



Agilent N4011A MIMO/Multi-port Adapter

Getting Started Guide



Agilent Technologies

Notices

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Safety Notices

CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

WARNING

A **WARNING** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a **WARNING** notice until the indicated conditions are fully understood and met.

In This Guide...

Use this guide to help you connect the Agilent N4011A MIMO/Multi-port Adapter to the N4010A Wireless Connectivity Test Set.

1 Preparation and Installation

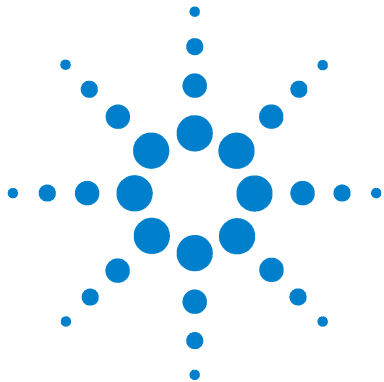
This chapter shows you how to attach the N4011A Multi-port Adapter to N4010A Test Set and make the required front and rear panel connections.

2 Regulatory Information

In this chapter you can find regulatory information such as certification and the N4011A weight and size.

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Preparation and Installation

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Please Check Before proceeding, please confirm the following:

- Your N4010A Wireless Connectivity Test Set has been powered up and checked using the procedures detailed in the *N4010A Getting Started Guide*.
- Your N4010A Wireless Connectivity Test Set is of the required hardware build standard to support the operation of the N4011A MIMO/Multi-port Adapter. Follow the procedure [“Checking the N4010A Hardware Build Standard”](#) on page 9 to check your Test Set.



Initial Inspection

Please inspect the shipping container for damage. If the shipping container or packaging material is damaged, please keep it until the contents have been checked mechanically and electrically. If there is mechanical damage, notify the nearest Agilent Technologies office. Keep the damaged shipping materials (if any) for inspection by the carrier and an Agilent representative. If required, you can find a list of [“Agilent Sales and Service Offices”](#) on page 31.

Before continuing, please ensure you have read and understood the preceding safety information.

Tools Required

To successfully complete the installation process please ensure you have the following tools available:

- Posidrive Screwdriver - for Lock Link kit and rack mount flanges screws - M4
- Small Flat-blade screwdriver - Rear panel interconnecting cable retaining screws
- Calibrated 5/16” wrench (0.9 Nm) - for SMA connector on semi-rigid cable linking the N4010A and N4011A
- Calibrated 5/16” wrench (0.9 Nm) - for SMA connectors linking the N4011A to the DUT fixture

CAUTION

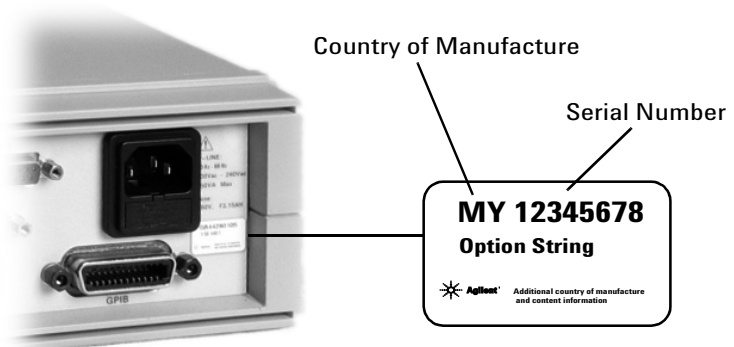
The N4011A SMA connectors can be damaged by over tightening when attaching cables. It is highly recommended that a calibrated wrench (0.9 Nm) is used when attaching cables to the N4011A SMA connectors.

Checking the N4010A Hardware Build Standard

Before proceeding, use the following procedure to ensure your N4010A Wireless Connectivity Test Set can support the N4011A MIMO/Multi-port Adapter.

