FLUKE networks ™

OptiView™
Integrated Network Analyzer

Getting Started Guide

LIMITED WARRANTY & LIMITATION OF LIABILITY

Each Fluke Networks product is warranted to be free from defects in material and workmanship under normal use and service. The warranty period is one year and begins on the date of purchase. Parts, accessories, product repairs and services are warranted for 90 days. This warranty extends only to the original buyer or end-user customer of a Fluke Networks authorized reseller, and does not apply to disposable batteries, cable connector tabs, cable insulation-displacement connectors, or to any product which, in Fluke Networks' opinion, has been misused, altered, neglected, contaminated, or damaged by accident or abnormal conditions of operation or handling. Fluke Networks warrants that software will operate substantially in accordance with its functional specifications for 90 days and that it has been properly recorded on non-defective media. Fluke Networks does not warrant that software will be error free or operate without interruption.

Fluke Networks authorized resellers shall extend this warranty on new and unused products to end-user customers only but have no authority to extend a greater or different warranty on behalf of Fluke Networks. Warranty support is available only if product is purchased through a Fluke Networks authorized sales outlet or Buyer has paid the applicable international price. Fluke Networks reserves the right to invoice Buyer for importation costs of repair/replacement parts when product purchased in one country is submitted for repair in another country.

Fluke Networks' warranty obligation is limited, at Fluke Networks' option, to refund of the purchase price, free of charge repair, or replacement of a defective product which is returned to a Fluke Networks authorized service center within the warranty period.

To obtain warranty service, contact your nearest Fluke Networks authorized service center to obtain return authorization information, then send the product to that service center, with a description of the difficulty, postage and insurance prepaid (FOB Destination). Fluke Networks assumes no risk for damage in transit. Following warranty repair, the product will be returned to Buyer, transportation prepaid (FOB Destination).   If Fluke Networks determines that failure was caused by neglect, misuse, contamination, alteration, accident or abnormal condition of operation or handling, or normal wear and tear of mechanical components, Fluke Networks will provide an estimate of repair costs and obtain authorization before commencing the work. Following repair, the product will be returned to the Buyer transportation prepaid and the Buyer will be billed for the repair and return transportation charges (FOB Shipping Point).

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Since some countries or states do not allow limitation of the term of an implied warranty, or exclusion or limitation of incidental or consequential damages, the limitations and exclusions of this warranty may not apply to every buyer.   If any provision of this Warranty is held invalid or unenforceable by a court or other decision-maker of competent jurisdiction, such holding will not affect the validity or enforceability of any other provision.

Fluke Networks, Inc.
P.O. Box 9090
Everett, WA 98206-9090
U.S.A.

Fluke Europe B.V.
P.O. Box 1186
5602 BD
Eindhoven
The Netherlands

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Before You Start

Safety Information

The OptiView™ Integrated Network Analyzer (hereafter referred to as the "analyzer") complies with:

- Class 1 Laser product 21 CFR 1040.10 & 1040.11, CFR(J)
- CSA C22.2 No 950, and EN60950 2nd edition

The following symbols are used throughout this document:

⊗ NOT FOR CONNECTION TO PUBLIC TELEPHONE SYSTEMS

⚠ PLEASE READ MANUAL FOR SAFETY

⚠ Warnings

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. Pay particular attention to the insulation surrounding the connectors.**

- **Do not operate the product around explosive gas, vapor or dust.**

- **When servicing the product, use only specified replacement parts.**

- **This product contains a Class I laser (OptiView™ Integrated Network Analyzer Pro and Pro Gigabit models), looking into the laser port may cause eye damage.**

- **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.**

⚠ Cautions

To avoid possible damage to the analyzer and to the equipment under test, follow these guidelines.

- **Use the proper terminals and cable for all connections.**

Contacting Fluke Networks Sales, Service, and Support Centers

To locate the nearest Fluke Networks distributor or Service Center, visit us on the World Wide Web at **www.flukenetworks.com** or call:

USA: 1-800-283-5853
Canada: 1-800-363-5853
Europe: (31 40) 2 678 200
Japan: +81 (3) 3434-0181
Singapore: +65 738-5655
Anywhere in the world: +1 (425) 446-4519

Registering the Analyzer

Register and receive a FREE Silver SuperVision Support membership which includes:

- Free, unlimited access to our Web based trouble ticketing system, connecting you to our Technical Assistance Center, and response within the next 24 business hours.

- Free, unlimited access to our Knowledge Base of operation and application information at *http://www.flukenetworks.com/knowledgebase*.

- Product and application news, and exclusive reference materials.

- Eligibility for "Silver Member" promotional offers.

- "Fluke Networks Alert" - Advance notice of product upgrades updates and revisions for your instrument as well as important news from the company.

Note
To be notified when new software becomes available for your analyzer, or to access technical support/knowledge base information via the web, please register your product at **http://www.flukenetworks.com/registration**. *Email address required to access most benefits.*

The Analyzer and Accessories

The analyzer is designed for troubleshooting and monitoring Local Area Networks (LANs). The analyzer tests all seven OSI layers. The analyzer is rack-mountable. It tests from the cable to the application layer and everything in between, so problems have nowhere to hide. The analyzer comes in three configurations:

❑ **OptiView™** (standard version) - supports 10/100 Ethernet (10BASE-T and 100BASE-TX) through a RJ-45 jack.

❑ **OptiView™ Pro** - adds complete RMON and RMON2 support, a 100BASE-FX fiber optic interface, packet capture and decoding capability

❑ **OptiView™ Pro Gigabit** - adds to the OptiView™ Pro fiber 1000BASE-SX using a standard GBIC (the 1000BASE-LX and 1000BASE-T GBICs may be ordered as an option)
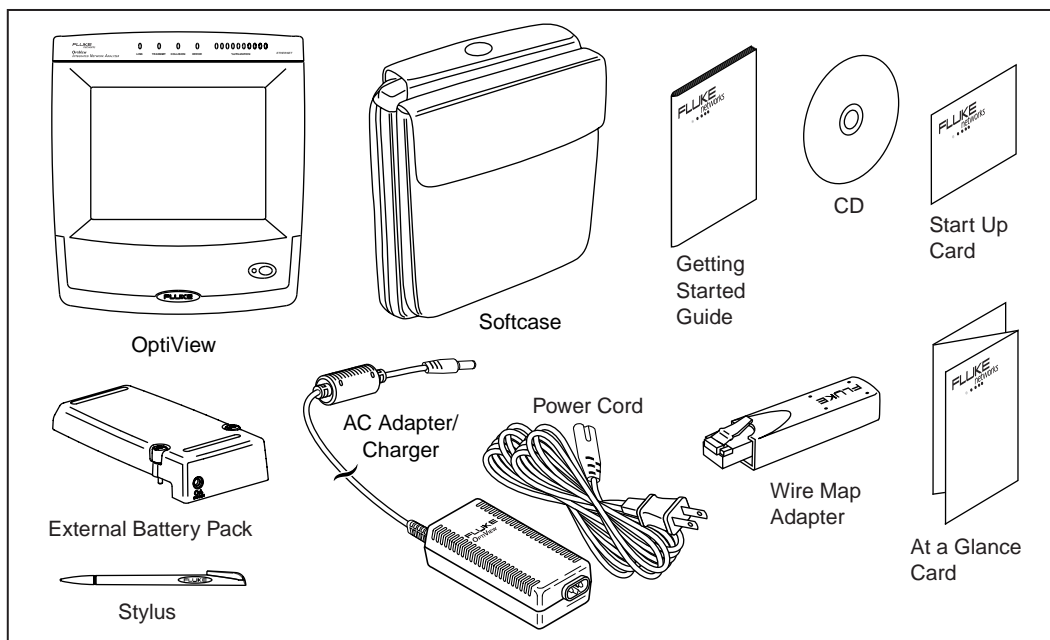
ahq01f.eps

Figure 1. The Standard OptiView™ Integrated Network Analyzer and Supplied Accessories

3

Supplied Items

The following equipment is supplied with the OptiView™ Integrated Network Analyzer.

Table 1. Supplied OptiView™ Analyzer Items

Item	Description	Model/Part Number
Wire Map Adapter (office locator)	Cable termination device with office locator ID #1. Used to perform the Cable Test Wire Map operation, and used as an office locator.	1567629
External Battery Pack	The External analyzer battery, provides up to 2 1/2 hours additional use, Lithium-Ion, 10.8V, 4.6AH.	OPV-BP/1280434
Shoulder Strap	Shoulder strap clips to the analyzer for easy carrying.	1541888
Soft Case	Analyzer fits in the soft case. Analyzer can operate while in case.	1281908
External AC adapter/charger	Input: 120V -240V AC, 50/60Hz, 1.5A, output: 15V DC, 3.3A.	1565193
External AC power cord	Country specific AC power cord.	1552374 North America 1552342 UK 1552388 Cont. Europe 1552363 South Africa 1552339 Australia
Getting Started Guide	Provides basic operating information, accessory part numbers, and specifications.	1560817
At a Glance Card	Provides detail on using the analyzer, connecting the analyzer, and interpreting the analyzer screens.	1560798
CD-ROM	OptiView™ Resource CD. Includes user interface software, OptiView firmware, MIB Browser and Getting Started Guide (Multiple languages in PDF format).	1626397 Additional copies available by downloading from www.flukenetworks.com.
Registration Card	Fluke Networks can serve you best by registering online at www.flukenetworks.com. If you can not register online, please fill out and return the supplied registration card.	N/A
Stylus	Stylus used on the OptiView™ analyzer touch panel display.	1279398

Table 2. Other Available Accessories

Item	Description	Model/Part Number
OptiView Reporter™	The OptiView Reporter™ application allows you to communicate remotely with an OptiView™ analyzer to generate reports on the network to which the analyzer is connected.	OPV-RPT/1578901
OptiView Protocol Expert™	The Fluke Networks OptiView Protocol Expert™ application is a Windows based protocol analyzer for network engineers, LAN administrators, and network technicians who maintain LANs. The application allows you to monitor and packet decode data on your local network. The OptiView Protocol Expert™ application supports OptiView™ analyzer packet capture files.	OPV-PE/PRO/1627440
OptiView Inspector Console™	The Fluke Networks OptiView Inspector Console™ application is a Windows software tool for network engineers, LAN administrators, and network technicians who maintain LANs. The application allows you to monitor, map, and troubleshoot LAN segments that could consist of servers, routers, switches, printers, managed hubs, and clients (hosts and other network devices).	NIS-OPV/1593670
Wire Map Adapters	Set of five wire map adapters with office locator IDs #2 through #6.	OPV-CIK/1581532
External Keyboard	PS2/mini-DIN 101 mini keyboard, 3 foot cord.	OPV-KB/1547943
Hard Carrying Case	Hard shell carrying case.	OPV-HCASE/1599048
GBIC-SX	850nm, 1000BASE-SX GBIC module used in the OptiView™ Pro Gigabit analyzer. Used with multi-mode fiber.	OPV-SX/1586550
GBIC LX	1300nm, 1000BASE-LX GBIC module used in the OptiView™ Pro Gigabit analyzer. Used with single-mode fiber.	OPV-LX/1586605
GBIC T	Copper 1000BASE-T GBIC module used in the OptiView™ Pro Gigabit analyzer. This module is used with twisted pair copper.	OPV-T/1626866

Using the Analyzer

Peripheral Support

The analyzer provides the following external accessory connectors:

❑ Serial DB-9 (COM1)

❑ PS2/mini-DIN keyboard

❑ PS2/mini-DIN mouse

❑ PC Card (multi bus PCMCIA)

❑ Two USB ports.

