With EtherScope Series II, you can:

- Solve Gigabit Ethernet problems fast on copper and fiber optic networks – test at Gigabit speeds with the full-duplex 10/100/1000 twisted pair interface or optional SX, LX or ZX optical fiber interface.
- View wireless networks – add the 802.11 a/b/g wireless network analysis option to troubleshoot today’s mixed wired and wireless networks. A full suite of tests including detailed information about RF signal strength, access point and client configurations, and network utilization.
- Discover switches fast – locate available interfaces, active ports, MAC, IP, SNMP name, and link speed.
- Capture detailed network information – locate, view, and store 1,000 network devices in the on-board database. Drill down on any device to see its configuration, addressing, and status.
- Analyze data instantly – pinpoint duplicate IP addresses, network misconfigurations, frame errors, collisions, high-utilization segments, and cable problems.
- Identify vital network stats – view Ethernet utilization, collisions and errors. Use the data to fine tune your network.
- Monitor client access – troubleshoot the cause of 802.1X security authentication, dynamic addressing and WLAN association problems.
- Measure performance – the ITO/RFC 2544 Option enables IP performance testing for deployment and maintenance of enterprise networks. Verify the available bandwidth between two points in a network or simulate the impact of additional network users or applications.
- Grab and go – easy to use and carry, featuring a small, lightweight ruggedized platform, a bright color touch-screen, intuitive user interface and context sensitive help.

You are working on one of many top-priority projects when you get the call. The network is down. Your company looks to you to bring its business-critical network back up quickly.

There’s no time to waste. You grab your trusted assistant and rush off to solve the problem, confident you have the essential set of tools you need to analyze, isolate, and solve the problem... or at least prove it’s not the network.
Powerful vision into your network

Whether a copper, fiber optic or a wireless LAN, the EtherScope Series II Network Assistant delivers the information you need to quickly analyze, isolate and troubleshoot network problems. EtherScope excels at troubleshooting access network issues, with advanced diagnostics that simplify troubleshooting in switched environments. When problems require a visit to the user’s work area, the switch closet or the equipment room, EtherScope is the portable tool you should bring with you. It is engineered to be small, lightweight and durable for field use. And it is packed with the features you need so you can leave your laptop PC back at your desk.

Verify cabling infrastructure quality

High-performance cabling is the backbone of a high-speed network. Do not let simple cabling problems bring your network down. Several built-in tools, like TDR fault location, wiremap and digital toning, help you troubleshoot common cabling issues.

If your network includes gigabit links, you likely have multimode or singlemode fiber optic cabling. Verify the quality of these links by measuring the power from fiber optic NICs and the loss of optical fiber cables.

Validate signaling and connectivity

A speed or duplex mismatch is a common cause of collisions and errors. Easily observe the link negotiation signaling of PC NICs and network devices.

Emulate a powered device (PD) to troubleshoot problems with 802.3af Power over Ethernet (PoE) systems. Solicit and measure DC voltage on each pin.

Infrastructure cabling
- UTP/STP wiremap
- Fault location
- Toning
- Jack identification
- Fiber optic power/loss

Connectivity and configuration
- Signaling
- PoE troubleshooting

Fiber optic power measurement

Signaling

Power over Ethernet (PoE)
Discover what and where

Discover up to 1000 devices automatically as soon as you connect to the network. Extract switch port/slot and VLAN information showing you where users are connected. Save time troubleshooting connection and congestion issues.

Managing VLANs has never been easier. See the switch interfaces that comprise each VLAN. In addition, “nearest switch discovery” speeds troubleshooting by identifying the slot and port to which you are connected while “network discovery” organizes devices by IP subnet and domain.

Observe association and authentication

Monitor and record the client-network connection process: association (if wireless), security authentication and dynamic IP addressing (DHCP). Isolate problems to identify what needs repair.

Supported authentication types include IEEE 802.1X (more than 10 EAP types) for LAN and WLAN and WPA and WEP for WLAN.

