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UniPRO MGig1

Carrier-grade Ethernet tester

UniPRO SEL1

Intelligent loopback device

Designed for full Ethernet testing of carrier service turn-up, mobile backhaul link, microwave and wireless link and for enterprise users to monitor carriers' SLA performance

Typical users

Enterprise users

- **Enterprise user**
- **Installation and maintenance subcontractors**
- **Gas, electricity and water utilities, public sector, petrochemical**
- **Ethernet installation, maintenance and SLA testing**

Telco users

- **Telco, cable TV, broadband, metro Ethernet WAN and leased line service providers**
- **Mobile network operators**
- **Data centres**

Key applications

- **WAN and metro Ethernet access - copper and fibre service turn-up**
- **Mobile backhaul installation and maintenance**
- **Ethernet microwave link**
- **Backhaul test for microcell base station and public access WiFi coverage**
- **SLA policing**
- **Ethernet is everywhere...**

Test functions

- **One touch to run multiple tests - unattended**
- **Y.1564 (NetSAM) and RFC2544**
- **SLA-Tick and BERT**
- **Multi service (stream) test**
- **Simultaneous IPv4 and IPv6 support**
- **QinQ, Multiple VLAN and MPLS**

Key features and benefits

One touch to run multiple tests - unattended

Single button Autotest is an automatic sequence test function that executes user defined multi test items for specific applications (such as radio link installation)

Y.1564 (NetSAM) and RFC2544

Bi-Directional CIR (commited information rate), EIR (excess information rate) and policing tests with colour make the Ethernet link test more realistic, effective and faster compared to RFC2544. Bi-Directional and additional jitter sub test with graphic pass/fail curve completes all the key test items of RFC2544 in one test

SLA-Tick (Service Level Agreement) and BERT

The SLA-Tick multi service (stream) information rate, frame loss, jitter, delay and service disruption time (SDT) are providing improved testing efficiency over traditional link tests. SLA-Tick optimises the traditional link test (eg. RFC2544) and adopts Y.1564 (NetSAM) performance test. BERT tests the frame payload from layer 1 to layer 4 in Ethernet links and reports if the error ratio exceeds pre-defined limits

Multi Service (Stream) test

Up to eight service parameters measured simultaneously on SLA-Tick and Y.1564 (NetSAM) tests. Enables service priority check over the network especially for 3G/4G mobile backhaul link test

Simultaneous IPv4 and IPv6 support

Supports both IPv4 and IPv6 internet addresses to future-proof the investment in UniPRO MGig1

QinQ, Multiple VLAN and MPLS

Allows three to eight levels of VLAN within VLAN nesting for RFC2544, Y.1564 (NetSAM), BERT and SLA-Tick testing. For links using MPLS, UniPRO MGig1 PRO can test up to three levels with label, class and TTL for each service

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Technical specifications – UniPRO MGig1 and SEL1