Registering the OptiView™ Analyzer

Please take the time to register your analyzer. Doing so helps Fluke Networks determine future products, and you gain access to valuable information on product updates, troubleshooting tips, and support. You are provided a registration card in the shipping box, and you can also go to **www.flukenetworks.com** to fill out the online registration form.

Powering the Analyzer On and Off

Note

To properly condition the battery(s), a new analyzer must be initially charged for 8 hours.

Power the Analyzer On

Simply press the green **On/Off** button on the front of the analyzer. When the analyzer is first powered on, it goes through a complete power-up sequence which includes initializing the processor, memory, performing a self test, loading the operating system, loading the analyzer user interface, and displaying the analyzer Front Page screen as shown in Figure 2.

Powering the Analyzer Off

Standby - With the analyzer powered on, press the green **On/Off** button on the front of the analyzer. This places the analyzer in a standby state (suspend to RAM). This is used in normal day to day operation to power the analyzer off. The analyzer can remain in the standby state for a week without the battery needing to be recharged, and longer if the analyzer also has an external battery attached.

Touching the **On/Off** button again will take the analyzer out of the standby state. Allow about 15 seconds to resume normal operation (Statistics and other real-time measurement information will be reset).

⚠ **Caution**

Make sure all user-installed applications are shut down before powering the analyzer off with the On/Off button. User installed applications may interfere with standby.

If the analyzer is left in standby for an extended period of time (weeks), and the analyzer does not come out of standby by pressing the **On/Off** button, both the internal and external batteries are probably fully discharged. Attach the supplied AC adapter/charger to allow the analyzer to power-up. A discharged battery will take approximately 5 hours to fully charge with the analyzer off, and longer if you are charging the analyzer while it is on.

To maximize analyzer battery shelf-life - If the analyzer will be left off for an extended period of time (weeks), power-down the analyzer from the Windows desktop. Select **Start | Shut Down... | Shut Down**. This resets all tests, and removes power from the analyzer.

Verifying the Basic Analyzer Operation

When the analyzer is turned on, a boot sequence occurs, the Utilization LEDs flash, a relay reset sequence is heard, and a self test is run. After the analyzer boots, the analyzer user interface is loaded. If the analyzer is connected to a network, the Link LED (top of analyzer, left-most LED) will come on when link is detected, or flash if there is no link. When the OptiView™ analyzer user interface is completely loaded, the display should look similar to Figure 2.
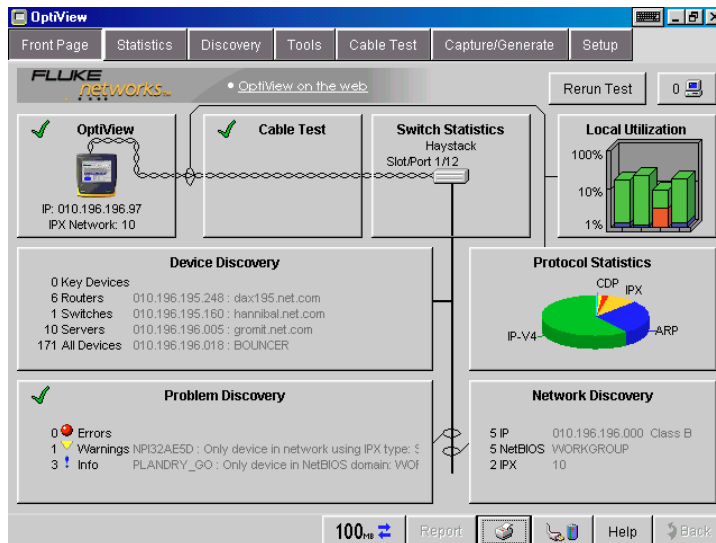
ahq42s.bmp

Figure 2. Front Page Screen (Connected to Network)

Figure 3 shows an example of the analyzer Front Page screen when it is not connected to a network (no network cable connected).
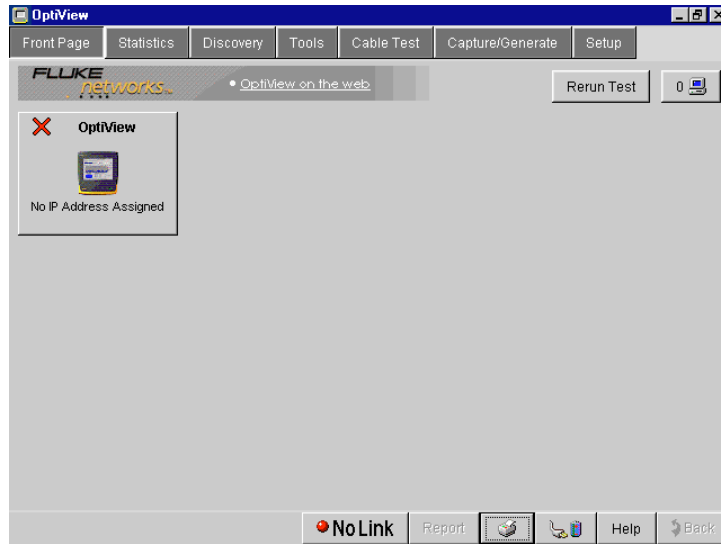
ahq43s.bmp

Figure 3. Power-up Completion - Analyzer Front Page - No Cable Connected

Running the Analyzer on Internal and External Batteries

The analyzer comes with an internal Lithium-Ion battery which is capable of powering the analyzer for approximately 1 hour.

An external Lithium-Ion battery is shipped with each analyzer. It attaches to the back of the analyzer (see "connecting the battery" on page 9). This external battery will extend the operation time by approximately 2 1/2 hours.

Note

The analyzer will always operate off the external battery until the external battery reaches a low charge state. At that point the analyzer will automatically switch to the internal battery.

Connecting the External Battery

Note

The external battery can be connected or removed with the analyzer powered on.

The external battery is connected to the back of the analyzer as shown in Figure 4. First, slide the external battery tabs into the tab slots on the bottom of the back of the analyzer. Next, press the battery firmly against the analyzer, and turn the thumb screws clockwise until finger tight.

Note

Take care to align the battery tabs into the slots. Do not force the external battery connection. If the thumb screws do not engage, remove the external battery and try again.

ahq07f.eps
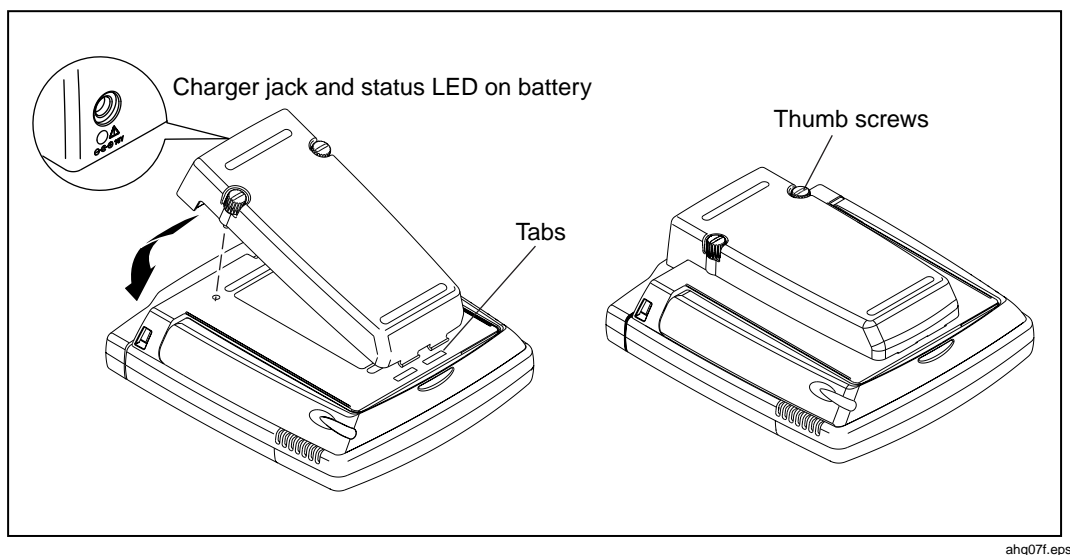
Figure 4. Installing the external battery

Charging the Internal and External Batteries

The external battery and AC adapter/charger (hereafter referred to as the charger) are shipped with every OptiView™ analyzer. The charger will charge both the internal and external batteries while operating the analyzer.

