FLUKE networks

EtherScope™ Series II

Network Assistant

Getting Started Guide

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Software Notice

The EtherScope™ Series II Network Assistant is powered in part by the Linux Operating System and other publicly available software. A machine-readable copy of the corresponding source code is available for the cost of distribution. Please contact the Fluke Networks Technical Assistance Center (1-800-283-5853) and visit the GNU web site (http://www.gnu.org) for more information.

Contains MatrixSSL™ security software licensed from PeerSec Networks Inc. See http://www.peersec.com for more information on MatrixSSL™ software.

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EtherScope™ Series II Network Assistant

About This Guide

This *EtherScope™ Series II Network Assistant Getting Started Guide* introduces you to the features and functions of your EtherScope™ Series II Network Assistant and provides basic instructions for setting up and operating the instrument. The information in this guide is designed to help you become comfortable using your new instrument. After reading this guide, you will find the online help system the best source for answering questions and helping use the product to maintain your network and troubleshoot problems as they arise.

Introduction

EtherScope™ Series II Network Assistant (hereafter also referred to as "the instrument" or "EtherScope Network Assistant") is a portable, integrated network test tool designed to assist you with installing, monitoring, and troubleshooting wired and/or wireless Local Area Networks (LANs). EtherScope Network Assistant gives you instant visibility into your network, providing crucial information about its health and status so that you can proactively identify and solve problems before they impact performance.

Features

EtherScope Network Assistant provides critical performance metrics about your wired and wireless LANs. The instrument's autotest feature quickly verifies performance at the physical layer, discovers networks and devices, and identifies configuration and performance problems. For in-depth analysis, the instrument also includes a group of diagnostic tools to enable you to locate devices on your network and verify inter-connectivity.

The instrument's user interface, which is presented on a color, touch-sensitive screen, is straightforward and intuitive. Simply by tapping a screen button, a navigation icon, or other on-screen element, you can "drill down" and obtain more detailed information or perform a specific operation.

Package Contents

Take a moment to check the shipping container to make sure that the contents match each accessory that is listed in Table 1.

If any item is damaged, call the carrier at once for an inspection and request an inspection report. Please do not write the factory until you have notified the carrier, since this will delay your claim. If this precaution is not taken, we cannot assist you in recovering the amount of the claim against the carrier.

After you obtain the carrier's inspection report, immediately return the instrument along with a copy of the report to the factory. See "Contacting Fluke Networks " on page 8 for various ways to contact us.

Table 1. Accessories

Item	Description
EtherScope Extended Test Kit	Includes additional accessories: spare rechargeable battery, external battery charger, external mini keyboard, wiremap adapters (#2-6), and large carrying case.
WireView™ wiremap adapter (office locator)	Cable termination device with office locator ID #1. Used to perform the Cable Test wiremap operation and used as an office locator.
WireView wiremap adapters	Set of five wiremap adapters with office locator IDs #2 through #6.
External Keyboard	USB mini keyboard.
Carrying Strap	Strap clips to the instrument for easy carrying
Stylus	Stylus for use with the instrument's touch screen display.
Battery Pack	Rechargeable Lithium Ion battery pack.
External Battery Charger	External battery charging station.
AC adapter, power cord	Input: 90V -264V AC, 50/60Hz; Output: 15V DC, 1.3A (20W); Power Cord termination varies by country.

Table 1. Accessories (continued)

Item	Description
Universal adapter RJ-45	Female-to-female adapter for connecting an RJ-45 Ethernet cable from the instrument to a WireView wiremap adapter.
Auto Lighter Charger	Charger for powering and charging the instrument via an automobile power outlet.
WLAN card	Fluke Networks EtherScope Wireless LAN Adapter IEEE 802.11 a/b/g.
External directional antenna	Directional antenna for use with WLAN card to locate WLAN devices.
1000BASE-SX Transceiver	Gigabit SX Fiber Optic SFP Transceiver.
1000BASE-LX Transceiver	Gigabit LX Fiber Optic SFP Transceiver.
1000BASE-ZX Transceiver	Gigabit ZX Fiber Optic SFP Transceiver.
Intellitone Probe	Probe for analog and digital toning.
Network Patch Cord	1-meter patch cord.

Safety and Operational Information

The international electrical symbols used in this document and on the instrument are described in Table 2.

Table 2. International Electrical Symbols

	Not for connection to public telephone systems		Complies to CSA C22.2 No. 950 Canadian standards, and UL 1950 (US standards)
	Please read the manual for safety information		Do not dispose of Lithium Ion batteries in garbage, recycle
	Complies with European Union Directive		Meets Australia EMC requirements
	Shock hazard		Recycle Lithium Ion batteries
	Class 1 Laser Product. Do not look into the laser.		

Please observe the following safety regulations when using your EtherScope Network Assistant:

⚠ Warning Class 1 Laser Product

This product contains a Class 1 laser (EtherScope Fiber Models). To prevent eye injury, do not look into the laser port.

⚠ Warning

To avoid possible electric shock or personal injury, follow these guidelines:

- **Do not use this product if it is damaged. Before using the product, inspect the case. Look for cracked or missing plastic.**
- **Do not operate the product around explosive gas, vapor, or dust.**
- **Do not open the case. There are no user-serviceable parts inside.**
- **Do not connect a telephone line to this product.**
- **If this product is used in a manner not specified by the manufacturer, the protection provided by the product may be impaired.**

⚠ Caution

- **To avoid possible damage to the instrument and to the equipment under test, use the proper terminals and cable for all connections.**
- **Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure (EtherScope Fiber Models).**

Registering Your Instrument

Take the time to register your instrument. The EtherScope Resource CD contains registration information and instructions.

You can also register the instrument by going to our website at **www.flukenetworks.com**. To register:

- If you are a registered user, click the **MyAccount Sign In** link. Supply your email address and password and then click Sign In .
- If need to set up an account, click the **Create an Account** link. Supply the required information and then click Submit .

As a registered user, you are entitled to entry-level product support. This includes basic access to the online Knowledge Base library of product operation and application information and web-based trouble ticketing. In addition, you will receive Fluke Networks company and product information updates.

After registering the product, make sure that you have the latest software installed. See "Updating the Software" on page 10 for details.

Care and Maintenance

To obtain reliable test results, always follow proper cleaning and maintenance procedures:

- To prevent moisture from entering the instrument, clean the front panel touch screen with a moist cloth only.
- Do not spray water directly on the front panel touch screen. Wipe the case with a damp cloth.
- Do not use organic solvents, acid, or alkali solutions.

Contacting Fluke Networks

To order accessories or to find out the location of the nearest Fluke Networks distributor or service center, contact us using any one of the following methods:


www.flukenetworks.com


support@flukenetworks.com


+1-425-446-4519

- Australia: 61 (2) 8850-3333 or 61 (3) 9329-0244
- Beijing: 86 (10) 6512-3435
- Brazil: (11) 3759 7600
- Canada: 1-800-363-5853
- Europe: +44-(0)1923-281-300
- Hong Kong: 852 2721-3228
- Japan: 03-3434-0510
- Korea: 82 2 539-6311
- Singapore: 65 6799-5566
- Taiwan: (886) 2-227-83199
- USA: 1-800-283-5853

Visit our website for a complete list of phone numbers.

Before You Begin

The information in this section acquaints you with the basic operations and functions of your instrument so that you can start using it immediately. You will learn how to:

- Turn on the instrument and configure the interface type for testing an Ethernet 802.3/802.1X wired or an 802.11 wireless network
- Update the instrument's software
- Change the language for Help and the user interface
- Adjust the brightness of the screen
- Set the date and time
- Recalibrate the screen
- Charge the battery
- Enable software options
- Navigate the user interface and understand the meanings of the LEDs
- Get Help

Using the Stylus

The stylus, which is used for navigating the user interface, is stored in the right side panel near the green **On/Off** button.

In the same way that you use a mouse to click elements on your computer screen, you use the stylus to "tap" elements on the instrument's touch-sensitive screen.

To select elements and execute commands, simply tap the item with the point of the stylus. In addition, use the stylus to drag a slider or move the scroll box on the scroll bar.

Note

Always use the point of the stylus to tap the screen. We do not recommend that you use a pen or pencil or any other sharp object that might scratch the finish.

Turning the Instrument On and Off

To turn the EtherScope Network Assistant on, press the green **On/Off** button. This button is located on the right side of the instrument's front panel.

The front page **Test Results** screen is displayed (see Figure 5 or Figure 10).

Note

When you turn on the instrument (wired mode only), you may hear a series of clicks. These sounds are a normal part of the boot-up and cable testing process and do not indicate a problem with the instrument.

To turn off the instrument, press and hold the **On/Off** button until the instrument turns off (approximately two seconds). The Power LED blinks when the instrument is turned off and connected to the AC adapter charger, indicating that the battery is charging.

Note

*To put the instrument in standby mode, press the **On/Off** button for less than one second. See "Conserving Battery Power" on page 16 for details.*

Selecting a LAN or WLAN Interface

If your instrument has the capability to test both a wired LAN (RJ-45 or SFP fiber interfaces) and a wireless LAN, you need to specify which technology you are testing.

1 On the front page, do the following:

- Tap WLAN Tests (see Figure 5) to test wireless interfaces.

  OR

- Tap LAN Tests (see Figure 10) to test the RJ-45 or SFP fiber interfaces.

