Installation and Quick Start Guide

**Agilent Technologies
PNA Family Network Analyzers**

Important: Please read

Agilent Technologies

E8356- 90001

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Certification

Agilent Technologies, Inc. certifies that this product met its published specifications at the time of shipment from the factory. Agilent Technologies, Inc. further certifies that its calibration measurements are traceable to the United States National Institute of Standards and Technology, to the extent allowed by the Institute's calibration facility, and to the calibration facilities of other International Standards Organization members.

Assistance

Product maintenance agreements and other customer assistance agreements are available for Agilent Technologies, Inc. products. For information about these agreements and for other assistance, contact Agilent. Refer to "Contacting Agilent" on page 3-2.

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Safety Notes

The following safety notes are used throughout this manual. Familiarize yourself with each of the notes and its meaning before operating this instrument. All pertinent safety notes for using this product are located in Chapter 4 , "Safety, Regulatory, and Environmental Information."

WARNING	**Warning denotes a hazard. It calls attention to a procedure which, if not correctly performed or adhered to, could result in injury or loss of life. Do not proceed beyond a warning note until the indicated conditions are fully understood and met.**

CAUTION	Caution denotes a hazard. It calls attention to a procedure that, if not correctly performed or adhered to, could result in damage to or destruction of the instrument. Do not proceed beyond a caution sign until the indicated conditions are fully understood and met.

Documentation Map
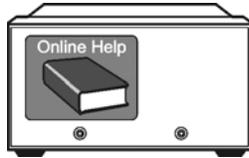
The online Help files are embedded in the analyzer, offering quick reference to programming and user documentation. From the Help drop-down menu, you can access the Help system in six different languages. Also, you can view the Analyzer Product Overview multimedia presentation and access the analyzer's Web page.

The *Installation and Quick Start Guide* helps to quickly familiarize yourself with the analyzer. Procedures are provided for installing, configuring, and verifying the operation of the analyzer.

Downloading PNA Documentation from the Web

Documentation for all PNA models is available at http://na.tm.agilent.com/pna/.

This includes PDF versions of PNA Help (the online Help files that are embedded in the network analyzer), Service Guides, and Installation Notes.

Contents

Contents

1   Operating Precautions

IMPORTANT Most causes of instrument failure can be avoided if you will apply the information in this section. *PLEASE READ!*

## Preventing Electrostatic Discharge Damage

Protection against electrostatic discharge (ESD) is essential while removing assemblies from or connecting cables and assemblies (DUT) to the network analyzer. Static electricity can build up on your body and can easily damage sensitive internal circuit elements when discharged. Static discharges too small to be felt can cause permanent damage. To prevent damage to the instrument:

- *always* have a grounded, conductive table mat in front of your test equipment.

- *always* wear a grounded wrist strap, connected to a grounded conductive table mat, having a 1 MΩ resistor in series with it, when handling components and assemblies or when making connections.

- *always* wear a heel strap when working in an area with a conductive floor. If you are uncertain about the conductivity of your floor, wear a heel strap.

- *always* ground yourself before you clean, inspect, or make a connection to a static-sensitive device or test port. You can, for example, grasp the grounded outer shell of the test port or cable connector briefly.

- *always* ground the center conductor of a test cable and DUT before making a connection to the analyzer test port or other static-sensitive device. This can be done as follows:

  1. Connect a short (from your calibration kit) to one end of the cable and DUT to short the center conductor to the outer conductor.

  2. While wearing a grounded wrist strap, grasp the outer shell of the cable and DUT connector.

  3. Connect the other end of the cable and DUT to the test port and remove the short from the cable.

The following table lists Agilent part numbers for ESD protection devices. To order, refer to "Contacting Agilent" on page 3-2. Figure 1-1 shows a typical ESD protection setup using a grounded mat and wrist strap.

Description	Qty	Agilent Part Number
ESD Protection Devices		
Grounding wrist strap	1	9300-1367
5 ft grounding cord for wrist strap	1	9300-0980
2 x 4 ft conductive table mat and 15 ft ground wire	1	9300-0797

