Noise Figure Analyzers
NFA Series

Setup Guide

Agilent Technologies

Manufacturing Part Number: N8972-90102
December 2001

Safety Notices

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

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.

NOTE *Note* calls out special information for the user's attention. It provides operational information or additional instructions of which the user should be aware.

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 is used to mark the on position of the power line switch.

This symbol is used to mark the standby position of the power line switch.

This symbol indicates that the input power required is AC.

WARNING **This is a Safety Class 1 Product (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 protected earth contact. Any interruption of the protective conductor inside or outside of the product is likely to make the product dangerous. Intentional interruption is prohibited.**

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.**

Warranty

This Agilent Technologies instrument product is warranted against defects in material and workmanship for a period of three years from date of shipment. During the warranty period, Agilent Technologies will, at its option, either repair or replace products which prove to be defective.

For warranty service or repair, this product must be returned to a service facility designated by Agilent Technologies. Buyer shall prepay shipping charges to Agilent Technologies and Agilent Technologies shall pay shipping charges to return the product to Buyer. However, Buyer shall pay all shipping charges, duties, and taxes for products returned to Agilent Technologies from another country.

Agilent Technologies warrants that its software and firmware designated by Agilent Technologies for use with an instrument will execute its programming instructions when properly installed on that instrument. Agilent Technologies does not warrant that the operation of the instrument, or software, or firmware will be uninterrupted or error-free.

LIMITATION OF WARRANTY

The foregoing warranty shall not apply to defects resulting from improper or inadequate maintenance by Buyer, Buyer-supplied software or interfacing, unauthorized modification or misuse, operation outside of the environmental specifications for the product, or improper site preparation or maintenance.

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EXCLUSIVE REMEDIES

THE REMEDIES PROVIDED HEREIN ARE BUYER'S SOLE AND EXCLUSIVE REMEDIES. AGILENT TECHNOLOGIES SHALL NOT BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, WHETHER BASED ON CONTRACT, TORT, OR ANY OTHER LEGAL THEORY.

Unpacking the Noise Figure Analyzer

Step 1. Inspect the shipping container and keep the container and cushioning material until you have inspected the Noise Figure Analyzer.

If the shipping container is damaged or the cushioning material shows signs of stress, notify the carrier. Keep the shipping materials for the carrier's inspection.

Step 2. Unpack the Noise Figure Analyzer and verify that the package contents are complete as listed below.

Description	Part No.	Quantity
Noise Figure Analyzer	N8972/3/4/5A	1
Setup Guide (this guide)	N8972-90102	1
Quick Reference Guide	N8972-90082	1
Performance Verification & Calibration Guide	N8972-90083	1
User Documentation CD-ROM	N8972-90085	1
Calibration Certificate	5963-6004	1
BNC cable for use with a Normal Noise Source	8120-1840	1
12 way cable for use with a Smart Noise Source	8120-8319	1
Precision 3.5mm Coaxial Adaptor (Models N8974A and N8975A)	83059B	1
Power cable	Depends on country	1

If the package contents are incomplete, or any parts are damaged, contact your Agilent Technologies representative.

Preparing for Setup

Check the Power Requirements

CAUTION This instrument is designed for use in Installation Category II and Pollution Degree 2 per IEC 61010 and 60664 respectively.

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

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

The Noise Figure Analyzer is a portable instrument and requires no physical installation other than connection to a power source. There is no need to select a line voltage. The AC power requirements are as follows:

- Voltage: 90-132 Vrms (47 to 440 Hz) or 195 - 250 Vrms (47 to 66 Hz)
- Power consumption when on: less than 300 W
- Power consumption when in standby mode: less than 5 W

Adjusting the Carrying Handle

Adjust the carrying handle of the Noise Figure Analyzer to the forward position by holding the handle as shown below, pulling each side outwards to release it and then rotating it to the desired angle.

Placing the Noise Figure Analyzer

Place the Noise Figure Analyzer on a flat, stable surface taking care to provide enough space on all sides to allow proper ventilation.

CAUTION

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 product 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.

