

# **Agilent 8990B Peak Power Analyzer**

## **Installation Guide**



**Agilent Technologies**

# Notices

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## Safety Summary

The following general safety precautions must be observed during all phases of operation 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, Inc. assumes no liability for the customer's failure to comply with these requirements.

## Safety Notices

### **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 loss of life. Do not proceed beyond a **WARNING** notice until the indicated conditions are fully understood and met.

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
### **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.

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## Safety Symbols

The following symbols on the instrument and in the documentation indicate precautions which must be taken to maintain safe operation of the instrument.

	Caution, risk of danger (refer to this manual for specific Warning or Caution information)
	Alternating current (AC)
	Frame or chassis terminal

## General Safety Information

This is 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 the instrument is likely to make the instrument dangerous. Intentional interruption is prohibited.

### WARNING

- **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 fuseholders. For continued protection against fire, replace the line fuse(s) only with fuse(s) of the same voltage and current rating and type.**
  - **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 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 by service-trained personnel. If necessary, return the product to Agilent 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 Agilent for service and repair to ensure the safety features are maintained.**
-

## Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC

This instrument complies with the WEEE Directive (2002/96/EC) marking requirement. This affixed product label indicates that you must not discard this electrical/electronic product in domestic household waste.

### **Product Category:**

With reference to the equipment types in the WEEE directive Annex 1, this instrument is classified as a "Monitoring and Control Instrument" product.

The affixed product label is shown as below.



### **Do not dispose in domestic household waste**

To return this unwanted instrument, contact your nearest Agilent Service Centre, or visit:

[www.agilent.com/environment/product](http://www.agilent.com/environment/product)

for more information.



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This chapter guides you on how to set up the 8990B peak power analyzer.



## Introduction

This guide provides the information on how to:

- physically check the 8990B for any damage.
- position the 8990B for proper airflow.
- connect power and peripherals to the 8990B.
- tilt the 8990B upward for easier viewing.
- turn on the 8990B.
- connect the 8990B to a compatible Agilent wideband power sensor and oscilloscope probe.
- use the Agilent IO Libraries Suite to configure the remote programming interfaces.
- attach the rack mount kit.
- install the stacking plate.
- install application programs on 8990B.
- change Windows<sup>®</sup> System settings.

### NOTE

- Ensure that you have read and understood the preceding safety information before you proceed.
  - For more detailed operating information, refer to the 8990B *User's Guide* and *Programming Guide*.
-

## Documentation Information

This guide is only part of the user-related documentation provided for the 8990B.

The documentation for the 8990B consists of the following:

- *Installation Guide* (this manual)  
Provides the information on how to properly set up your 8990B for operation. This manual is provided as a printed copy in English with purchase of the 8990B. You can also locate this manual on the supplied Product Reference CD-ROM as a PDF file in English only.
- *User's Guide*  
Describes how to operate your 8990B from the front panel interface to make measurements using a compatible Agilent wideband power sensor and oscilloscope probe. This manual is provided as a printed copy in English with purchase of the 8990B. You can also locate this manual on the supplied Product Reference CD-ROM as a PDF file in English only.
- *Programming Guide*  
Explains how to operate your 8990B over a remote interface. You can locate this manual on the supplied Product Reference CD-ROM as a PDF file in English only.
- *Service Guide*  
Describes how to carry out performance verification tests and adjustments on your 8990B, as well as provides the disassembly and troubleshooting information.

Printed manuals are available by ordering the options as listed in [“Optional items”](#).

### NOTE

There is also a *Connectivity Guide* available on the *Agilent IO Libraries Suite CD-ROM* as a PDF file. This guide helps you to configure your 8990B over LAN and USB remote interfaces.

## Initial Inspection

When you receive your 8990B, inspect the unit for any obvious damage such as broken terminals or cracks, dents, and scratches on the chassis that may occur during shipment. If any damage is found, notify the nearest Agilent Sales Office immediately.

Keep the original packaging in case the 8990B has to be returned to Agilent in future. If you return the 8990B for service, attach a tag identifying the owner and model number. Also include a brief description of the problem.

## Standard shipped items

Verify that you have received the following items with your 8990B. If anything is missing or damaged, contact the nearest Agilent Sales Office.

- 8990B peak power analyzer
- Power cord
- Optical mouse
- Mini keyboard
- Stylus pen
- Two units of 50 ohm BNC cable
- Agilent 8990B Peak Power Analyzer User's Guide<sup>[1]</sup>
- Agilent 8990B Peak Power Analyzer Installation Guide<sup>[1]</sup>
- Agilent 8990B Peak Power Analyzer Product Reference CD-ROM
- Agilent IO Libraries Suite CD-ROM
- Certificate of Calibration

## Standard 8990B options

- Standard hard drive installed (Option 800)<sup>[2]</sup>
- Removable hard drive installed (Option 801)<sup>[1]</sup>
- 8990B with USB host connectivity (Option U01)<sup>[3]</sup>
- 8990B without USB host connectivity (Option U02)<sup>[2]</sup>

[1] Only applicable when the default manual configuration, 8990B-ABA is selected.

[2] Select either Option 800 or Option 801

[3] Select either Option U01 or U02

## Optional items

The following items are available for purchase separately.

- Rack mount kit (Option 1CM, 8U full rack)
- N6921A stacking kit
- N6922A BNC extension cable, male to female
- N6923A BNC adapter, right angle
- N6924A additional hard drive with image
- N6925A storage pouch
- 8990B Programming Guide, English (Option OBF, printed)
- 8990B User's Guide, English and Programming Guide, English (Option OBK, printed)
- 8990B Service Guide, English (Option OBW, printed)
- 8990B User's Guide, Japanese and Programming Guide, English (Option ABJ, printed)
- 8990B User's Guide, English (Option ABA, printed)
- N1923A User's Guide, Japanese (N1923A-ABJ, printed)
- N1923A User's Guide, English (N1923A-OB1, printed)
- N1923A Service Guide, English (N1923A-OBN, printed)
- N1924A User's Guide, Japanese (N1924A-ABJ, printed)
- N1924A User's Guide, English (N1924A-OB1, printed)
- N1924A Service Guide, English (N1924A-OBN, printed)
- Return-to-Agilent Warranty And Service Plan
- Return-to-Agilent Calibration Plan
- ISO 17025 compliant calibration test data (Option 1A7, printed)
- ANSI/NCSL Z540 Certificate of Compliance Calibration (Option A6J, printed)
- Multipulse analysis software, fixed perpetual license (8990B-1FP)
- Multipulse analysis software (N6903A)

## Sensor Compatibility

The 8990B is compatible with the Agilent N1923/4A wideband power sensor. A combination of the 8990B and the N1923/4A wideband power sensor enables the RF pulse rise or fall time measurement of up to 5 ns. The following table lists the frequency range and dynamic power range for each of these sensors:

Wideband power sensor model	Frequency range	Rise/fall time	Dynamic power range
N1923A	50 MHz to 18 GHz	$\leq 5.5 \text{ ns}^{[1]}$	-35 dBm to +20 dBm
N1924A	50 MHz to 40 GHz	$\leq 5.5 \text{ ns}^{[1]}$	-35 dBm to +20 dBm

[1] Applicable for frequency of  $\geq 500$  MHz.