Figure 1-1 ESD Protection Setup

esd_setup
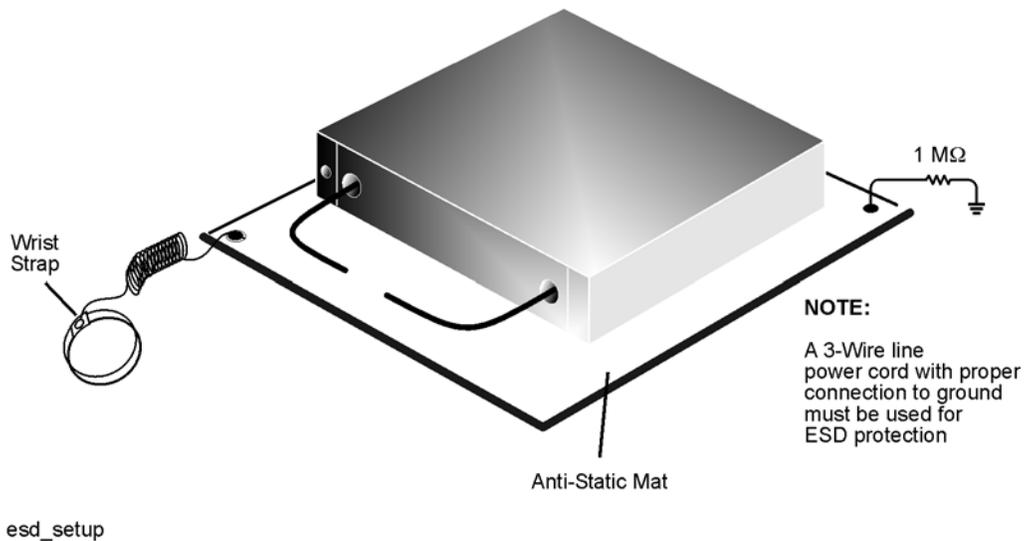
Preventing Test Port Connector Damage

Visual Inspection and Gaging Connectors	
Do	**Do Not**
Inspect connectors with magnifying glass	Use a connector with a bent or broken center conductor
Look for metal debris, deep scratches or dents	Use a connector with deformed threads
Inspect and gage connectors	Use a connect or with a protruding center conductor
Use correct torque wrench	Use an out-of-specification connector
Making Connections	
Do	**Do Not**
Align connectors first	Cross-thread the connection
Rotate only the connector nut	Twist connector body to make the connection
Use correct torque wrench	Mate different connector types

NOTE   Agilent strongly recommends that adapters be used as connector savers to minimize the wear on the analyzer test port connectors. Use instrument-grade quality adapters or better.

WARNING   Cleaning connectors with alcohol shall only be done with the instrument power cord removed and in a well-ventilated area. Allow all residual alcohol moisture to evaporate, and the fumes to dissipate prior to energizing the instrument**.**

For more information on the proper use and maintenance of connectors, search the analyzer's Help system for "Connector Care." See Chapter 3 , "Getting Help with Your Analyzer."

Preventing Electrical Overstress Damage

Excessive RF power or voltage applied to the ports on the front panel will damage the analyzer. Each port has a label (see photo below) that shows damage levels – these levels must not be exceeded. Damage levels are also listed in the Specifications section of the analyzer's Help system. To view the Help system, see Chapter 3 , "Getting Help with Your Analyzer." in this document.

Two ways to protect the PNA input ports from high RF power:

1. Use power limiters at the ports. Information on limiters can be found at: www.agilent.com/find/mta.

2. Apply the recommendations in PNA Application Note 1408-10, "Recommendations for Testing High-Power Amplifiers," found at: http://cp.literature.agilent.com/litweb/pdf/5989-1349EN.pdf.