2 On the **Change Active Port** screen, tap OK to change the interface.

The instrument resets itself and runs autotest on the selected interface.

Note

The interface type you select remains the same even after you power off the instrument.

Updating the Software

To get the latest features for your instrument, you need to make sure that you have the current version of software installed.

Check for Updates

1 Tap the EtherScope Master Menu icon  , which is located in the upper-left corner of the screen.

2 From the drop-down list, select **Instrument Settings**.

3 In the preview pane, tap **Version**.

The **Instrument Settings—Version** screen displays the versions of currently installed software and hardware.

4 To check for updates, make sure that the instrument is connected to the Internet and then tap Check for software updates.

The instrument automatically checks to determine whether a software update is available.

Install the Software

Caution

Previously loaded software on the CompactFlash memory card will be erased.

1 Insert a CompactFlash memory card into **SLOT 2** (see Figure 2).

2 When prompted, tap OK to download the update files to the CompactFlash memory card.

3 After you are notified that the download is completed, tap OK.

4 With the CompactFlash card in **SLOT 2**, restart the instrument to begin installing the software.

Note

A software update can take up to ten minutes.

After installation is completed, the instrument automatically restarts. You can resume testing.

Contact the Technical Assistance Center (see "Contacting Fluke Networks " on page 8) if you have trouble updating the software.

Update the Language File

The CompactFlash memory card contains updated language files for Help and the user interface. To update the instrument with the new language files, you need to transfer those files to the instrument. Follow the instructions under the "Language Settings" topic in the online Help.

Changing the Help and User Interface Language

EtherScope Series II Network Assistant features multi-language support. Localized menus and online Help are available in the following languages:

- English
- French
- Spanish
- Portuguese
- Russian
- German
- Japanese
- Simplified Chinese

To determine whether language support is available on your instrument, do the following:

1 Tap the EtherScope Master Menu icon, which is located in the upper-left corner of the title bar.

2 From the drop-down list, tap **Instrument Settings**.

The **Instrument Settings —TCP/IP** screen (Figure 7) is displayed.

3 Tap the **Version** hyperlink in the left pane.

If the **Language Support** field has an extended notation as part of the version, a localized User Interface and online Help are available on your instrument.

4 To change the language setting:

a Tap the desktop icon, which is located in the bottom-left corner of the screen.

b Select **Settings**.

c Select **Language**.

The list of available languages is displayed.

d Select the desired language.

e Tap OK.

5 Restart the instrument to enable the language setting to take effect.

Adjusting the Brightness of the Screen

Note

The degree of brightness is a significant factor in conserving battery power. Turning the brightness up causes the instrument to use more battery power.

1 Tap then select **Settings**.

2 Tap the **Light & Power** icon.

3 On the **Light and Power** screen, you can do the following:

- Select the desired **Power saving** settings. To do this, tap (to check) an option. Then, for each option, specify a time interval.
- Adjust the brightness. To do this, tap and drag the slider control until the desired level of brightness is achieved.

4 Tap OK to save the settings.

Setting the Time and Date

Note

The current time is displayed in the lower right corner of the status bar.

1 Tap the current time.

2 Select **Set time** to display the **Date/Time** screen.

3 Select date and time settings and formats.

4 Tap OK to save your changes.

The instrument now displays the new time on the status bar.

Recalibrating the Screen

The touch-sensitive screen is calibrated at the factory. Though unlikely, the instrument may not respond properly when you tap the stylus on the screen. If this happens, you may need to recalibrate the screen. Recalibration aligns the instrument's internal circuitry with the screen so that it can correctly detect taps with the stylus.

To recalibrate your screen:

1 Using the stylus, tap the desktop icon  , which is located in the lower-left corner of the screen. From the menu, select  **Settings**.

2 On the **Settings** screen, tap the **Recalibrate** icon  .

Follow the prompts to complete the recalibration.

Enabling Software Options

If you purchased a software option for your EtherScope Network Assistant, you received a proof-of-purchase code along with a software option activation instruction card. Follow the instructions on the card to obtain a key code from the Fluke Networks website and use that key code to activate your option.

Note

If you need help obtaining your key code, contact Fluke Networks for assistance. See "Contacting Fluke Networks " on page 8 for information on how to contact us.

To enable one or more software options, have your instrument's key code handy, and then do the following:

1 Tap the EtherScope Master Menu icon  (located in the upper-left corner of each screen).

2 From the drop-down list, select **Instrument Settings**. Then, in the preview pane, tap the **Options** hyperlink.

The **Options** screen is displayed.

3 In the **Current Key Code** box, enter your key code.

Note

You can use a remote keyboard or tap  *to access the virtual keyboard.*

4 In the **EtherScope Options** group, tap (to check) each software option that you want to activate.

5 Tap 

.

The software options you selected are now enabled.

The Power Supply

You can operate the instrument by using the rechargeable Lithium-Ion battery. Alternatively, you can use the supplied AC adapter charger (with or without the battery installed).

Note

Although the instrument can run on the AC adapter without the battery pack installed, this method is not recommended. The battery pack provides stability for the instrument when you are using the stand.

Operating the Instrument on Battery Power

When the instrument is running on battery power, it is capable of approximately four full hours of operation in wired mode and 3.5 hours in wireless mode. The instrument comes packaged with the battery installed. To operate on battery power, simply turn the instrument on.

Although the battery is pre-charged at the factory, you should fully charge it before you begin using the instrument. This is an important step because if the power source is interrupted while you are operating the instrument, you will lose data.

Charging the Battery

Figure 2 shows you how to charge the battery. Note that you can charge the battery while it is installed or you can remove it and charge it in an external battery charger.

Notes

The Power LED blinks when the instrument is turned off and connected to the AC adapter charger.

You can optionally purchase an extra battery and/or charger.

When fully discharged, the battery takes approximately 4 1/2 hours to reach a full charge if the instrument is powered off. It takes approximately 7 hours to fully charge the battery if the instrument is powered on.

Checking the Status of the Battery Charge

To find out how much battery power remains, tap the battery icon  , which is located in the lower-right corner of every screen.

Conserving Battery Power

One way to conserve battery power is to put the instrument in standby mode. This is a low-power usage mode, in which the instrument is not completely turned on or off. While in standby mode, the instrument cannot collect data.

- To put the instrument in standby mode:
  - Tap  and then select  **Suspend**.

    OR
  - Press the green **On/Off** button for less than one second.

  The Power LED turns amber and the screen turns blank.

- To take the instrument out of standby mode, press the **On/Off** button. Release this button as soon as the Power LED turns green.

  The screen that was displayed before you put the instrument in standby mode is redisplayed.

Note

Another way to save battery power is to use a lower backlight setting. See "Adjusting the Brightness of the Screen" on page 13 for details.

Removing and Installing the Battery

The battery is located behind the product stand.

To remove the battery, refer to the diagram in Figure 1 and do the following:

1 Make sure the instrument is turned off.

2 Remove the yellow holster and pull the stand up.

3 Push the release tab away from the battery.

4 Pull up on the end of the battery that is close to the release tab to disengage the connections. Then, lift the battery out of the compartment.

To install the battery:

1 Insert the battery into the battery compartment.

2 Press on the battery near the release tab until it locks into place.

3 Push the release tab toward the battery to secure its position.

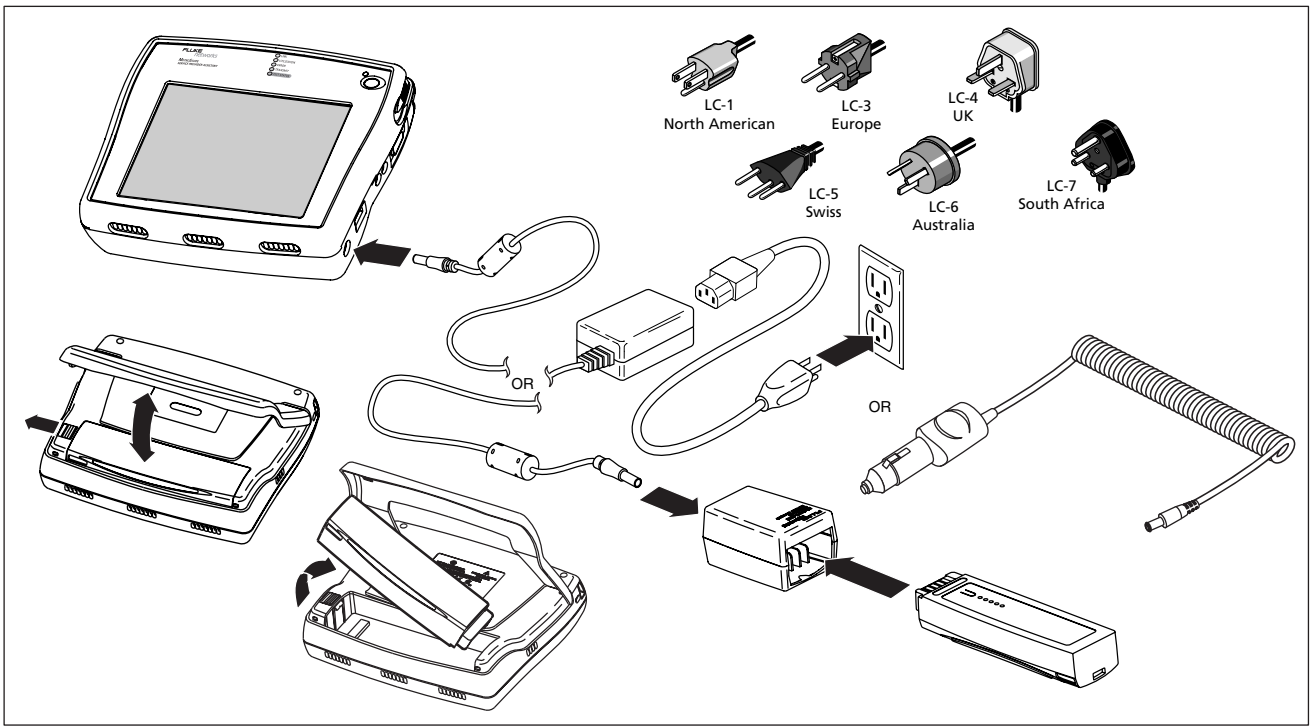

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Figure 1. Charging and Removing the Battery

Operating the Instrument on External Power

When the instrument is connected to AC power, you can use the power supply as a continuous power source. In this way, you can test for long periods of time without depleting the battery.

