FLUKE networks™

OptiView™

Integrated Network Analyzer

Total integration. Total control.
Total Network SuperVision.™

No one knows the value of an integrated solution better than network engineers – and Fluke Networks. Our ***OptiView Network Analysis Solution*** *is a breakthrough in integrated portable and distributed monitoring and analysis hardware and software. It gives you quick, complete visibility into your entire Ethernet network – from portable devices to workgroup analyzers to high-performance gigabit line-rate link analyzers. For more information visit* ***www.flukenetworks.com/netanalysis****.*

OptiView Integrated Network Analyzer provides complete seven-layer support in a single package. Features include:

- Expert automation, providing network information at a glance
- Advanced active discovery, even in switched environments
- Fully automatic IP configuration—even without DHCP
- SNMP device analysis
- Traffic generation
- RMON2 agent, capable of being managed by any standard management package (Pro Models)
- Packet capture and decode (Pro Models)
- Cable and patch cable testing
- Direct connection to 10BASE-T and 100BASE-TX
- Direct fiber connections for 100BASE-FX (Pro Models)
- Gigabit support with standard 1000BASE-SX, 1000BASE-LX or 1000BASE-T GBICs (Pro Gigabit Model)
- WAN Vision option
- Wireless Network Analyzer option

Technical Data

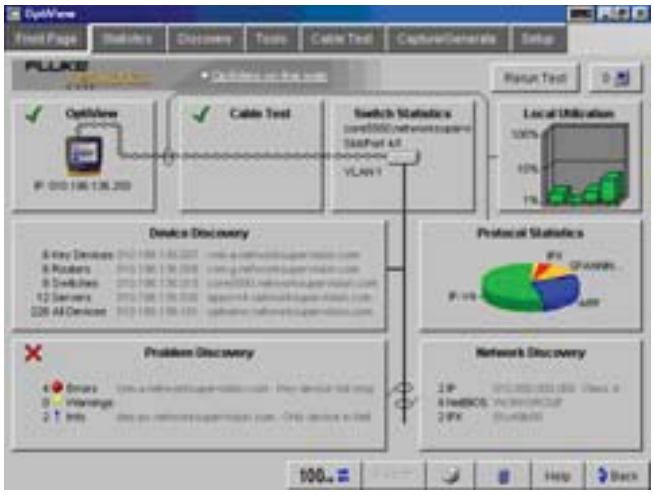
A new approach to network analysis

Imagine the ability to see what's happening on your network by simply connecting one single tool. Imagine automatically discovering network devices and seeing inside your switches and routers. Imagine using the power of one single tool to see and understand your network. Imagine no further. Fluke Networks OptiView Integrated Network Analyzer is a new approach to network analysis that provides you with the Network SuperVision you need on all seven layers, along with the speed and simplicity that your organization demands.

Get a complete view of your network and take control with Fluke Networks OptiView Integrated Network Analyzer.

Turn it on, connect the network cable and your network appears automatically. The information rich Network Front Page gives you instant vision into what is happening on your network. The graphical color display with touchscreen user interface provides information in an easy to understand format, while giving you the ability to easily drill down into any area by simply touching the target of interest. LEDs continually display the current status of network activity in 10% increments, providing visual notification when critical performance problems exist. Additional LEDs indicate errors, collisions and transmitted packets.

When a connection is made to a 10BASE-T or 100BASE-TX network, the OptiView analyzer automatically performs a cable test, identifying any problems with the cable and measuring the cable showing the length to the attached port. The OptiView analyzer also configures itself with a valid IP address, even without the use of DHCP. Then, the advanced discovery system takes over to provide you with immediate information such as percentage utilization of bandwidth, problems detected, protocol statistics, devices and networks discovered. The discovery system differentiates between hosts, interconnect devices such as switches and routers, servers, printers and SNMP devices. The discovery system also shows the number of IP subnets, IPX, NetBIOS and AppleTalk networks.



Statistics at the touch of a button

Selecting the statistics tab on the OptiView Analyzer provides you with a wealth of information on utilization, protocols, top hosts and conversations.