Figure 1-2. Labels Showing Damage Level for Each Port

Label_damage
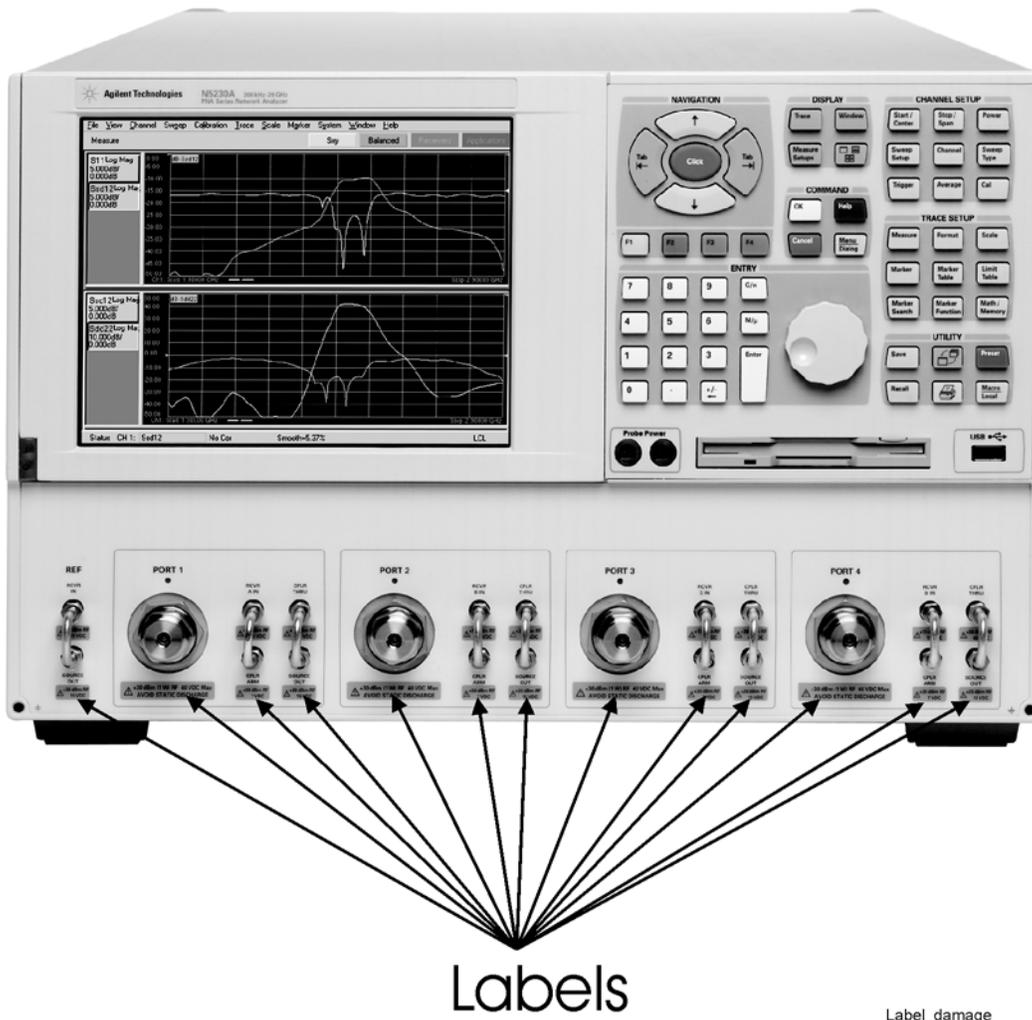
2 Installing Your Analyzer

STEP 1. Check the Shipment

1. Unpack the contents of the shipping container. Keep the packaging material in case the analyzer needs to be returned to the factory.

WARNING	**The network analyzer is heavy. It is recommended that two individuals, or a mechanical lift, be used to lift or transport the instrument.**

NOTE	The PNA is shipped with ESD-safe protective end caps on the test ports and metal covers for the front-panel jumpers. Save these items for reuse to ensure shipment safety of the PNA.

2. Carefully inspect the analyzer to make sure that it was not damaged during shipment. If damaged, refer to "Contacting Agilent" on page 3-2.

3. Use the Contents List in the shipping container to verify the completeness of your shipment. If not complete, refer to "Contacting Agilent" on page 3-2.

STEP 2. Meet Electrical and Environmental Requirements

CAUTION	This instrument has autoranging line voltage input. Be sure the supply voltage is within the specified range.

1. Ensure the available AC power source meets the following requirements:

   - Frequency

     ❑ Models E836xA/B/C and N5230A/C and N5244A and N5245A - 50/60/400 Hz for 100 to 120 V
     ❑ Models N5241A, N5242A and N5264A - 50/60 Hz for 100 to 120 V
     ❑ All Models - 50/60 Hz for 220 to 240 VAC

   - Voltage

     ❑ 100/120/220/240 VAC

   - Power (maximum consumed)

     ❑ Models E836xA/B/C and N5230A/C - 350 W
     ❑ Models N524xA/C and N5264A - 450 W

2. Ensure the operating environment meets the requirements found in "Environmental Information" on page 4-9.

NOTE	Some analyzer performance parameters are specified for 25 ×C. Refer to the Help system in the analyzer for the complete specifications.

3. Verify that the AC power cable is not damaged, and that the power-source outlet provides a protective earth contact.
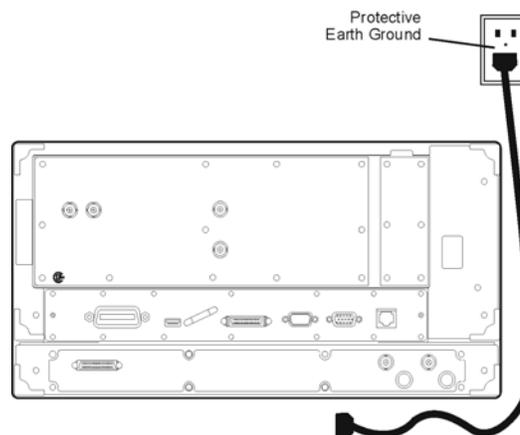
CAUTION	Always use the three-prong AC power cord supplied with this product. Failure to ensure adequate earth grounding by not using this cord may cause personal injury or product damage.

STEP 3. Install the Analyzer on a Bench Top or in an Equipment Rack

IMPORTANT	Please review all safety information located in Chapter 4 , "Safety, Regulatory, and Environmental Information," before proceeding with installing and using the analyzer.

The analyzer can be installed on a bench top or in an equipment rack. When installing an analyzer equipped with handles in an equipment rack, use Option 1CP. When installing an analyzer not equipped with handles in an equipment rack, use Option 1CM.

In all installations, consider the following ventilation requirements when deciding where to set up your analyzer.

CAUTION	**Ventilation Requirements:** When installing the product in a cabinet, the convection into and out of the product must not be restricted. The ambient temperature (outside the cabinet) must be less than the maximum operating temperature of the instrument by 4 ×C for every 100 watts dissipated in the cabinet. If the total power dissipated in the cabinet is greater than 800 watts, then forced convection must be used.

Refer to the section, listed below, that applies to your installation.

To Install on a Bench Top

When you install the analyzer for bench top use, you may wish to attach the supplied handles to the analyzer.