The internal battery takes approximately 5 hours to fully charge (see note on page 8 about initially charging the batteries). It will take longer if the analyzer is on while the battery is charging. Figure 5 shows the internal battery charging jack and charging status LED.

ahq02f.eps
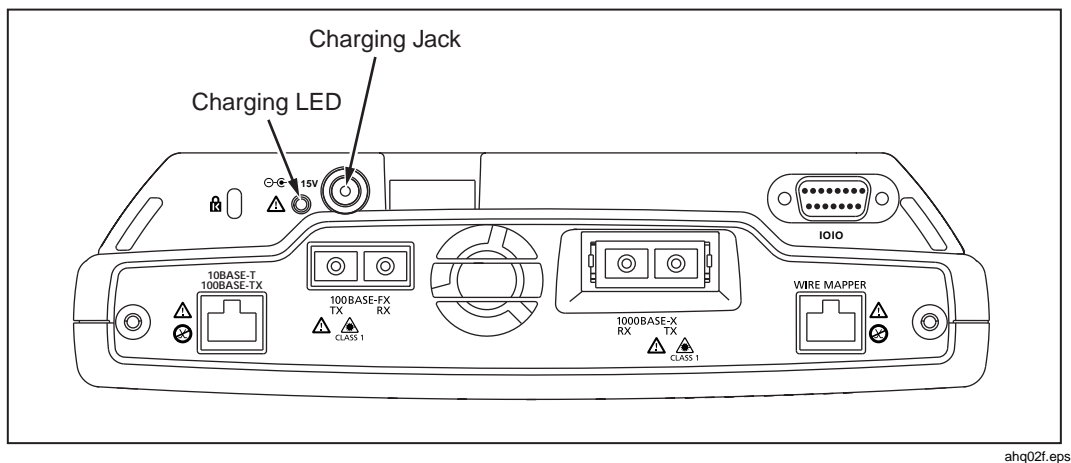
Figure 5. Charging Jack and LED Location for Internal Battery Only

The charging LED states are as follows:

Table 3. Red Charging LED States

Status	Description
Off	Charger not connected
Flashing	Charging
Continuous on, solid	Battery is fully charged, AC power applied

The external battery can take up to 5 hours to fully charge. When it is connected to the analyzer, and the analyzer is on, it will not begin charging until the internal battery is close to fully charged (approximately 80% charged). If the analyzer is off, both the internal and external batteries will charge at the same time.

Note

Battery charging is controlled by the circuitry residing in each battery. The protective circuitry prevents overcharging. You may "top off" the batteries at any time without worry of damaging the batteries. In the first 2 1/2 hours a fully discharged battery becomes approximately 90% charged. In the following 2 1/2 hours, the battery then becomes fully charged.

The external battery can also be charged when not connected to the analyzer. It has a charging jack and red status LED indicating charging state. See Table 3 for the LED charge states.

The external battery also has a **Charge Status** button shown in Figure 6. Its charge status is shown in Table 4 below.

Table 4. External Battery Charge Status Indicator

Status Indicator LEDs	Status
No LEDs on	fully discharged battery
1 LED	less than 25% charged
2 LEDs	less than 50% charged
3 LEDs	less than 75% charged
4 LEDs	near or fully charged

When the external battery is connected to the analyzer, use its charging jack to charge both batteries (the internal battery's charging jack will be covered by the external battery).
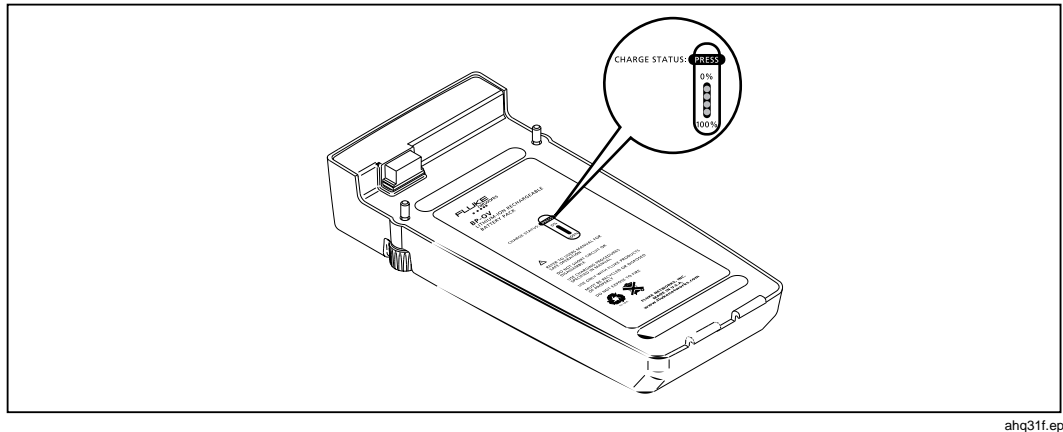
ahq31f.eps

Figure 6. External Battery Charge Status Button

By pressing the **Charge Status** button, the four LEDs turn on and indicate the charge state as shown in Table 4.

Power Management

⚠ **Caution**

The power management settings are optimized to reduce power consumption when the analyzer is battery operated. It is strongly recommended that you do not change the default values shown below.

Selecting the battery/power icon opens the power management application as in Figure 7 below. The battery icon can be found in the bottom-right of the analyzer display.
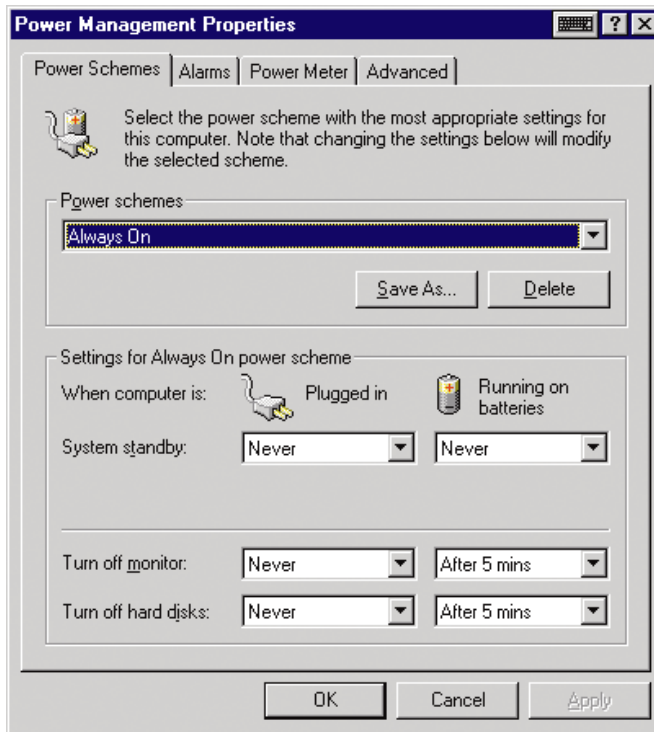
ahq26s.tif

Figure 7. Power Management Window

Pressing the Windows system tray battery/power icon opens the **Power Meter** screen (third tab in the Power Management Properties application shown above). The **Power Meter** screen shows the current battery charge state.

Using the Front Panel Touch Display

A stylus or your finger can be used on the touch panel display. The target size can be adjusted through the analyzer user interface by selecting **Setup | Display** and changing the Component Size to either large or small.

The brightness and contrast can also be adjusted on this screen. Simply move the slide bar to adjust.

Note

If you inadvertently adjust the contrast and brightness so that you can no longer see the display, take the analyzer to a dark place and re-adjust until the display becomes visible.

Touch target calibration can also be performed from this screen. The calibration screen provides a simple test that will ask you to touch several targets on the screen to perform the calibration.

⚠**Caution**

To prevent moisture from entering the analyzer, clean the front panel touch display with a moist cloth only. Do not spray water directly on the front panel touch display. Wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents.
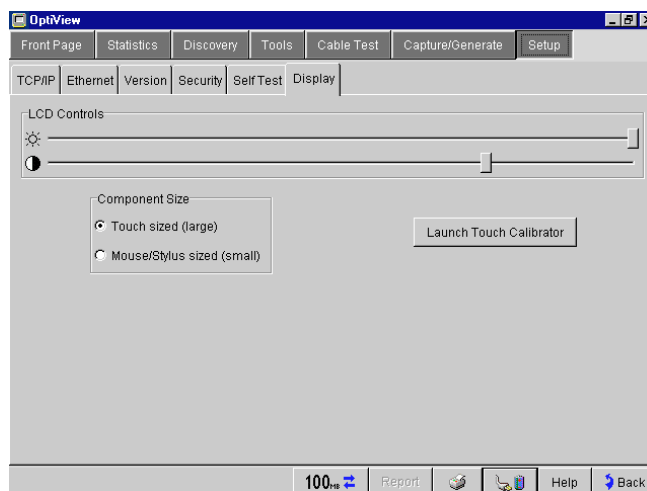
ahq44s.bmp

Figure 8. Display Adjustments

Using the Virtual Keyboard and IP Keypad

The OptiView™ analyzer is shipped with a virtual keyboard and an IP keypad. The virtual keyboard allows both text and numeric entry, while the IP keypad allows easy entry of IP addresses. Anywhere the user interface allows text or numeric entry, the virtual keyboard or the IP keypad button is displayed next to the field.

The virtual keyboard icon is also visible in the upper-right corner of the title bar.

The virtual keyboard can be minimized by pressing the minimize button as shown in Figure 9. If the virtual keyboard is inadvertently closed and the icon is no longer visible in the upper-right corner of the screen, you can start it again through the Windows **Start | Program** menu, selecting **Touch Keyboard | Touch Keyboard**.
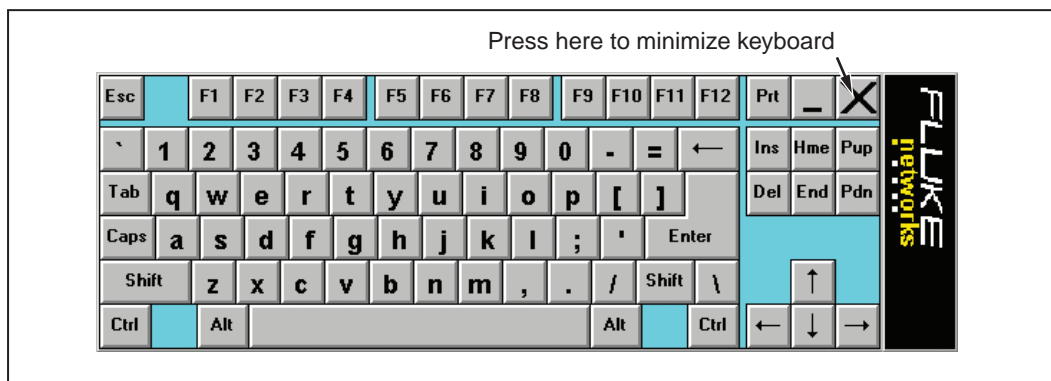
ahq16f.eps

Figure 9. Virtual Keyboard
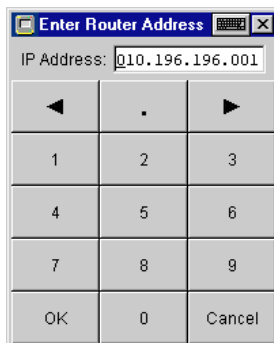
ahq45s.bmp

Figure 10. IP Keypad

Right-clicking the Mouse

Note

The analyzer user interface does not require any right-clicking of the mouse. This is provided as a touch panel convenience for use with other applications.

