A division of VeEX
The Verification Experts

Intelligent Network Test Solutions™

Digital Lightwave®

Technology to reach inside the cloud®

Product Description

NIC®

Network Information Computer®

Software Defined Testing™

56 Kbps-139 Mbps • 1-2.5 Gbps • 10-11.3 Gbps • 40-43 Gbps • 100-112 Gbps

OTN Testing

All G.709 OTN rates up to 112G with FEC generation and analysis
- OTU4, OTU3, OTU3e1/OTU3e2, OTU2f/OTU1f, OTU2e/OTU1e, OTU2, and OTU1
- OTL layer testing at 40/100G rates; unframed BERT testing for all rates
- ODU multiplexing with simultaneous generation and analysis at all levels; ODU0 and ODUflex (support is line rate dependent)
- GFP-T/GFP-F/Ethernet, Fibre Channel, SONET/SDH, PRBS and Null Client mappings (support is line rate dependent)
- Multi-Channel generation and analysis for OTU1 and OTU2
- Complete OTN overhead manipulation and analysis with byte capture, including trace and MSI bytes
- Intrusive and non-intrusive Pass Thru mode with byte and error/alarm overwrite
- Error/alarm generation with periodic burst insert and analysis
- OPU/client justification offset generation and analysis at all layers
- Service Disruption and Round Trip Delay measurements at any ODTU level

PDH/T-Carrier Testing

- 1.5M/2M/34M/45M/139M - DS1/E1/E3/DS3/E4
- Bulk and multiplexed mapping structures; Fractional E1 and 56K/64K Fractional DS1 testing
- Drop and insert from SONET/SDH
- External Add/Drop line interface modes
- Performance monitoring per G.821, G.826, and M.2100
- Signal level and line frequency generation and analysis
- Service Disruption and Round Trip Delay measurements
- Simultaneous and independent interface testing; dual DS1/E1

Fibre Channel Testing

All Fibre Channel rates up to 11.3G
- OTU1f/OTU2f and 1/2/4/8/10G
- Unframed BERT testing for OTU1f/OTU2f, 8G, 10G
- Switch Fabric and Name Server login
- Test stream with user defined addressing, frame parameters, frame size, pattern and rate
- Error and alarm generation and analysis
- Primitive sequence generation
- RFC 2544 like Throughput/Latency/Frame Loss/Performance test
- Buffer-to-buffer credit / flow control analysis
- Per-port and per-stream results include: port utilization, counts, and per-stream latency statistics
- Service Disruption measurement for OTU1f/OTU2f, 10G

Jitter/Wander Generation and Analysis

- OTU1 (NIC+)
- 2.5G-155M SONET/SDH (NIC+)
- PDH/T-Carrier (NIC and NIC+)

Ethernet/IP Testing

All Ethernet rates up to 103G
- 100G, 40G, OTU2e/OTU1e, 10G LAN, 10G WAN, 1G, 100M, and 10/100/1000BASE-T
- PCS layer testing at 40/100G rates; unframed BERT testing
- 32 IPv4/IPv6 test streams with independent addressing, traffic parameters, frame size (up to 16k), pattern, and rate mode (40/100G IPv4 only)
- Y.1564; RFC 2544 Throughput/Latency/Frame Loss/Back to Back Burst Performance test
- VLAN and MPLS tags up to 4 levels with QoS statistics (40/100G VLAN only)
- Per-port and per-stream results include: port utilization, counts, packet size distribution, and per stream latency and jitter statistics
- Service Disruption Measurement