The 8990B is also compatible with the Agilent N1921/2A P-Series wideband power sensor. The following table lists the frequency range and dynamic power range for each of these sensors:

P-Series wideband power sensor model	Frequency range	Rise/fall time	Dynamic power range
N1921A	50 MHz to 18 GHz	$\leq 13 \text{ ns}^{[1]}$	<ul style="list-style-type: none"> <li>-35 dBm to +20 dBm (<math>\geq 500</math> MHz)</li> <li>-30 dBm to +20 dBm (50 MHz to 500 MHz)</li> </ul>
N1922A	50 MHz to 40 GHz	$\leq 13 \text{ ns}^{[1]}$	<ul style="list-style-type: none"> <li>-35 dBm to +20 dBm (<math>\geq 500</math> MHz)</li> <li>-30 dBm to +20 dBm (50 MHz to 500 MHz)</li> </ul>

[1] Specification applies only when the Off video bandwidth is selected.

### NOTE

For further information on these sensors, refer to their respective manuals.

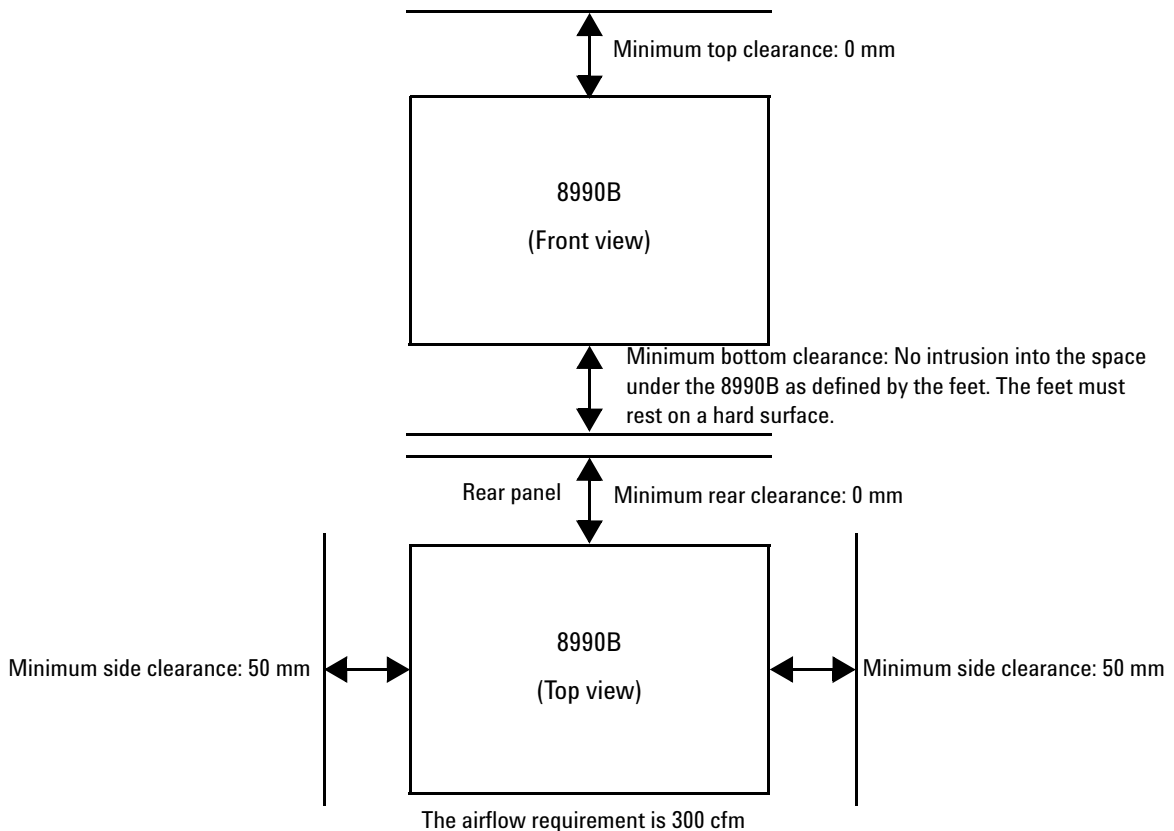


## Probe Compatibility

The 8990B is compatible with the Agilent N2873A passive probe which has a DC-to-500 MHz frequency range and a 10:1 attenuation factor.

## Positioning the 8990B

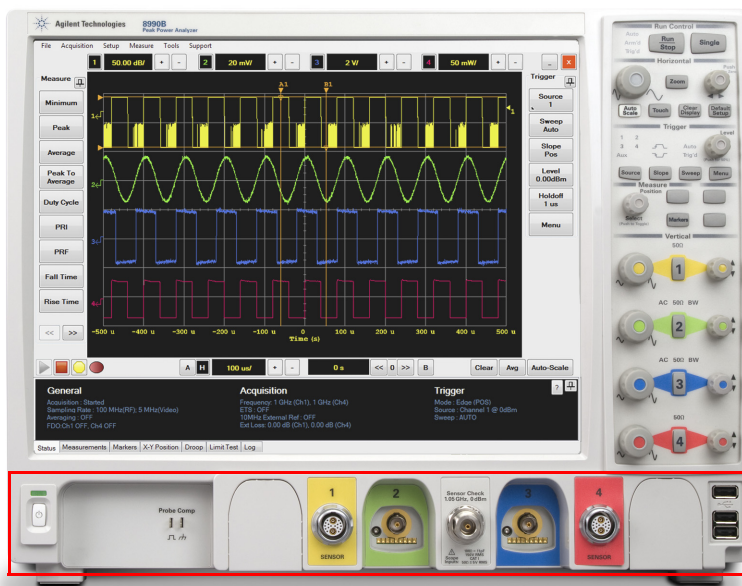
Position the 8990B where it will have sufficient clearance for airflow around the top, rear, and sides (refer to the following figure). Also, only place the 8990B on a hard surface to prevent blocking the airflow underneath the 8990B (for example, a piece of paper or carpet can block the fans and cause the 8990B to overheat).



**Figure 1-1** Positioning the 8990B for proper airflow



## Front Panel Outlook





This topic briefly describes the functions of the front panel keys, knobs, and connectors. The user's guide provides more detailed information on how to use them.



**Figure 1-2** Front panel outlook

This section is associated with the power switch, probe compensation output, measurement channels, sensor check source, and USB ports.



Item	Description	
	Power on/off	Press this key to turn on or off the 8990B
	RF input channels	Connect to the RF input using the N1921/2/3/4A wideband power sensors

Item	Description	
	Video input channels	Connect to the video input using the N2873A oscilloscope probes or N6922A BNC cable
	Probe compensation output	Performs adjustment of the probe capacitor in order to maximize the bandwidth of the probe. NOTE: Probe compensation will only be supported in future releases.
	Sensor check source	Sensor check source for sensor that outputs an RF carrier of 1.05 GHz with a modulating pulse train signal of 1.5 kHz from a Type-N female connector. The RF level is 0 dBm at the carrier frequency.
	USB hosts	Connect to external USB devices. You can connect or disconnect the external USB devices without shutting down or restarting the 8990B.



**Figure 1-3** Run Control section








This section is categorized as run controls.