To do an equivalent right-click of the mouse with the touch panel display:

1 Reduce or Minimize the OptiView™ analyzer application.

2. On the desktop, in the system tray [icon] , select the Event Selector [icon]. The Event Selector changes to the right-click mouse icon [icon]. It resets back to the left-click mouse (normal touch screen mode) after one event, e.g., one touch of the touch screen.

Note

On the touch panel display user interface, using the equivalent right-clicking of the mouse is particularly useful with Windows Explorer to copy, paste, install, and rename files.

Connecting an External Mouse and Keyboard

To use any external PS2 compatible mouse, you must connect the mouse with the analyzer off (shutdown). As the analyzer boots from power-up, the mouse will be recognized by the Windows operating system. Any PS2 compatible mouse with a mini-DIN connector can be used.

Note

*The PS2 compatible mouse is not recognized if it is connected while the analyzer is in standby mode (see "Powering the Analyzer Off" on page 6). The analyzer will have to be re-booted (**Start | Shutdown... | Restart**) for the mouse to be recognized.*

The PS2 keyboard, a USB mouse, and/or USB keyboard are "hot swappable", i.e., they can be connected and disconnected while the analyzer is on or in standby state. Figure 11 shows the PS2 mouse and keyboard connectors.
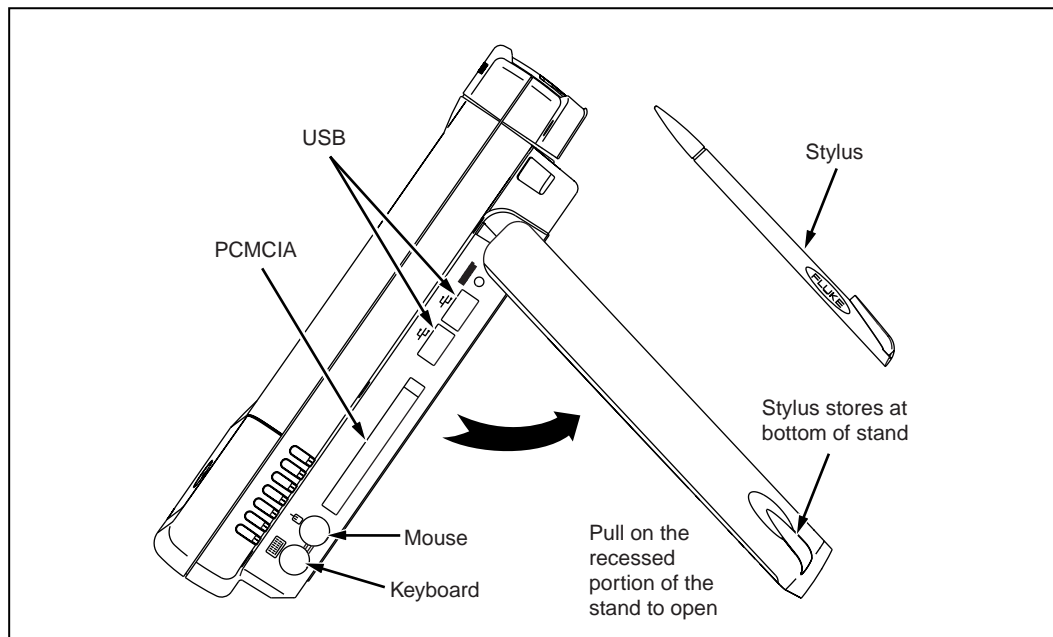
ahq03f.eps

Figure 11. Keyboard and Mouse Connectors

Extending the Stand, Finding the Stylus

Figure 11 shows the stand extended. To open the stand, pull at the recessed portion located at the bottom of the stand.

The stylus is stored in the stand leg as shown in Figure 11. Simply slide the stylus out to use it.

Analyzer Network Connections

Figure 12 show the top view of the OptiView™ Standard, Pro, and Pro Gigabit Analyzers.

Note

*The internal wire map adapter, labeled Wire Mapper, tests patch cables. To test patch cables, connect a cable from the 10/100 BASE-TX connector to the Wire Mapper connector. The test is automatically run. Go to the **Cable Test** screen to view the results.*
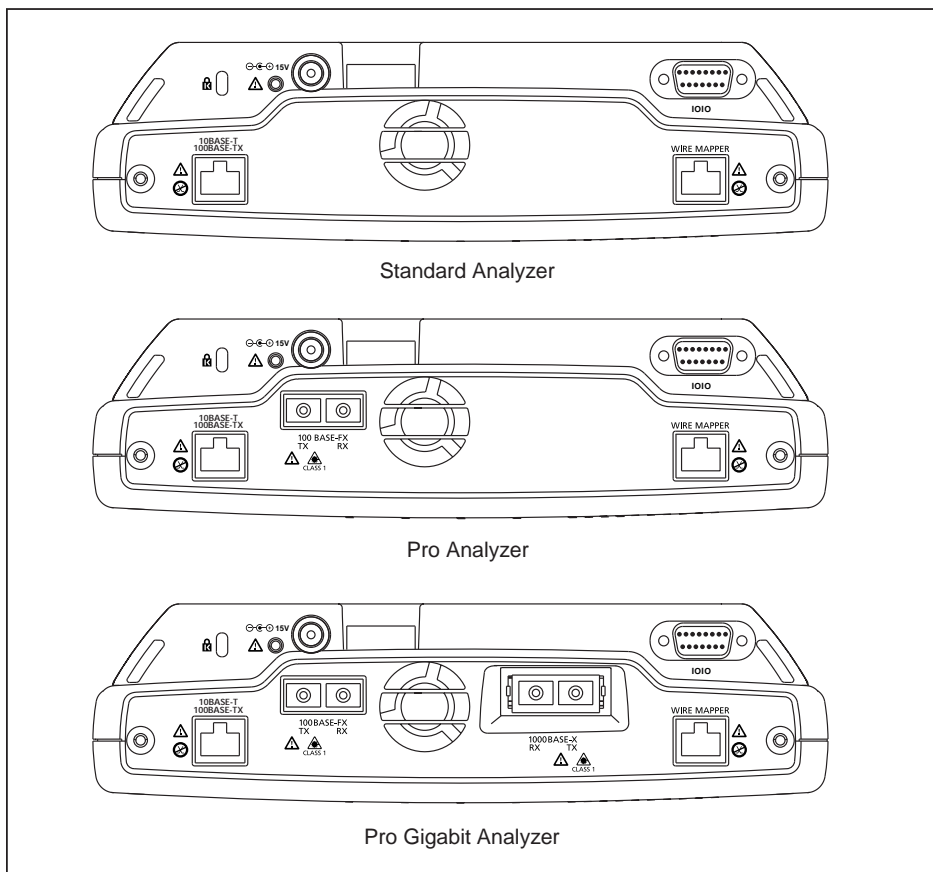
ahq10f.eps

Figure 12. Top View of the OptiView™ Standard, Pro, and Pro Gigabit Analyzer

Setting Up the Analyzer to Test Your Network

Simply turn on the analyzer and connect a cable from the 10/100 BASE-T connector (or fiber connector if you have purchased the OptiView™ Pro or Pro Gigabit) to the network. The analyzer will check the cable if present, find the active network interface, and obtain a non-duplicate IP address. It will then start discovering the network. Its advanced auto discovery process does the rest!

You can always manually assign an IP address in the **Setup | TCP/ IP** screen. You can also manually assign an IP address for an alternate network as long as it is in same broadcast domain.

The **Front Page** screen is the first screen that appears after the analyzer power-up sequence is complete (connected to an active network), as shown in Figure 2.

LED Status
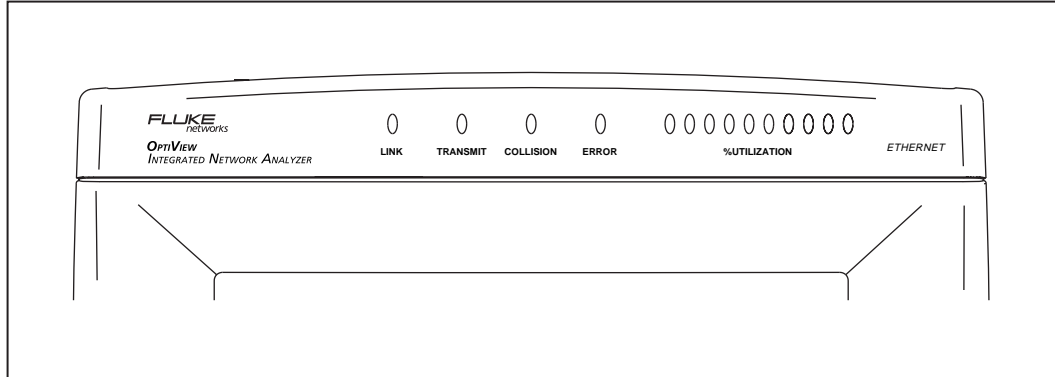
ahq15f.eps

Figure 13. Analyzer Status LEDs

The LEDs on the front of the analyzer represent the following conditions:

Link indicates one of four conditions given below.

❑ green solid = link present with fiber or twisted-pair MDI connection (analyzer receives on 3,6 pair)

❑ amber flashing = cable or wire mapper present, but no link present

❑ amber solid = link present with MDI-X connection (crossover, analyzer receives on 1,2 pair)

❑ red flashing = no cable or no link present on fiber

❑ red solid = an over voltage has been detected such as being connected to an ISDN line.

