**

❑ **1250-2350** Type-F (f) to Type-F (f)

❑ **1250-2369** Type-N (m) to Type-F (f)

❑ **1250-2368** Type-N (f) to Type-F (m)

## Test fixtures and device handlers

Inter-Continental Microwave offers an extensive line of standard RF and microwave test fixtures and non-coaxial calibration standards. They also provide custom design services to satisfy unique customer requirements. ICM also designs and manufactures custom automatic-device-handling systems to maximize production throughput.

Phone: (408) 727-1596      E-mail: [icmfixture@aol.com](mailto:icmfixture@aol.com)  
Fax: (408) 727-0105      Web: [www.icmicrowave.com](http://www.icmicrowave.com)

## Manuals

Extra copies of the CD-ROM containing all the manuals for the 8712E network analyzer family and the 87075C multiport test sets can be ordered as part number 08714-90051. For the latest list of instrument manuals available online, please visit our web page at [www.agilent.com/find/manuals](http://www.agilent.com/find/manuals).

## General accessories

### ❑ **Anti-static mat kit (part number 85043-80013)**

Agilent recommends using the network analyzer on an anti-static mat that has been grounded properly, to minimize the risk of damage due to electrostatic discharge (ESD).

### ❑ **Barcode readers**

For more information about Agilent's line of barcod readers, including a worldwide list of distributors, please visit our web page at [www.semiconductor.agilent.com/barcode](http://www.semiconductor.agilent.com/barcode).

### ❑ **Foot/hand switches**

A rugged footswitch with a 2.4 m (8 ft.) BNC cable is available as Special Option 8714B-K87. Other custom foot or hand switches can be fabricated to suit your particular needs. Please contact your local Agilent sales representative for more information.

## Peripherals

### Monitors

For enhanced viewing, any external VGA-compatible color monitor can easily be connected to the network analyzer to provide operators with a clear, full-color view of all display information, such as trace data and pass/fail indicators.

For more information about HP monitors, please visit the web page at [www.hp.com/go/monitors](http://www.hp.com/go/monitors).

### Printers

Hardcopy measurement results can be obtained from printers with LAN, parallel, serial and GPIB interfaces. Most PCL-based printers are supported. Windows®-only printers are not supported. For more information about HP printers, please visit the web page at [www.hp.com/go/printers](http://www.hp.com/go/printers).

For a list of printers compatible with the RF vector network analyzers, please visit our web page at [www.agilent.com/find/pcg](http://www.agilent.com/find/pcg).

### Interface accessories

- ❑ **10833A** GPIB cable, 1.0 m (3.3 ft.)
- ❑ **10833B** GPIB cable, 2.0 m (6.6 ft.)
- ❑ **10833D** GPIB cable, 0.5 m (1.6 ft.)
- ❑ **HP C2950A** parallel (Centronics) printer cable, 2.0 m (6.6 ft.)
- ❑ **HP C2913A** serial (RS-232C) printer cable, 1.2 m (3.9 ft.)
- ❑ **HP 92268A** Ethertwist "straight-through" LAN cable, 4.0 m (13.1 ft.)

## System service and support products

A three-year, return-to-Agilent warranty is standard. Customers may convert the standard three-year warranty to a one-year on-site warranty (at no additional charge) by ordering Option W01. This option must be ordered separately for the test set and network analyzer at the time of the initial purchase. Please note that on-site support is not available everywhere (check with your local Agilent sales or service office for availability in your area).

Selected service and support products are listed below. The options are available with both the 87075C multiport test set and the 8712E series of RF vector network analyzers. For more information on the full range of service, support, and training products available, please consult your local Agilent sales or service office.

- 8712E series service kit** (part number 08712-60012)  
Service kit includes extender board, extender cables, voltage reference, and special wrench.

## Calibration options

- Option W32** three-year return-to-Agilent commercial calibration agreement
- Option W34** three-year return-to-Agilent mil-standard (standards-compliant) calibration agreement
- Option W52** five-year return-to-Agilent commercial calibration agreement
- Option W54** five-year return-to-Agilent mil-standard (standards-compliant) calibration agreement
- Option UK6** commercial calibration certificate with test data
- Option 1FP** performance-test software (used for recalibrating instruments)

## Service options

- Option W01** converts three-year return-to-Agilent service to one-year on-site service (check with your local Agilent sales or service office for availability in your area)
- Option W50** five-year return-to-Agilent service

## Training options

- Option 0Q8** factory-delivered service training

## Firmware upgrades via LAN

To download the latest instrument firmware via LAN, please visit our web page at [www.agilent.com/find/enasupport](http://www.agilent.com/find/enasupport).