Item	Description
	Press this key to start or stop a continuous data acquisition
	Press this key to make a single data acquisition when the next trigger event occurs



**Figure 1-4** Horizontal section






This section is associated with horizontal controls as well as zoom, autoscale, touch screen, clear display, and default setup functions.

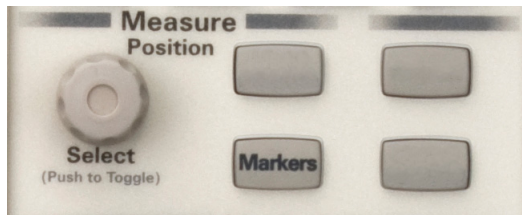
Item	Description
	Turn this knob to configure the horizontal scale of the display.  NOTE: Vernier function (fine scaling) will only be supported in future releases.
	Press this key to view a magnified section of the waveform
	Turn this knob to configure the horizontal position of the waveform. Push this knob to set the horizontal position to zero.
	Press this key to automatically scale the waveform to the optimized display
	Press this key to enable or disable the touch screen
	Press this key to clear the waveform display. When the 8990B is running in the continuous acquisition mode, this function will clear the current waveform and redraw it.  Other than the waveform, this function also clears the data for measurements, markers, droop, and averaging.
	Press this key to return the 8990B to the factory default settings



**Figure 1-5** Trigger section



This section is categorized as trigger controls.

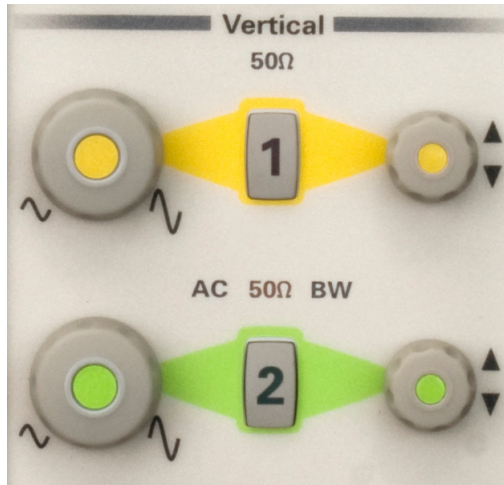
Item	Description
	Press this key to set the trigger source to any of the channels or auxiliary. The selected trigger source LED above this key will be illuminated.
	Press this key to trigger on a rising or falling edge. The selected slope LED above this key will be illuminated.
	Press this key to set the trigger sweep mode to either automatic or triggered. The selected sweep mode LED above this key will be illuminated.
	Press this key to access the trigger menu
	Turn this knob to configure the trigger level. Push this knob to set the trigger level to 50%.



**Figure 1-6** Measure section

This section is categorized as measurement and marker controls.




Item	Description
	Turn this knob to change the position of the marker. Push this knob to select a marker or toggle between two markers.
	Press this key to access the marker selection dialog



**Figure 1-7** Vertical section

This section is categorized as vertical controls.

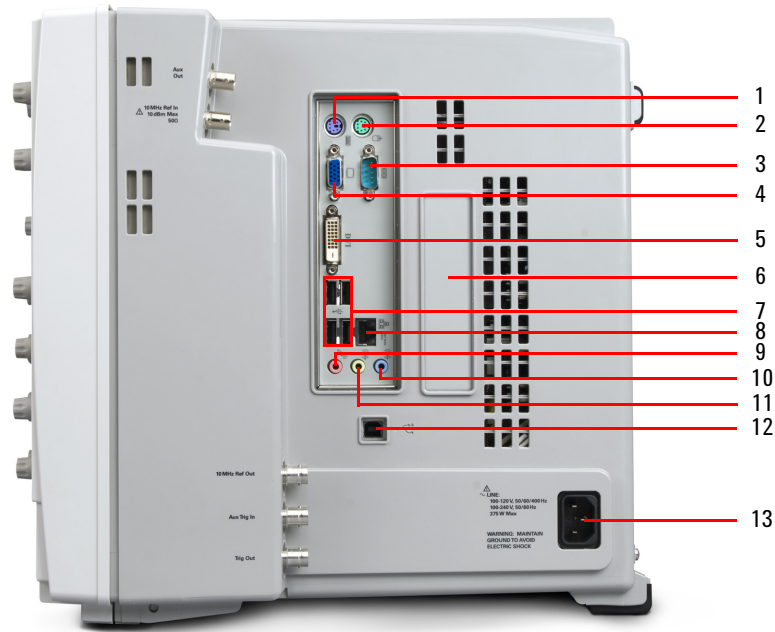
This section has a set of LEDs per channel that indicate the input impedance, coupling, and whether or not bandwidth limit is enabled for the channel.

Item	Description
	Turn the knob for a particular channel to configure the vertical scale of the display.  NOTE: Vernier function (fine scaling) will only be supported in future releases.
	Press this key to turn the display on or off for a particular channel
	Turn the knob for a particular channel to configure the vertical offset of the waveform



## Side Panel Outlook

The following connectors and hard drive are available on the side panel. To set up the remote interfaces, refer to “[Remote Interface Connections](#)” on page 23.



**Figure 1-8** Side panel outlook

No.	Item	Description
1	Keyboard PS/2 port	Allows a keyboard to be plugged in to control the 8990B graphical interface. The keyboard must be plugged in prior to turning on the 8990B.
2	Mouse PS/2 port	Allows a mouse to be plugged in to control the 8990B graphical interface. The mouse must be plugged in prior to turning on the 8990B.
3	Serial printer port	Allows a serial printer to be connected to the 8990B

No.	Item	Description
4	XGA video output	Allows an external monitor to be connected to the 8990B
5	DVI video output	Allows an external monitor to be connected to the 8990B
6	Removable hard drive	Allows the 8990B hard drive to be swapped with another hard drive
7	USB ports	Allows external USB devices to be connected to the 8990B. You can connect or disconnect the external USB devices without shutting down or restarting the 8990B.
8	LAN port	Allows the 8990B to be controlled remotely over the LAN interface
9	Microphone port	Allows a microphone to be connected to the 8990B
10	Audio line-in port	Allows an external audio device to be connected to the 8990B
11	Headphone sound output port	Allows a headphone to be connected to the 8990B
12	USB Type-B port	Allows the 8990B to be controlled remotely over the USB interface
13	AC power inlet	Allows the 8990B to be connected to an AC line voltage

## Rear Panel Outlook

The following connectors are available on the rear panel.



**Figure 1-9** Rear panel outlook

No.	Item	Description
1	Auxiliary trigger out	Used to provide internal 8990B waveforms for calibration and external triggering
2	10 MHz reference in	Used to synchronize the 8990B horizontal timebase system to a reference clock that you provide. The clock that you provide must meet the following specifications: Level: $-2$ dBm to 10 dBm Impedance: 50 $\Omega$

## 1 Getting Started

No.	Item	Description
3	10 MHz reference out	Used to track the external reference input level. The output specifications are as follows: Level: 4 dBm $\pm$ 2 dB Impedance: 50 $\Omega$
4	Auxiliary trigger in	Used as a trigger source for rising edge TTL level triggering only. The input specifications are as follows: Level: $\pm$ 5 V Impedance: 50 $\Omega$
5	Trigger out	Used to provide TTL compatible logic levels with an output impedance of 50 $\Omega$ for external triggering

## Connecting Power

- 1 Position the 8990B so that it is not difficult to unplug the power cord.
- 2 Connect the power cord to the AC power inlet at the side panel of the 8990B and then to a suitable AC voltage source (100 V to 120 V at 50 Hz, 60 Hz, or 400 Hz, and 100 V to 240 V at 50 Hz or 60 Hz). The power cord serves as the main disconnecting device.

