EZtouch GigE+

Advanced Test Set for 10/100/Gigabit Ethernet

The ideal tool for field engineers and technicians installing, maintaining, and troubleshooting Metro Carrier and Campus Ethernet networks.

Main Features

- Large touch screen display with smart navigation.
- Dual port 10/100/1000 Megabit electrical port and 100/1000 Megabit fiber port.
- User defined test profiles and thresholds enable fast turn up of service.
- Advanced Ethernet diagnostics tools; Ping, TraceRoute, FTP, IPDV, Blinking Port locator, Cable Length, Optical Power Meter, Audio Tracking and Wire Map test.
- Ethernet BER testing at layer 1/2/3, with error insertion.
- RFC 2544 benchmark testing including; Throughput, Latency, Frame Loss and Back-to-Back Buffer Capacity Frames tests with upstream and downstream modes. Pass/Fail Results.
- Comprehensive layer 2/3/4 statistics and filtering. Detects MAC/IP collisions.
- Traffic generation and analysis for QoS verification of services such as triple play. Generate configurable constant, bursty or ramped traffic layer 2/3 traffic for up to 500 stations.
- (8) independent Multi-streams with configurable with MAC, IP, VLAN, priority, Q-in-Q, Frame Size, TOS/DSCP, bandwidth, protocol, stream loading, traffic shape etc.
- Comprehensive network monitor functions; HUB monitor mode, LASER watch, Pass-Through, Dual port pass modes etc.
- Application Layer Testing (DNS, POP3, SMTP and WEB).
- SNMP Inquiry.
- POE Test to identify PoE equipment and test PoE supply voltage.
- Network Health Check discovers network problems.
- Packet capture and simple decoding.
- Configurable VLAN, Q-in-Q and QoS settings.
- Equipment scan to find existing network equipment and open ports.
- MPLS Testing
- Web browser, FTP download test.
- Remote operation

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Expertly Designed for Metro and Backhauled Networks

Bit Error Rate Testing (BERT)
Verify the integrity of the network from end-to-end with a bit error rate test. Leave with a concise report. You don't need any surprises tomorrow.

RFC 2544 Testing
Quickly and easily validate circuits and service level agreements with these industry-standard performance tests including Throughput, Latency , Packet Loss and Back to Back Buffer Frames. Unique Dual port design allows tests to be run with one unit or run remotely with remote unit set to automatic mode. Pass/Fail results.

Ping, Trace Route, FTP and other Diagnostic Tools
Use the Ping test to determine if a particular host is reachable across an IP network. If the host is not found then the Trace Route utility can guide the user to diagnose at what point the end-to-end connection is being disrupted. Measure cable length and use the Wire Map tool to detect shorts, opens and polarity reversals. FTP test measures the average, min and max download speed.
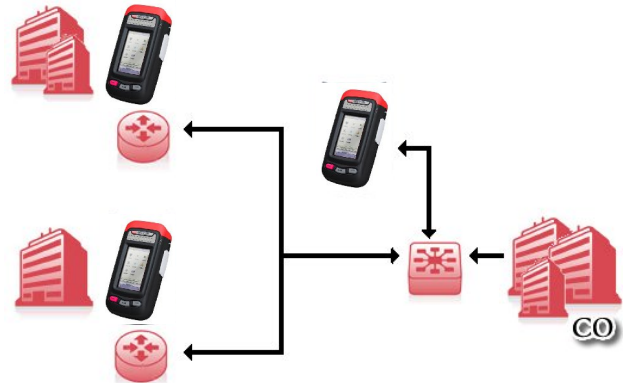
Multi-Stream Traffic Generation
Generate constant, burst or ramped traffic for up to 500 stations in order to preload the network, detect problems and preempt a disaster at turn up. Each stream can be sent with its own MAC, IP, VLAN, priority, Q-in-Q, Frame Size, TOS/DSCP, bandwidth, protocol, stream loading, traffic shape etc.

QoS Testing
The EZtouch GigE+ is the ideal for performing QoS verification of metro Ethernet networks. It offers VLAN priorities and specific settings (TOS etc.) helping service providers ensure QoS expectations are met.