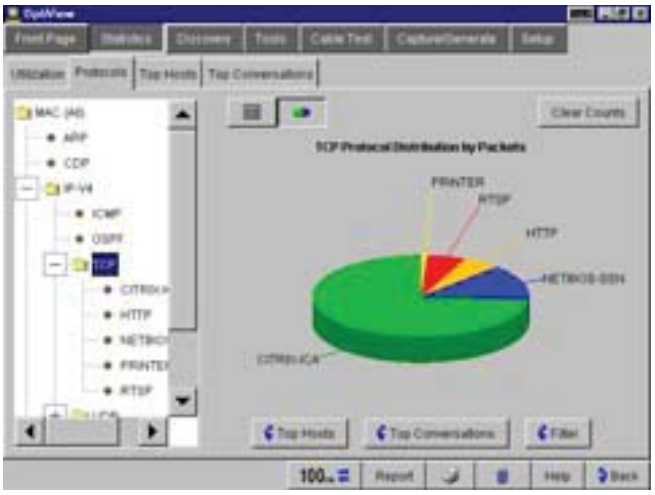
Utilization and Errors

This function provides an historical analysis on the performance and health of the network segment to which the OptiView analyzer, is attached. The default data source is the OptiView analyzer but the Data Source drop down menu lists all RMON and RMON2 devices that have a history study enabled. This function allows you to select a device anywhere on your network and display the information gathered by that device. Even multi-port devices can be interrogated on an interface-by-interface basis. The utilization graph shows percentage utilization over time. Based on the pre-configured RMON history studies for the selected device, you can choose from any of the existing history durations. The OptiView analyzer time interval is selectable from 2.5 minutes to 15 hours. Each sample is time stamped and the cursor may be moved over any sample to provide additional information shown in the table below the graph. The utilization screen also allows you to display the Top Talkers, Top Multicasters and Top Broadcasters.

Switching the view from utilization to error mode displays a graph of errors by CRC Alignment errors, oversize and undersize packets, fragments and jabbers. A touch of the Top Error Sources button displays the names and addresses of the stations responsible for generating the errors.

Protocols

The protocols screen displays the current list of active protocols as seen on the network segment to which the analyzer is connected. The left side of the screen displays the protocol tree that may be expanded to show all protocols, and sub-protocols running–from the MAC layer all the way to the application layer. The protocol mix may be displayed at any level in a pie chart or tabular format. When used in tabular mode the protocols may be sorted by Packets or Octets by pressing the Packets or Octets column header. The Top Hosts and Top Conversations keys allow you to display the top hosts or conversations by protocol type. For example, expanding TCP, selecting HTTP and pressing the Top Conversations key will provide a display of all the conversations using HTTP protocol.



Top Hosts and Conversations

The Top Hosts screen displays the top transmitting or receiving devices on the segment to which the analyzer is attached. When the MAC (All) protocols is selected in the left hand pane, the host table may be sorted by Packets sent or received, Octets sent or received, errors, broadcast or Multicast packets. When a specific protocol or sub-protocol is selected, the host table may be sorted by Packets or Octets. The host table may be further sorted in ascending or descending order by name or address. When Top Conversations is selected, the display shows the conversations between hosts for the selected protocol. Top conversations may also be sorted by packets or octets. You can view additional information on the host devices by selecting a specific conversation and touching Host A or Host B detail buttons.

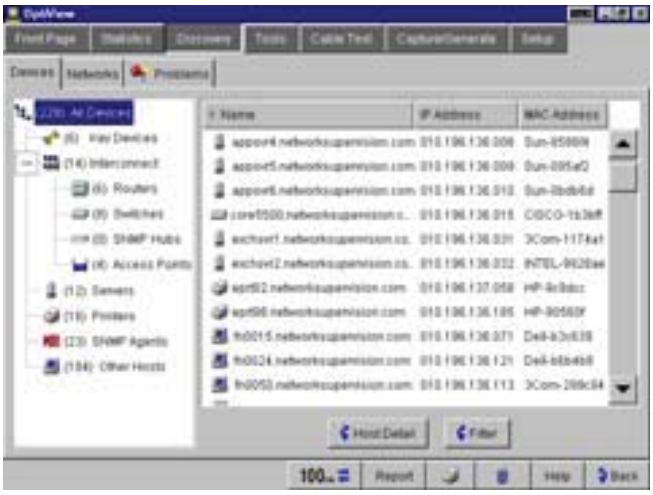
FLUKE networks™

Advanced Discovery Techniques finds Devices, Networks and Problems in seconds.