### NOTE

- The 8990B power supply automatically adjusts for line input voltages in the range of 100 to 240 Vac.
- The line cord provided is matched by Agilent to the country of origin of the order.

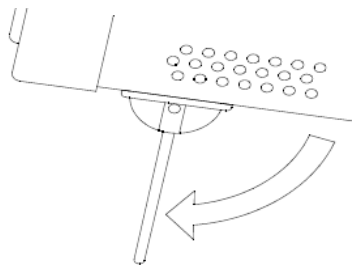
## Connecting Peripherals

You can connect peripherals such as a mouse, a keyboard, a LAN cable, a USB device, an XGA cable, and a printer to the 8990B. Refer to “[Front Panel Outlook](#)” and “[Side Panel Outlook](#)” for the location of the front and side panel ports to plug in the peripherals.

## Tilting the 8990B

To tilt the 8990B upward for easier viewing, perform the following steps:

- 1 Lift the front of the 8990B, grasp one of the plastic feet on either side, and pull it down and forward until it latches into place.
- 2 Repeat for the plastic feet on the other side.




**Figure 1-10** Latching the 8990B front feet

## Turning On the 8990B

You can turn on the 8990B without connecting a wideband power sensor or an oscilloscope probe.



- 1 Press  at the lower left corner of the 8990B front panel.
- 2 After a short initialization period, the 8990B display appears.
- 3 The 8990B is now ready for use.

You can connect and disconnect sensors and probes while the 8990B is turned on.

## Connecting a Wideband Power Sensor

Connect the sensor cable to the 8990B RF input channel as shown in the following figure. Ensure that you align the red dots on the sensor cable and the 8990B connector.



**Figure 1-11** Connecting the sensor cable to the 8990B

Allow a few seconds for the 8990B to read the data contained in the sensor EEPROM and perform automatic zeroing of the sensor.

### NOTE

- Ensure that the sensor cable is attached and removed in an indoor environment.
- The 8990B performs internal zeroing and calibration routines on the sensor. The process used for this internal zeroing and calibration is explained in the *N1921/2A Operating and Service Guide* and *N1923/4A User's Guide*.
- The *8990B User's Guide* explains in more detail the methods used to perform the zeroing and calibration of the sensor.

## Connecting a Probe

- 1 Attach the probe connector to the 8990B video input channel as shown in the following figure. Push it straight on until it latches into place. Turn the connector head slowly to the right until you hear it click firmly in place.



**Figure 1-12** Connecting the probe to the 8990B

- 2 To disconnect the probe, turn the connector head slowly to the left, then pull the connector body away from the front panel of the 8990B without twisting it.



## Remote Interface Connections

The 8990B can be communicated from the PC via LAN and USB interfaces. This section describes how to establish and verify the connections of these interfaces.

Only one interface should be used at any one time.

To connect the 8990B to your PC, and configure and verify the connection, you can use the *Agilent IO Libraries Suite* or an equivalent.

- To install the Agilent IO Libraries Suite, follow the instructions in the *Agilent IO Libraries Suite CD-ROM* provided with the standard purchase of the 8990B.
- You can also access other information on Agilent IO Libraries at [www.agilent.com/find/iolib](http://www.agilent.com/find/iolib).

For more information on configuring the remote interface connectivity, refer to the *Agilent IO Libraries Suite Connectivity Guide*. If you have installed the IO Libraries Suite, you can access the connectivity guide from the IO Libraries Control icon. Alternatively, you can access the connectivity guide via the Web at [www.agilent.com/find/connectivity](http://www.agilent.com/find/connectivity).

## USB

The USB interface requires no front panel configuration. The USB operation and configuration is supported by the version of VISA and SICL IO libraries on your PC.

### NOTE

- Before connecting the USB cable, ensure that the I/O software has been installed on your PC.
- Before attempting to detect the USB connection using the I/O software, ensure that the 8990B software application is running.
- Refer to [“Remote Interface Connections”](#) on page 23 for information on the Agilent IO Libraries Suite software. If you have installed other I/O software, refer to the documentation that accompanies the software.

- 1 After the I/O software has been installed on your PC, connect the 8990B to your PC using a Type A-to-Type B USB cable.
- 2 The PC will confirm the hardware connection.
- 3 The Found New Hardware Wizard will automatically start and guide you through the configuration of the 8990B as a USB device. Click **Next** to install the software automatically and accept all defaults to complete the installation.

### NOTE

If you have installed the Agilent IO Libraries Suite software, you have also installed low-level drivers. Therefore, you do not need to insert the CD when requested by the Found New Hardware Wizard.

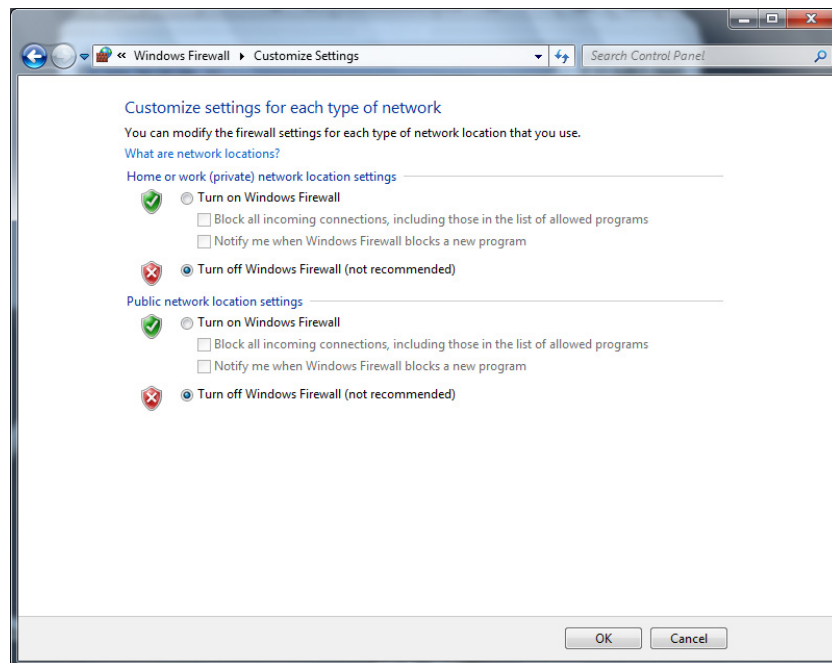
- 4 When the Wizard has completed configuring the 8990B, an Assign USB device alias window will appear on your PC. If required, enter an **Alias** name to easily identify the 8990B.
- 5 You can use the Connection Expert in the IO Libraries Suite to check the instrument identification.
- 6 Now, you can use various programming environments to control the 8990B. For an overview on programming the 8990B via USB, refer to the connectivity guide and the programming guide.