N4010A Build Check

- 1 Identify the serial plate on the rear panel of the N4010A Wireless Connectivity Test Set.



- 2 Check the Country of Manufacture as shown above.
 - a Test Sets with serial numbers beginning "MY" already have the required hardware to support the N4011A MIMO/Multi-port Adapter. Continue the installation procedure at ["Example Hardware Info Screen"](#) on page 10.
 - b For all other Test Sets continue at Step 3.

- 3 Ensure your Test Set has been powered up and checked using the procedures detailed in the *N4010A Getting Started Guide*.
- 4 Press **System**, **Service**, **Hardware Info** to display the Agilent part numbers and revisions of the major assemblies.

Mother Board Part Number
and revision →

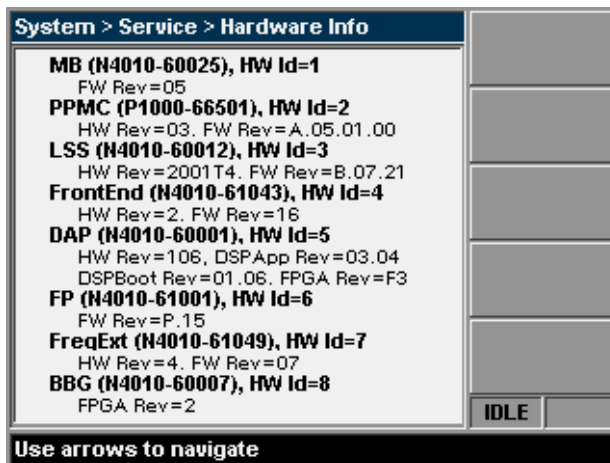


Figure 1 Example Hardware Info Screen

- 5 Confirm that the Mother Board part number is N4010-60025 or later.
 - a If your Test Set meets this requirement continue the installation procedure at “[Preparing the N4010A and N4011A](#)” on page 11.
 - b If your Test Set does not meet this requirement please do not proceed using this specific Test Set. Please contact your local Agilent Sales and Service Office ([page 31](#)) and ask about upgrade kits.

Preparing the N4010A and N4011A

Use the following procedure to attach the Link Kit parts to both the N4010A and N4011A to enable them to be connected together.

- 1 Remove the handle by rotating to the vertical position as shown, and pulling outwards.



- 2 Remove the front and rear rubber bumpers by pulling a corner of each bumper away from the test set as shown.

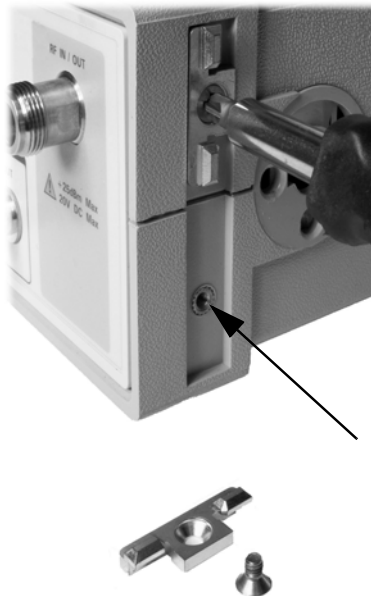


1 Preparation and Installation

- 3 Open the Lock-Link kit (Agilent 5061-9694) and locate the items as shown.



- 4 Fit 2 brackets from the Lock Link Kit to the front right side of the Test Set as shown using the 6mm M4 screws.



Note:

If your N4010A Test Set is not fitted with threaded Brass inserts as shown, use the additional longer, 10mm M4, screws to fit the Lock Link brackets.

