

## Cost-Effective OTDR and Service Testing/Validation.

## Front



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The EON-NSV-OTDR is a cost-effective testing solution specifically designed to allow for not just OTDR testing of the underlying optical circuit but also the layer-2 and Layer-3 services that may be running over it. Operating with both Layer-2 and Layer-3 addressing, the EON-NSV-OTDR contains custom hardware for the generation of test traffic, loop-back (by packet-level Source/Destination address swapping) and analysis, to Industry-standard test profiles including RFC 2544, ITU-T Y.1564 and RFC-5357 (TWAMP).

The EON-NSV-OTDR can be configured to provide real-time monitoring of jitter and latency between the desired end-points in the network and should pre-defined 'Service Level Agreement' criteria fail to be met, can send SNMP alarms on one or more Management stations.

By deploying Prolabs' cost-effective EON-NSV-OTDR family devices, standard tests such as RFC2544 and/or ITU-T Y.1564 can be instigated at any time between different segments of the WAN, with the results monitored remotely at the Network Operations Centre (NOC). The EON-NSV-OTDR generates both Layer-2 (Ethernet MAC addressed) and/or Layer-3 (IP) test traffic and can also perform line-rate Source/Destination Address swapping loop-back, via Prolabs' custom Service Assurance hardware.

Optionally, by integrating the EON-NSV-OTDR more closely into the network, using the OTDR capabilities and /or the ITU-T Y.1731/TWAMP protocols, test units can be configured to provide background monitoring of both fibre outages and network performance relative to pre-defined SLA criteria, providing alarms to the NOC in the event of a fibre issue or a breach of contracted performance from one or more Network Carriers.

## OTDR Capabilities.

The EON-NSV-OTDR unit normally works in Data Transport Mode, but automatically Changes over to Micro-OTDR Mode upon:

- Loss of Optical Signal (LOS High)
- DPS Detection of a Spike (fast change, up or down) in Optical Power
- Manual Toggling of Tx Disable
- Operation is Similar to Conventional OTDR
- Large Optical Pulses (same Laser as used for data transport) are Transmitted
- Micro-OTDR Receiver "Listens" for any Returning Reflections from these Pulses
- Optical Pulses are Transmitted in Groups of Three (3)
- Cycles up to Five (5) Times, until the Measurements are Sufficiently Consistent
- Then the Measurement is Considered Valid and is Recorded

## The EON-NSV-OTDR Detects, Locates and Reports Optical Faults and Reflections and:

- Locates, Stores and Reports the Number of Faults and Reflections Detected
- Calculates Distances to the Faults
- Reports the Distance to the Farthest Fault (by Default)
- Index through each Detected Fault
- Distance to Each Fault can be Read Out Via the I2C Port of the SFP Same Way that any of the SFP DDM Data may be Read Out
- DPS (Delta Power Sensor) Detects Spikes (Fast Changes, Up or Down) in Optical Power
- Sense Mode Causes the Micro-OTDR to Run – which can identify:
  - Intermittent Problems
  - Problems Waiting to Happen
  - Intrusion Attempts
  - Other Abnormal Activities

The EON-NSV-OTDR allows the service provider an optical "Birth Certificate" at the time of install, so every install has a "working state" OTDR reading. The OTDR reading is just as important as the RFC2544 Birth Certificate. During a Link "down" event, the EON-NSV-OTDR can quickly and categorically allow the CSP to discern between a Fibre Break and a problem with the Equipment at Customer Premises. The EON-NSV-OTDR will help the CSP more quickly dispatch the right team for the right problem. By minimising Detection Time the service provider can reduce Operational Costs not only by avoiding the dispatch of the wrong maintenance team, but also by reducing the time to restore the affected service(s).

## Device Characteristics:

- Up to 1Gbps throughput, with support for either copper or fibre Network ports
- Integrated customised hardware for wire speed SLA measurement & verification
- RFC2544 and Y1564 test traffic generation, loopback and reporting, for both Layer-2 (Ethernet MAC) and Layer-3 (IP) traffic
- Remotely accessible from central Management platform, via Telnet/SSH and Web Browser
- Reporting against throughput, packet-loss, latency and jitter, for multiple packet-sizes
- Optional in-service monitoring against pre-defined 'Service Level Agreement' (SLA) performance criteria, with alarming via SNMP in the event of under-performance
- OTDR fibre characterisation/validation capabilities

## Network Interfaces

- 2x port 10/100/1000BaseT
- 1 port 100BaseFX/1000BaseX (SFP) – populated with OTDR Capable SFP

## SLA Measurement & Verification

- Embedded test packet generator and delay analyser accurate to micro-second resolution
- ITU-T Y1564 and RFC2544 testing methodologies
- Port & service-level loopbacks

## In-Service Performance Monitoring

- Delay and delay variation monitoring via ITU-T Y.1731 and TWAMP-lite
- Statistics gathered on a per-port & per-service basis
- SFP DDM support for fibre optic monitoring including TDR and Optical TDR

## Management

- Local craft port (9-way D) which can be disabled
- Local RJ45 or remote network access for CLI, Web GUI, Telnet, SSH (v2) & SNMP
- TACACS+ for user authentication

## Alarms & Resilience

- SNMP Trap notification of network connectivity or SLA failures
- "Dying Gasp" SNMP Trap in the event of power loss

## Regulatory & Standards Compliance

- Safety EN60950
- EMC EN55032, EN55024

## Environmental

- Dimensions: 1U half width, 202 x 132 x 44mm
- Operating temperature: 0 to +50°C
- Storage temperature: -40 to +70°C
- Humidity: Up to 95% non-condensing
- AC PSU: 100 to 250V AC
- DC PSU: -40 to -72V DC (12-24V DC optional)
- Maximum power consumption: 10 Watts

For Ordering Information please contact your local Prolabs sales representative.

Visit [www.prolabs.com](http://www.prolabs.com) for more connectivity solutions.