To operate the instrument using AC power, refer to Figure 2 and do the following:

1 Connect the power cord to the external AC adapter charger.

2 Connect the AC adapter charger to the power jack on the instrument's side panel.

3 Turn on the instrument.

You can also power the instrument and charge it at the same time with the (optional) auto lighter charger. Plug one end of the auto lighter charger into the instrument and the other end into a vehicle power outlet.

Physical Features

The EtherScope Network Assistant is designed to be used as a dispatched or desktop network test device. The instrument is shipped with a removable yellow holster that provides more protection for dispatched tasks.

The instrument is also packaged with a stand for use on a desktop. To access the stand, remove the yellow holster. Then, pull the stand out from the bottom of the instrument (see Figure 2).

A stylus for navigating the user interface is stored in the right side panel near the green **On/Off** button.

Figure 2 illustrates the EtherScope Network Assistant's physical features.

Network Connections

The instrument's network connections are located on the top side panel:

- **LAN copper**: an RJ-45 port that provides direct connection to IEEE 802.3 10/100/1000BASE-TX networks.
- **LAN fiber**: an SFP port that provides direct connection to networks through the optional 1000BASE-SX, 1000BASE-LX, or 1000BASE-ZX fiber connection.
- **SLOT 1**: a PCMCIA/CardBus® interface that supports an 802.11 wireless network. Accepts Fluke Networks EtherScope Wireless LAN Adapter IEEE 802.11 a/b/g.

External Interfaces

The following external interfaces are located on the instrument's right side panel:

- Serial DB-9: provides a network device connection via a serial cable.
- Headphone: enables quiet operation of the instrument (for future applications).
- Microphone: (for future applications).
- USB port: connection for an accessory, such as a keyboard or mouse

SLOT 2 is located on the top side panel. This interface accepts a CompactFlash® (type 1 and 2) memory card. This memory card enables you to store test data and temporarily hold files that are transferred from a PC during a software update

External Power Connection

The DC power jack is located on the instrument's right side panel. Plug the supplied AC adapter into this jack to provide external power to the EtherScope Network Assistant and to charge the battery.

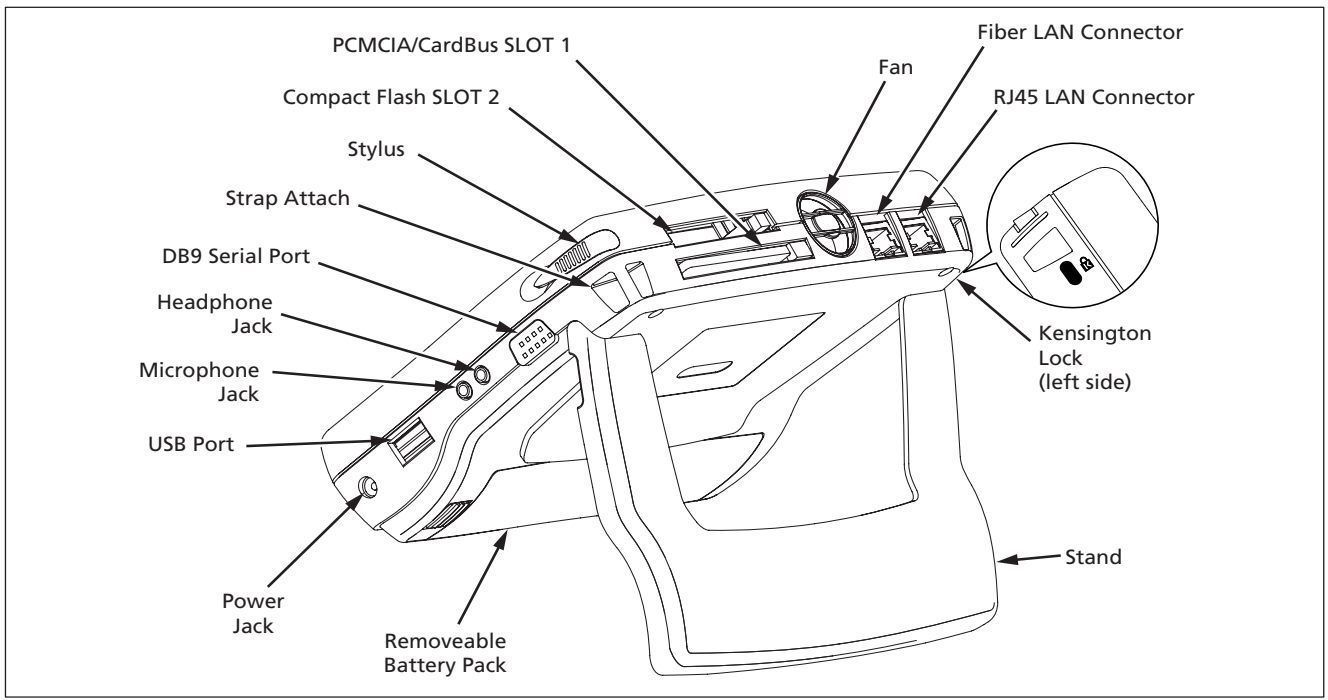

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Figure 2. EtherScope Network Assistant's Physical Features

Status LEDs

The status LEDs are located at the top of the front panel, as shown in Figure 3:

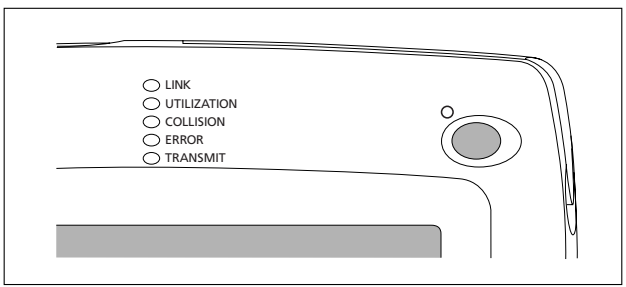

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Figure 3. Status LEDs

These LEDs provide instant, visible feedback on the state of your network and indicate conditions relative to the type of of interface (LAN RJ-45 or wireless) you are testing.

The following sections describe the LEDs for wired LAN and wireless LAN interfaces.

LAN (RJ-45 or Fiber) Interface LEDs

LINK

- Green (solid): indicates that a link is present for all speeds.
- Off: indicates that no cable or no link is present.

UTILIZATION

Represents the percent bandwidth consumed on the local network:

- Green (blinking): 0% to 50%.
- Amber (blinking): 51% to 89%.
- Red (blinking): 90% to 100%.

COLLISION

Amber (blinking): indicates that collisions have been detected by the instrument on the local network. The more collisions detected, the faster the LED blinks.

ERROR

Red (blinking): indicates that errors have been detected on the local network segment. Possible errors include the following:

- Bad FCS: a packet that has an invalid checksum.
- Undersized packet: a packet that has fewer than 64 bytes.
- Oversized packet: a packet that has more than 1518 bytes.
- Jabber: a packet that has more than 1518 bytes and also has an invalid checksum.
- Ghost: energy on a cable that appears to be a real frame but the frame does not have a valid start-frame delimiter.

TRANSMIT

Green (blinking): indicates the instrument is transmitting packets. Note that the more transmit activity, the faster the LED blinks.

Wireless LAN Interface LEDs

LINK

- Green: 802.11b link established.
- Amber: 802.11a or 802.11g link established.
- Off: no link is present.

UTILIZATION

Represents the percent bandwidth consumed on the current channel:

- Green: 1.0 % - 30.0 %.
- Amber: 31.0 % - 60.0 %.
- Red: 61 % - 100 %.

COLLISION

Amber: indicates that a retry packet was received.

ERROR

Red: indicates an FCS error was detected in a received packet.

TRANSMIT

Green: indicates that packets are being transmitted.

Power LED

- Green (solid): instrument turned on (same for both operating on battery and operating with AC power adapter connected).
- Green (flashing): instrument turned off with AC power adapter connected and charging.
- Amber: the instrument is in standby mode (see "Conserving Battery Power" on page 16).
- Off: instrument is turned off; no AC power adapter is connected.

The User Interface

The user interface is presented on a touch-sensitive, color screen. You navigate the interface by tapping the touch-sensitive targets with the supplied stylus.