If you wish to install the handles, follow the instructions provided with the handle kit.

To Install in an Equipment Rack
(Option 1CP - Rack Mounting For Instruments Equipped With Handles)
(Option 1CM - Rack Mounting For Instruments Not Equipped With Handles)

When you install the analyzer in an equipment rack, you must install rails in the rack to support the weight of the analyzer. Attach either the Option 1CP or Option 1CM rack mount flanges to the analyzer. Secure the analyzer to the equipment rack. Replace the analyzer bottom plastic feet with the hole plugs provided.

For installation, follow the instructions provided with the rack mount kit and the rail kit.

STEP 4. Connect the Accessories

You can connect several USB accessories to the PNA. Some PNA models have a four-port USB hub mounted internally and accessible through the rear panel. You can also use an optional USB Hub (model N4689) to increase the available USB ports on the PNA.

USB devices, including the optional hub, can be connected to any available USB port. The PNA will recognize the USB device when it is connected, and run the appropriate software driver to make the device operate correctly. However, there is a limit to the amount of current that the PNA USB ports can provide. See PNA Help - "USB port specifications" (index entry) for more information.

The following is a list of USB devices commonly used with the PNA. Some of these devices may require additional installation. Refer to the Help that is embedded in the PNA for more information.

- Mouse — standard
- Keyboard — standard
- Read/Write CD-ROM drive (separate product)
- USB Hub (separate product)
- Printer (separate product)

NOTE   Do NOT connect an ECal module to the USB until after the PNA is started. Once started, press the front panel Help button to learn about 'Connecting an ECal module for the first time.'

STEP 5. Install Ferrite Cores

CISPR 11 is an international regulation that specifies the maximum level of frequency emissions that can originate from an electronic device. The regulation is designed to minimize the interference that one electronic device may have with another.

Frequency emissions can occur when cables are connected to an electronic device. To minimize this, try to use high-quality cables with built-in molded ferrite cores, with the core closest to the PNA. If cables with built-in cores cannot be found, use one of the clamp-on ferrite cores that are included with the PNA. It is especially important to use these cores on USB cables and LAN cables.

The core should snap closed to grip the cable firmly, but without damaging the cable. Attach the core to the cable as close as possible to the PNA connector end. Cable ties are included to help ensure that the ferrite cores remain in place.

CABLE
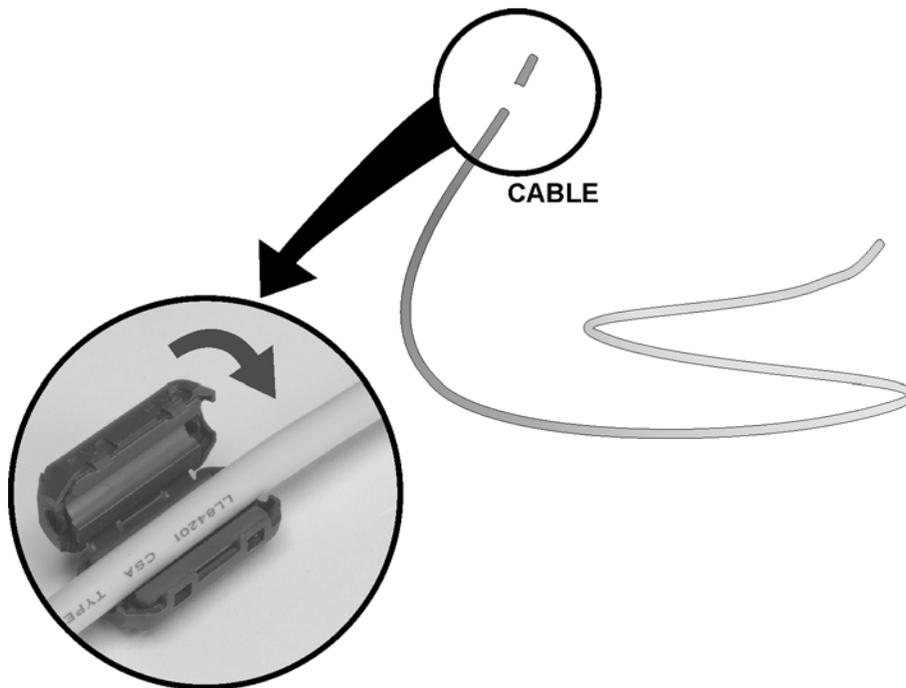
E8356_001_201

STEP 6. Start Up the Analyzer

CAUTION	Install the instrument so that the detachable power cord is readily identifiable and is easily reached by the operator. The detachable power cord is the instrument disconnecting device. It disconnects the mains circuits from the mains supply before other parts of the instrument. The front panel switch is only a ON/Standby switch and is not a LINE (OFF) switch. Alternatively, an externally installed switch or circuit breaker (which is readily identifiable and is easily reached by the operator) may be used as a disconnecting device.