The OptiView analyzer starts its discovery process as soon as it is connected to a network. Real-time results of devices, networks and problems are discovered.

Device Discovery

Devices are discovered by monitoring traffic and by actively querying hosts. For all discovered devices, the analyzer will present the best possible information in terms of DNS Name, NetBIOS Name, SNMP Name, IPX name and also addresses. The OptiView analyzer differentiates between various types of host device. Interconnect devices are further categorized by Routers, Switches, SNMP Hubs and Wireless Access Points while Servers, Printers and SNMP agents are also identified. The Device list will also include "Offnet" devices identified by performing a ping or trace route to those devices. The devices listed in the left hand pane is dependent on the category selected on the device type. All devices may be sorted by in ascending or descending order by Name, IP address or MAC address. By highlighting a specific host and selecting the Host Detail button, you can obtain valuable information on that host such as name, address, protocol and network configuration. This overview screen allows you to add the device to the "Key Device" category. By adding a device to Key Devices, the analyzer will automatically test connectivity from the attached segment to that device by performing an IP or IPX ping. A key device that fails to respond, will show up in the Problem Discovery as "Key Device not responding," providing you with at-a-glance monitoring of critical network devices.



Network Discovery

This screen display shows your network categorized by network type. Networks and all associated devices are discovered by traffic monitoring and by actively querying the hosts. The left pane of the display shows the network types (IP, IPX and NetBIOS). By expanding and selecting the network type, a detailed summary is provided for all local networks. For IP networks, the Subnet, Range, Mask and Broadcast address is displayed. For IPX networks, the Network number, Nearest Server and encapsulation types are displayed. For NetBIOS domains, the domain name and Master Browser or Primary Domain Controller information is displayed.

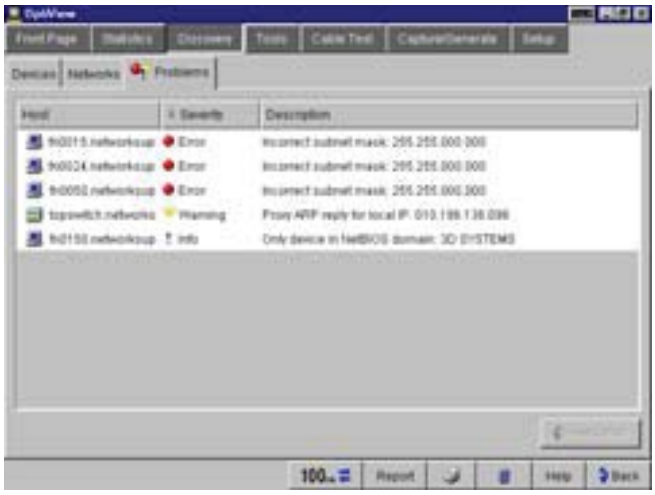
Problem Discovery

The Problem Discovery screen shows all network hosts that may be experiencing problems. Problems are reported according to severity–error, warning or informational. Resolved problems are also displayed.

An example of the types of problems that are detected by the OptiView Analyzers expert system are:

Errors	Duplicate IP address Incorrect subnet mask IP address is subnet address IP address is subnet broadcast address Key device not responding DHCP Server offered IP already in use Lost DHCP lease
Warnings	Default router not responding Only device in IP subnet Only device in IPX subnet Proxy ARP reply for local IP
Information	Only Device in NetBIOS Domain

The Problem Discovery information may be sorted in ascending or descending order by Host, Severity or Description.



SNMP Device Analysis

The overview screen displays valuable information about a selected device. The device detail can include Names, Addresses, Protocols, NetBIOS, Services, Router, Printer and Remote Monitoring capabilities that the device supports. Names and addresses are reported as DNS, SNMP, IPX and NetBIOS names, IP, IPX and MAC addresses. If a router is selected, the routing protocols are reported and switch configuration is reported by spanning-tree, transparent or source-routed. If the device is capable of supporting remote monitoring, the level of information provided is shown as SNMP, RMON or RMON2.