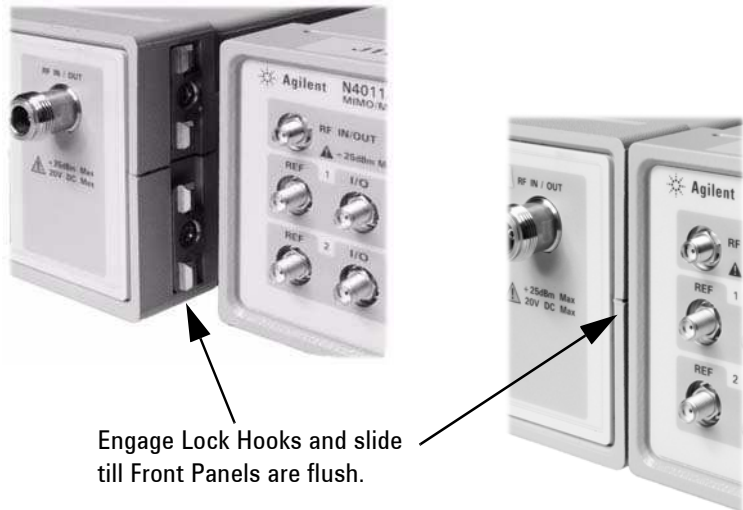
- 5** On the N4011A MIMO/Multi-port Adapter, fit 2 brackets from the Lock Link Kit to the front left side as shown.



Link the N4011A to the N4010A

Use the following procedure to connect the N4010A and N4011A together.

- 1 Place the Test Set and MIMO/Multi-port Adapter closely together, align the Lock Links, and slide together.



- 2 Fit the rear brackets to complete the assembly.



- 3 Connect the N4011-21002 cable (Orderable Part Number N4011-61804) to the 25-way D-type connector on the rear of N4011A. Tighten the retaining screws.

CAUTION

You must ensure that the N4010A Wireless Connectivity Test Set is powered down before connecting it to the N4011A MIMO/Multi-port Adapter. Failure to do so may result in damage to the MIMO/Multi-port Adapter and/or the Test Set.

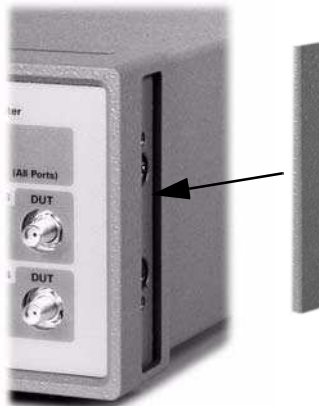


1 Preparation and Installation

- 4 Connect the other end of the N4011-21002 cable to the 25-way D-type Auxiliary In/Out connector on the rear of the N4010A Wireless Connectivity Test Set. Tighten the retaining screws.



- 5 If the combined N4010A/N4011A unit is not to be rack mounted, you can add the supplied 5041-9170 Frame Side Trims to the exposed ends of the Front Panel Frames



Remove protective backing from the self-adhesive trim and fix into recesses

- 6 If required, prepare the Wireless Connectivity Test Set and MIMO/Multi-port Adapter for Rack Mounting (if required) using the supplied rack mount kit as shown. (Agilent Part Number 5183-7171)



- 7 Use the supplied semi-rigid cable N4011-21003 (Orderable Part Number N4011-61805) to connect the N-type and SMA connectors on the front panels. Torque to 0.9 Nm.

**CAUTION**

The N4011A SMA connectors can be damaged by over tightening when attaching cables. It is highly recommended that a calibrated wrench (0.9 Nm) is used when attaching cables to the N4011A SMA connectors.

System Check

No Line power is supplied to the N4011A MIMO/Multi-port Adapter. Power is supplied by the N4010A Test Set via the interconnecting rear panel cable.

The Test Set has an autoranging power supply. Ensure the supply voltage is within the range 100 V_{ac} to 240 V_{ac} and 50 Hz to 60 Hz.

1 Connect the Power Cord.



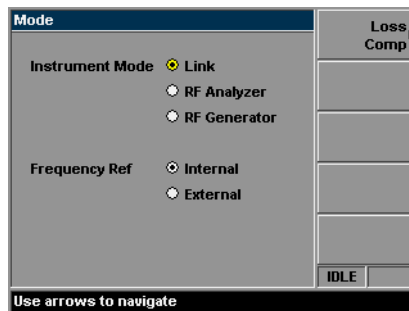
2 Check that the background LED is red.