1. Connect the AC power cable.

jc810a
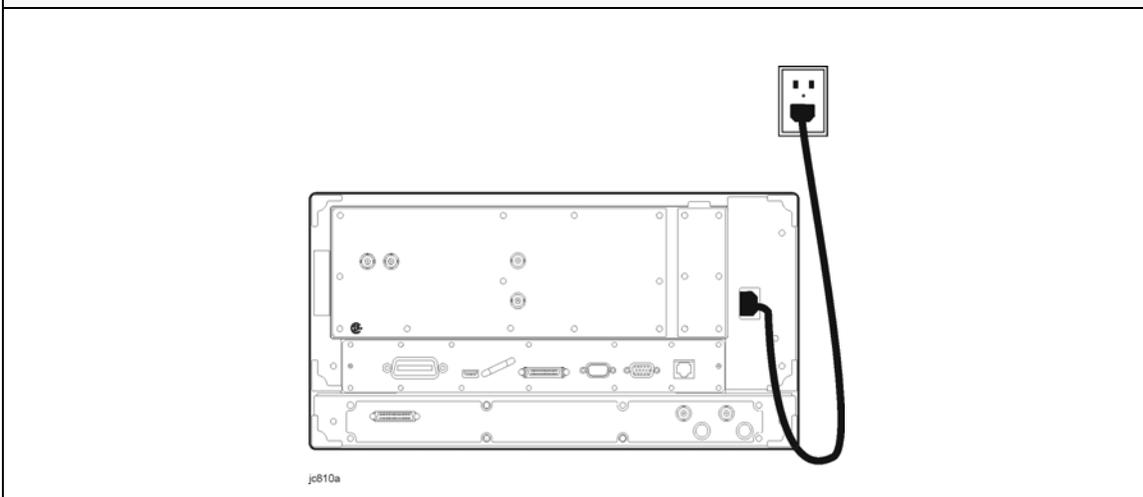
2. Turn the analyzer on by pressing the front panel On/Standby switch.

CAUTION	Do **NOT** press keys on the front panel, rotate the RPG knob, or connect a USB device during boot up of Windows or of the PNA application program. Doing so may lead to a front panel lockup state.

jc859a
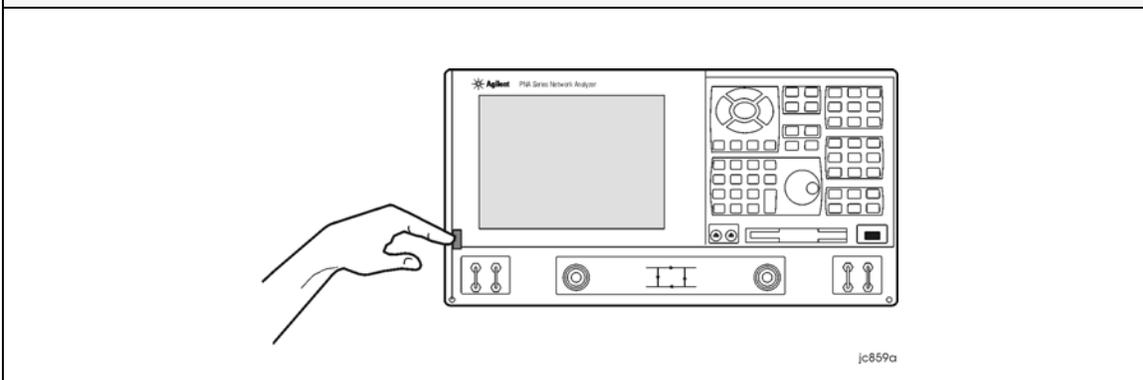
NOTE	This product contains the Windows XP operating system. The Network Analyzer application is supported and qualified only with Windows XP. The Windows Vista Certificate of Authenticity is valid and applies to the Windows XP installation.

The first time you start the PNA, the Microsoft Windows license agreement is presented. Click **I Accept**, then **Next**.

STEP 7. Perform Administrative Tasks

We recommend that you consider performing the following administrative tasks shortly after powering up the analyzer for the first time.

❏ Set up the administrator password

❏ Enter the computer name

❏ Set the time and date

NOTE	Do NOT create additional User Accounts until you have read the PNA Help file topic: **"PNA User Accounts and Passwords"** which states why and how this should be done.

Procedures for the above tasks are in the Help system in the analyzer. To view these procedures:

- On the analyzer's front panel, press the **Help** button. Or, on the PNA display, click **Help**, **Network Analyzer Help**.

- Click **Quick Start** in PNA Help.

- Click **Perform Administrative Tasks**.
- Click the task you wish to perform.

STEP 8. Run the Operator's Check

The operator's check should be performed when you first receive your analyzer, and any time you wish to have confidence that the analyzer is working properly. The operator's check does not verify performance to specifications, but should give you a high degree of confidence that the instrument is performing properly.

Press **System**, then **[Service]** softkey, then **[Operator's Check].** Follow the prompts.

For assistance, use the **Help** button displayed on the screen of the Operator's Check.

STEP 9. Turn Off the Analyzer

To turn the PNA OFF:

BRIEFLY press the front panel On/Standby switch.