The integrated aspect of the OptiView analyzer is further illustrated in this screen by the “Links and Launchers” drop down menu. The capability of the selected device determines the type of links that are displayed in the menu. Links and launchers are included for Telnet sessions, Web Browser, Terminal Emulation, MIB Browsing and more.

Ping and Trace Route

The OptiView analyzer automatically pings (IP or IPX) the selected device and reports the results. The parameters that may be configured for an IP ping are rate (10, 5 and 1 per second or once every 5 seconds) and data size (18 bytes to 1472 bytes - minimum and maximum length Ethernet frames). The results indicate the total number of requests, the number of replies, success rate and minimum, average and maximum response times.

When Trace Route is selected, the analyzer automatically runs a trace route on the selected device. If the device is not in the host list, its address or DNS name may be entered in the "Device" drop down. Results displayed by the trace route are number of hops, name and IP address of each device per hop and total round trip response times for each hop. In addition, the OptiView analyzers' trace route function can also identify Split Routes and Route Flapping. The OptiView analyzer may also be used to view the System Group, Routing and ARP tables of all routers that separate the two hosts.

Trace SwitchRoute

The OptiView analyzers' Trace SwitchRoute feature allows you to see the exact path two devices use to communicate through your switch fabric. The Trace SwitchRoute begins its discovery from the specified Source Device and traces the path to the specified Target Device. For each switch in the path, the displayed results include the name, address, slot and port number together with link speed and VLAN information.

Highlighting any device in the Trace SwitchRoute name column and selecting Host Detail will allow you to view information on that device's network configuration.

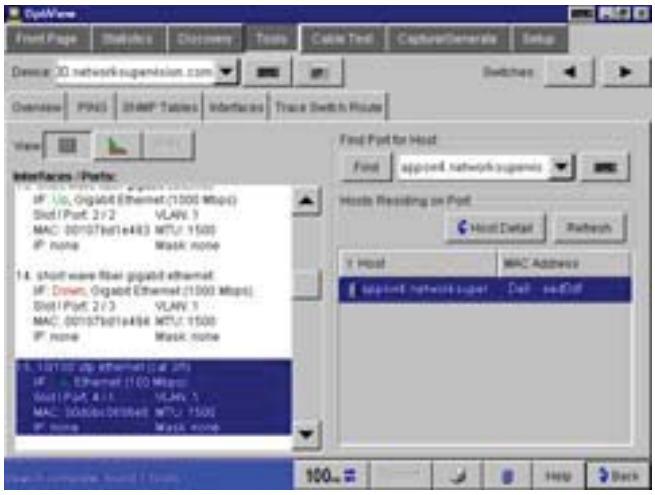
Interfaces (Multi-Port Statistics)

This screen allows you to view multi-port segments simultaneously, thus enabling you to diagnose hard to analyze switched LAN segments. It also allows you to see the activity on numerous locations on your network.

The Interfaces screen provides graphical and tabular multi-port views of switches and routers at a glance.

This test provides vision into the selected device in two distinctive views:

Tabular View displays the devices interface table and, if the device is a switch supporting the standards based switch forwarding table, will display the host devices residing on the selected port. The display also indicates the interface type, status and speed together with the slot and port number, the Maximum Transmission Unit (MTU), MAC address, and, using private MIB support for some vendors, will display VLAN number. This view also incorporates a Find Host feature where the analyzer will locate the port on the device where the host selected in the Find Host box resides.



Graphical View displays port or interface statistics sorted by average utilization, average errors or port/interface number. Any individual port or interface may be selected to view more detailed statistics. If the device supports RMON, the additional History Study button will allow you to view historical information gathered by the device.

The WAN Vision option displays graphical information relating to T1/E1, T3, Frame Relay, ATM and ISDN wide area links on routers that support standards based MIBs.