This section describes the layout of the user interface and describes the elements that appear on some or all of the screens. Suggestions are also provided to help you locate screens and navigate your way around.

Screen Layout

The display screen is divided into two main areas:

- A preview pane (on the left), which provides an overview or summary of information for the item that is selected in the right (main) pane. The preview pane may also have hyperlinks (displayed in blue text) that link to other screens in the user interface.
- A main pane (on the right), which provides detailed information, such as test results, graphs, and status information.

Title Bar

The title bar is the horizontal area at the top of every screen that shows the name of the screen that is currently displayed.

In the upper-left corner, the title bar contains the EtherScope Master Menu icon  . This icon displays a menu that lists all of the “details” screens.

Selection Indicator

When you select an item, it is highlighted in a contrasting color to let you know that it is selected. When you first display a screen, the default selection is always highlighted.

Toolbar

The toolbar is the first row of buttons located at the bottom of every screen. The toolbar contains buttons and icons that are used to perform basic tasks.

Note

The toolbar buttons that are available depend on the test that is selected.

- 

: (RJ-45 LAN only) reports the actual link speed and duplex mode of the connection. Two solid arrows (shown) indicate a full-duplex connection; one solid and one outlined arrow represent a half-duplex connection.

- 

: (Fiber only) reports the link speed, full duplex (always), and the SFP hardware module installed (SX, LX, or ZX).

- 

: (WLAN only) indicates the current channel being scanned and shows linked status when the instrument is in a WLAN linked state.

- 

: displays detailed information or results for the selected test or device.

- 

: changes the interface type to WLAN.

- 

: changes the interface type to RJ-45 copper and fiber.

- 

: restarts all tests.

-  (Back): displays the previously displayed screen.

- (Home): displays **Test Results**, the top-level user interface screen.
- : displays screen-specific help (see "Getting Help" on page 30).
- : displays a menu of troubleshooting tests and productivity tools.

Status Bar

The status bar is located at the bottom of every screen. The following icons appear on the far left:

- Desktop icon. Tap to display a menu containing the following selections:

  Applications: displays a submenu containing the instrument's desktop tools (see "Using the Desktop Tools" on page 56).

  Reports: displays a directory that lists all saved reports.

  Settings: displays the **Settings** menu (see "Personalizing Your Instrument" on page 29).

  Suspend: puts the instrument in standby mode (see "Conserving Battery Power" on page 16).

- Keyboard icon. Tap it to display a virtual keyboard that you can use to enter numbers and text. Tap again to put the keyboard away.

  Note

  You can also use an external USB keyboard to enter information. Connect the keyboard to the instrument's USB port (shown in Figure 2).

- EtherScope Network Assistant icon. Tap this icon from any screen to return to the **Test Results** screen.

To the far right, the instrument displays the currently set time. To change the date and time, see "Setting the Time and Date" on page 13.

Additional icons give you status on the following;

- **Sound:** Tap it to view and adjust the volume of the touch screen's audible taps.
- **Light & Power:** Tap it to view and adjust the brightness of the screen (see "Adjusting the Brightness of the Screen" on page 13).
- Battery level: Tap it to find out how much battery power remains. If the battery is low on power, see "Charging the Battery" on page 16 for instructions.

The Clipboard icon is also located on the bottom right. Tap it to display a menu with cut, copy, and paste options. These options come in handy when you are working on screens requiring you to enter a lot of text.

Navigating the User Interface

Following are some general guidelines for navigating the user interface:

- All **blue text** represents a hyperlink. Tap the hyperlink to go to the desired screen.
- To display the detailed results screen for a specific test, tap (EtherScope Master Menu icon located in the upper-left corner of each screen). From the drop-down list, select the "details" screen for the selected item. Then, tap Details to go to the detailed results screen.
- To expand a group so that you can see individual items within it, tap ⊞. To collapse a group, tap ⊟.

- To sort data in a table, tap the desired column heading. A directional arrow indicates the column you are sorting on and the direction (ascending △ or descending▽) of the sort.
- Tap (Back) to return to the previously displayed screen.
- Tap (Home) to return to the **Test Results** screen.
- Tap to close a screen.

Personalizing Your Instrument

You can customize your instrument so that it suits your particular operating style and work preferences.

Tap and then tap **Settings** to display the **Settings** screen. On this screen, you can make the following changes to your instrument:

- **Appearance**

  Changes the style and background color of the screen and the visual appearance of the buttons.

- **Date/Time**

  Sets the date and time and changes the date/time formats.

- **Language**

  Changes the default Help language from English to one of the following: French, German, Japanese, Portuguese, Simplified Chinese, or Spanish.

- **Light & Power**

  Adjusts the brightness of the screen (see "Adjusting the Brightness of the Screen" on page 13) and identifies the power source.

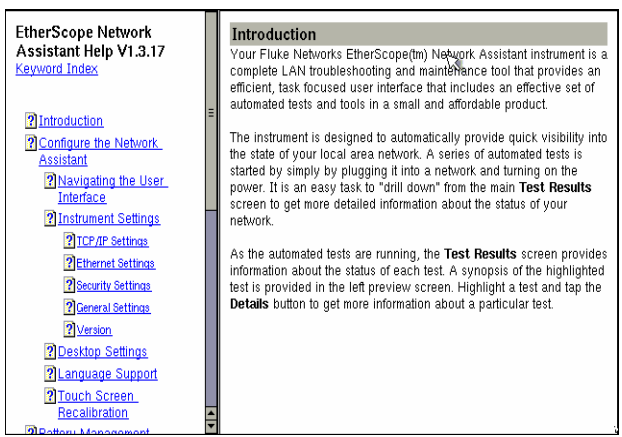
- **Sound**

  Adjusts the volume of system sounds (taps on the touch screen and clock alarm).

Getting Help

Screen-level Help is context-sensitive. It provides detailed "how to" and explanatory information that is related to the currently displayed screen. To view Help, tap .

EtherScope Network Assistant Help is displayed, as shown in Figure 4:



avs55s.bmp

Figure 4. Screen-Level Help

Note that Help for the current screen is displayed in the main (right) pane.

To move the information up or down within the Help window, drag the scroll box.

The Help window is resizable and moveable so that you can view test results alongside the context-sensitive Help information. To adjust the window:

- Tap the rectangular box (located in the upper right corner) to reduce the size of the window. Then, drag the bottom or right edge of the window frame to resize it.
- Drag the titlebar to move the window.

The preview (left) pane displays links for a **Table of Contents** and a **Keyword Index**, which is an alphabetized list of Help topics. Select a topic from either list to view its Help.

Note

The Help file is also available on the EtherScope Resource CD.

Accessing the Documentation on CD

This *Getting Started Guide* is provided in PDF format on the EtherScope Resource CD. The guide is available in the following languages: English, German, French, Spanish, Portuguese, Japanese, and Simplified Chinese.

Troubleshooting a Wired LAN

After you connect the instrument to your network and power it on, it automatically runs a series of tests that include verifying the cable and signal, gathering network utilization and bandwidth statistics, and actively discovering networks, services, and devices using the network.

The instrument also attempts to become an active device on the network by obtaining an IP address. By default, it tries to acquire an address by using DHCP.

Note

If your network policy requires the use of fixed IP addresses or if you need to change other network configuration data (such as the default router), see "Configuring the Instrument for a Wired LAN" on page 36.

If the instrument cannot acquire a valid IP address, it can still analyze traffic for statistics and passively discover devices. However, without a valid IP address, the instrument cannot run its active discovery tests.

The basic steps for monitoring and troubleshooting a wired LAN are given below. Detailed information for a step can be obtained by going to the referenced section provided at each step:

1 Power on the instrument (see "Turning the Instrument On and Off" on page 9).

2 If necessary, configure the interface type (see "Selecting a LAN or WLAN Interface" on page 10).

3 Connect to the network (see "Connecting to a Wired Network" on page 33).

4 After you turn on and connect the instrument, it goes through a complete power-up sequence, which entails initializing the processor and memory, performing a self-test, and loading the operating system and application software. When this process is completed, the autotest results screen (Figure 5) is displayed.

5 View autotest results for each test. See "Viewing AutoTest Results " on page 33.

6 Make any needed configuration changes to match your testing environment. See "Configuring the Instrument for a Wired LAN" on page 36.

Connecting to a Wired Network

To connect to the network, plug one end of an Ethernet cable into the instrument's RJ-45 LAN connector and the other end of the cable into the network segment you are testing.

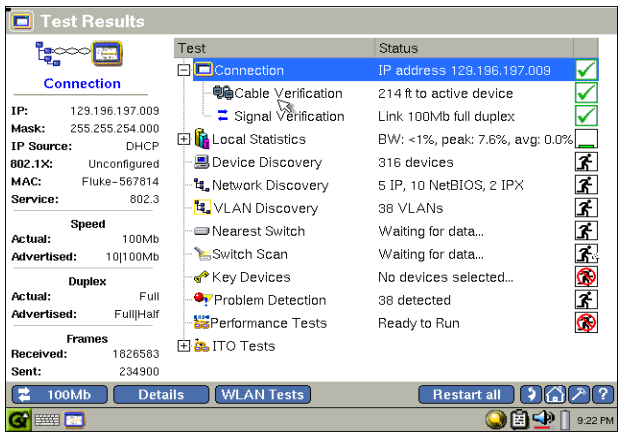
If you have purchased the optional Fiber SFP adapter for 1000BASE-SX, 1000BASE-LX, or 1000BASE-ZX, connect the fiber cable from the adapter to the network segment you are testing.