A dialog box is presented: **What do you want the computer to do?**

Using a mouse or the front panel **Navigation** and **Enter** keys, choose an action:

- Log off (close programs and disconnect from the network)
- Restart (shutdown and start)
- Hibernate (see below)
- Shutdown (see below)

Hibernate

The On/Standby indicator changes from green to yellow when power is OFF.

The current instrument state is saved to the PNA hard disk drive.

When the PNA is powered ON, this instrument state is loaded, thus saving time over a full system boot-up.

A password is not required to resume PNA operation from Hibernate mode.

For more hibernate information, type "hibernate" in the index of the PNA Help system.

Shutdown

The On/Standby indicator changes from green to yellow when power is Off.

The current instrument state is NOT saved to the PNA hard disk drive.

When the PNA is powered ON, a full system boot-up is performed and the PNA powers-up in the Preset settings.

IMPORTANT   Only turn off the PNA using Shutdown mode when preparing to service it, or provide security via password protection.

Note: Repeatedly doing either of the following two actions WILL cause damage to the PNA Hard Disk Drive.

1. **Only in an emergency** should the power cord be removed from the PNA without first being put in Hibernate or Shutdown mode.

2. If the PNA is locked and you cannot operate the mouse or keypad, turn OFF the PNA by pressing and holding the power button for at least four seconds.

Preventing PNA Hard Drive Problems

The leading cause of PNA failures is problems with the PNA Hard Disk Drive (HDD). These problems are usually preventable, and in many cases, recoverable. The following could save you weeks of downtime and the cost of replacing your PNA HDD.

Observe Proper Shutdown Procedures

See previous pages.

Do NOT Modify or Reconfigure the Operating System

The Microsoft Windows operating system has been modified and optimized by Agilent to improve the performance of the PNA.

- Do NOT install a standard version of the Windows operating system on the PNA.

- Do NOT change advanced performance settings or group policies.

- Do NOT add or delete any hard disk drive partitions on the PNA.

- Do NOT delete the Agilent user account unless in a secured environment.

- Do NOT modify any of the Agilent software registry entries.

Install Antivirus Protection

The PNA does NOT have antivirus protection when shipped. Use of an antivirus program is strongly recommended if you connect the PNA to the Internet.

In addition, the use of a firewall could help to protect the PNA from viruses. However, some firewalls could limit DCOM connectivity of the PNA.

Install Windows Critical Updates

The PNA is always shipped with the latest service packs and critical updates that were available at the time that the PNA is produced. We recommend that you maintain the latest available protection for your PNA by automatically accepting and installing the latest critical security patches from the Microsoft Windows Update website: http://windowsupdate.microsoft.com.

Use AgileUpdate

If your PNA is connected to the Internet, use AgileUpdate to obtain the latest firmware. On the PNA, press **System, then [Service]** softkey**,** then **[AgileUpdate]** to automatically update your firmware to the current revision.

If your PNA is NOT connected to the Internet, you must update firmware using a pen drive. When updating, avoid skipping a major PNA firmware revision. For example, to update from A.06.xx to A.08.xx, first install any version of A.07.xx, then update to A.08.xx.

3 Getting Help with Your Analyzer

Help System

Use on-line Help to quickly reference programming and user documentation. English, Chinese, French, German, Japanese, and Spanish language versions are available through the Help menu. (Programming information is only available in English.)

We recommend that you begin by accessing Help and reading the topics in the Quick Start section. To access this information:

- On the analyzer's front panel, press the **Help** button. Or, on the PNA display, click **Help**, **Network Analyzer Help**.

- Click **Quick Start** in PNA Help.

PNA on the Internet

The PNA Family Network Analyzer System Web page is another resource for help with the analyzer. This Web page has links to information about equipment and literature related to PNA family network analyzers. You can visit the Agilent Technologies web site where you can find product information, service notes, training information, application notes, online manuals, and other information. To access the PNA Family Network Analyzer System Web page:

- Click **Help**.

  — Or, on the analyzer's front panel, press **Menu/Dialog**. Next, in the **NAVIGATION BLOCK**, press the Left Tab several times to move to **Help**.

- Click **Network Analyzer on the Web**.

Contacting Agilent

Assistance with test and measurements needs and information on finding a local Agilent office are available on the Web at:
www.agilent.com/find/assist

If you do not have access to the Internet, please contact your Agilent field engineer.

NOTE	In any correspondence or telephone conversation, refer to the Agilent product by its model number and full serial number. With this information, the Agilent representative can determine whether your product is still within its warranty period.

4 Safety, Regulatory, and Environmental Information

Maintenance

To remove dirt or dust from the external case of the network analyzer, clean the case using a dry or slightly-dampened cloth only.

WARNING   **To prevent electrical shock, disconnect analyzer from mains before cleaning. Use a dry cloth or one slightly dampened with water to clean the external case parts. Do not attempt to clean internally.**

Shipment for Service

Contact Agilent Technologies for instructions on where to ship the analyzer for service. Refer to .

Ship the analyzer using the original packaging materials. Shipping the analyzer in anything other than the original packaging may result in non-warranted damage.