Cable Test

The OptiView analyzer, when connected to a network using copper media, will automatically perform a cable test and provide you with the cable length to the attached device even into a live switch or hub port. When you select the Twisted-Pair detail screen, you will see Cable Wire Pair, Impedance, Length to End, Length to Reflection and Status or Anomalies (shorts, opens, split-pairs) displayed in a tabular format. Additional information such as Receive Pair, Transmit Pair, Receive Voltage and Polarity is also displayed. The OptiView analyzer even automatically compensates for a cross-over connection, continues to function, and informs the user of an MID-X connection. Various cable types may be selected and measurement units can be displayed in feet or meters.

The OptiView analyzer can also measure the power or power loss in optical fiber links using the optional DSP-FTK Fiber Test kit.

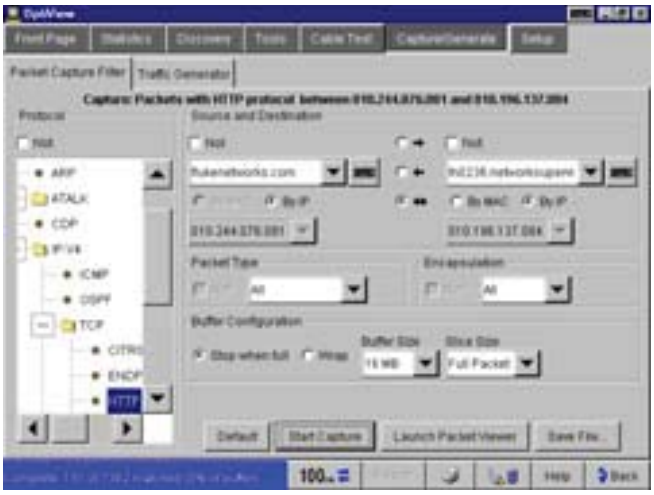
Packet Capture and Filter

For those more difficult to solve problems, the OptiView analyzer integrates a full packet capture and decode function. The OptiView analyzer is capable of full line-rate packet capture–even at gigabit speeds.

Just select the Packet Capture tab and without any modifications, start capturing packets on your network. However, for more selective packet captures, use the context sensitive filter–just select the host device from the device discovery screen, or a conversation from the statistics screen, press the filter button and the packet capture engine is automatically populated with source and/or source and destination addresses of your selection. If you need even more selectivity, you can select a host or conversation using a particular protocol just as easily.

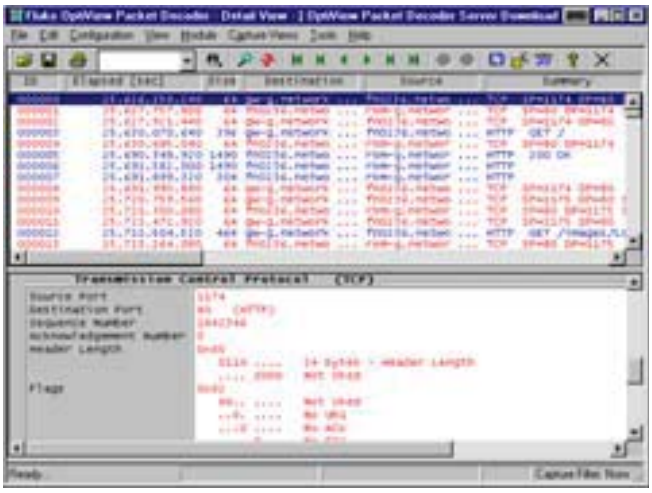
Just as you would expect from a traditional protocol analyzer, the OptiView analyzer's packet capture screen allows you to set up the capture buffer size, the slice size, the buffer configuration and various other parameters.

Once you have the configuration you need, press Start Capture and let the analyzer filter and capture while you make another selection from the variety of tests to take a different view of your network. The analyzer continues to capture packets while you look at something else.



Decode

Once you are ready to view the captured packets, stop the capture, press the Launch Packet Decoder button and launch the sophisticated packet analysis tool on the packet capture buffer. Once again, all the features you would expect, including display filters and buffer save and export capabilities.