Note

Make sure you are using the correct fiber cable type for the installed optional fiber adapter type, or you may experience no link or bad test results.

Viewing AutoTest Results

After you power on the EtherScope Network Assistant and connect to the network, the instrument runs a series of automated tests and displays its findings on the **Test Results** screen, as shown in Figure 5.



feb40s.bmp

Figure 5. LAN Test Results Screen

The **Test Results** screen gives you at-a-glance visibility into the state of your network. The main pane on the right displays the name of each test and reports its status.

Note the status icons that appear along the right. They give you a visual indication of the progress and status of each test:

-  Running
-  Not running
-  Completed and passed
-  Completed and failed

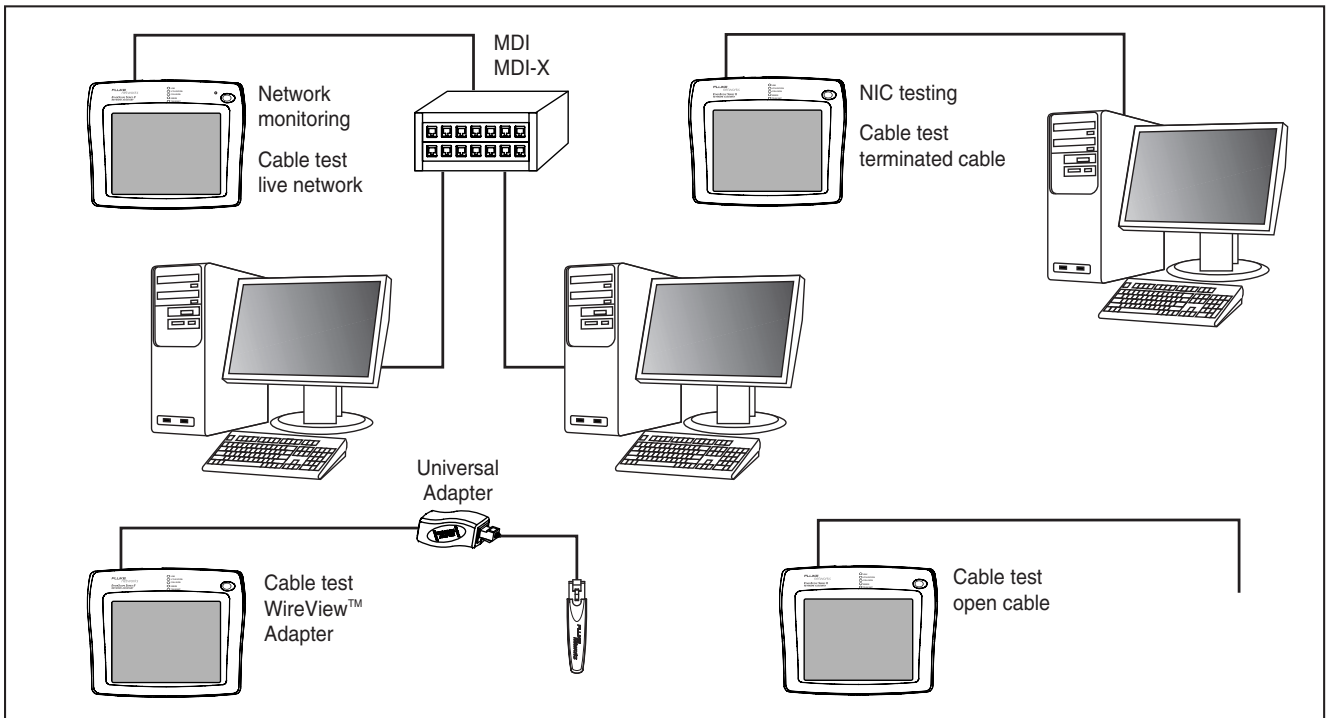
The preview pane on the left provides a summary of the results of the selected test.

Note

*When autotest finishes, the **Connection** test (the default selection) is highlighted.*

You can get a quick idea of the overall health of your network and see what devices and services are running by tapping each test in the main pane and then viewing a summary of its findings in the preview pane.

To view in-depth results for any test, select the test from the list in the main pane. Then, tap Details.



eih32f.eps

Figure 6. Testing Cables

Configuring the Instrument for a Wired LAN

Although EtherScope Network Assistant is designed to provide as much automated configuration as possible, every network is different. For the instrument to provide you with the best network analysis possible, you may need to change some of the default configuration settings.

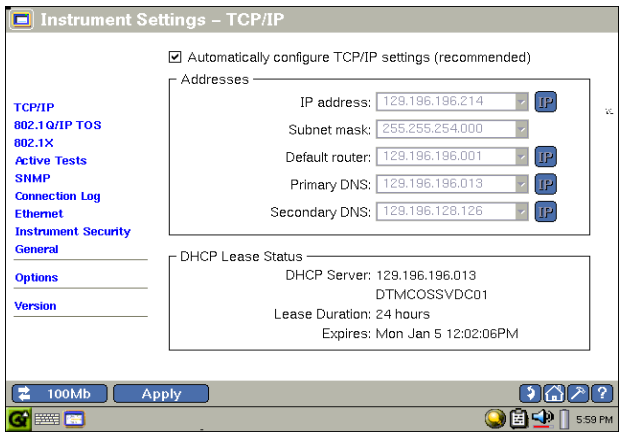
To access the instrument's configuration screens, do the following:

1 Tap the EtherScope Network Assistant icon, which is located in the upper-left corner of the title bar.

2 From the drop-down list, tap **Instrument Settings.**

The **Instrument Settings —TCP/IP** screen (Instrument Settings—TCP/IP Screen) is displayed (Figure 7).

On this screen, you configure the instrument's TCP/IP settings:



feb86s.tif

Figure 7. Instrument Settings—TCP/IP Screen

Tap a hyperlink in the preview pane to display other configuration screens, which are described in the sections that follow.

TCP/IP Settings

If DHCP is available, the **Instrument Settings—TCP/IP** screen (Instrument Settings—TCP/IP Screen) displays the address that the instrument is able to obtain.

If you want to manually configure the IP address or change the subnet mask, do the following:

Note

When manually assigning an IP address, you can use an address for an alternate subnet but that address must be in the same broadcast domain as the EtherScope Network Assistant.

1 Clear the **Automatically configure TCP/IP settings** checkbox to disable auto-configuration of the IP settings.

2 For the address field that you want to change, do the following:

- Tap IP and use the keyboard to type an IP address.

  OR

- Select an address from the drop-down list.

3 Tap Apply to save your changes.

802.1Q/IP TOS Settings

The 802.1Q/IP TOS settings define the VLAN tag in the header of an Ethernet packet. The instrument uses these settings during discovery, traffic generation, RFC 2544 tests, and network service tests to make decisions about routing traffic.

In the preview pane, tap **802.1Q/IP TOS** to display the **Instrument Settings— 802.1Q/IP TOS** screen. This screen enables you to configure the instrument for tagged VLAN (802.1Q) and/or IP Type of Service (TOS) operation. These settings are applied globally to traffic from the instrument and remain in memory even after you turn off the instrument.

It is important that you configure these settings correctly. If you select a VLAN ID that is not configured on the port that the instrument is connected to, the instrument may not be able to communicate with the network. DHCP will fail and active discovery will not work.

You can experience the same failure, if you enable 802.1Q on the instrument but plug it into a port that is not enabled for 802.1Q. If this happens, you can use the VLAN Statistics test to identify the VLANS that are active on the port. Then, try configuring the 802.1Q settings for the VLAN that has the highest packet count.

1 In the **8021Q Settings** section, do the following:

   a Check **Enable 802.1Q** to select 802.1Q tagging mode.

   This setting denotes a new frame format whereby every packet that is transmitted by the instrument contains an extra four bytes in the header to include fields for the VLAN ID and a priority level for the frame (see next two items). On the receive side, the instrument extracts and processes this information from incoming packets.

   b Supply the **VLAN ID** (values range from 1 to 4095).

   c Set **Priority**: select a value between 0 and 7 (low to high) to specify a priority level for the frame.

2 In the **TOS** (Type of Service) section, select one of the following:

   - **TOS with IP Precedence.** Then check one of the type of service parameters (**Delay**, **Throughput**, **Reliability**, or **Cost**) and select a priority in the **IP Precedence** box.
   - **TOS with DSCP**. Then supply a value for DSCP (Differentiated Service Code Point).

3 Tap Apply to save your settings.

   The instrument restarts its tests with the new configuration.

802.1X Settings

The 802.1X standard defines the mechanism for port-based network access control. This provides a means of authenticating and authorizing devices attached to a LAN port. This screen allows for the configuration of the 802.1X security.

The supported authentication types are:

- --None—
- EAP TLS
- EAP GTC
- EAP MD5
- EAP MSCHAPV2
- PEAP GTC
- PEAP MD5
- PEAP MSCHAPV2
- PEAP TLS
- TTLS PAP
- TTLS CHAP
- TTLS MSCHAP
- TTLS MSCHAP-V2
- TTLS EAP-MD5
- TTLS EAP GTC
- TTLS EAP MSCHAP-V2
- TTLS EAP-TLS

The TLS authentication types (also called SmartCard) allow you to import a User Certificate provided by your IT administrator and use alternate IDs (in Advanced Options) in the encryption.