Transmit - Indicates the analyzer is transmitting packets. Packets are transmitted while running Traffic Generator, and routinely transmitted by the analyzer discovery process. The analyzer communicates with devices to determine their device type and identity. The LED will flash faster as more transmit activity from the analyzer occurs.

Collision - Indicates that collisions have been detected by the analyzer on the local network. As more collisions occur, the LED flashes faster.

Errors - Indicates that errors have been detected on the local network. Errors include CRC alignment errors, undersized packets, oversized packets, and jabbers.

Utilization - Represents traffic relative to the point where the analyzer is connected (local traffic). Ten LEDs indicate utilization in 10 percent increments. The first five LEDs (from left-to-right) are green, followed by three amber LEDs (indicating more traffic), then two red LEDs (indicating very heavy traffic).

Note

The green Utilization LEDs also flash during cable testing. Do not disturb the cable while these LEDs are flashing or the measurement results may be invalid.

Front Page Screen
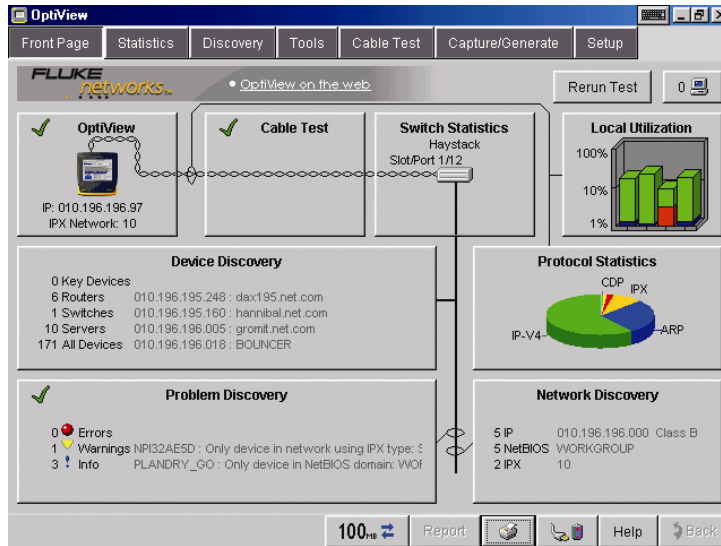
ahq42s.tif

Figure 14. Front Page Screen

The Front Page screen is an overview and launching point to monitor and test your network. This screen provides an overview of your network by presenting the closest switch (**Switch Statistics** button), any network problems (**Problem Discovery** button), all connected devices (**Device Discovery** button) on your broadcast domain, and statistics (**Protocol** and **Utilization Statistics** buttons). The health (e.g., state, condition, etc.) of your network is discovered and problems are displayed if they exist.

At startup, a representation of the cable appears (cable presence is detected automatically). Initially, the **OptiView** and **Cable Test** buttons are the only elements shown. After the cable test has completed and link has been established, the remaining screen elements appear.
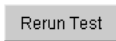
Rerun Test allows you to clear all statistics and discovery information, and restart all network device discovery. Cable Test is not rerun. Cable Test is rerun when a cable change is detected.

Remote Sessions displays the number of remote users connected to the analyzer. See the Help Front Page topic for a complete description.

The **Status Bar** is located at the lower-left corner of the analyzer display. Analyzer activity and errors are reported here.

This button indicates the link speed, and duplex mode (shown by solid and outlined arrows). In this example it shows a 100 Mbit half duplex connection (one solid and one outlined arrow). Two solid arrows represents full duplex. Press this button to go to the **Setup | Ethernet** screen.

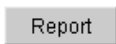This button generates tabular HTML reports on select screens. The reports are stored by default in the C:\Program Files\Fluke Networks\OptiView\Reports. When this button is pressed you are prompted to specify a filename or to use the default name provided.

This button prints a snapshot of the current screen to the currently configured printer. See "Setting Up a Printer" on page 24.

This button displays the battery charge state. The battery icon displays the battery charge level, e.g., full, about half full, and near empty. If an external battery is connected, the battery icon represents the average of both the internal and external batteries. Pressing this button opens the **Power Management Properties** screen.

This button opens the help system and will display help information on the current screen.

This button works in conjunction with buttons containing the forward arrow . When going to a screen using a forward arrow button, the **Back** button then returns you to that particular screen.

The **Switch Statistics**, **Local Utilization**, **Device Discovery**, **Protocol Statistics**, **Problem Discovery**, and **Network Discovery** buttons provide information on their respective areas. The combined information provides a blueprint of the network, letting you know how things are going. This information will allow you to quickly dismiss some hypotheses during troubleshooting without "drilling-in." Some buttons show a green check mark (good) or red X (error) to draw your attention to potential problem areas.

The **OptiView** analyzer button represents the configuration status of the analyzer. A green check mark indicates that the analyzer passed self test and obtained a valid IP address for the local network. A red X indicates Self Test failed, or a valid IP address was not found.

If a valid IP address was not found, the analyzer will still be able to analyze traffic for statistics, discovering devices and station names. However, without a valid IP address, the analyzer will not be able to actively discover names. Pressing the **OptiView** analyzer button takes you to the **Setup | TCP/IP Network Configuration** screen.
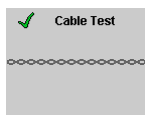
The **Cable Test** button summarizes the status of the twisted-pair or fiber cable:

Green check mark - indicates a valid cable. Length is given for twisted-pair copper wires on the 10/100BASE-TX interface.

Red X - indicates that there is a problem with the cable. Other tests depend upon a functional cable with a successful link. Select this button and view Cable Test details to diagnose a problem with a cable.

Note

Measurable twisted-pair lengths are from 1 meter to 305 meters (approximately 3 feet to 1000 feet).

The correct cable type must be selected for Cable Test to report correct measurements. The cable type is selected on the **Cable Test | Twisted-Pairs Detail** screen. The default cable type is UTP 100 Ohm Category 5. A misidentified cable type may cause the measured length to differ from the actual length by up to 15%.
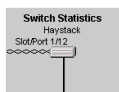
The **Switch Statistics** button displays the nearest switch accessible with SNMP. The nearest switch is discovered by examining the bridge forwarding tables of all the local switches. Pressing this button takes you directly to the **Tools | Interface Statistics** screen for this switch.
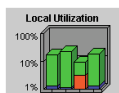
The **Utilization Statistics** button shows network unicast, multicast, broadcast, collisions, and error percent detail for the connected network segment. Pressing this button takes you to the **Utilization** screen where information is provided in both tabular and graphical views.

The **Protocols Statistics** button shows protocol mix information. The OptiView Analyzer continuously updates the protocol list based on protocols used on the network segment the analyzer is connected to. Pressing this button takes you to the **Statistics** | **Protocol** screen for more detail.

The **Device Discovery** button summarizes device discovery results for the entire broadcast domain, along with discovered critical network servers. Specific address and domain names are displayed. Network interconnect devices and servers are also displayed, along with the total number of hosts. Devices are shown by category and are updated every few seconds. The names and addresses of the devices are provided to aid you in troubleshooting. Pressing this button takes you to the **Discovery | Device** screen.

The **Network Discovery** button summarizes the network discovery results. IP Subnets, NetBIOS Domains, and IPX Networks are shown. Pressing this button takes you to the **Discover | Networks** screen.

The **Problem Discovery** button summarizes the problem discovery results. Problem Discovery status is conveyed using graphics and color (red ball for severe problem; yellow triangle for problem or warning; blue exclamation point for informational). This information is continuously updated every few seconds. Pressing this button takes you to the **Discovery | Problems** screen.

Generating Network Traffic

Traffic Generator enables you to create different traffic loads to stress test your network. The type of protocol, size of packet, number of packets per second, and percent utilization are configureable along with the type of traffic, e.g., Broadcast, Multicast, or to a specific Device. You may generate traffic to devices on your local network or to devices specified out of your local network.

See "Traffic Generator" in the analyzer Help for usage.

Testing Network Cables

Measurable cable lengths are from 1 meter to 305 meters (approximately 3 feet to 1000 feet). The correct cable type must be selected for Cable Test to report correct measurements. UTP 100 Ohm Category 5 is the default cable type selected.

It is not necessary to disconnect the far end of the cable for the length to be measured. Cable length can be measured while the cable is connected to a wire map adapter, connected to nothing, or connected to an active hub, switch, or NIC. A cable is automatically tested when it is connected to the analyzer and during the power-up sequence. If needed, the cable may be re-tested by pressing the **Rerun Cable Test** button on the **Cable Test** screen, or by simply disconnecting and reconnecting the cable to the analyzer.

Figure 15 illustrates the different cable test capabilities. All cable test detail results are reported in the **Cable Test** screen.

ahq06f.eps
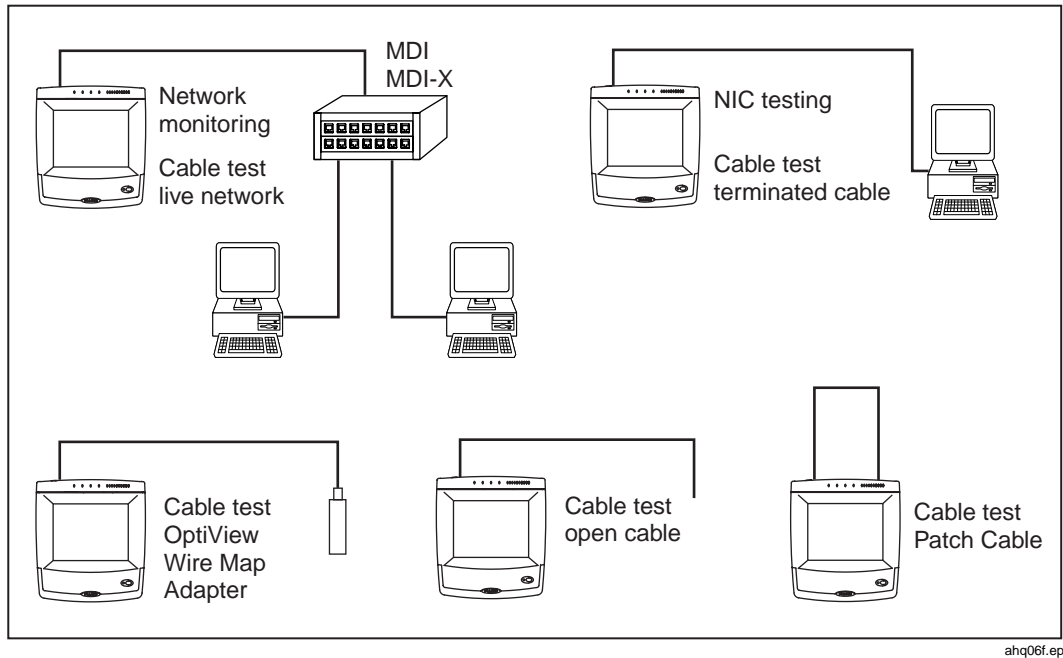
Figure 15. Cable Test Capabilities

The supplied wire map adapter is used to confirm end-to-end wire connections. Using the wire map adapter, you can see cabling shorts, opens, and mis-wired connections on the **Cable Test** screen. There is a built-in wire map adapter port on the top of the analyzer for convenient patch cable testing.