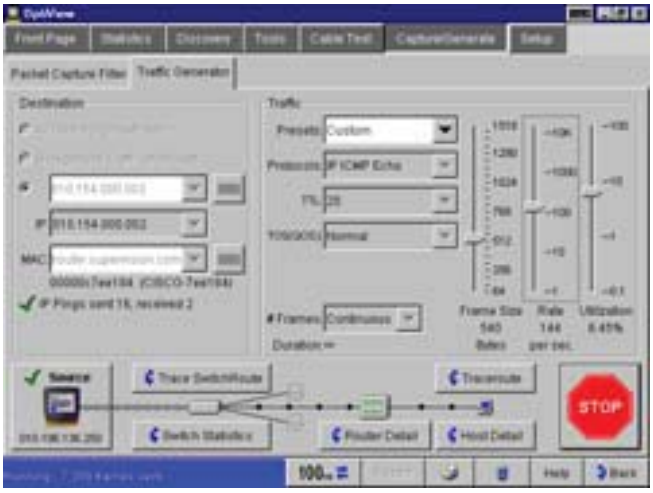


Traffic Generation

The OptiView Analyzer's Traffic Generator allows you to create different traffic loads to help stress test your network. The protocol type, frame size, frame rate, percentage utilization and number of frames to transmit are user configurable, along with the type of traffic: Broadcast, Multicast or Unicast.

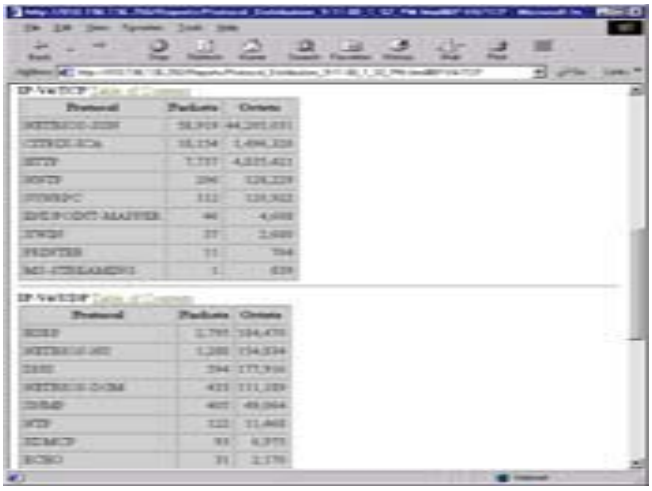
Protocols that may be selected include Benign Ethernet, Benign LLC 802.2, NetBEUI, Benign IP, IP ICMP Echo, IP UDP Echo, IP UDP Discard, IP UDP NFS and IP UDP NetBIOS. Selecting an IP protocol will also allow you to select Time to live (TTL) parameters and TOS(QOS) parameters such as Minimum Delay, Maximum Throughput, Maximum Reliability, Minimum Monetary Cost and Maximum Security.

The Traffic Generator also provides you with some preset traffic conditions such as 50% of 512 Kbps, 50% of 1.5 Mbps, 50% of 10 Mbps and 50% of 100 Mbps. The lower portion of the Traffic Generator screen has a graphical representation of the traffic path and depending on the traffic type selected will allow you to analyze switch statistics, drill into routers and even perform a trace route measurement.



Reporting Features

While viewing the Statistics or Discovery screens, you may press the Reports key to generate HTML reports on Protocols, Top Hosts, Top Conversations, Devices, Networks and Problems. These reports are saved in the OptiView analyzer and may be viewed locally or remotely using a web browser.



Web Enabled Data Retrieval and Remote User Interface

Simply point a Web Browser at the IP address of a correctly configured OptiView analyzer to retrieve saved reports and capture files. While you are there, select Install Remote User Interface and use your PC to obtain remote access to an OptiView analyzer over a TCP/IP connection. Once the Remote UI is installed, simply give the interface the IP address of the OptiView analyzer you wish to monitor and see an almost identical interface to the OptiView analyzer's local interface. Running from the Remote User Interface does not alter the OptiView analyzer's local interface. The Remote User Interface effectively shares the network data acquisition card on the OptiView analyzer. Multiple remote sessions may be run on a single OptiView analyzer.