The other encryption types allow you to enter a User Name and Password. These encryption types are not as secure as the TLS encryption types.

Active Tests

On the **Instrument Settings—Active Tests** screen, you can specify which top-level tests are run. By default, all tests are enabled **(Active)**, which means that the instrument automatically runs them and reports results on the **Test Results** screen.

To disable a test, uncheck the box to its left to change the status to **Not Active**. Then, tap Apply to save the change.

Note

The **Test Results** *screen displays active tests only.*

SNMP

On the **Instrument Settings—SNMP** screen, you can configure the instrument's SNMP V1/V2 community strings and SNMP V3 credential sets. The instrument uses these settings during device discovery to obtain information from active SNMP agents.

During the discovery process, the instrument tries the V3 credential sets and community strings in the order listed on this screen. For quicker discovery, list the sets and strings in order of frequency of use. Consult the online Help for instructions.

Connection Log

The **Connection Log** provides detail about the 802.1X authentication and authorization process, and indicates whether it passed or failed. It also provides DHCP detail to which servers reply to DHCP requests and which DHCP offers were ignored by the EtherScope Network Assistant.

Ethernet Settings

On **Instrument Settings—Ethernet** screen, you can override the instrument's link auto-negotiation process and force EtherScope Network Assistant to link at a user-selected speed and duplex.

To link at particular duplex setting, tap **Use Forced Setting.** Then select one of the settings in the **Forced Setting** group.

Note

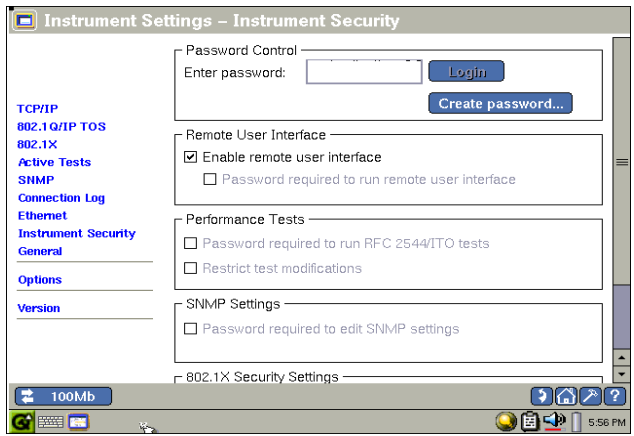
*An asterisk (*) next to the value on the link button (located in the lower- left corner of the task bar) indicates the speed/duplex is a forced setting.*

At the bottom of this screen, a factory assigned MAC address is shown. You can change this address to enable testing of switch forwarding tables and ARP caches as part of the troubleshooting process.

Instrument Security Settings

On the **Instrument Settings—Instrument Security** screen, you can provide password-level security for your EtherScope Network Assistant. This screen enables you to:

- Password-protect access to the instrument through the remote user interface.
- Authorize running of RFC 2544/ITO tests.
- Prevent unauthorized users from editing the instrument's SNMP security settings or viewing the remote user interface.



feb85s.tif

Figure 8. Instrument Settings—Security Screen

If a field is password-protected, this symbol denotes that the field is secure: "*". The fields and controls on this screen are disabled until a user successfully enters the password and logs in using the **Login** button.

General Settings

On the **Instrument Settings—General** screen, you can change the following settings for your EtherScope Network Assistant:

- **Restore Defaults**: resets the instrument to the factory default settings. These include interface configurations and address settings.

  If you restore the instrument's default settings, any changes that you made to the instrument and all current data are lost.
- **Edit user-defined devices** (applies to wired LAN only): lets you edit or delete existing user-defined devices, or add a new device that is either outside of the local broadcast domain or not being discovered.
- **Remote RFC 2544/ITO Throughput Testing** (applies to wired LAN only): enables/disables the instrument to serve as the RFC 2544/ITO Throughput remote server and to interoperate with another EtherScope Network Assistant serving as the local unit during a remote throughput test.
- Preferences
  - **Show vendor prefix with MAC address**: lets you control how a device's MAC address is shown. By default, it is shown with a vendor prefix. When the box is unchecked, the MAC address is shown in raw hexadecimal format.
  - **Enable Paced discovery**: during the initial stages of discovery, the instrument generates a significant number of ARP requests and responses. If a switch detects a Denial of Service (DOS) attack, it may shut down the port to which the instrument is attached.

    If you check this setting, you may be able to prevent the switch from shutting down the port. The instrument does not issue broadcast packets and sends fewer PING and ARP requests. The result is that it takes the instrument longer to completely discover your network.

– **Disable switch learning**: if the EtherScope Network Assistant's link partner is a switch that supports Spanning Tree Protocol (STP) or 802.1D, the instrument may experience a delay in acquiring an IP address (both static and DHCP-assigned).

  If you are on a network with relatively low broadcast traffic and the instrument is not linked to a switch configured for STP, you may be able to speed up the address acquisition process by checking **Disable switch learning**.

  Note

  Do not check this setting if the link partner is a switch configured for STP. Consult the online Help for details.

– **Enable fast connect mode** (applies to wired LAN only): lets you quickly obtain a network link and DHCP address. By default, when EtherScope Network Assistant is first plugged into a network, it tries to determine whether it is connected to the same broadcast domain it was previously connected to. If it is, it saves the data it previously collected.

  Use the **Enable fast connect mode** setting when you repeatedly connect EtherScope Network Assistant to different networks because usage results in a faster response time. For example, select **fast connect mode** when you are verifying the connectivity of multiple office cubicles in a new installation. In this mode, the instrument automatically resets its discovery database when changing the network connection or when returning to the **Test Results** screen from the **Cable** or **Signal Verification** screens.

– **Edit SNMP System Name**: tap Edit and then supply a new SNMP system name for the instrument. Tap OK to save.

Troubleshooting a Fiber LAN

The ES-FIBER-OPT option supports 1000BASE-SX, 1000BASE-LX, and 1000BASE-ZX fiber. The basic steps for troubleshooting a fiber LAN are listed below.

1 Install the SFP fiber adapter (see "Installing an SFP Fiber Adapter" on page 45.

2 Power on the instrument (see "Turning the Instrument On and Off" on page 9).

3 If necessary, change the interface type to LAN (see "Selecting a LAN or WLAN Interface" on page 10).

All the existing LAN features are supported when EtherScope is connected to gigabit fiber interface with the following exceptions:

- The link speed displays 1000MB and the fiber type (SX, LX, or ZX)
- The Cable Verification and Signal Verification tests are replaced with the fiber Loss Test (requires an optional Fiber Optic Meter)

Note

If both the RJ-45 copper and SFP fiber (SX, LX, or ZX) adapter are connected to the network at the same time and the instrument is trying to establish link, the fiber connection has priority over the copper connection.

Installing an SFP Fiber Adapter

1 With the instrument turned off, remove the protective cap as shown in Figure 9.

2 Insert the fiber adapter, making sure that it is firmly seated into the connector.

⚠Warning

SFP fiber adapters are Class 1 laser light-emitting products. To prevent injury to the eyes, avoid staring into the SFP module while the EtherScope Network Assistant is on.

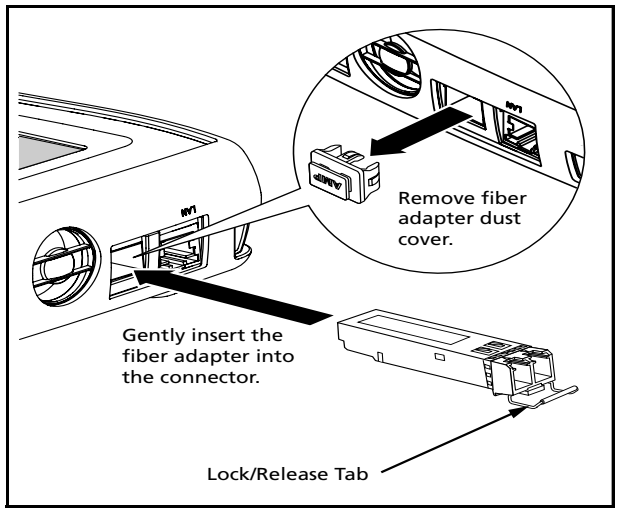
Removing an SFP Fiber Adapter

1 Make sure the instrument is turned off.

2 Press the release tab located on the back of the adapter.

Caution

To avoid damage to the adapter, do not pull the fiber adapter without pressing the release tab.



eih85f.eps

Figure 9. Inserting the Fiber Adapter

Troubleshooting a Wireless LAN

The basic steps for troubleshooting a wireless LAN (WLAN) are listed below. Detailed information for a step can be obtained by consulting the referenced section.

1 Install the WLAN Card.

2 Power on the instrument (see "Turning the Instrument On and Off" on page 9).

3 If necessary, change the interface type to WLAN (see "Selecting a LAN or WLAN Interface" on page 10).

Note

If you are operating EtherScope Network Assistant for the first time, you should configure a default SSID to automatically test link and to use active discovery methods. If operating the instrument in passive scan mode, you do not have to configure security settings.

EtherScope Network Assistant runs a series of passive scan tests then attempts to establish a link to an AP that is configured with the default SSID.