## LAN

### NOTE

- Before connecting the LAN cable, ensure that the I/O software has been installed on the PC.
- Before attempting to detect the LAN connection using the I/O software, ensure that the 8990B software application is running.
- Refer to “[Remote Interface Connections](#)” on page 23 for information on the Agilent IO Libraries Suite software. If you have installed other I/O software, refer to the documentation that accompanies the software.

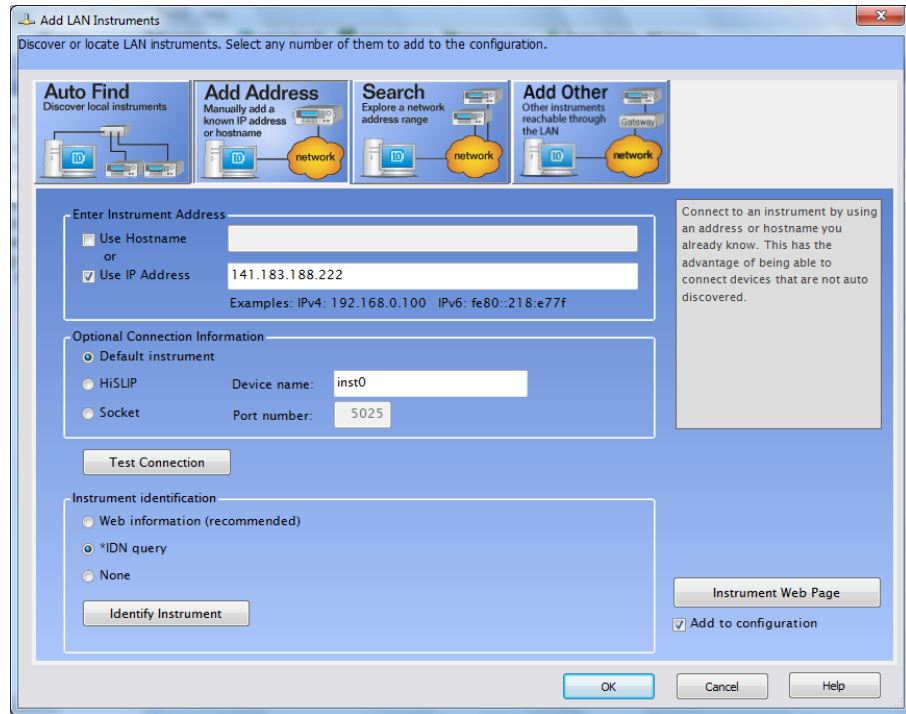
- 1 Using a standard LAN patch cable, connect both the PC and the 8990B to LAN outlets.
- 2 Disable the 8990B Windows Firewall from **Control Panel > System and Security > Windows Firewall > Turn Windows Firewall on or off**.



**Figure 1-13** Turn off Windows Firewall

## 1 Getting Started

- 3 Use the Connection Expert utility of the IO Libraries Suite to add the 8990B LAN instrument. Change the instrument identification type to **\*IDN query** and verify the connection.



**Figure 1-14** Add the 8990B LAN instrument

- 4 You can use various programming environments to control the 8990B. For an overview on programming the 8990B via LAN, refer to the connectivity guide and the programming guide.

**NOTE**

- If the 8990B is not detected automatically on the Connection Expert, you can manually insert a known IP address of the 8990B to detect it. To obtain this IP address, go to the 8990B front panel display and select **Tools > Remote Setup**. Then, on the Connection Expert, go to the Add Address page on the Add LAN Instruments dialog and insert the IP address. You should now be able to detect the 8990B and verify the connection.
  - If you configure an invalid IP address or an IP address that is used by another device or host, an error message is generated. This error can be read in the Log view of the Multi-Purpose pane at the bottom of the display or by sending the `SYSTem:ERRor?` query.
- 

Once connection has been established, you can configure the 8990B LAN settings remotely through SCPI (refer to the programming guide).

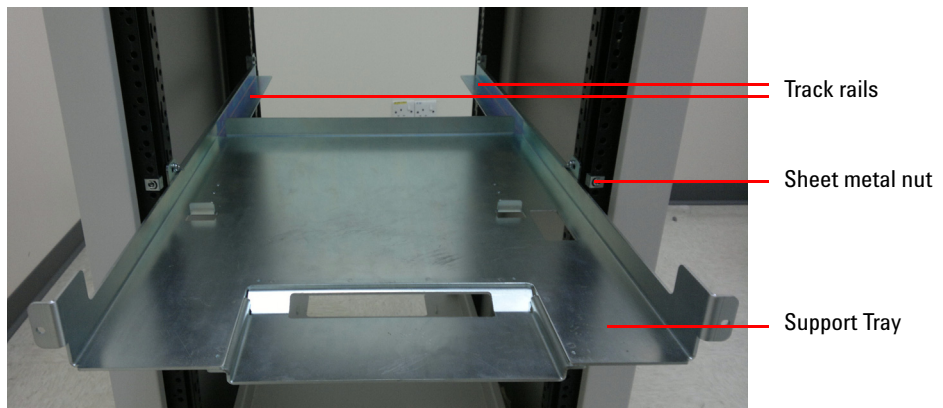
## Rack Mounting the 8990B

This section explains how to rack mount the 8990B using the Option 1CM rack mount kit.

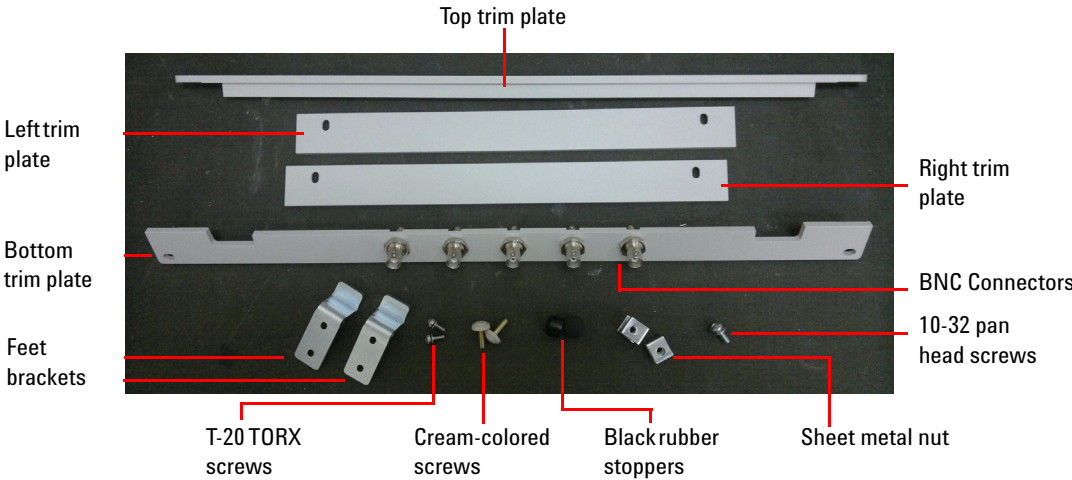
### Included parts

The rack mount kit includes the following parts (additional quantities of some of these items are included for your convenience):