Safety Symbols

The following safety symbols are used throughout this manual. Familiarize yourself with each of the symbols and its meaning before operating this instrument.

CAUTION   Caution denotes a hazard. It calls attention to a procedure that, if not correctly performed or adhered to, would result in damage to or destruction of the product. Do not proceed beyond a caution note until the indicated conditions are fully understood and met.

WARNING   **Warning denotes a hazard. It calls attention to a procedure which, if not correctly performed or adhered to, could result in injury or loss of life. Do not proceed beyond a warning note until the indicated conditions are fully understood and met.**

General Safety Considerations

Safety Earth Ground

CAUTION **The Mains wiring and connectors shall be compatible with the connector used in the premise electrical system. Failure to ensure adequate earth grounding by not using the correct components may cause product damage and serious injury.**

Before Applying Power

WARNING **If this product is not used as specified, the protection provided by the equipment could be impaired. This product must be used in a normal condition (in which all means for protection are intact) only.**

WARNING **If an instrument handle is damaged, you should replace it immediately. Damaged handles can break while you are moving or lifting the instrument and cause personal injury or damage to the instrument.**

CAUTION This instrument has autoranging line voltage input. Be sure the supply voltage is within the specified range.

CAUTION This product is designed for use in Installation Category II and Pollution Degree 2 per IEC standards.

CAUTION **Ventilation Requirements:** When installing the product in a cabinet, the convection into and out of the product must not be restricted. The ambient temperature (outside the cabinet) must be less than the maximum operating temperature of the instrument by 4 °C for every 100 watts dissipated in the cabinet. If the total power dissipated in the cabinet is greater than 800 watts, then forced convection must be used.

CAUTION The measuring terminals on this instrument are designed to be used with external signals described in Measurement Category I, but NOT with external signals described in Categories II, III, and IV. The input of this instrument cannot be connected to the mains.

Servicing

WARNING	**These servicing instructions are for use by qualified personnel only. To avoid electrical shock, do not perform any servicing unless you are qualified to do so.**

WARNING	**Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended. Discard used batteries according to local ordinances and/or manufacturer's instructions.**

WARNING	**Procedures described in this document may be performed with power supplied to the product while protective covers are removed. Energy available at many points may, if contacted, result in personal injury.**

WARNING	**No operator serviceable parts inside. Refer servicing to qualified personnel. To prevent electrical shock, do not remove covers.**

WARNING	**The opening of covers or removal of parts may expose dangerous voltages. Disconnect the instrument from all voltage sources while it is being opened.**

WARNING	**For continued protection against fire hazard, replace line fuse only with same type and rating. The use of other fuses or material is prohibited.**

WARNING	**The detachable power cord is the instrument disconnecting device. It disconnects the mains circuits from the mains supply before other parts of the instrument. The front panel switch is only a standby and ON switch and is not a LINE switch (disconnecting device).**

Regulatory Information

This section contains information that is required by various government regulatory agencies.

Instructions for Use

This product has been designed and tested in accordance with accepted industry standards, and has been supplied in a safe condition. The documentation contains information and warnings that must be followed by the user to ensure safe operation and to maintain the product in a safe condition.

Install the instrument so that the detachable power cord is readily identifiable and is easily reached by the operator.

The detachable power cord is the instrument disconnecting device. It disconnects the mains circuits from the mains supply before other parts of the instrument. **The front panel switch is only a standby and ON switch and is not a LINE switch (disconnecting device).**

Alternatively, an externally installed switch or circuit breaker (which is readily identifiable and is easily reached by the operator) may be used as a disconnecting device.

WARNING	**The PNA display must remain in the 16 bit color setting in order to comply with international emissions regulations.**

Instrument Markings

The instruction documentation symbol. The product is marked with this symbol when it is necessary for the user to refer to the instructions in the documentation.

This symbol indicates that the instrument requires alternating current (ac) input.

This symbol indicates separate collection for electrical and electronic equipment, mandated under EU law as of August 13, 2005. All electrical and electronic equipment are required to be separated from normal waste for disposal (Reference WEEE Directive, 2002/96/EC.

This symbol indicates that the power line switch is ON.

This symbol indicates that the power line switch is in the STANDBY position.

This symbol indicates that the power line switch is in the OFF position.

This symbol is used to identify a terminal which is internally connected to the product frame or chassis.

The CE mark is a registered trademark of the European Community. (If accompanied by a year, it is when the design was proven.)

The CSA mark is a registered trademark of CSA - International. This instrument complies with Canada: CSA 22.2 No. 61010-1-04.

ISM1-A

This is a symbol of an Industrial Scientific and Medical Group 1 Class A product.

ICES/NMB-001

This is a marking to indicate product compliance with the Canadian Interference-Causing Equipment Standard (ICES-001).

Direct current.

This is a required mark signifying compliance with an EMC requirement. The C-Tick mark is a registered trademark of the Australian Communications and Media Authority.

China RoHS regulations include requirements related to packaging, and require compliance to China standard GB18455-2001.

This symbol indicates compliance with China RoHS regulations for paper/fiberboard packaging.