4 View autotest results. See "Viewing AutoTest Results " on page 33.

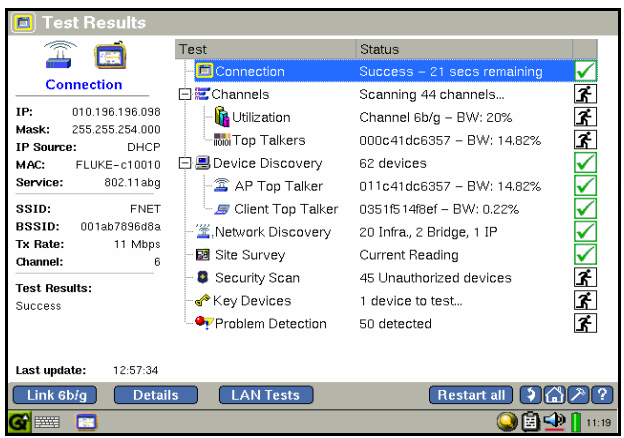
5 Make any needed configuration changes to match your wireless network. See "Configuring the Instrument for a Wired LAN" on page 36.

Installing the WLAN Card

To install the wireless LAN card, insert it into **SLOT 1**, which is located on the top side panel (see Figure 2).

Viewing AutoTest Results

After you power on the instrument, it runs the automated tests and displays the **Test Results** screen, as shown in Figure 10.



epi73s.bmp

Figure 10. Wireless LAN Test Results Screen

The **Test Results** screen gives you at-a-glance visibility into the state of your WLAN.

The main pane displays the name of each test and reports its status. The icons along the right side give you a visual indication of the progress and status of each test:

- Running
- Not running
- Completed and passed
- Completed and failed

The preview pane provides a summary of the results of the test that is selected in the main pane.

Note

*When autotest finishes, the **Connection** test (the default selection) is highlighted.*

You can get a quick idea of the overall health of your network and see what devices and services are running by tapping each test listed in the main pane and then viewing its summary results in the preview pane.

To obtain in-depth results for a test, select it from the main pane. Then tap Details.

Reports

Having a well documented network can help you solve problems quickly when they arise and can even assist you with managing the security of your network. EtherScope Network Assistant enables you to document the state of your network.

You can record network attributes, baseline performance, a device inventory, and switch-port statistics—all in XML-formatted files. You can add a company logo to your reports and even provide comments.

Creating a Report

On most screens, a Report button is available that enables you to create reports and save them in a web-viewable file. Reports are saved in the **Reports** directory.

To create a report:

1 Make sure that the CompactFlash memory card is installed in **SLOT 2**.

Note

If a CompactFlash memory card is not detected, you are reminded to insert the card.

2 Tap Report.

3 Tap **New Report**.

A default name is provided in the **Name** text entry box.

4 Use the virtual keyboard or an external keyboard to change the default name for the report.

5 If desired, supply descriptive information or a comment for the report in the **Comment** section.

6 Tap OK to save.

Managing Reports

The **File Manager** provides access to your saved reports, enabling you to view and rename them, and delete those that you no longer need.

To access the **File Manager**:

1 Tap .

2 Select **Applications** from the drop-down list.

3 Tap **File Manager** to display the list of saved files.

Viewing a Report

You can view reports on the instrument and on a PC.

Note

You can use the remote access feature to view reports. See "Accessing the Instrument Remotely (LAN only) " on page 53 and the online Help for details.

To view a report on the instrument:

Note

*The following procedure shows you how to view a report from the **File Manager**. You can also view a report by tapping followed by **Reports**, and then tapping the report that you want to view.*

1 From the **File Manager** list, select the file you want to view.

2 Tap **File**. From the **File** menu, tap **Open** to view the contents of the file.

To view a report on a PC:

1 Copy the report files from the CompactFlash memory card's **Reports** directory to your PC.

2 Select the report that you want to view.

Note

*Report files have an **xml** extension. Make sure that the file you select has this extension.*

3 Use the PC's web browser or Microsoft Excel to view the contents of the report.

Renaming a Report

To rename a report:

1 From the **File Manager** list, select the file you want to rename.

2 Tap **File**.

3 From the **File** menu, tap **Rename**.

The selected report is highlighted.

4 Type a new name for the file.

Deleting a Report

To delete a report:

1 From the **File Manager** list, select the file you want to delete.

2 Tap **File**.

3 From the **File** menu, tap **Delete**.

4 When prompted, tap Yes.

The file is deleted from the CompactFlash memory card.

Adding a Graphic to Report Headers

To customize your reports, you can add a graphic, such as a company logo, to the report header. To do this, place a **.gif** file named

yourCompanyLogo.**gif**

in the root directory on the CompactFlash memory card.

The graphic is displayed on the left side of the report header in a 180 x 70 pixel area. Note that if you do not supply a graphic, the Fluke Networks logo is displayed.

Note

The user-supplied graphic and Fluke Networks logo can only be seen if the report is viewed on a PC.

Adding an Instrument Comment to Report Footers

You can add an instrument comment to your report that appears in the footer. The comment is a simple text file that you create using an application such as Notepad.

To add a comment, place a file named

instrumentComment.**txt**

in the root directory on the CompactFlash memory card.

The instrument comment is displayed at the bottom of the report in the **Instrument Comment** field. Note that if you do not provide a comment file, the footer does not display the **Instrument Comment** field.

Running the Diagnostic Tests

EtherScope Network Assistant provides a set of specialized tests that you can use to diagnose specific network problems, such as connectivity and performance, and to obtain critical information about hosts, devices, and services on your network. These tests include the following:

- Ping
- Trace Route
- Trace Switch Route (LAN only)
- Wireless Throughput (WLAN only)
- Locate (WLAN only)
- Link (WLAN only)
- Login Diagnosis (WLAN only)
- Signal Strength (WLAN only)
- WLAN Statistics (WLAN only)
- Tx/Rx Rate (WLAN only)

You can access the diagnostics tests in one of two ways:

Note

The list of available tests differs depending on which method you use to access the tests.

- Tap  and select the desired test from the drop-down list.

  OR

- Select a device. Then, tap Details.

  If the diagnostic test is available, it appears as a blue hyperlink in the preview pane. Tap the name of the diagnostic test to access it.

Accessing the Instrument Remotely (LAN only)

You can control EtherScope Network Assistant and view its result screens from a remote location. The instrument contains a Virtual Network Connection (VNC) server that is used for remote access.

To access the remote user interface:

1 Start Internet Explorer.

Note

EtherScope Network Assistant supports Internet Explorer only.

2 In the **Address** field, enter the IP address of the EtherScope Network Assistant that you want to connect to.

Note

*The instrument's IP address is located in the preview pane for the **Test Results** screen when the **Connection** test is highlighted.*

The **EtherScope™ Network Assistant** web server home page (Web Server Home Page) is displayed.

feb87s.bmp

Figure 11. Web Server Home Page

From this screen, you can do the following:

- Remotely access the instrument.

  Note

  The remote instrument can be accessed by multiple users, but can be controlled by only one user at a time.

- Access reports saved on the CompactFlash memory card or real-time reports in the instrument's active test results memory.
- Initiate a support incident at the Fluke Networks website.
- Access the Help screens.

3 To remotely access the instrument:

  a Click Launch Remote UI.

  b Use the keyboard to type the Remote Authentication password. Then, click OK.

  Note

  The instrument's default factory setting requires no password. Therefore, clicking OK *with no entry in the password field displays the* ***Test Results*** *screen. However, for security reasons, you can set a password to restrict usage to authorized users only. See "Instrument Security Settings" on page 41 for instructions.*

  The remote instrument's **Test Results** screen is displayed. You are now connected and can control the instrument remotely.

4 To access real-time reports:

a Click Reports.

The **EtherScope Real-Time Reports** screen is displayed.

b Locate the report that you want to view, and then click a link to display it.

5 To access saved reports:

a Click Reports.

The **EtherScope Real-Time Reports** screen is displayed.

b Click **View Saved Reports**.

c Select the saved report that you want to view, and then follow the link to view it.

User Interface Events That Will Terminate a Remote Session

The active TCP/IP session between the remote user interface software and the instrument can be severed under the following conditions:

- If IP parameters are manually changed on the instrument and Apply is selected on the **Instrument Settings—TCP/IP** screen
- If the **Start Test** button is selected on the **Cable Verification** Details screen.
- If the **Start Test** button is selected on the **Signal Verification** Details screen.
- If the instrument's MAC address is changed in the **Instrument Settings—Ethernet** screen.
- If the Ethernet link goes down.

Using the Desktop Tools

EtherScope Network Assistant is packaged with a number of tools to increase your productivity.

Applications Menu

To display this menu, tap  then select **Applications**.

-  **Calculator**: performs basic arithmetic operations, such as addition and subtraction.
-  **Calendar**: provides weekly and monthly views for scheduling events; a **Notes** function enables you to add information about an event.
-  **Clock**: displays the time currently set on the instrument; includes a stop watch and alarm function. To change the time, see "Setting the Time and Date" on page 13.
-  **EtherScope Console**: provides a command-line interface and terminal emulation (Telnet).
-  **EtherScope Network Assistant**: displays the top-level user interface screen (**Test Results**).
-  **File Manager**: displays the contents of the CompactFlash memory card where reports are stored.
-  **Report Viewer**: displays a saved report.
-  **Server Response Tool**: tests application server connectivity and responsiveness. You can identify, save, and test up to 100 server/port pairs.