- 3 Turn the test set on and confirm the background LED is green.



- 4 The test set automatically steps through a self test routine. When the self test has been completed successfully the following screen is displayed



System Information

- 1 To verify your configuration, press the **System** key, an example is shown in Figure 1-1. Option 108 is required for the operation of the MIMO/Multi-port Adapter.

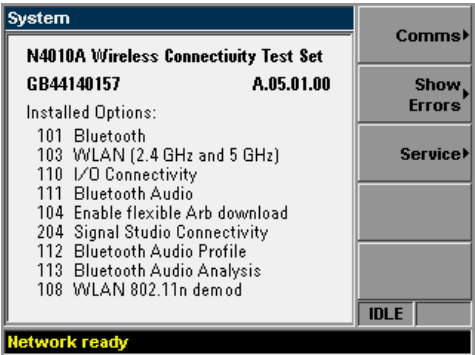


Figure 2 Typical System Configuration Screen

- 2 Ensure the Test Set has detected the N4011A MIMO/Multi-port Adapter by pressing **System**, **Service**, **Hardware Info**. Confirm “Multi-port Adapter” is listed.

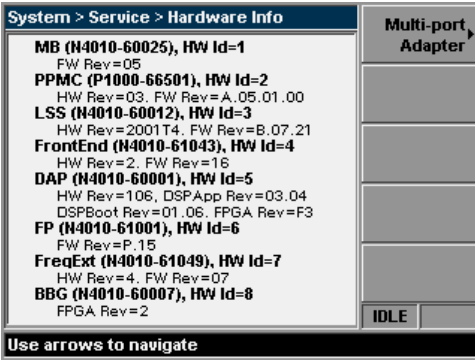


Figure 3 Hardware Info Screen - Multi port Adapter detected

CAUTION

If the N4010A Wireless Connectivity Test Set has been stored in extremely cold conditions, beyond normal operating range, the display may require a few minutes to warm up and operate normally.

Installing the Measurement Software, Applications, and Help

The supplied *N4010A Measurement Software, Applications, and Operating Information CD-ROM* contains all the applications, software components, and help files needed for the Test Set to perform *Bluetooth* and 802.11 a/b/g/n WLAN device tests.


Minimum PC Requirements

Refer to the minimum PC requirements listed in the N4010A Wireless Connectivity Test Set *Installation Guide*.

Open the DVD box and refer to the *Installation Guide* contained inside.

Use the *Installation Guide* and, after starting the CD-ROM, the on-screen instructions to view, copy, and install the Applications and Help Systems you require.

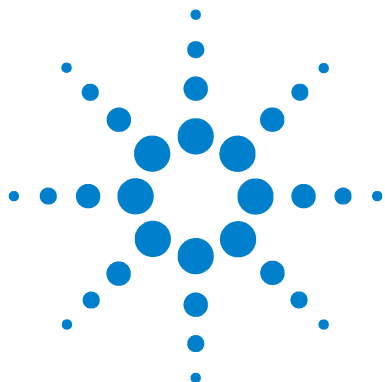
NOTE

If your PC does not have autostart enabled, use Windows Explorer to locate and double click the  `autorun.exe` (autorun.exe) file on the CD-ROM.

If the .NET Framework 1.1 SP1 is not detected on your PC, a message is displayed asking you to confirm its installation from the N4010A CD-ROM. Confirm to continue. If the .NET Framework is not installed the Installer halts and you cannot proceed.

Typically, a PC re-start is required following the N4010A WLAN Test Suite installation. If you are installing both WLAN and *Bluetooth* components, we recommend that you install the N4010A WLAN Test Suite first, and install the *Bluetooth* components following the PC re-start.