For more details on installing the Noise Figure Analyzer in an instrument rack, see the Rack Mount Kit (Option 1CP) Installation Note.

Connecting the Power Cable

WARNING

Failure to ground the Noise Figure Analyzer properly can result in personal injury. Before turning on the Noise Figure Analyzer, you must connect its protective earth terminals to the protective conductor of the main power cable. Insert the main power cable plug only into a socket outlet that has a protective earth contact. DO NOT defeat the earth-grounding protection by using an extension cable, power cable, or autotransformer without a protective ground conductor.

If you are using an autotransformer, make sure its common terminal is connected to the protective earth contact of the power source outlet socket.

WARNING

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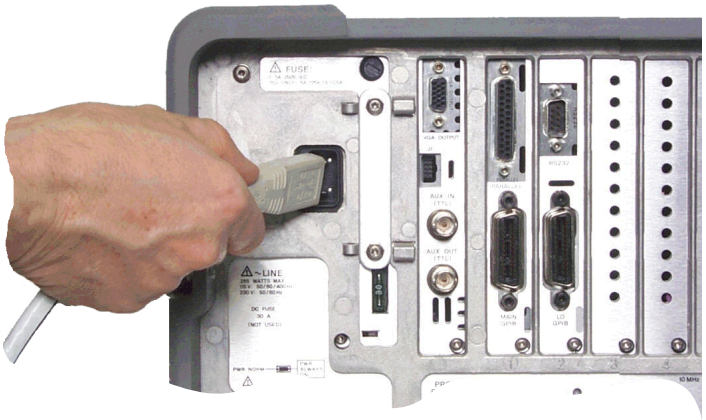
The Noise Figure Analyzer is equipped with a three-wire power cable, in accordance with international safety standards. When connected to an appropriate power line outlet, this cable grounds the instrument cabinet.

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 and/or product damage.

Connect the power cord as shown.



NOTE

Install the instrument so that the detachable power cord is easily identifiable and easily reached. The detachable power cord is the instrument disconnecting device and disconnects the mains circuits from the mains supply before other parts of the instrument. The front panel switch is only a standby switch and is not a LINE switch. Alternatively, you may use an externally installed switch or circuit breaker (which is easily identifiable and is easily reached) as a disconnecting device.

Powering On the Noise Figure Analyzer for the First Time

NOTE

A plastic protector disk is inserted into the Noise Figure Analyzer's disk drive to protect the drive in transit. You must remove this plastic disk before powering on the Noise Figure Analyzer. Keep it in a safe place in case you need to transport the Noise Figure Analyzer in future.

Power on

To power on your Noise Figure Analyzer press the On (|) key.

Welcome screen

Upon power-up, a welcome screen appears and when the Noise Figure Analyzer is ready for use, the welcome screen clears from the display.

NOTE

Record the firmware revision number and keep it for future reference. If you need to call Agilent Technologies for service or questions regarding the Noise Figure Analyzer, it is useful to have the firmware details ready.

You can also obtain the firmware version number when the Noise Figure Analyzer is operational — see the ***Noise Figure Analyzer NFA Series User's Guide*** for more details.

Warm-up time

To make sure your Noise Figure Analyzer meets specifications, make sure it meets operating temperature conditions, and allow a 60 minute warm-up time before making calibrated measurements.

Checking the Fuse

Where IEC regulations apply, use a 5 by 20 mm, rated F5A, 250 V IEC approved fuse. This fuse may be used with input line voltages of 115 V or 230 V. Its part number is 2110-0709.

Where UL/CSA regulations apply, use a 5 by 20 mm rated fast blow, 5 A, 125 V UL/CSA approved fuse (part number 2110-0756). This fuse may only be used with an input line voltage of 115 V.

The line fuse is housed in a fuse holder in the upper left hand corner of the rear panel.

To remove the fuse, first disconnect the power cord from the instrument. Then insert the tip of a screwdriver into the slot at the middle of the fuse holder, and turn counterclockwise to extend the fuse holder.

WARNING

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

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