Note

*Due to the various manufacturing techniques used by equipment venders in NICs, hubs and switches, the length shown may be the distance to a connector or cross-connect that is causing a larger signal reflection than the end-equipment. Examining the **Cable Test | Twisted-Pair Detail** screen shows the actual end-length and reflection values. This is not an issue with non-terminated (open) cables.*

Setting Up a Printer

You can add printers through the desktop as you would on any Windows 98 PC (**Start | Settings | Printers | Add Printer**).

Note

By default, a PDF print driver has been installed and configured to print to file.

Browsing Windows Network Neighborhood does not function when you are connected to your network through the data acquisition card (i.e., top of the analyzer). You CAN, however, manually configure a network printer or map a local network drive through the Ethernet connectors on the data acquisition card.

A USB or PC Card network connection will fully support Network Neighborhood if you set up your Windows network configuration properly (see the Windows help on network configuration information).

Changing the GBIC Module (Pro Gigabit version only)

To remove a GBIC module, press and hold the tabs on the sides of the GBIC module and pull gently out of the gigabit slot.

To install a GBIC module, make certain the GBIC's "D" shaped connector is aligned with the connector in the gigabit slot.

ahq14f.eps
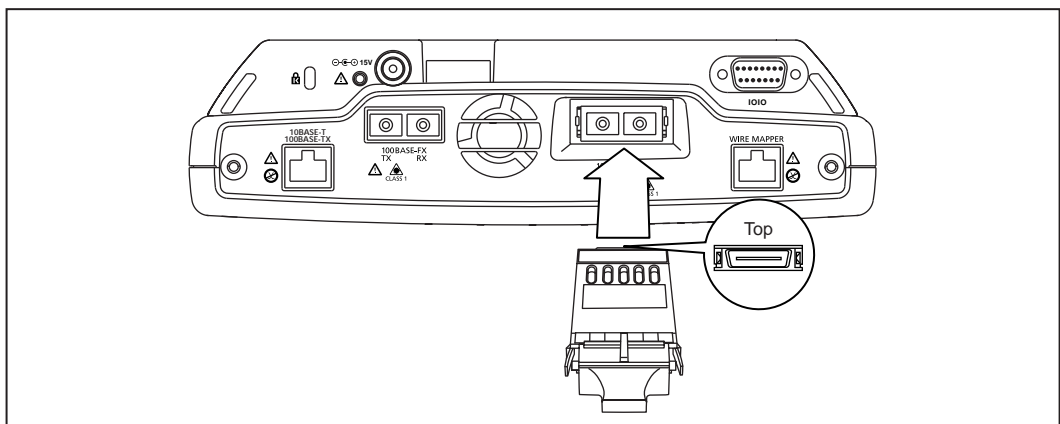
Figure 16. Installing a GBIC Module

Note

Though most GBICs are designed to be hot-swappable, i.e., changed with the analyzer power on, it is recommended that the analyzer be powered off or placed in suspend mode prior to changing the GBIC. This will reduce the possibility of damage to the GBIC.

⚠ **Warning**

GBIC modules are Class 1 laser light emitting products. Never look into the GBIC module while it is on, otherwise damage to the eyes, including blindness can occur.

Windows Network Configuration

The Windows network configuration is preconfigured for communication with the OptiView™ analyzer data acquisition board. The Ethernet twisted-pair and fiber connectors are part of the data acquisition board. DO NOT modify the Windows IP address settings for the data acquisition board. You may add additional interfaces that have their own TCP/IP protocol settings. You however, may need to modify other network configurations such as WINS and DNS servers.
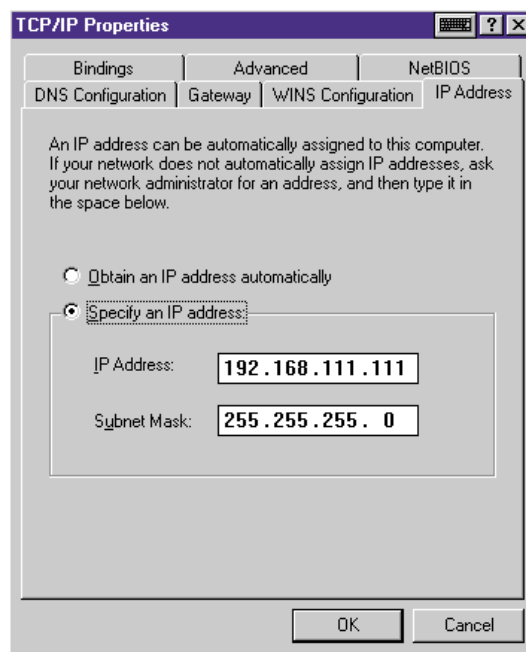
ahq30s.bmp

Figure 17. TCP/IP Properties for the Data Acquisition Board

⚠**Caution**

In the Windows Network setup, TCP/IP -> Intel 8255x-based PCI Ethernet Adapter (10/100) has a preconfigured IP address of 192.168.111.111, subnet mask of 255.255.255.0, and gateway of 192.168.111.110. These settings MUST NOT be changed. They are used for communication between the data acquisition board and the Windows interface.

Using the OptiView Browser™ *and User Interface Software*

The OptiView Browser™ allows you to access to OptiView™ Integrated and Workgroup analyzers through a browseable user interface installed on your PC.

In the OptiView Browser™ window, double-click on a analyzer from this list and the user interface is launched. If an analyzer is password protected, you will be prompted to enter a password.

In order for analyzers that are not in the same local network (subnet) to be displayed in the OptiView Browser™ list, you must first configure the Remote Control IP address setting on the analyzer. This is found in the **Setup | Security** screen. The Remote Control IP address should match the IP address of the PC that you intend to run the user interface software on. Then, the remote analyzer will send its identification back to the controlling PC.
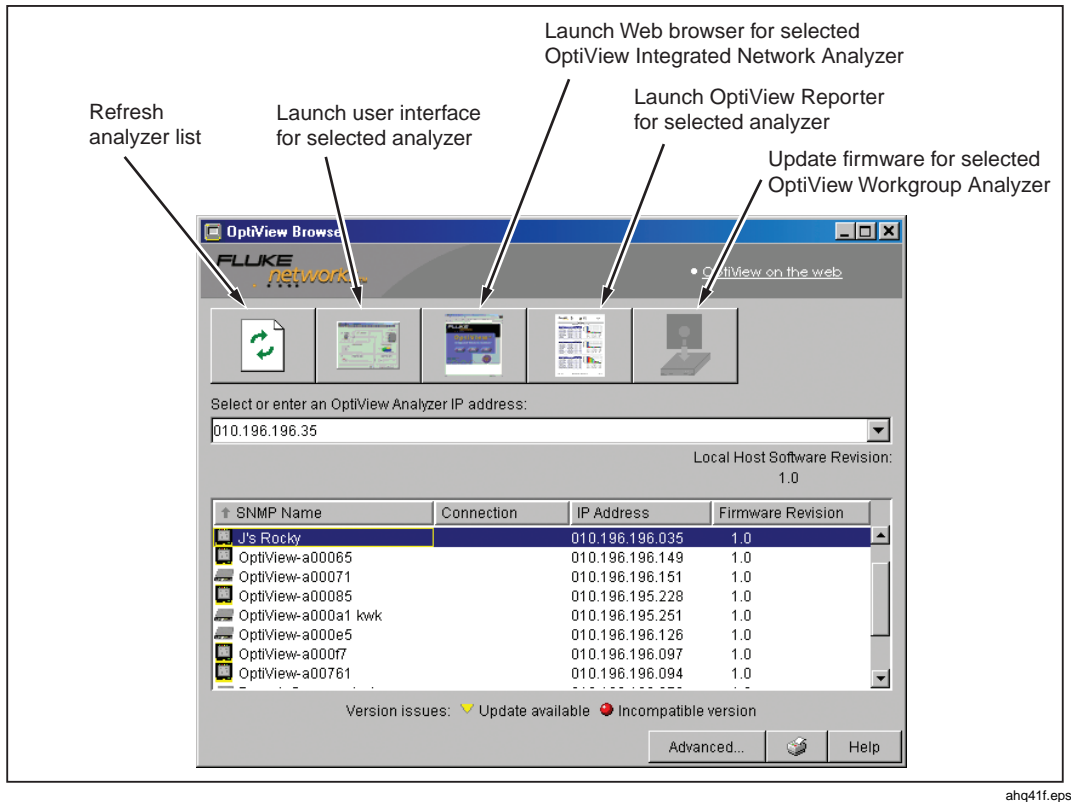
ahq41f.eps

Figure 18. OptiView Browser

Refresh analyzer list

Re-displays the analyzer list with current active analyzers.

Launch user interface for selected analyzer

Launches the user interface software to the selected analyzer. The selected analyzer is the analyzer that is highlighted in the OptiView Browser™ analyzer list or the IP address entered in the OptiView Browser™ IP address field.