Comprehensive Statistics/Filtering
Let the EZtouch GigE+ provide you with all the traffic statistics so that you know what is really running over that network. You will know the bandwidth utilization, frame sizes, protocols, number of CRC errors, and much more. And, best of all you can easily filter out layer 2/3/4 traffic based on MAC/IP to quickly focus in on the root cause of a problem. Wow! A network analyzer in your hand.
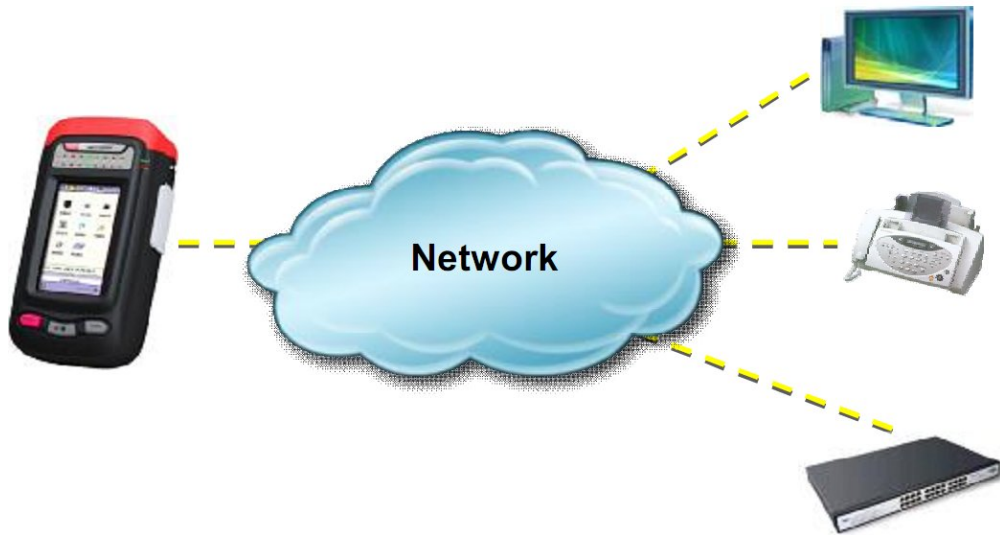

* Business Services

* Metro Ethernet Buildout

Applications
- Performance Assessment of Carrier Ethernet
- Installation, Activation and Maintenance of Metro Ethernet, Campus Ethernet backbone, of Company Ethernet, residential broadband network, telecom/ISP network, cellular backhaul and more.
- Performance and compatibility testing in R&D organizations

Applications

Terminal Mode: Connect EZtouch GigE+ to a network to receive and analyze network data and traffic. Simultaneously, it can discover network equipment
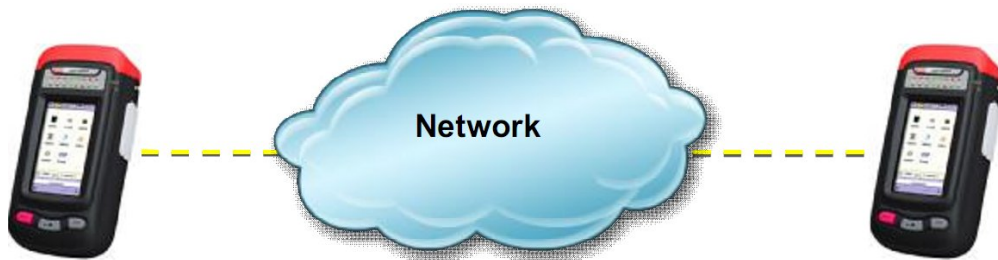

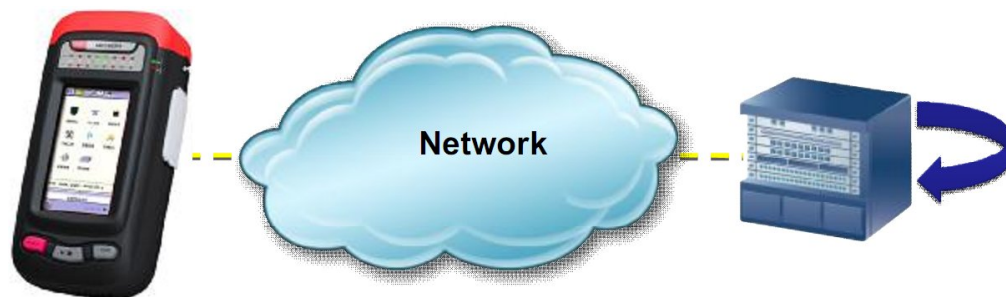**Pass-through Mode:** Connect EZtouch GigE+ in series between a PC, router, etc and a network.

Applications (cont)

End to End Test Mode: Connect EZtouch GigE+ to send and receive data to/from a EZtouch GigE, EZtouch GigE+ or GigE Reflector.

Loopback Test Mode: Connect EZtouch GigE+ to send and receive data to/from a loopback connection.

EZtouch GigE+Features / Functions

Hardware

Ethernet Interfaces - Two 10/100/1000Base-T electrical ports and two 100/1000 Base-X optical ports.

External Interfaces - Two USB 1.1 ports, one RS-232 port and one 10Base-T Management port.

Memory - 64MB RAM and 512MB compact flash card.

LED's - indicate Power, Charging, selected Ethernet Port, Main or Aux and RX/TX activity.