- Support tray
- Trim plate (consists of a bottom piece, top piece, and two side pieces)
- BNC connectors to be inserted into the bottom trim plate
- Black rubber stoppers to plug holes in the bottom trim plate if the hole is not being used for a BNC connection
- Two track rails
- Two feet brackets
- Sheet metal nuts
- Three sets of screws (cream-colored pan head screws for attaching the trim plate pieces, 10-32 pan head screws for attaching the side rails to the rack, and metallic T-20 TORX screws for attaching the feet brackets to the support tray)



**Figure 1-15** Track rails, sheet metal nut, and support tray



**Figure 1-16** Trim plates, foot brackets, T-20 TORX screws, cream-colored screws, black rubber stoppers, sheet metal nut, and 10-32 pan head screws

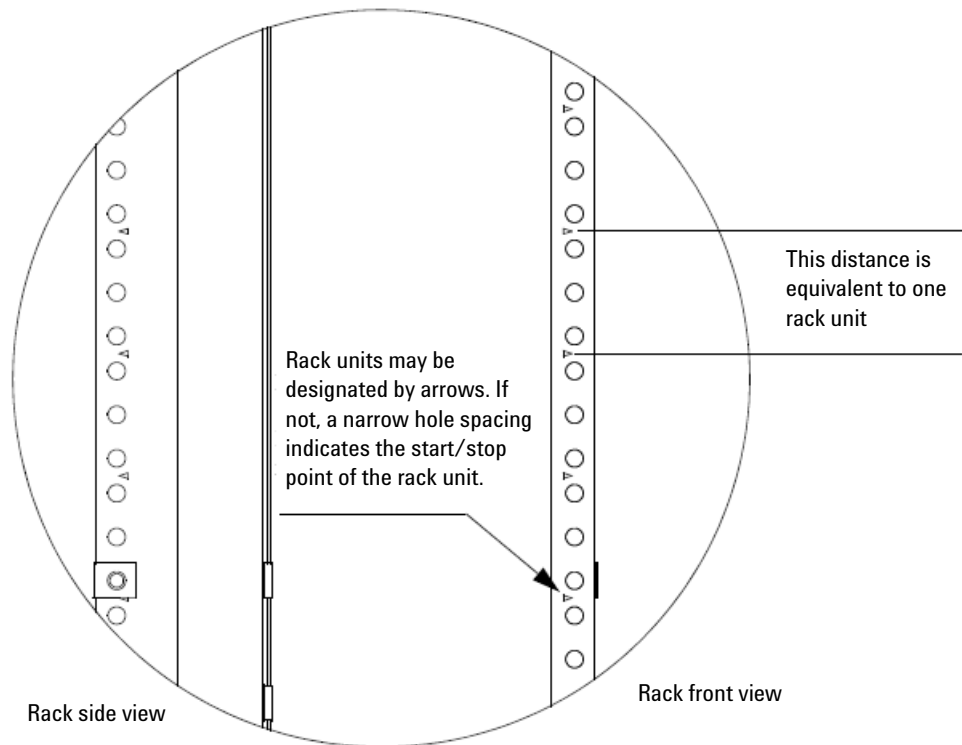
## Installation

**NOTE**

You will need a T-20 TORX driver and a #2 Phillips screwdriver to install the rack mount kit.

### Preparing the rack

- 1 To prepare the rack for sheet metal nut installation, eight rack mount units must be designated for use. [Figure 1-17](#) shows how to determine a rack unit.



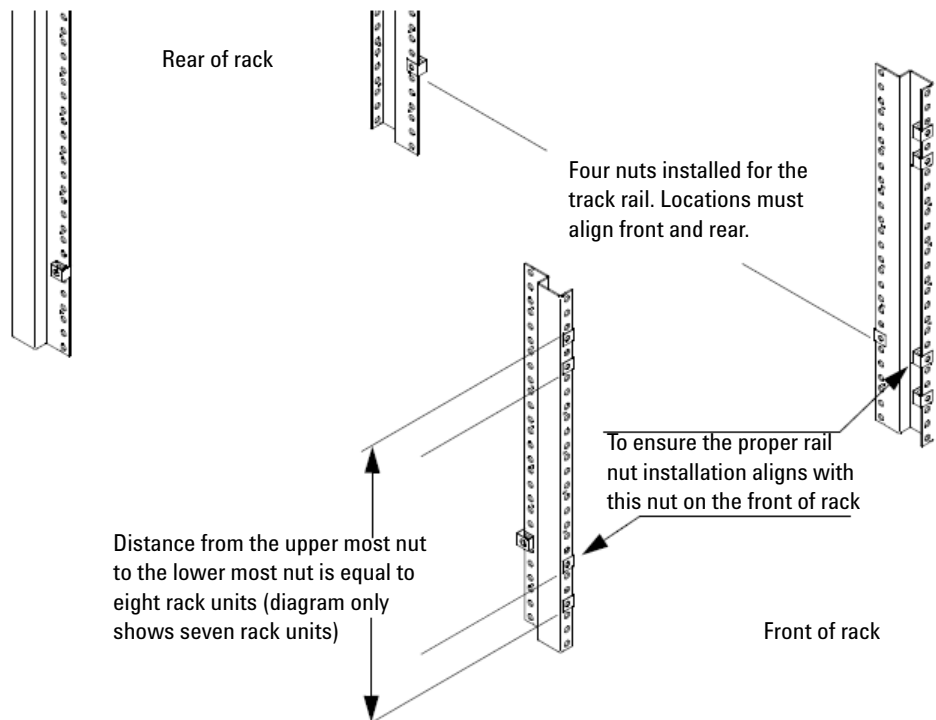
**Figure 1-17** Rack unit



- 2 **Figure 1-18** indicates the proper locations for the sheet metal nut locations.

**NOTE**

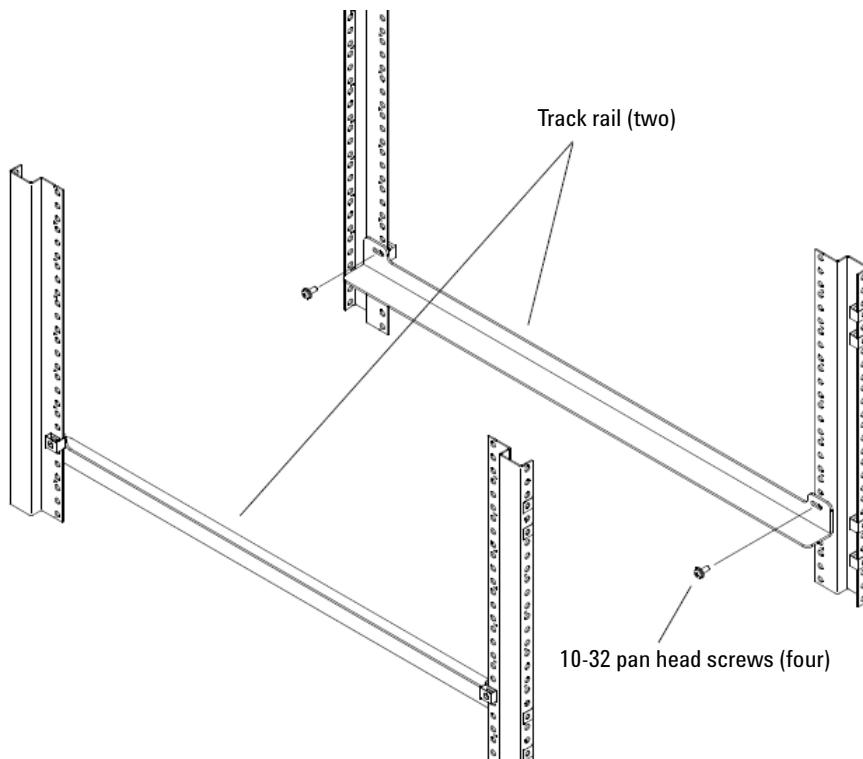
- To ensure a level installation, the same eight rack unit locations are used on each vertical rack piece.
- The following diagram only shows seven rack units.