Context Sensitive Help

The OptiView analyzer help is contextually linked to each screen. While that help screen is displayed, you may select other information from the table of contents, choose an index entry, or perform a full text search on any help topic or term.

OptiView Analyzer Set-up
TCP/IP

When the analyzer is first connected to the network, it will attempt to determine configuration settings using DHCP. If there is no DHCP response, the analyzer will look at its current configuration to determine if it is valid. If it is invalid, the analyzer will select a local IP subnet based on which IP subnet has the most hosts and then pick an unused IP address valid for the subnet. If another device on the subnet with the same IP address as the analyzer is connected, the analyzer will automatically discontinue use of that address and warn the user in the status bar and also in the problem discovery.

Ethernet

The Ethernet Setup screen allows you to override the default Ethernet port settings. The default settings are all set to automatic. This screen also shows you the link capabilities of the port to which the analyzer is connected. The MAC address of the analyzer can be changed and placed in a receive only mode where no frames are transmitted.

Security

This screen provides access to analyzer security settings for packet capture, remote access and SNMP configuration. The feature allows you to selectively disable certain functions on the analyzer by requiring the use of a password. This feature also allows for entry of analyzer Read and Read/Write community strings for remote access of the RMON2 agent and also allows you to enter community strings used to interrogate your managed devices.

Self Test

Provides access to the functional verification tests available in the OptiView analyzer.

Display

This screen allows you to control the brightness and contrast of the analyzers screen. Additionally, it can be used to calibrate the touch screen and to adjust the component size from a larger to a smaller touch target size.

OptiView Reporter - Optional Reporting Software

Generate network performance reports using the OptiView analyzer and the PC-based OptiView Reporter software package. OptiView Reporter collects data from the OptiView analyzer running on your local segment and then presents the information in professionally-formatted documents. With one mouse click, you can create reports of IP or NetBIOS devices, Top Protocols and Applications by Host, and document Ethernet collisions, utilization, and errors. The reports can be published in variety of formats, including HTML.

Professional Switch Vision Suite

The Professional Switch Vision Suite turns OptiView into a complete solution for control of switched environments. A few years ago, a protocol analyzer gave you total network visibility. But then switched networks came along and left you in the dark. That's why we developed our new Professional Switch Vision Suite. This powerful package of visionary network management products works with OptiView to monitor, analyze and troubleshoot, giving you control of every situation that pops up. You get enterprise-wide vision with the power to drill down seven layers deep.

You can illuminate problems through the application layer with our OptiView™ Protocol Expert. It can analyze capture files from OptiView for full seven-layer decodes with expert analysis. Advanced filtering and triggering let you find offending packets. And, our OptiView™ Inspector Console software monitors and trends all the ports in your switched network. Or, set it up to collect data from your OptiView. With a single click, you can generate spanning tree and switched server connection diagrams with our unique link to Visio® software. And if a key device, router, or switch port is overloaded, you'll know about it in a heartbeat.

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Specifications

General Specifications	
Weight	• Without external battery 2.1 kilograms (4.6 lbs) • 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)
Display	LCD touch screen, 640 x 480 pixels, passive color panel, active area 157.42 mm x 118.06 mm, CCFT back-light and bezel, touch pad
LED indicators	16 (21 with external battery)
Power	
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
Ports	
Communication and accessory ports	2 USB, 1 multibus PCMCIA (PC Card type II), 1 DB-9 serial, 1 PS2 compatible key-board, 1 PS2 compatible mouse
Network analysis ports	RJ-45 10/100BASE-T Ethernet, Fiber 100BASE-FX (OptiView Pro, Pro Gigabit), fiber 1000BASE-X GBIC(OptiView Pro Gigabit)
Network Standards	
LAN Interfaces	IEEE 10BASE-T, IEEE 100BASE-TX, IEEE 100BASE-F, IEEE 1000BASE-X
Standard SNMP MIBs Used	RFCs: 1213, 1231, 1239, 1285, 1493, 1512, 1513, 1643, 1757, 2021, 2108, 2115
Media	
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[1]	Resolution 0.1m (1ft)
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