Launch Web browser for selected OptiView Integrated Network Analyzer

Enabled only for OptiView™ Integrated Network Analyzers and not for OptiView™ Workgroup analyzers. Launches the default web browser on your PC and connects to the home page on the selected OptiView™ Integrated Network Analyzer. From the home page, you can access saved reports and packet capture files located on the hard drive of the OptiView™ Integrated Network Analyzer.

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Launch OptiView Reporter for selected analyzer

Launches the OptiView Reporter software application. The Fluke Networks OptiView Reporter™ software application provides you with a simple way to generate a variety of reports based on data obtained from analyzer connected to your network.

Update firmware for selected OptiView™ *Workgroup Analyzer*

This button does not apply to OptiView™ Integrated Network Analyzers.

Updates the firmware on the OptiView™ Workgroup analyzer by downloading from the controlling PC. Enabled only when selecting an OptiView™ Workgroup analyzer through the Management port.

Installing the User Interface Software

The user interface software can be installed on Win98 SE, WinNT 4.0, Win2000, and WinXP operating systems.

To install the user interface software from CD-ROM, insert the OptiView™ Resource CD-ROM into your PC's CD-ROM drive. Autorun will will execute and load the CD-ROM user interface. If autorun is disabled on your PC, execute the file *launch.exe* located in the root directory of the CD-ROM. Follow the on-screen instructions to complete the installation.

To install the user interface software from your PC through your browser, connect the analyzer to your network and power it *on*. Enter the analyzer IP address into your browser's URL field (omit leading zeros). The analyzer IP address is displayed on the Front Page screen in the **OptiView** button as shown to the left. The home page of the analyzer will display as shown in Figure 19. Select the **Install Remote UI** button and follow the on-screen instructions to complete the installation.

ahq46s.bmp

Figure 19. OptiView Personal Web Server Home Page

Once the installation is complete, you will be able to launch the OptiView Browser™ from your desktop, select an analyzer from the OptiView Browser™ list, or enter the IP address of the analyzer, and gain access to valuable network information through the user interface software.

User Interface Events that will Terminate a Remote Session

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

- IP parameters are manually changed on the analyzer and **Apply** is selected in the TCP/IP setup screen
- **Auto Reconfigure on Network Change** is checked in the TCP/IP setup screen and the analyzer patch cable is disconnected and reconnected to another jack
- The Ethernet link goes down on either interface due to temporary network outage
- **Rerun Auto Configure** is selected in the TCP/IP setup screen
- **Find Unused IP and Apply** is selected in the TCP/IP setup screen
- IP parameters are manually changed and **Apply** is selected in the TCP/IP setup screen
- **Rerun Cable Test** is selected

In the above conditions, the popup message *There are n user interfaces that may lose connection to the remote OptiView Analyzer, proceed anyway?* with **Yes** and **No** buttons displayed.

29

Launch
Button

After selecting an analyzer from the OptiView Browser™ and launching the user interface. The first screen to appear is the Front Page screen. When you select an analyzer from the OptiView Browser™ list, you may either double-click on it or press the launch button.

Setting Up the Analyzer Security

The **Setup | Security** screen provides analyzer security settings for packet capture, remote access, and SNMP configuration.

Setting the Analyzer Name

The **OptiView Analyzer Name** field allows you to change the default analyzer name as seen by the network. This is especially useful when multiple analyzers are connected to your network.

Setting Password Control and Feature Selection

The Security screen enables/disables packet capture and access for remote users. If packet capture is enabled with a password, you will be prompted to supply a password before any packet capture will occur. This also applies when a remote user password is enabled and you are trying to remotely access the analyzer.

Setting a Password: Press the **Create Password** button. Enter a password in the Enter new password window as shown in Figure 20. The password is case sensitive, has maximum length of 40 characters, and any printable ASCII character can be used (including spaces). Once you have entered a password, you must re-enter it in the Confirm new password field. Select **OK** for the password to be accepted.

ahq18s.tif

Figure 20. Password Dialog

Once a password has been set, and you return to this screen, you will be asked to enter the password as shown in Figure 21.

ahq19s.tif

Figure 21. Password Control Dialog

Fields that are secure are displayed with "*".

Clearing a Password: To clear a password, you must first know and enter the existing password. Press the **Change Password** button and select **OK** to clear the password.

Note

If you forget the password, you will need to contact your authorized service center or Fluke Networks product support for procedures. See page 2 for contact phone numbers.

Setting the Remote Control PC Field

Set this field to specify an offnet PC running the OptiView Browser™ remote user interface software. By setting this field, the analyzer will send its identification back to the specified PC running the remote user interface software. Set this field to *<none>*, *<last connected>*, or manually enter the IP address of the remote PC that will be running the OptiView Browser™ remote user interface software. *<last connected>* is the last remote session to terminate from the analyzer, and that PC's IP address is saved into this field.

Setting the OptiView Inspector Console™ Field

The Inspector Console field enhances the interoperability of the analyzer and Fluke Networks' OptiView Inspector Console™ product (formerly Network Inspector™). The address you enter should be the IP address of the PC running the OptiView Inspector Console™ agent program. The analyzer will send packets to this address when it is connected to the network, and when the IP address of the analyzer is changed.

These packets assist the OptiView Inspector Console™ product in keeping its information current. OptiView Inspector Console™ maintains a special list of all Fluke Networks' products that are connected to the network and can even be used to launch a user interface session on any OptiView™ analyzer.

OptiView Inspector Console™ is purchased separately. A 7 day evaluation copy can be downloaded from www.flukenetworks.com.

Setting Up the SNMP Community Strings

The **RMON2 Read, RMON2 Read/Write community string** are used to access the RMON agent within the OptiView™ Pro and Pro Gigabit analyzer.

The field labeled **Strings used to query other SNMP agents** is used by the analyzer to interrogate discovered SNMP agents within devices on the attached network.

Note

Strings used to query other SNMP agents can have multiple entries, each separated by a space. The order in which they are entered is the order that they are searched.

If you have inadvertently changed the default values, select the ***Default*** *button to restore the default community strings.*

*Deleting the SNMP community strings will prevent the analyzer from using SNMP in an active discovery.*

Using the Built-in Help System

Accessing and Navigating the Help System

Help   The help system is an integral part of the analyzer. While using the analyzer user interface, help can be accessed by selecting the **Help** button located on the bottom-right of the user interface screen.
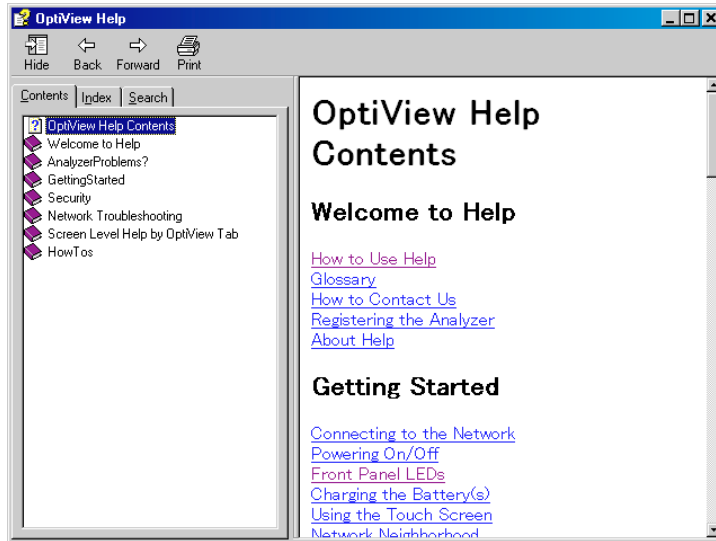
ahq47s.bmp

Figure 22. The Help Screen

When the Help is launched, the current screen topic is displayed. You can also select a topic from the Contents (left pane), choose an Index entry, or perform a full text Search on any analyzer help topic or term.

ahq48s.tif

Figure 23. Help Navigation Tabs
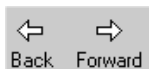
You can also press the **Back** and **Forward** buttons to move to and from previous viewed topics.

The **Hide** button collapses the left pane of the Help screen giving you more room to view Help topics. The **Hide** button is replaced by the **Show** button. The **Show** button expands the left pane of the Help screen.

The **Print** button allows you to either print the selected topic or print the selected heading and all subtopics.

Changing the Default Help Language

The Help is displayed by default in English. The Help language can be changed in the **Setup | Version** screen. Simply select the language from the Help Language drop-down list.
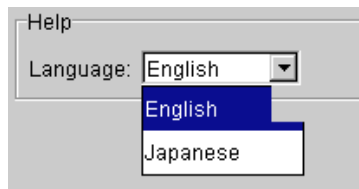
ahq49s.tif

Figure 24. Selecting the Help Language

Accessing the Online Documentation

This Getting Started Guide, the online Help system, and At a Glance Card are also provided in electronic format on the OptiView™ Resource CD-ROM.

Troubleshooting Your Analyzer

Resetting and Powering the Analyzer Completely Off

If you suspect the Windows environment has locked-up, you may have to reset the analyzer. This is done by pressing the **Reset** button. If you are not sure if the Windows environment or the analyzer (hardware) has locked-up, you may have to completely power-down the analyzer by forcing the power off as described below.

Resetting the Analyzer

The **Reset** button (see Figure 25) resets the Windows portion of the analyzer without shutting down the data acquisition board. Discovery and capture data are not affected. The **Reset** button should only be used if the Windows environment has stopped responding.