Association and authentication

- WLAN association
- Security authentication
- DHCP addressing
Monitor network health

Identify capacity trends and needs. Switch port statistics and trending show steady and bursty traffic, allowing you and your staff to pinpoint problems quickly.

See who the top bandwidth users are at a glance. Select specific frame types such as errors, broadcasts or multicasts. Then see the traffic displayed by protocol, such as IPv4, ARP, spanning tree, IPX and others. Drill-in on suspicious activity, identify the source, and quickly solve the problem.

RFC 2544 performance testing at Gigabit rates

Network managers are adopting elements of the IETF RFC 2544 to provide a standard methodology for characterizing LAN and WAN link performance. EtherScope features both RFC 2544 tests and ITO tests for characterization and verification of link performance at up to Gigabit speeds in both upstream and downstream directions. Advantages of EtherScope’s implementation of RFC 2544 include control over test configurations and automation for testing efficiency.

Select between three RFC 2544 tests: throughput, latency and frame loss. Run only the test(s) of interest to you. For each test, use the default configuration or customize the test parameters to observe how traffic differences affect link performance. User-definable parameters common to all tests include frame content, frame size, layer 2 802.1p class of service priority, layer 3 IP type of service (TOS), test duration and test rate. In addition, test-specific parameters include measurement accuracy for throughput testing, iterations for latency testing and step size and failure threshold for loss testing. By adjusting these parameters, you can also control the time required for a test to complete. For example, very small changes in accuracy can dramatically cut test times, by more than one hour, to reduce testing expenses and make RFC 2544 testing more predictable.

Construct a test suite consisting of one or more RFC 2544 tests. For each RFC 2544 test, specify the LAN or WAN link(s) to test by defining the target EtherScope device(s). Test the same link multiple times with varying configurations to observe performance differences. Test multiple links from a single destination using multiple EtherScope remotes. Click the Start button once to run all the tests in the suite in a single, automated operation. View and save tabular and graphical results to document link performance.
802.11 a/b/g wireless analysis

Troubleshoot RF coverage and performance issues

**RF measurements**

Is co-channel interference causing a problem? Is signal strength too low to support all users? EtherScope continuously scans 2.4GHz and 5GHz frequencies, providing visibility into wireless LAN coverage and performance. Choose the measurement you wish to view using drop down menus that include signal strength, signal to noise ratio, utilization, and several other useful measurements. Quickly determine if your access points are configured for the appropriate channels and that the RF transmit power is appropriate for your environment.

**Network Discovery**

Who is using the network, and where are they? Are wireless clients congregating in one area of the building, dragging down wireless network performance? Wireless EtherScope quickly identifies all wireless network access points and discovers all associated clients. Visibility into wireless network utilization helps you make better decisions about access point placement and expansion to support actual usage patterns.

**Identify top talkers**

See who the top bandwidth users are at a glance. Use Wireless EtherScope to identify the busiest access points and the most demanding wireless clients.

Drill-in to view wireless LAN metrics such as FCS errors, crosstalk, and retries. Identify suspicious activity, then identify the source and solve the problem.
Wireless security and policy enforcement

Discover unauthorized devices
Wireless security is a top concern, and wireless security policies are difficult to enforce. Use Wireless EtherScope to perform periodic audits of the wireless environment. Wireless EtherScope automatically discovers rogue access points, unauthorized wireless bridges, mobile clients and ad-hoc networks, enabling quick response and resolution.

Locate rogue devices
Wireless EtherScope features Security Scan and Locate to identify rogue devices and hunt them down. Unauthorized devices are automatically discovered and identified on the EtherScope home page under Security Scan. Select a device from the list then use the Locate feature to track down its physical location. An external, directional antenna speeds location by 75%.

Verify authentication and encryption
Wireless EtherScope discovers whether infrastructure and client devices are employing the appropriate authentication mechanism. EAP (Extensible Authentication Protocol) authentication is tested and monitored using EtherScope’s login test tool. Using EtherScope, force a wireless client to disassociate from an access point, and monitor the client and access point EAP exchange as the client re-authenticates on the network. Discover if, where, and when the EAP authentication process breaks down.