Rechargeable Battery Pack - Li Ion battery back with 5000 mAHrs, field replaceable.

External Power - AC/DC power converter outputs 15VDC at 3A, 110-240 VAC, 50-60 Hz.

Enclosure - Ruggedized with rubber shell.

Display— TFT 4.3″ LCD with 480 x 272 resolution with 16 bit text and graphics.

Bit Error Rate Testing

Modes - Main Port Tx is used to send the random code from the Main port. Main Port Detect mode allows the Main port to receive the random code and perform bit error detection and synchronization. Local Aux Port allows the Main port to send the random code and the Aux port perform bit error detection and synchronization.

Test Layer - IP, MAC and PHY

Pattern - Test patterns for MAC and IP layers include $2^{15}- 1$, $2^{15}- 1$ Inv, $2^{20}- 1$, $2^{20}- 1$ Inv, $2^{23}- 1$, $2^{23}- 1$ Inv, All "1s", All "0" and User-defined (4-byte hex). Test patterns for PHY include Compliant Random Data [PCRPAT] and Compliant Jitter Tolerance [CJPAT].

Error Insertion - Insert errors into random code at rates of 10^{-3}, 10^{-4}, 10^{-5}, 10^{-6} and 10^{-7}.

Traffic - Determines the user-defined linear speed for the random code. Ranges .001% to 100% or enter by bits per second.

Results - Sync status, test duration, Tx Bits, Rx Bits, Bit Errors, Avg. BER, BER/sec, BES.

RFC2544 Performance

4 Tests - Throughput Test, Time Delay Test, Packet Loss Rate Test and Back to Back Buffer Frames Test.

Connections - Local operation using Main and Aux port or Remote operation using Main Aux port and a remote EZtouch GigE+.

Progress - Test duration, remaining time and current test running.

Results - Include test direction, Frame length, Tx traffic, Tx frames, Rx frames, Err Frames, Actual Rx (fps), Theoretical fps, Avg (delay time) and Max (delay time) and Load (%BW).

Pass/Fail - Configurable thresholds determine and indicate pass/fail results.

Traffic Generation

Addresses - Source and Target includes support for MAC or IP layer.

(8) Multi-Streams - Configure independent multi-streams with MAC, IP, VLAN, priority, Q-in-Q, Frame Size, TOS/DSCP, bandwidth, protocol, stream loading, traffic shape etc.

Traffic Shaping - Constant with user-define % utilization, Burst with user-define burst duration and burst gap and Ramp with user-defined time step and load step (%BW).

Frame Type - Options include DIX and IEEE 802.3

Protocols - Options include IP, IPX, ARP, RARP, Banyan, DECnet, AppleTalk and user specified (MAC traffic only)

VLAN - Options include VLAN ID and VLAN Priority.

Q-in-Q - Options include Q-in-Q ID .

IP Layer Parameters - Options include TTL, Upper layer protocol, and TOS/DSCP.

Frame Length - Options include Runt, Jumbo, Random and Specify. Supports sizes from 40 to 10,000 bytes.

Results - Include Tx traffic (Mbps), Rx traffic (Mbps), Avg. Rx(Mbps), Tx fps, Rx fps, Tx frames, Number of Rx frames, Rx Err Frames, Rx Collision frames and test duration.

Diagnostic Tools

Cable Length - Measure the physical length of an open end cable. User can input calibration parameter.

Optical Power Meter - Measure the real-time optical power (dBm) of the TX and RX of the Main and Aux Ports.

Wire Map Test - Check the wire map for short circuit, open circuit or polarity reversal.

Ping - Check the connectivity of the network. Measures response time and TTL.

TraceRoute - trace the IP addresses of all the gate-

EZtouch GigE+ Features / Functions

ways or routers from the EZtouch GigE+ to the specified host.

FTP Test - Link to an FTP site and measure the max, min and average download speed.

Web browser - Navigate the world wide web via a network connection.

Net Discovery - scan a range of IP addresses to to detect and identify devices by IP address, MAC address, host name, supporting service or SNMP .

Audio Line Tracking - locate a wire within a bundle or locate a specific port.

PoE Testing - to identify PoE equipment and test PoE supply voltage.

Comprehensive Traffic Statistics

Bandwidth Utilization - Includes Max, Min, Average, and Current values. Display Top 10 based on MAC/IP address.

Frame Lengths - Includes the number of frames of different lengths (bytes) including <64,64, 65-127, 128-255, 256-511, 512-1023 and 1024-1518 and >1518. Display Top 10 based on MAC/IP address. Supports run-time filtering on layer 2/3.

VLAN - Includes the number VLAN frames. Supports run time filtering on layer 2/3.