Forcing Power Off

Power can be forced off by pressing and holding the **On/Off** button for approximately 7 seconds. After being forced off in this manner, the analyzer may initiate a scan disk upon the next power-up.
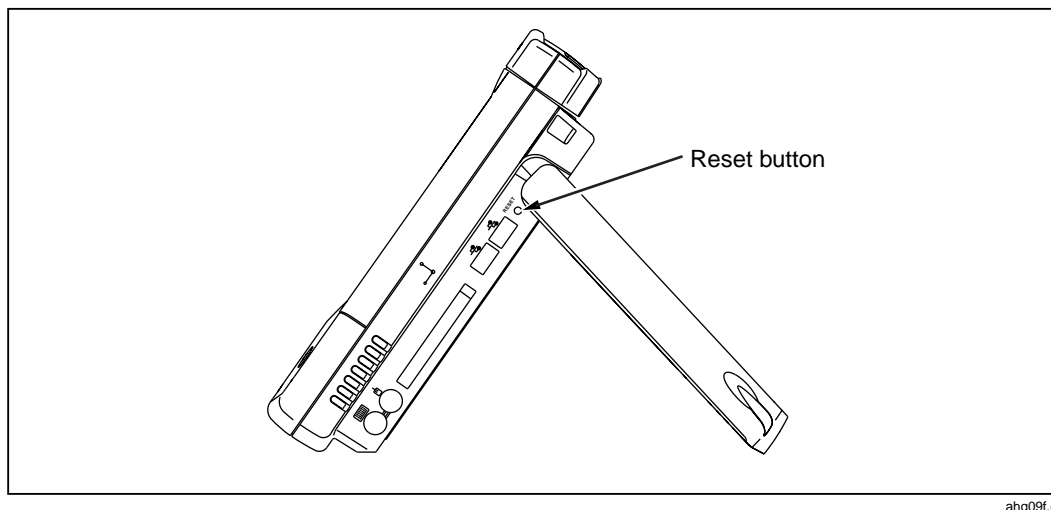
Reset button

ahq09f.eps

Figure 25. Reset Button Location

Before Calling Technical Support

Before calling technical support, you can perform these basic analyzer troubleshooting steps to pinpoint many problems:

Do you suspect Windows has locked up?

If yes, press the **Reset** button (see Figure 25).

Do you suspect the analyzer has locked up?

If yes, completely power-down the analyzer. See "Forcing Power Off" on page 35.

Does the analyzer power-up?

Connect the AC adapter/charger to determine if the internal battery (or internal and external batteries) is the culprit. The analyzer will not power-up if the batteries are completely discharged.

If the analyzer only powers up with the AC adapter connected, the internal battery may be completely discharged.

The external battery has a charge indicator on the underside of the battery pack (side with tabs, see Figure 6). The external battery will need to be removed from the analyzer to view the charge indicator. Press the charge indicator button to determine if the external battery is charged.

Does the analyzer user interface appear?

The **Front Page** screen should be displayed after power-up. Check the Windows task bar (usually at bottom of desktop) to see if the OptiView™ user interface has been loaded. If not, go to the Windows **Start | Programs** menu and select **OptiView**.

Does the analyzer pass self test?

Go to the **Setup | Self Test** screen and press Run Self Test. All tests need to pass.

Unexpected IP Discovery or Tools results?

Does the analyzer have a valid IP address? Look at the **Front Page** screen OptiView button and see if a valid IP has been configured. Also, see if the Auto Configure capability in the **Setup | TCP/IP** screen has been disabled. If an IP address has been manually entered, it may not be within the local subnet.

Do the touch targets seem to be off?

Try touching around the target to verify if the touch target calibration is off (this is rare). If you suspect the touch target is off, select **Setup | Display**, and then press the **Launch Touch Calibrator**. You will be prompted to touch the display at certain points to perform the calibration.

Are you connected to the network?

- ❑ Link light should be on solid green or amber if Link exists.

- ❑ Some activity on Transmit LED and/or Utilization LEDs should be seen.

- ❑ Go to Setup | Ethernet screen. An active interface should be indicated.

- ❑ Confirm that Cable Test passed. Try a different cable if necessary.

Does Cable Test pass?

A network connection can not be made if cable test does not pass. Look at the **Front Page** screen **Cable Test** button and see if there is a red X or green check mark in the button. A red X could indicate a faulty cable. If there is a red X, press the **Cable Test** button and go to the **Cable Test | Overview** and **Twisted-Pair Detail** screens to test the cable.

Does the battery charge state appear erratic or inconsistent, or is the battery not consistently holding a normal charge?

Charge the battery packs for at least 5 hours.

Does the touch panel display (or Windows) not respond to input?

Press the **On/Off** button to place the analyzer in standby. Press the **On/Off** button again to resume from standby.

If this does not correct the problem, try using a keyboard and/or mouse to shutdown and restart Windows.

If this does not correct the problem, try pressing the **Reset** button (see Figure 25) to reset Windows.

Note

A Windows Reset will not erase information collected on the data acquisition card.

If none of the above corrects the problem, press and hold the **On/Off** button for 7 seconds to shutdown. Press the **On/Off** button again to power-up the analyzer.

Note

A Windows Restart (either holding the on/off button for 7 seconds or pressing **Start | Shut Down… | Shut down***) will erase information collected on the data acquisition card.*

Windows Configuration Precautions

If you are trying to share files, or use TCP/IP based applications (such as the web browser), you may need to configure WINS, DNS, and domain/ workgroup information on the Windows environment.

Restoring the OptiView™ Analyzer Default Configuration and Software

In the event your OptiView™ Analyzer becomes unstable, or you feel your analyzer is no longer operating correctly, possibly caused by user installed applications, custom configurations, etc., you may restore the factory default configuration. A disk recovery utility is provided on the analyzer. The analyzer hard drive contains an image of the operating system, and all factory installed applications as originally configured by the factory.

⚠ **Caution**

Performing a Disk recovery will delete all report and capture files, user installed applications, and custom configurations that are stored on the C: drive. Your analyzer will be returned to its factory default settings.

To perform a disk recovery, perform the following:

1. Attach an external keyboard.

2. Power-up or restart the analyzer and keep pressing **F8** during the boot-up sequence, just after the black screen with the Fluke Networks logo is displayed.

3. Select **Safe mode command prompt only** by entering its corresponding number.

4. At the C:\ DOS prompt, type **cd diskutil** and press <Enter>.

5. Type **recover** and press <Enter>.

⚠ **Caution**

If you proceed, all data will be lost including capture files, reports, and user installed applications on the C: drive.

6. The following message/question is displayed: This program will reconfigure your hard drive C: to its factory default state. ALL USER DATA WILL BE LOST. Continue?[y/n]. Select y and press <Enter>.

Specifications

Table 5. General Specifications

Weight without external battery	2.1 kilograms (4.6 lbs)
Weight with external battery	2.8 kilograms (6.2 lbs)
Dimensions	26.0 x 23.4 x 6.4 centimeters (10.3 x 9.2 x 2.5 inches)
LCD touch screen display	640 x 480 pixels, passive color panel, active area 157.42 mm x 118.06 mm, CCFT backlight and bezel, touch pad
LED indicators	16 (21 with external battery)
Internal battery	Lithium Ion 10.8V DC (nominal), 2.2Ah
External battery	Lithium Ion 10.8V DC (nominal), 4.7Ah
External AC adapter/battery charger	AC input: 120V - 240V, 50/60Hz, 1.5A DC output: 15V, 3.3A
Communication and accessory ports	2 USB, 1 multibus PCMCIA (PC Card type II), 1 DB-9 serial, 1 PS2 compatible keyboard, 1 PS2 compatible mouse
Network analysis ports	RJ-45 10/100BASE-T Ethernet, fiber 100BASE-FX (OptiView™ Pro, Pro Gigabit), fiber 1000BASE-X GBIC and copper 1000BASE-T GBIC (OptiView™ Pro Gigabit)
Shock and vibration	Meets requirements of MIL-PRF-28800F for Class 3 equipment
Laser	Class 1 Laser Product, complies with 21 CFR 1040.10 & 1040.11, CFR(J)
Safety	c(UL)us Complies to CSA C22.2 No. 950 Canadian standards, and UL 1950 (US standards) CE Complies with European Union directive EN60950 2nd edition
EMC	CE Complies with EN61326, Class B

Supported Network Standards

Table 6. Supported Network Standards

LAN Interfaces	Standard SNMP MIBs Used
IEEE 10BASE-T	RFCs: 1213, 1231, 1239, 1285, 1493, 1512, 1513, 1643, 1757, 2021, 2108, 2115
IEEE 100BASE-TX	
IEEE 100BASE-F	
IEEE 1000BASE-X	

Cable Types

Unshielded Twisted Pair LAN cables (100 and 120 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)

Cable Length

Table 7. Cable Length, Resolution 0.3m (1 ft.)

Open, shorted or with wire map adapter	1 to 305m (3 ft. to 1000 ft.)	+/- [2% of reading + 0.3 m (1 ft.)]
Terminated with greater than or equal to 15% reflection	1 to 153m (3 ft. to 500 ft.)	+/- [5% of reading + 0.3 m (1 ft.)]

Note

Length accuracy is dependent upon the cable type selected in the
Cable Test | Twisted-Pair Detail *screen with its ideal NVP (nominal velocity of propagation) matching the NVP of the cable under test.*

Characteristic Impedance:

50 to 150 Ohms, cables 3-5 m (10-16 ft.)   +/- (5 Ohms +10%)
50 to 150 Ohms, cables >5 m (16 ft.)   +/- (5 Ohms +5%)

Resolution: 1 Ohm

Receive Level:

100 to 5000mVp-p,   +/- 5%

Resolution: 10mV

Datalink Signal:

500mVp-p to 4000mVp-p

Measuring Terminated Cables

Able to analyze 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 wiremap and office locator ID are operational in the presence of datalink signal.

Fault Tolerance

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

GBIC Identification:

Identifies and operates with the following GBIC module types per SFF Document Number SFF-8053, Gigabit Interface Converter, Rev. 5.4: LX (1300nm), SX (850nm).

Wiremapper/Office Locator Compatibility:

Detects combinations of shorts, opens, and connector miswires. Compatible with wire mapper/office locators (also called wire map adapter) labeled for Fluke Networks OptiView™ analyzer.

Environmental Requirements

Operating Temperature	10°C to 30°C (50°F to 86°F) with up to 95% Relative Humidity
	10°C to 40°C (50°F to 104°F) with up to 75% Relative Humidity

Note: Battery will not charge below 12°C (53.6°F)

Non-Operating Temperature	-20°C to +60°C (-4°F to +140°F)
Approvals	The AC Adapter/charger for the instrument has UL, CSA, and CE approvals or other approvals valid in the USA, Canada, and Europe.

Electromagnetic Interference	Complies to EN61326, Class B requirements. Exempt for USA and Canadian emissions regulations if it does not interfere with licensed communications.
Connection to public telephone network	The analyzer network interfaces are NOT FOR CONNECTION TO PUBLIC TELEPHONE SYSTEMS. The analyzer should only be connected to the public phone network through regulatory agency compliant modem devices.