**Figure 1-18** Proper locations for the sheet metal nut locations

## 1 Getting Started

- 3 Install track rails to the rack using the four 10-32 pan head screws provided as shown in [Figure 1-19](#).



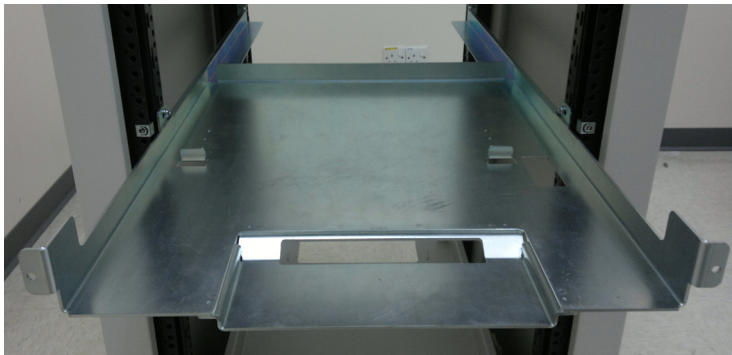
**Figure 1-19** Install the track rails to the rack

### Installing the 8990B into the rack

- 1 Slide the support tray onto the rails, but do not slide completely into the rack. Instead, leave it slightly extended so you can place the 8990B on top of it as shown in [Figure 1-20](#).

**NOTE**

Do not leave the support tray extended too much or else it may not support the 8990B when you place it on top.



**Figure 1-20** Support tray

- 2 Place the 8990B on the support tray. There are raised tabs in the support tray. The front side of the 8990B rear feet should rest against these tabs as shown below.

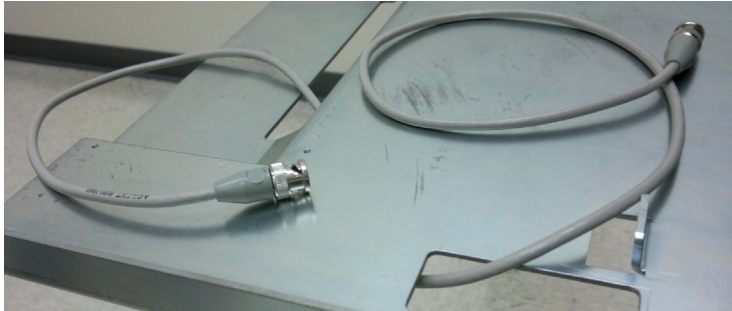


The front of the 8990B rear feet should rest against these tabs

**Figure 1-21** Raised tabs in the support tray

## 1 Getting Started

- 3 Now, attach cables to the rear panel BNC connectors of the 8990B and route them through the openings at the support tray and under the 8990B as shown below (later, these cables will be connected to the bottom trim plate BNC connectors so you can have access to these BNCs once the 8990B is installed in the rack).



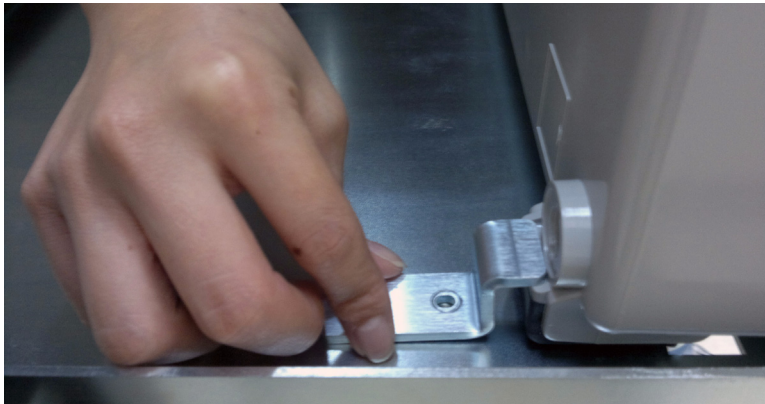
**Figure 1-22** BNC connectors

- 4 Let the end of the cable(s) that passes under the 8990B just dangle for now. [Step 8](#) will have you attach the cable(s) to the bottom trim plate BNCs. Also plug the power cord into the 8990B and route it through the back so you can plug it into a power outlet after installation.



**Figure 1-23** BNC connectors to the of the 8990B

- 5 Secure the rear of the 8990B to the support tray with the feet brackets as shown below. There is a notch on the upper back edge of each 8990B rear foot. Place the bracket in this indentation and then line up the holes with the holes in the support tray.



**Figure 1-24** Feet brackets

- 6 Use two T-20 TORX screws to secure and then repeat for the other 8990B rear foot.



**Figure 1-25** T-20 TORX screws

- 7 The 8990B and support tray should now look like the following figure except that you may have cables connected to the rear panel BNCs if you chose to attach them.



**Figure 1-26** 8990B and support tray

- 8 Next, push the 8990B support tray into the rack so it is no longer extended. Then connect the other end of each of the cables you routed under the 8990B to one of the BNC connectors on the bottom trim plate piece as shown in [Figure 1-27](#). If you do not want to install all five BNC connectors into the openings in the bottom trim plate, then you can fill the hole(s) with the supplied rubber stoppers.



**Figure 1-27** Connect the BNC connector to the bottom trim plate

- 9 Attach the bottom trim plate piece to the rack using two cream-colored pan head screws. Then, attach the side trim plate pieces using two cream-colored pan head screws each.

**NOTE**

When attaching the side trim plate pieces, ensure that the screw holes are located towards the outside).

- 10 Attach the top trim plate piece to the rack with two cream-colored pan head screws (ensure that it slides into the notch on the top of the 8990B) as shown in [Figure 1-28](#).