## VXIplug&play driver

To download a free VXIplug&play driver, please visit our web page at [www.agilent.com/find/enasupport](http://www.agilent.com/find/enasupport).

# Recommended test equipment

The following test equipment is recommended for self support, adjustments, and performance tests to verify proper instrument operation.

## Power meters and sensors

- 437B** power meter (discontinued) *or*
- 438A** dual-channel power meter (discontinued) *or*
- E4118** (EPM-441A) power meter *or*
- E4419A** (EPM-442A) dual-channel power meter
- 8482A** power sensor
- 8483A** power sensor
- 8481D** diode power sensor (for models with step attenuators only)

## Function generators

- 8116A** function generator (discontinued) *or*
- 33120A** function generator

## Instrument controllers and computers

- PC with an GPIB interface card (**82350A**) and **HP BASIC for Windows** (model number **E2060C**) *or*
- 9000 series 200, 300 or 700** (discontinued)

## Calibration kits

- 85036B** 75 ohm type-N

## Accessories

- 11852B** minimum loss pads (two required)
- 8496A or 8496G** 10 dB step attenuator
- 20 dB fixed attenuator** (part number 0955-0768)
- Voltage reference (part number 08712-60031)**  
For service of VNA. Note: this part is included in the service kit (part number 08712-60012)

Additional test equipment and accessories which may be helpful include Agilent 8560 series or 8566A/B spectrum analyzers, plus miscellaneous fixed attenuators, cables, adapters and RF power splitters.

## Additional information

For online information on Agilent's 8712E series of vector network analyzers and multiport test sets, please visit our web page at [www.agilent.com/find/ena](http://www.agilent.com/find/ena).

## **Agilent Technologies' Test and Measurement Support, Services, and Assistance**

Agilent Technologies aims to maximize the value you receive, while minimizing your risk and problems. We strive to ensure that you get the test and measurement capabilities you paid for and obtain the support you need. Our extensive support resources and services can help you choose the right Agilent products for your applications and apply them successfully. Every instrument and system we sell has a global warranty. Support is available for at least five years beyond the production life of the product. Two concepts underlay Agilent's overall support policy: "Our Promise" and "Your Advantage."

### **Our Promise**

Our Promise means your Agilent test and measurement equipment will meet its advertised performance and functionality. When you are choosing new equipment, we will help you with product information, including realistic performance specifications and practical recommendations from experienced test engineers. When you use Agilent equipment, we can verify that it works properly, help with product operation, and provide basic measurement assistance for the use of specified capabilities, at no extra cost upon request. Many self-help tools are available.

### **Your Advantage**

Your Advantage means that Agilent offers a wide range of additional expert test and measurement services, which you can purchase according to your unique technical and business needs. Solve problems efficiently and gain a competitive edge by contacting us for calibration, extra-cost upgrades, out-of-warranty repairs, and on-site education and training, as well as design, system integration, project management, and other professional services. Experienced Agilent engineers and technicians worldwide can help you maximize your productivity, optimize the return on investment of your Agilent instruments and systems, and obtain dependable measurement accuracy for the life of those products.

**By Internet, phone, or fax, get assistance with all your test and measurement needs**

Online assistance:  
**[www.agilent.com/find/assist](http://www.agilent.com/find/assist)**

### **Phone or Fax**

United States:  
(tel) 1 800 452 4844

Canada:  
(tel) 1 877 894 4414  
(fax) (905) 206 4120

Europe:  
(tel) (31 20) 547 2000

Japan:  
(tel) (81) 426 56 7832  
(fax) (81) 426 56 7840

Latin America:  
(tel) (305) 267 4245  
(fax) (305) 267 4286

Australia:  
(tel) 1 800 629 485  
(fax) (61 3) 9272 0749

New Zealand:  
(tel) 0 800 738 378  
(fax) 64 4 495 8950

Asia Pacific:  
(tel) (852) 3197 7777  
(fax) (852) 2506 9284

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