Layer 2 - Includes Top statistics of unicast, multicast, broadcast, CRC error, runt frame, jumbo frame, control frame, pause frame, MAC address. Supports run time filtering on layer 2. MAC/IP Collision detection.

Layer 3 - Includes Top statistics of IP, IPX, ARP, RARP, Banyan, DECnet, ,AppleTalk, and frame of other protocols. Supports run time filtering on layer 3.

SNMP Inquiry

Retrieve MIB Info - Includes Basic, Interface and Service information.

Filtering

MAC (layer (2) - Options include unicast, multicast, broadcast, source MAC address, destination MAC address, frame type (DIX/802.3 SNAP) and VLAN tag etc.

IP (layer 3) - Options include source IP address, destination IP address, bidirectional filter and TOS/DSCP filter.

Layer 4 - Options include UDP/TCP and Source and Destination Port.

Performance Tests

Application Layer - measures the response time (min/max,avg) for DNS, POP3, SMTP and WEB.

Loop-back Time Delay - layer 1/2/3.

Service Disruption - Measure the service disruption time when the service is switched from main PHY link to the reserved link.

IPDV (InterPacket Delay Variation) - Measure the range and ratio of interpacket delay variation. Reports avg, min and max jitter.

MPLS—Test three layers

Operational

File Handling - Print, save, export, view and delete test data in EZtouch GigE+.

Configurations - Save and Open configurations for test configurations including 8 RFC2544 and (8) multi-stream setups.

Importing/Exporting - Test data can be imported and exported with the USB disk.

Online Help - Provides operational prompting and instructions.

Operational Modes

Network Monitoring - Supports HUB mode, optical splitter and dual-port through mode for two-way traffic monitoring.

Auto Cooperation & Data Loopback - When executing a test requiring data loop-back functions, the distant EZtouch GigE+ can be configured to automatically loop back the data without manual intervention.

Remote Operation - Operate EZtouch GigE+ remotely over a network connection with a PC.

Maintenance Plans

One or two year WanXL Software Suite & Maintenance packages are available and include:

- One or two year hardware warranty
- One or two year software subscription updates
- Unlimited technical support

Specifications

Item	Description
Ethernet Ports	Two 10/100/1000Base-T, Two 100/1000Base-X
External Interfaces	USB 1.1 port, One RS-232 Port, One 10Base-T Management Port
Protocol	DIX/802.3 SNAP
Display	TFT LCD. Resolution: 480 (H) x 272 (v) with 16 bits text and graphics
Rechargeable Battery Pack	Li Ion 5000mA field replaceable battery pack, 7 hrs of operation.
External Power	AC/DC power converter, 100-240VAC, 50-60 Hz, Output 15V@3A
Memory	CF Card (1Gbyte)
Operating Temperature	-10 to 50 degrees C, 14 to 122 degrees F
Humidity	10% to 90% non-condensing
Storage Temperature	-20 to 60 degrees C, -6 to 140 degrees F
Dimensions	7.08″ (L) x 3.78″ (W) x 2.28″ (H) or 180mm (L) x 96mm (W) x 58mm (H)
Weight	1.0 Kg or 2.2 lbs.

Ordering Information

Part Number	Product/Description
EZTOUCH GIGE+	Dual port Ethernet Analyzer with 10/100 RJ-45, 100Mbps Optical and 1000Mbps Electrical and Optical interfaces. Optical SFPs are optional.

Hardware and Cable Options	
PSGIGE-100FX-M1	100BASE-FX module, SFP, MM, 850nm, 500m
PSGIGE-100FX-S1	100BASE-FX module, SFP, SM, 1310nm, 15-20km
PSGIGE-100FX-S2	100BASE-FX module, SFP, SM, 1310nm, 40km
PSGIGE-1000SX-M1	1000BASE-SX module, SFP, MM, 850nm, 500m
PSGIGE-1000LX-S1	1000BASE-LX module, SFP, SM, 1310nm, 10km
PSGIGE-1000LX-S2	1000BASE-LX module, SFP, SM, 1310nm, 40km
PSGIGE-1000ZX-S1	1000BASE-ZX module, SFP, SM, 1550nm, 60km
PSGIGE-1000ZX-S2	1000BASE-ZX module, SFP, SM, 1550nm, 100km
PSGIGE-RJ45-T6	UPT CAT-6 (2m)
PSGIGE-FIBER-LCM	LC-LC MM fiber (3m)
PSGIGE-FIBER-LCS	LC-LC SM fiber (3m)
PSGIGE-FIBER-FCM	LC-FC MM fiber (3m)
PSGIGE-FIBER-FCS	LC-FC SM fiber (3m)
PSGIGE-FIBER-SCM	LC-SC MM fiber (3m)
PSGIGE-FIBER-SCS	LC-SC SM fiber (3m)

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