Planning wireless network expansion

Site survey
Has the RF environment changed since the access points were installed? Is wireless network coverage sufficient to support all users? Does the wireless network provide ubiquitous coverage sufficient to support seamless roaming?

Use Wireless EtherScope to capture baseline RF coverage data immediately after the wireless infrastructure is installed, then compare historical data to periodic survey data over time. Use this information to make minor adjustments to wireless access point transmit power, relocate access points, or add new access points before RF environmental changes impact your user community.

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**Network reports**

Document your network with XML-coded reports. Record network attributes, baseline performance, device inventory, a problem log, and switch-port statistics — all in web-viewable files.

**Network maintenance**

Built-in tools let you review and edit device configurations. EtherScope includes Telnet, SSH Telnet, terminal emulator, FTP, TFTP, CDP Port Reporter and a web browser so you can leave your notebook PC on your desk.

**Diagnose problems from anywhere via the web**

EtherScope fully supports secure remote access and control. So no matter where the problem is, all you need is an active web browser to diagnose remote locations — just ship an EtherScope to that location and instruct a person on the other end to simply plug it in to the local network.

**Future enhancements**

EtherScope is designed for the future, with a forward-looking Linux® operating system and a software update procedure that is a snap. As your network and your troubleshooting needs evolve, EtherScope grows with you. Your investment in EtherScope will serve you for years to come.

**Network SuperVision Gold Support**

Sign up for our Network SuperVision Gold Support plan and you’ll enjoy privileges to protect and add value to your equipment. These include unlimited 24x7 technical assistance and an exchange unit at no cost in the event something happens to your unit. Support also includes unlimited access to the knowledgebase, product discounts and “members only” promotions. See [www.flukenetworks.com/goldsupport](http://www.flukenetworks.com/goldsupport) for details.

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**EtherScope™ Series II Suites**

EtherScope is available bundled with complementary tools to expand your network troubleshooting capabilities. These tools run on Windows-based tablet and notebook PCs.

Use InterpretAir WLAN Survey Software to plan, simulate and verify 802.11 wireless LANs. InterpretAir is a wireless site survey tool and much more; it provides visualization of RF health metrics, greatly simplifying WLAN environment analysis and enabling performance tuning.

AnalyzeAir Wi-Fi Spectrum Analyzer detects, identifies and locates RF interference in 802.11 wireless LANs. AnalyzeAir provides IT professionals with the vision they need into the hidden world of RF, providing them the ability to see the spectrum in a visible and intelligible format.

OptiView Protocol Expert software provides protocol analysis directly through the network interface card in the PC on which it is running. Its expert analysis feature pinpoints problems quickly and suggests corrective action. Extensive seven-layer decodes make it easy to identify and solve the toughest problems on switched segments.
## Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Option</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES2-LAN-SX/I</td>
<td></td>
<td>LAN analyzer, SX Fiber, ITO/RFC 2544 Mainframe, rechargeable Li-Ion battery pack (installed), protective boot, carrying strap, AC adapter/battery charger, remote wire map (WireView #1), 64MB CompactFlash® card, patch cable, RJ-45 coupler, CD containing user manuals and other useful files, carrying case plus SX Fiber Option and Internetwork Throughput Option (ITO)</td>
</tr>
<tr>
<td>ES2-PRO-SX/I</td>
<td></td>
<td>LAN and Wireless LAN analyzer, SX Fiber, ITO/RFC 2544 ES2-LAN-SX/I plus 802.11a/b/g Cardbus adapter and external directional antenna.</td>
</tr>
<tr>
<td>ES2-PRO-SXLX-1/S</td>
<td></td>
<td>LAN and Wireless LAN analyzer, SX and LX Fiber, ITO/RFC 2544, accessories kit ES2-PRO-SX/I plus, LX Fiber SFP, replacement battery, external battery charger, USB mini keyboard, WireView outlet IDs #2 - #6 and large carrying case.</td>
</tr>
<tr>
<td>ES2-PRO-SX/I-1A</td>
<td>InterpretAir WLAN Survey Software Suite</td>
<td>ES2-PRO-SX/I plus InterpretAir WLAN Survey Software for laptop/tablet PC</td>
</tr>
<tr>
<td>ES2-PRO-SX/I-AA</td>
<td>AnalyzeAir Wi-Fi Spectrum Analyzer Suite</td>
<td>ES2-PRO-SX/I plus AnalyzeAir Wi-Fi Spectrum Analyzer for laptop/tablet PC</td>
</tr>
<tr>
<td>ES2-PRO-SX/I-1A-AA</td>
<td>InterpretAir and AnalyzeAir Suite</td>
<td>ES2-PRO-SX/I plus InterpretAir and AnalyzeAir solutions</td>
</tr>
</tbody>
</table>