Declaration of Conformity

A declaration of conformity is available upon request, or a copy is available on the Agilent Technologies Web site at http://regulations.corporate.agilent.com/DoC/search.htm or by contacting Agilent - see "Contacting Agilent" on page 3-2.

Compliance with German Noise Requirements

This is to declare that this instrument is in conformance with the German Regulation on Noise Declaration for Machines (Laermangabe nach der Maschinenlaermrerordung –3.GSGV Deutschland).

Acoustic Noise Emission/Geraeuschemission	
LpA<70 dB	Lpa<70 dB
Operator Position	am Arbeitsplatz
Normal Operation	normaler Betrieb
per ISO 7779	nach DIN 45635 t. 19

EMC and Safety Information

For E8356/7/8A, E8801/2/3A, and N3381/2/3A PNA Network Analyzers Only

EMC Information Complies with European EMC Directive 89/336/EEC, amended by 93/68/EEC.

- IEC/EN 61326
- CISPR Pub 11 Group 1, class A
- AS/NZS CISPR 11
- ICES/NMB-001

Safety Information Complies with European Low Voltage Directive 73/23/EEC,

amended by 93/68/EEC

- IEC/EN 61010-1:2001 (Second Edition)
- Canada: CSA C22.2 No. 61010-1-04
- USA: UL 61010-1

For N5230A PNA Network Analyzers Only

EMC Information   Complies with European EMC Directive 2004/108/EC.

- IEC/EN 61326-2-1

This product complies with the Electrostatic Discharge immunity requirement in IEC/EN 61326-2-1. Degradation of the USB port can occur during the instance of an electrostatic discharge. The USB device operation can be recovered by unplugging and reconnecting the device to the USB port.

This product complies with the radiated electromagnetic field immunity requirement in IEC/EN 61326-2-1. Degradation of some product specifications can occur in the presence of ambient electromagnetic fields. The product self-recovers and operates as specified when the ambient field is removed.

This product complies with the Electrical Fast Transient/Burst immunity requirement in IEC/EN 61326-2-1. Degradation of some product specifications can occur during the instances of power line electrical transients. The product self-recovers and operates as specified after the fast transients are removed.

- CISPR Pub 11 Group 1, class A
- AS/NZS CISPR 11
- ICES/NMB-001

Safety Information   Complies with European Low Voltage Directive 2006/95/EC

- IEC/EN 61010-1, Second Edition
- Canada: CSA C22.2 No. 61010-1-04
- USA: UL std no. 61010-1, Second Edition

For E8361/2/3/4A, E8362/3/4B, E8361/2/3/4C and N5230C PNA Network Analyzers and for N5264A PNA-X Measurement Receivers Only

EMC Information   Complies with European EMC Directive 2004/108/EC.

- IEC/EN 61326-1

- CISPR Pub 11 Group 1, class A

- AS/NZS CISPR 11

- ICES/NMB-001

Safety Information   Complies with European Low Voltage Directive 2006/95/EC

- IEC/EN 61010-1, Second Edition
- Canada: CSA C22.2 No. 61010-1-04
- USA: UL std no. 61010-1, Second Edition

For N524xA PNA-X Network Analyzers

EMC Information Complies with European EMC Directive 2004/108/EC.

- IEC/EN 61326-2-1
- CISPR Pub 11 Group 1, class A
- AS/NZS CISPR 11
- ICES/NMB-001

Safety Information Complies with European Low Voltage Directive 2006/95/EC

- IEC/EN 61010-1, Second Edition
- Canada: CSA C22.2 No. 61010-1-04
- USA: UL std no. 61010-1, Second Edition

Environmental Information

NOTE   Samples of this product have been type-tested in accordance with the Agilent Environmental Test Manual and verified to be robust against the environmental stresses of storage, transportation and end-use; those stresses include but are not limited to temperature, humidity, shock, vibration, altitude and power-line conditions. Test methods are aligned with IEC 60068-2 and levels are similar to MIL-PRF-28800F Class 3.

Table 4-1   Environmental Information

Parameter	Required Values/Ranges
Temperature	For Indoor Use ONLY
Operating	0 °C to +40 °C
	The instrument powers-up and displays no error messages within this temperature range (except for "source unleveled" error message that may occur at temperatures outside the specified performance temperature range of 25 ± 5 °C).
Storage	−40 °C to +70 °C
Error-corrected range	23 °C ±3 °C with less than 1 °C deviation from calibration temperature
Altitude	
Operating	0 to 4,600 meters (≈15,000 feet)
Relative humidity	Type tested, 0% to 95% at 40 °C, non-condensing
Note: In conditions of very high humidity (below 95%) at changing temperature, there is a small risk of internal condensation that could cause the CPU real-time clock to temporarily stop incrementing time.	

Warranty

The actual warranty on your instrument depends on the date it was ordered as well as whether or not any warranty options were purchased at that time. To determine the exact warranty on your instrument, contact Agilent Technologies with the model and serial number of your instrument. Refer to "Contacting Agilent" on page 3-2.