When you have completed the configuration of your PC and are ready to proceed, refer to the WLAN Test Suite Help for all programming and measurement information.



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General Specifications

Environmental

Operating Temperature	0°C to +55°C
Storage Temperature:	-20°C to +70°C
Humidity:	Up to 95% Relative Humidity to +40°C
Altitude:	3000m (9,840 ft.)
EMC:	Meets EN55011: 1991 (Group 1, Class A), and EN50082-1:1992.


Physical Specifications

Weight (Net):	2.5 Kg
Dimensions:	88 H x 106 W x 350 D mm nominal

Power Requirements

The N4011A MIMO/Multi-port Adapter obtains its power from the N4010A Wireless Connectivity Test Set. The N4010A specifications are detailed in the *N4010A Installation Guide* and also shown below for convenience.

Table 1 N4010A Wireless Connectivity Test Set Power Requirements

	Line Power:	Input Voltage Range: 100 to 240 Vac, automatic selection
		Input Frequency Range: 50 to 60 Hz
		Power Requirement: 150 VA (max)

Cooling Requirements

To provide adequate cooling, and air gap of approximately 75mm (3ins) should be maintained around the vented sections of the MIMO/Multi-port Adapter.

Cleaning

Use a soft, clean, damp cloth to clean the front-panel and side covers.

**General Safety
Information**

The following general safety precautions must be observed during all phases of operation, service, and repair of this instrument. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the instrument. Agilent Technologies assumes no liability for the customer's failure to comply with these requirements.

WARNING

The N4011A when coupled to the N4010A constitutes a Safety Class I instrument (provided with a protective earthing ground, incorporated in the power cord). The mains plug shall only be inserted in a socket outlet provided with a protective earth contact. Any interruption of the protective conductor inside or outside of the instrument is likely to make the instrument dangerous. Intentional interruption is prohibited.

DO NOT operate the product in an explosive atmosphere or in the presence of flammable gasses or fumes.

DO NOT use repaired fuses or short-circuited fuse holders: For continued protection against fire, replace the line fuse(s) only with fuse(s) of the same voltage and current rating and type. Disconnect instrument from mains supply before replacing fuse.

DO NOT perform procedures involving cover or shield removal unless you are qualified to do so: Operating personnel must not remove equipment covers or shields. Procedures involving the removal of covers and shields are for use by service-trained personnel only.

DO NOT service or adjust alone: Under certain conditions, dangerous voltages may exist even with the equipment switched off. To avoid dangerous electrical shock, service personnel must not attempt internal service or adjustment unless another person, capable of rendering first aid and resuscitation, is present.

DO NOT operate damaged equipment: Whenever it is possible that the safety protection features built into this product have been impaired, either through physical damage,

excessive moisture, or any other reason, REMOVE POWER and do not use the product until safe operation can be verified service-trained personnel. If necessary, return the product to a Agilent Technologies Sales undeserved Office for service and repair to ensure the safety features are maintained.

DO NOT substitute parts or modify equipment: Because of the danger of introducing additional hazards, do not install substitute parts or perform any unauthorized modification to the product. Return the product to a Agilent Technologies Sales and Service Office for service and repair tonsure the safety features are maintained.

Compliance and Markings

Electromagnetic Compatibility (EMC) This product conforms with the protection requirements of European Council Directive 89/336/EEC for Electromagnetic Compatibility (EMC).


The conformity assessment requirements have been met using the technical Construction file route to compliance, using EMC test specifications EN 55011:1991 (Group 1, Class A) and EN 50082-1:1992.







In order to preserve the EMC performance of the product, any cable which becomes worn or damaged must be replaced with the same type and specification.

Refer to the “Declaration of Conformity” on page 25.

Safety The MIMO/Multi-port Adapter has been designed and tested in accordance with publication EN61010-1(2001) / IEC 1010-1(2001) / CSA C22.2 No. 61010-1-04 Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use, and has been supplied in a safe condition. The instruction documentation contains information and warnings which must be followed by the user to ensure safe operation and to maintain the MIMO/Multi-port Adapter in a safe condition.