Test interface	RJ45: 10, 100, 1000 Mb/s. Optical: 1000Mb/s with auto-negotiation and optional SFP. UniPRO MGig1 Solo and UniPRO SEL1: x1 port. UniPRO MGig1 Duo: x2 ports
Operation mode	End point (terminated), pass through (monitor) for UniPRO MGig1 Duo only
SLA-Tick	Items: frame loss, jitter (delay variation), delay (latency, loop test only), service disruption time, information rate, error performance (SES, unavailability). Mode: single-ended with remote loop or double-ended two way test. Tests up to eight configurable services (streams) simultaneously with parameters on each service, pass/fail limits, error injection: single, rate with frame
RFC2544	Items: throughput, latency, frame loss, jitter, back to back, system recovery. Table and graph results, frame size. Mode: single end loopback test or double end Bi-Directional test. Pass/fail limits
Y.1564 (NetSAM)	Configuration test on CIR (Committed Information Rate), EIR (Excess Information Rate), colour mode, traffic policing. Performance test up to 8 services simultaneously on utilisation, FTD (delay), FDV (jitter), FLR (frame loss), SES, availability measurement with fixed or mixed frame size, loop or Bi-Directional test, pass/fail limits
BERT	BER at L1 to L4 frame payload, test pattern on PRBS ITU or Non ITU @ 2^n-1 n=11,15,20,23,31. SCRTPAT, CRPAT, CJTPAT, CSPAT, LFPAT, HFPAT, MFPAT, fixed: all 1s, 0s, 1100,1000, 1010. Word: 4 digit Hex, Control: manual or user defined duration. Error injection: single, rate on frame or bit
Multi services (streams)	Up to eight services simultaneously generated and measured on FLR, FTD, FDV, IR with independent IP, MAC, VLAN, MPLS, TCP or UDP ports setup on each service for SLA-Tick, Y.1564 (NetSAM) test
Target finding and remote loop control	Auto detection of target devices (IDEAL NETWORKS' products only) with remote control of loopback (L1 to L4) via in band Ethernet test link. Targets can also be manually controlled locally
Traffic generation	Profile: continuous, ramp (service one only), burst (service one only). Information rate, frame size, test pattern
Frame size (byte)	64,128, 256, 512, 1024, 1280, 1518, user defined up to 10000
VLAN	Level: up to eight including QinQ; VLAN ID, TPID, CFI, on each service
MPLS	Level: up to three; Label, Class, TTL for each service
MAC, IP and payload	Setup: MAC address. IP address: static, DHCP. DNS, netmask, gateway. Version: IPv4, IPv6. CoS: ToS, DSCP. Payload: UDP and TCP ports, ICMP type and code
Service Disruption Time (SDT)	Service protection switch time measurement (SDT) on each service with resolution 1ms
Error insertion	Items: FCS, oversize, undersize, pattern. Type: single, ratio
MAC frame statistics	Per service based - Rx frame rate, Rx information rate, Rx frame size, Tx/Rx frame counts, Tx/Rx layer payload accumulated byte count. VLAN ID, per port based - frame type: unicast, multi cast, broadcast. Pause frames. Protocol discovery: LLDP/CDP/EDP. Frame errors: collision (10/100Mb/s only), FCS, undersize, oversize, jabbers, errored, % errored
Link status	Port: speed, duplex, auto negotiation. Optical power, PoE detection
Tools	Ping and Traceroute (IPv4, IPv6). Cable test, hub blink, PoE and PoE+ (current, voltage, power and pair)
Loopback (UniPRO MGig1 and UniPRO SEL1)	Level: L1 (Physical), L1 (Regenerate), L2 (MAC), L3 (IP), L4 (UDP) unfiltered. Control: local or remote by another master unit via Ethernet test path
Auto sequence test	Multi test items running sequentially. Test items can be defined by user
Top ten bandwidth users	Through mode only, VLAN users, source and destination MAC or IP address users
Storage	Internal configuration profile: MGig1: 30, SEL1: 1. Internal reports: 250 (MGig1 only). Format: xml. External storage: USB
Display	3.5" TFT colour touch screen (UniPRO MGig1), 5 LEDs (UniPRO SEL1)
Battery	NiMH Rechargeable: auto power off; 3,10, 30 min (MGig1), continuous use >4hrs (MGig1), > 3.5hrs (SEL1), power adaptor: AC IN 100-240V/ DC OUT 12V
System interface	USB 1.1 for external storage on software upgrade, test report and configuration upload
Physical	Dimension: 205x98x45 mm (MGig1), 175x80x40 mm (SEL1). Weight including batteries: 650g (MGig1), 400g (SEL1)
Environmental	Temperature: 0°C to 45°C (operation), -20°C to 70°C (storage). Humidity: 5% - 90% no condensation
Accessories included (UniPRO MGig1 & UniPRO SEL1)	1 x NiMH battery, 2 x Patch cables - 30cm, Cat 5e STP, 1 x Power supply with EU/UK/US adaptors, 1 x User manual CD, 1 x English quick reference guide, 1 x Carry case
Languages supported	English, German, French, Italian, Spanish, Portuguese and Chinese

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