SONET/SDH Testing

All SONET/SDH rates up to 40G
- STM-256/STM-64/STM-16/STM-4/STM-1/STM-0/STM-1e/STM-0e; OC-768/OC-192/OC-48/OC-12/OC-3/OC-1/EC-3/EC-1
- Serial and multi-lane 40G interfaces; STL-256.4 multi-lane logical layer testing
- SONET mappings: STS-768c, STS-192c, STS-48c, STS-12c, STS-3c, STS-1, VT-6, VT-2 and VT-1.5 (support is line rate dependent)
- SDH mappings: AU-4-256c, AU-4-64c, AU-4-16c, AU-4-4c, AU-4/C-4 and AU-4/AU-3 C-3/C-2/C-12/C-11; VCAT/LCAS (support is line rate dependent)
- PRBS, PDH/T-Carrier, and GFP-T/GFP-F/Ethernet clients; unframed BERT testing for all rates (support is line rate dependent)
- All Path Testing™ (APT) 10G and below – simultaneous testing of all HP/STS containers/SPEs
- Complete SONET/SDH Overhead and trace manipulation/analysis with byte capture
- Intrusive and non-intrusive Pass Thru mode with byte and error/alarm overwrite
- Line frequency offset generation and analysis
- Service Disruption, Round Trip Delay measurements, and APS Testing
- Performance monitoring statistics

Optical Spectrum Analyzer

- Wavelength Range: C-band 1528.77 to 1562.23 nm, L-band 1568.77 to 1604.03 nm
- 50 GHz Absolute Channel Spacing; 85 C-band/L-band channels
- Maximum Input Power (all channels): 23 dBm, Single Channel: C-Band: -10 to -40 dBm/L-band:-10 to -35dBm
- Absolute Channel Power Accuracy (include PDL): ±0.7db
- Power Measurement Repeatability (for fixed polarization): ±0.1 dB
- Polarization Dependent Loss: <0.3 dB
- Absolute Wavelength Accuracy: ±60 pm
- OSNR Measurement Range: 10-25 dB (dependent on channel input power, noise floor, and filter isolation)
- OSNR Accuracy: ±1.5 dB (noise level ≥ -50 dBm, L-band noise level ≥ -45 dBm)
- Noise Floor: -60 dBm
- Power Measurement Resolution: 0.1 dB

Serial Interface Testing

- RS-530/RS-232 testing with synchronous and asynchronous operation
- DCE and DTE emulation
- 25-pin D-type connector

NIC® Platform Specifications

Chassis	• NIC 2-Slot Chassis and NIC+ 5-Slot Chassis • NIC 2-Slot Chassis battery powered option	**EMI**	• Conducted Emissions EN 55022 Class B • Radiated Emissions EN 55022 Class B
Power Supply	• Input voltage nominal 90-264VAC, 50-60 Hz • Power Dissipation 150 W (NIC) and 350 W (NIC+)	**Other Features**	• Internal Stratum 3 clock reference, BITS/SETS/2.048MHz Bantam/BNC clock in and clock out • 3x USB ports, SD/SDHC slot, external VGA display port (DE-15), trigger in/out, optional 802.11 wireless support via USB • 10/100/1000BASE-T network interface • Automation support over SCPI • 10.4 in (NIC), 12.1 in (NIC+) high resolution, anti-glare, color touch screen • Remote GUI client and VNC • Removable industrial grade compact flash module for OS • Soft carrying case or optional water resistant hard case • USB FibreVu™ probe video fiber inspection option
Physical Dimensions	**NIC** • Height 257 mm (10.1 in) • Width 312 mm (12.3 in) • Depth 120 mm (4.7 in) **NIC+** • Height 348 mm (13.7 in) • Width 330 mm (13.0 in) • Depth 201 mm (7.9 in)		
Weight	• NIC 5.0-5.6 kg (11-12.5 lbs) depending on configuration • NIC+ 6.5-11.34 kg (14.5-25 lbs) depending on configuration		
Environmental	• Operating Temperature 0°C to +40°C • Storage Temperature -40° C to +85° C • Humidity +5% to +95%, non-condensing		

Digital Lightwave
1780 102nd Avenue North
Suite 500
St. Petersburg, FL 33716, USA
Toll free: +1.800.548.9283
T: +1.727.442.6677
F: +1.727.536.3541
www.lightwave.com

VeEX
2827 Lakeview Court
Fremont, CA 94538 USA
T: +1.510.651.0500
F: +1.510.651.0505
www.veexinc.com

For more information:
Visit **www.lightwave.com** *or*
email **QuotesAndQuestions@lightwave.com**