### Options & Accessories

<table>
<thead>
<tr>
<th>Model</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES2-SX-OPT</td>
<td>SX Gigabit Fiber Option for all LAN-enabled models, enables Fiber Option and includes ES2-SX.</td>
</tr>
<tr>
<td>ES-ITO-OPT</td>
<td>Internetwork Throughput Option for all LAN-enabled models, enables ITO Throughput Test, Traffic Generator and RFC 2544 tests.</td>
</tr>
<tr>
<td>ES-WLAN-OPT</td>
<td>802.11a/b/g wireless upgrade option for all LAN-only models, enables WLAN Option and includes FNET-EXTANT and FNET-WCARD.</td>
</tr>
<tr>
<td>ES-LAN-OPT</td>
<td>10/100/1000 LAN upgrade option for all Wireless LAN-only models, enables LAN Option.</td>
</tr>
<tr>
<td>ES-ITO-KIT</td>
<td>Kit containing an EtherScope battery, external battery charger, AC charger and line cord, USB mini keyboard, WireView outlet IDs #2 - #6, and a larger carrying case</td>
</tr>
<tr>
<td>ES-BATTERY</td>
<td>Replacement battery</td>
</tr>
<tr>
<td>ES-BATT-CHG</td>
<td>External battery charger</td>
</tr>
<tr>
<td>WIREVIEW</td>
<td>Remote identifiers 2 – 6</td>
</tr>
<tr>
<td>OPVS2-KB</td>
<td>Mini USB keyboard</td>
</tr>
<tr>
<td>DTX-ACUN</td>
<td>AC charger, universal</td>
</tr>
<tr>
<td>OPV-POE</td>
<td>Power Over Ethernet adapter</td>
</tr>
<tr>
<td>MT-8200-63A</td>
<td>IntelliTone 200 Probe</td>
</tr>
<tr>
<td>944806</td>
<td>Null modem cable (DB9)</td>
</tr>
<tr>
<td>FNET-EXTANT-KIT</td>
<td>Kit including 802.11a/b/g radio card with antenna jack and external uni-directional antenna. For EtherScope WLAN or Pro models with the WLAN option enabled.</td>
</tr>
<tr>
<td>FNET-EXTANT</td>
<td>External uni-directional antenna. Replacement item.</td>
</tr>
<tr>
<td>FNET-WCARD</td>
<td>802.11a/b/g radio card with antenna jack. Replacement item.</td>
</tr>
<tr>
<td>ES-SWUGD-V3</td>
<td>EtherScope software upgrade to version 3.0</td>
</tr>
</tbody>
</table>

**Side Interfaces** – RS-232C serial port, USB port, microphone and headphone jacks, Kensington lock (opposite side).

**Top Interfaces** – 10/100/Gigabit twisted pair copper port, Gigabit Fiber SFP transceiver, CompactFlash® memory card and 802.11a/b/g WLAN adapter.

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Fluke Networks operates in more than 50 countries worldwide. To find your local office contact details, go to www.flukenetworks.com/contact.

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