Specifications

Media Continued	
Receive Level	100 to 5000mVp-p, +/- 5% Resolution: 1 Ohm
Datalink Signal	500mVp-p to 4000mVp-p Resolution: 10mV
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.
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
Open, short or with wire map adapter	1 to 305m (3ft to 1000ft) +/- [2% of reading + 0.3m (1ft)]
Terminated with >=15% reflection	1 to 153m (3ft to 500ft) +/- [5% of reading + 0.3m (1ft)]
Environmental and Safety	
Operating Temperature[2]	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
Non-Operating Temperature	-20°C to +60°C (-4°F to +140°F)
Approvals	AC adapter/charger 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
Shock and vibration	Meets requirements of MIL-PRF-28800F for Class 3 equipment
Laser	Class 1 Laser Product, complies with 21 CFR 1040.10 and 1040.11, CFR(J)
Safety	(CSA) Complies to CSA C22.2 No. 950 Canadian standards), and UL 1950 (US standards) (CE) Complies with European Union directives EN60950 3rd edition and EN61326
EMC	Satisfies requirements of EN61326

1 Legnth accuracy is dependent on the actual cable under test matching the cable type selected on the Cable Test/Twisted-Pair detail screen and its NVP (nominal velocity of propagation) matching that of the ideal cable of the selected type.

2 Battery will not charge below 12° C (53.0°F)

Ordering Information

Model	Description
OPV-STD	OptiView Standard
OPV-PRO	OptiView Pro
OPV-GIG	OptiView Pro Gigabit (1000BASE-SX)
OPV-PRO/RHD	OptiView Pro Integrated Network Analyzer with Removable Hard Drive
OPV-GIG/RHD	OptiView Pro Gigabit Integrated Network Analyzer with Removable Hard Drive
OPV-STD/PSVS	Professional Switch Vision Suite with OptiView Standard
OPV-PRO/PSVS	Professional Switch Vision Suite with OptiView Pro
OPV-GIG/PSVS	Professional Switch Vision Suite with OptiView Pro Gigabit
OPV-PRO/PSVS/RHD	Professional Switch Vision Suite with OptiView Pro Integrated Network Analyzer Removable Hard Drive
OPV-GIG/PSVS/RHD	Professional Switch Vision Suite with OptiView Pro Gigabit Integrated Network Analyzer Removable Hard Drive

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Accessories and Options

Model	Description
OPV-WV	OptiView WAN Vision Option
OPV-WNA	OptiView Wireless Network Analyzer Option
OPV-RPT	OptiView Reporter
NIS-OPV	OptiView Inspector Console (includes OptiView Reporter)
OPV-SX	1000BASE-SX GBIC
OPV-LX	1000BASE-LX GBIC
OPV-T	1000BASE-T GBIC
OPV-CIK	Cable Identifier Kit #2 - 6
OPV-KB	Mini Keyboard
OPV-BP	External Battery Pack
OPV-RHD	Removable Hard Drive for OPV-PRO/RHD or OPV-GIG/RHD
OPV-RHD/4	Pack of four Removable Hard Drives for OPV-PRO/RHD or OPV-GIG/RHD
OPV-FT500	OptiView Fiber Inspector
NF430	Fiber Optic Cleaning Kit
DSP-FTK	Fiber Test Kit

FLUKE networks™

Our Gold SuperVision Support plans give you exclusive services and 24/7 technical assistance.

Sign up for our Gold SuperVision Customer Support plan and you'll enjoy outstanding privileges to protect and add value to your investment in Fluke Networks equipment. They include unlimited technical assistance seven days a week, 24 hours a day via phone or at our web site support center. Repairs on covered items and "next day" dispatched loaner units for uninterrupted service. Free software upgrades. Scheduled annual performance verification service. Web based training. Access to our extensive Knowledge Base library of operation and application related technical articles. And Gold "Members Only" special prices and promotions. Some benefits are not available in all countries. See **www.flukenetworks.com/goldsupport** for more information.

Included with OptiView: Soft carrying case, instrument strap (not shown), external battery pack, cable identifier, ac adapter/charger, stylus, Getting Started Guide, At a glance quick reference guide, and setup card.

NETWORKSUPERVISION

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