This is the notch that the top trim plate fits into

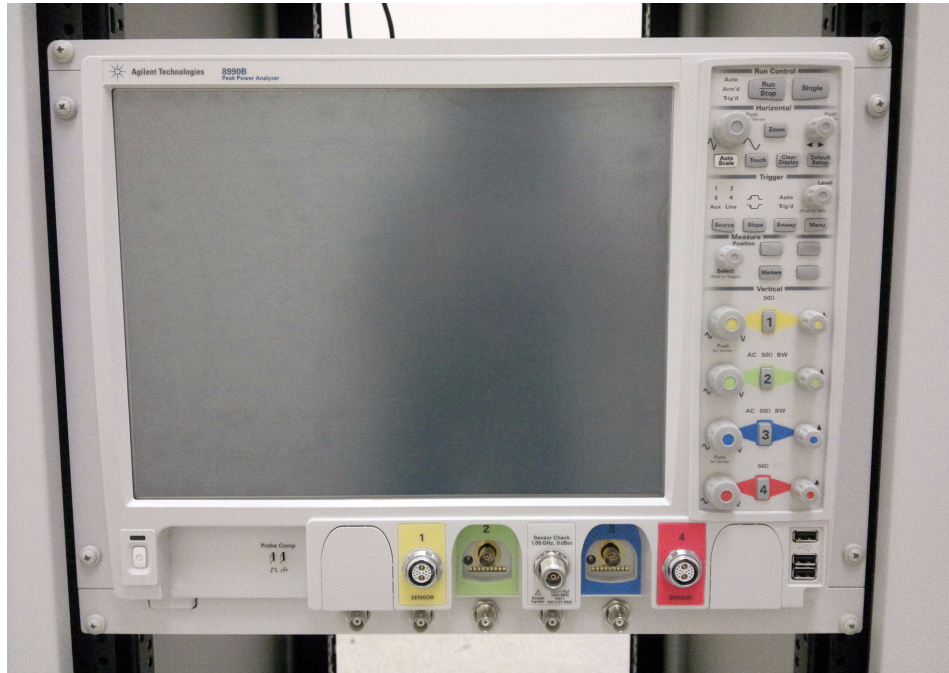


**Figure 1-28** Notch at the 8990B to fit the top trim plate



## 1 Getting Started

11 The 8990B is now fully installed and should look like the following figure.



**Figure 1-29** 8990B with the trim plates



## Stacking the 8990B

This section explains how to install the stacking plate onto the 8990B using the N6921A stacking kit.

### Installing the stacking plate

- 1 Attach the stacking plate on top of the 8990B as shown in [Figure 1-30](#).



**Figure 1-30** Stacking plate

## 1 Getting Started

- 2 The stacking plate is now installed onto the 8990B and should look like the following figure.



**Figure 1-31** 8990B with the stacking plate

## Installing Application Programs on 8990B

The 8990B is an open Windows system. This allows you to install your own application software. Agilent has verified that the following applications are compatible with the 8990B application.

- Agilent Vector Signal Analysis
- Agilent VEE Pro
- Microsoft Office 2000, 2003, 2007
- MathWorks MATLAB
- Mathsoft Mathcad 2001i
- McAfee VirusScan
- Symantec Norton AntiVirus

### NOTE

Before installing any software, you should exit the 8990B application.

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### CAUTION

If you install an application other than those which Agilent has tested, it is possible that it could break the 8990B application. This would potentially require you to recover the 8990B hard drive using the hidden recovery partition in the hard drive.

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## Changing Windows System Settings

**NOTE**

Before changing any Windows System settings outside of the 8990B application, you should exit the 8990B application.

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There are several Windows System settings that can be changed to suit your personal preferences. However, there are some System settings that you should avoid changing because it will interfere with the proper operation of the 8990B.

- Do not change the Power Options.
- Do not change the System Properties Hardware tab settings.
- Do not change the Regional and Language Options Advanced tab settings.
- Do not remove Fonts.
- For Display Properties:
  - Do not change the screen resolution or the color quality from Highest (32 bit).
  - Do not change the Font size to Extra Large.
  - Do not use a Menu font size greater than 14 points.
- Do not use the Administrative Tools to enable or disable Internet Information Services (Web Server).



## 2 Regulatory Information

General Specifications 44

Compliance and Markings 46

This chapter provides the general specifications and regulatory information of the 8990B.



## General Specifications

The 8990B complies with the requirements of the EMC Directive 89/336/EEC.

### Environmental conditions

The 8990B is designed for indoor use only.

<b>Temperature</b>	
Operating	5 °C to 40 °C
Non-operating	−40 °C to +70 °C
<b>Humidity</b>	
Operating	Relative humidity up to 95% at +40 °C (non-condensing)
Non-operating	Relative humidity up to 90% at 65 °C
<b>Altitude</b>	
Operating	Up to 4000 m (12000 ft.)
Non-operating	Up to 4600 m (15000 ft.)

### Physical characteristics

<b>Dimension</b>	
Dimensions (width × depth × height)	430 mm (16.9 in) × 347 mm (13.7 in) × 330 mm (13.0 in)
<b>Weight</b>	
Weight	<ul style="list-style-type: none"><li>• &lt;16 kg (net)</li><li>• &lt;23.5 kg (shipping)</li></ul>

## Power requirements

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Line power	<ul style="list-style-type: none"><li>• 100 V to 120 V (50 Hz/60 Hz/400 Hz)</li><li>• 100 V to 240 V (50 Hz/60 Hz)</li><li>• Maximum power dissipated at 375 W</li></ul>
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### WARNING

- An appliance coupler (main input power cord) is a power disconnect device. Do not position the 8990B such that access to the coupler is impaired.
  - No operator serviceable parts inside. Refer servicing to qualified personnel. To prevent electric shock, do not remove the 8990B covers.
  - If the 8990B is not used as specified, the built-in safety protection features could be impaired. The 8990B must be used in normal conditions only (in which all means of protection are intact).
-

## Compliance and Markings

### Electromagnetic (EM) compatibility

The 8990B complies with the essential requirements of the following applicable European (EC) Directives, and carries the CE marking accordingly to the Low Voltage Directive (2006/95/EC) and EMC Directive (2004/108/EC).

EMC tests conform to the IEC 61326-1:2005/EN 61326-1:2006 and CISPR 11:2003/EN 55011:2007 (Group 1, Class A). In order to preserve the EMC performance of the 8990B, any cable which becomes worn or damaged must be replaced with the same type and specification.

The 8990B also meets the following EMC standards:

- Canada: ICES/NMB-001: Issue 4, June 2006
- Australia/New Zealand: AS/NZS CISPR11:2004

Degradation of some instrument specifications can occur in the presence of ambient EM fields and noise that are coupled to the power line or I/O cables of the 8990B. The 8990B will self-recover and operate to all specifications when the source of ambient EM fields and noise are removed or when the 8990B is protected from the ambient EM fields or when the 8990B cabling is shielded from the ambient EM noise.






### Product safety

The 8990B conforms to the requirements of the following safety standards:

- IEC 61010-1:2001/EN 61010-1:2001
- CAN/CSA-C22.2 No. 61010-1-04
- ANSI/UL std No. 61010-1:2004



## Regulatory markings

	<p>The CE mark is a registered trademark of the European Community. This CE mark shows that the product complies with all the relevant European Legal Directives.</p>
	<p>The C-tick mark is a registered trademark of the Spectrum Management Agency of Australia. This signifies compliance with the Australian EMC Framework regulations under the terms of the Radio Communications Act of 1992.</p>
<p><b>ICES/NMB-001</b></p>	<p>ICES/NMB-001 indicates that this ISM device complies with the Canadian ICES-001. Cet appareil ISM est conforme à la norme NMB-001 du Canada.</p>
	<p>This product complies with the WEEE Directive (2002/96/EC) marking equipment. The affixed product label indicates that you must not discard this electrical/electronic product in domestic household waste.</p>
	<p>The CSA mark is a registered trademark of the Canadian Standards Association. A CSA mark indicates that the product is certified for Canadian markets, to the applicable Canadian standards.</p>
	<p>This symbol indicates the time period during which no hazardous or toxic substance elements are expected to leak or deteriorate during normal use. Forty years is the expected useful life of the product.</p>

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