- **Service Performance Tool**: verifies the existence and responsiveness of several standard network services.

  *To use this utility, you must enable the **Performance Tests/ITO Tests** option (**RFC 2544/ ITO ES_ITO_OPT** on the **Options** screen).*

- **System Info**: displays resource usage (memory, CPU, and storage) and version information of the Linux operating system.

- **Web Browser**: displays EtherScope Network Assistant's web browser, Konqueror. You can use the browser to view and change the configuration of switches and other network devices.

Tools Menu

To display the menu, tap (located on the toolbar).

- **Ping**: is a general-purpose connectivity tool that you can use to determine if a device on the network is reachable.
- **Trace Route**: "traces the route" to a specific device. This test can help you identify slow, congested links since the results show the number of hops and travel time. Trace route can also detect split routes taken to the destination device.
- **Web Browser**: enables you to connect to a device so that you can check or change its configurations. To connect, select the desired device, and then select **Web Browser**. EtherScope Network Assistant's web browser, Konquerer, attempts to connect to the device.

- **Telnet**: lets you access a remote computer so that you can check or change its configurations. When you run this program, EtherScope Network Assistant acts as if it is a terminal connected to the remote device.
- **Terminal**: lets you use EtherScope Network Assistant as an ASCII terminal. You can tap  to display the virtual keyboard or you can use a remote keyboard to enter commands.
- **FTP**: starts an FTP (File Transfer Protocol) session with a device. Use this utility to transfer files between computers. To start a session, select a device, then select **FTP**.
- **Port Reporter**: a command-line utility that uses the Cisco Discovery Protocol (CDP) and Link Layer Discovery Protocol to discover switches and switch details. You can use this utility to quickly discover and display information about a switch.
- **TFTP**: stands for Trivial File Transfer Protocol, a data transfer utility that enables you to do firmware updates on switches that support its use.
- **SSH Telnet**: stands for Secure Shell Telnet, a more secure version of Telnet. To provide security, SSH Telnet requires login credentials. It also encrypts the data sent between the logical and remote device.
- **Report**: displays reports on the CompactFlash memory card. You can create a new report or delete a report.

Troubleshooting Your Instrument

This section lists some problems you might experience with your EtherScope Network Assistant and provides suggestions to help you solve them. Before calling technical support, try these suggestions to see if you can solve the problem on your own.

Problem: The instrument or the application is not responding.

Suggestion: If you suspect that the application environment or the instrument (hardware) has locked up, you may have to completely shut down the instrument. To do this, press and hold the **On/Off** button for approximately six seconds.

Problem: The instrument does not power on.

Suggestion: Connect the instrument to the AC adapter. If the instrument powers on only when connected to the AC adapter, the internal battery may be completely discharged. Recharge the battery.

Problem: The user interface does not appear.

Suggestion: The **Test Results** screen should be displayed after you turn on the instrument.

If the screen does not display, press and hold the **On/Off** button for six seconds to completely shut down the instrument. Then, press the **On/Off** button again to power the instrument back on.

Problem: The IP Discovery and/or Tools results screens are not displaying the expected results.

Suggestion: Check the following:

- Does the instrument have a valid IP address? Select **Connection** on the **Test Results** screen to see if the instrument is configured with a valid IP address.
- Verify that the DHCP capability on the **Instrument Settings—TCP/IP** screen is not disabled. If an IP address is entered manually, it must not be an address within the local subnet.

Problem: The touch-sensitive screen responds slowly or erratically to the stylus.

Suggestion: Try navigating around the display to determine whether the touch-screen requires calibration (this is rare). If you suspect a problem with the calibration, see "Recalibrating the Screen" on page 14.

Problem: The instrument does not connect to the network.

Suggestion: The **Link** LED lights solid green (or amber in WLAN mode) if a link exists. In addition, you should see some activity on **Transmit** and/or **Utilization** LEDs. If the LEDs indicate no activity on the link, do the following:

- Check the **Connection** test results on the **Test Results** screen. Select **Connection** and then check to see that an IP address for the connection is displayed in the preview pane.
- (LAN mode only) Confirm that the **Cable Verification** test passed. Try a different cable, if necessary. From the **Test Results** screen, tap ⊞ to expand the **Connection** test group and then select **Cable Verification**. Check the status and the test results information in the preview pane.
- (WLAN mode) Examine the Connection Log to try to determine the cause of a failed WLAN network connection.

Problem: The instrument cannot connect to the network.

Suggestion: A network connection cannot be made if the **Cable Verification** test (LAN only) does not pass.

Check status of the **Connection** test on the **Test Results** screen. Information in the **Status** column shows you whether or not a cable is detected. Do the following:

1 Tap ⊞ to expand the **Connection** test group.

2 Select **Cable Verification** and check the results of the test.

If the test fails, this icon is displayed:  .

3 Tap Details to view detailed results to see if you can determine what is causing the problem.

4 To retest the cable, tap Start Test.

Problem:

- The battery charge state appears erratic or inconsistent.
- The battery does not hold a normal charge.

Suggestion: Charge the battery pack for at least seven hours.

Problem: The touch-sensitive screen does not respond at all to input.

Suggestion: Press the **On/Off** button to place the instrument in standby mode. Press the **On/Off** button again to take the instrument out of this mode.

If the problem continues, press and hold the **On/Off** button for six seconds to completely shut down the instrument. Press the **On/Off** button again to power the instrument back on.

Specifications

Weight	0.82 kilograms (2 lbs)
Dimensions	19.1 x 15.2 x 4.4 centimeters, (7.5 x 6 x 1.75 inches)
LCD touch screen display	640 x 480 pixels, TFT (active) color panel, active area 129.6 (H) mm x 97.4 (V) mm
LED indicators (mainframe)	6
Battery	Lithium Ion 7.2 V DC (nominal), 4.2 Ah
Battery life	Wired LAN mode: approximately 4 hours; Fiber Mode: approximately 3.5 hours; WLAN mode: approximately 3.5 hours
External AC adapter/battery charger	AC input: 120 V – 240 V, 50/60 Hz, 1.5 A; DC output: 15 V, 3.3 A
Communication and accessory ports	One USB, one PCMCIA /Cardbus (PC Card type II), one CompactFlash memory card (Card Type I/II), one DB-9 serial, headphone jack

Specifications (continued)

Network analysis ports	RJ-45 10/100/1000BASE-T Ethernet (EtherScope2 LAN/Pro), 1000BASE-SX/LX/ZX Fiber (ES2-LAN-SX, ES2-LAN-SX-I, ES2 Pro-SXLX-I/S), PCMCIA/Cardbus 802.11a/b/g Wireless (EtherScope WLAN/Pro)
Vibration	Meets requirements of MIL-PRF-28800F for Class 2 random vibration
Laser	Class 1 Laser Product. Complies with 21 CFR Subchapter J and EN 60825-1/01
Environmental	Operating temperature: 0° C to 50° C (32° F to 122° F) with up to 95 % relative humidity Battery charging temperature: 10° C to 40° C (50° F to 104° F) with up to 95 % relative humidity Non-Operating (storage) temperature: – 20° C to + 60° C (– 4° F to + 140° F) CE Electromagnetic Interference complies to EN61326, Class A. Criteria C The product network interfaces are NOT FOR CONNECTION TO PUBLIC TELEPHONE SYSTEMS and should only be connected to the public phone network through regulatory agency compliant modem devices
EtherScope Certifications and Approvals	CSA Canada & United States, CE, FCC Part 15 Class A, C-TICK N10140; UL and CSA approvals for universal AC adapter
WLAN Adapter Certifications and Approvals	FCC Part 15 (USA); Telec (Japan); ETSI, EN301893, EN60950 (Europe); C-TICK N10140 (Australia)

Specifications (continued)

Cable Types

- Unshielded Twisted Pair LAN cables (100 ohm UTP category 3, 4, 5, 5E, and 6 ISO/IEC Class C and D).
- Foil-screened Twisted Pair cables (100 and 120 ohm ScTP category 3, 4, 5, and 6 ISO/IEC Class C and D).
- Identifies and operates with the optional fiber adapter, LX (1310nm, -3 dBm (0.50 mW max)), SX (850nm, -2 dBm (0.63 mW max)), and ZX (1550nm, +4 dBm (2.5 mW max)).

Cable Length

- Open or shorted with wiremap adapter: 1 to 305 m (3 ft. to 1000 ft.).
- Terminated with ≥ 20 % reflection: 1 to 305 m (3 ft. to 1000 ft.).

Note

*Length accuracy depends on the cable type selected on the **Cable Verification** screen.*

Receive Level

100 to 5000mVp-p

Datalink Signal

500mVp-p to 4000mVp-p

Measuring Terminated Cables

Cable Verification tests individual twisted-pairs of a cable that are terminated into most equipment vendors' Ethernet ports, such as on a hub, switch or NIC.

All cable tests other than WireView wiremap and office locator ID are operational in the presence of datalink signal.

Specifications (continued)

Fault Tolerance

The RJ-45 10/100/1000BASE-T Ethernet connection on the instrument is designed to withstand a maximum of 100 volts.

WireView Wiremap Adapter/Office Locator Compatibility

Detects combinations of shorts, opens, and connector mis-wires. Compatible with Fluke Networks WireView wiremap adapter/office locator.

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