Markings The following markings can be found on the rear panel.

	<p>The CE mark shows that the product complies with all the relevant European legal Directives.</p>
<p>ICES/NMB-001</p>	<p>This ISM device complies with Canadian ICES-001. Cet appareil ISM est conforme à la norme NMB-001 du Canada.</p>

	GROUP 1 CLASS A	This is the symbol of an Industrial Scientific and Medical Group 1 Class A product.
		The C-Tick mark is a registered trademark of the Australian Communications Authority. This signifies compliance with the Australian EMC Framework Regulations under the terms of the Radio communications Act of 1992.
		<p>This product complies with the WEEE Directive (2002/96/EC) marking requirements. The affixed label indicates that you must not discard this electrical / electronic product in domestic household waste.</p> <p><i>Product Category: With reference to the equipment types in the WEEE Directive Annex I, this product is classed as a "Monitoring and Control instrumentation" product.</i></p> <p>Do not dispose in domestic household waste. To return unwanted products, contact your local Agilent office or see www.agilent.com/environmental/product/ for more information.</p>
		<p>Indicates the N4011A rear panel port is a proprietary, non-standard interface.</p> <p>To prevent damage to the MIMO/Multi-port Adapter connect this port only to the N4010A Auxiliary port using only the supplied cable.</p>
The following symbols are used in this Installation Guide		
		The standby symbol is used to indicate the power-on/off button on the N4010A Wireless Connectivity Test Set
		Caution, risk of danger. Refer to accompanying instructions in the User Documentation.

Sound Emission

Herstellerbescheinigung

Diese Information steht im Zusammenhang mit den Anforderungen der Maschinenlarminformationsverordnung vom 18 Januar 1991.

Sound Pressure LpA < 70dB.

Am Arbeitsplatz.

Normaler Betrieb.

Nach DIN 45635 T. 19 (Typprüfung).

Manufacturers Declaration

This statement is provided to comply with the requirements of the German Sound DIN 45635 T. 19 (Typprüfung).

Sound Pressure LpA 70 < dB.

At operator position.

Normal operation.

According to ISO 7779 (Type Test).

Responsibilities of the Customer

The customer shall provide:

- Access to the products during the specified periods of coverage to perform maintenance
- Adequate working space around the products for servicing by Agilent personnel.
- Access to and use of all information and facilities determined necessary by Agilent to service and/or maintain the products. (Insofar as these items may contain proprietary or classified information, the customer shall assume full responsibility for safeguarding and protection from wrongful use.)

2 Regulatory Information

- Routine operator maintenance and cleaning as specified in the Agilent Operating and Service Manuals.
- Consumables such as replacement fuses, etc.

Agilent Sales and Service Offices

In any correspondence or telephone conversations, refer to the Test Set by its model number and full serial number. With this information, the Agilent representative can quickly determine whether your unit is still within its warranty period.

UNITED STATES	Agilent Technologies (tel) 1 800 829 4444
CANADA	Agilent Technologies Canada Inc. Test & Measurement (tel) 1 877 894 4414
EUROPE	Agilent Technologies Test & Measurement European Marketing Organization (tel) (31 20) 547 2000
JAPAN	Agilent Technologies Japan Ltd. (tel) (81) 426 56 7832 (fax) (81) 426 56 7840
LATIN AMERICA	Agilent Technologies Latin America Region Headquarters, USA (tel) (305) 267 4245 (fax) (305) 267 4286
AUSTRALIA and NEW ZEALAND	Agilent Technologies Australia Pty Ltd. (tel) 1-800 629 4852 (Australia) (fax) (61 3) 9272 0749 (Australia) (tel) 0-800 738 378 (New Zealand) (fax) (64 4) 802 6881 (New Zealand)
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