

N(x)DSL™-3 Broadband Remote Test Unit

Next-Generation Remote Testing

Tollgrade's N(x)DSL-3 Broadband Remote Test Unit (RTU) delivers expanded test capability up to three times faster than the N(x)DSL. While continuing to feature powerful Time Domain Reflectometry (TDR) and Spectrum Analysis technology, the N(x)DSL-3 adds ADSL2+ technology to perform quicker testing and emulation.

Compatible with legacy test units, the N(x)DSL-3, when mated with the N(x)Test RTU, can conduct a full range of POTS and DSL testing to efficiently and economically perform pre-qualification, turn-up and maintenance of service. The addition of an SHDSL modem enables the N(x)DSL-3 to conduct pre-qualification and support for high-revenue, broadband business clients.

Application

While the N(x)DSL-3 is best used coupled with the N(x)Test™, it can also operate as a stand-alone DSL-only test head, measuring frequency response and time domain reflectometrics in the local subscriber loop to determine the line's ability to carry digitized xDSL technology.

The N(x)DSL-3 also utilizes Noise Measurement, a DMT Test (for full-rate ADSL and G.Lite service verification) and power spectral density tests to further assist installation, maintenance and troubleshooting.

The N(x)DSL-3 can also support a 1X2 matrix switch for connecting external equipment through its broadband bus, as well as three DSL modems (ADSL-CO/CPE, ADSL2+ CPE, and SHDSL-CO/CPE).

Key Features

Key Features of the N(x)DSL-3 include:

- Spectrum analysis to search for interferences;
- TDR to locate faults, such as bridged taps, load coils, opens and shorts in the loop;
- Tone generation and measurement;
- Faster emulation of ADSL (CO-CPE), ADSL2+ (CPE), and SHDSL (CO-CPE) to verify DSL service;
- Insertion loss and signal-to-noise ratio measurements; and
- ATM/IP layers testing.



Tollgrade
is everywhere
your broadband
network needs
to be.™

N(x)Test™
tollgrade
Network Assurance
Simplified.™

N(x)DSL-3

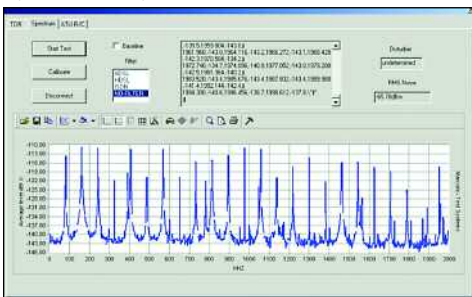
tollgrade

Delivering a full range of POTS and next-generation DSL testing up to three times faster than the N(x)DSL.

Spectrum Analysis

Outside interference from radio transmissions, bleed-over from nearby cables, or crosstalk caused by incorrect filter installation or line damage can produce disruptions into the ADSL frequencies assigned to upstream and downstream traffic, as well as POTS bands. High-intensity spikes can overwhelm the bins in the upstream and downstream bands, causing slowed speeds, incomplete downloads and connection errors that greatly impact customer satisfaction. The N(x)DSL-3 can perform spectrum analysis to detect noise in the POTS and ADSL bands and pinpoints the frequencies where spikes occur, providing support technicians with the details to rectify the issue.

Spectrum Analysis



Test Capabilities

Time Domain Reflectometer

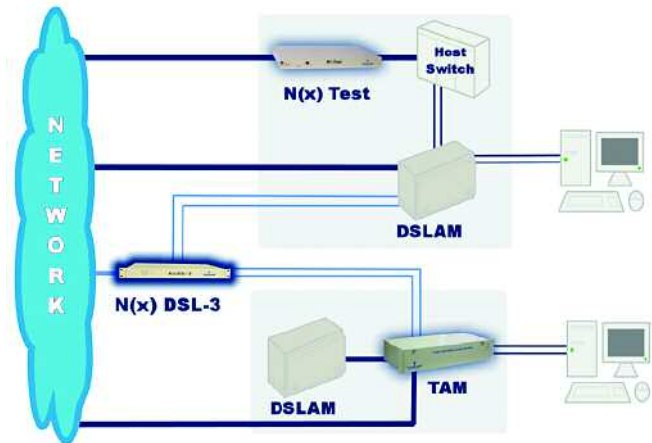
The TDR can perform the following tests on any cable, from 100 feet and up to 20,000 feet:

- Auto-Cable End;
- Auto-Bridged Tap (within 25% of total cable length); and
- Manual testing.

Wideband-Transmission Impairment Measuring Set (W-TIMS) Measurements

Single-ended tests can be conducted from anywhere from 300 feet to up to 16,000 feet, while end-to-end tests can be performed from 300 feet to up to 45,000 feet.

- Ringer Detection
- Single-ended Frequency Response
- Single-ended DMT
- End-to-end Frequency Response
- End-to-end DMT
- DSL Impulse Noise
- PSD Noise
- Return Loss



Advanced Digital Testing Measurements

Using a Conexant® ADSL2+ chipset, the N(x) DSL-3 can support rates up to 24 Mbps downstream and 3.5 Mbps upstream, and perform the following tests on CPE:

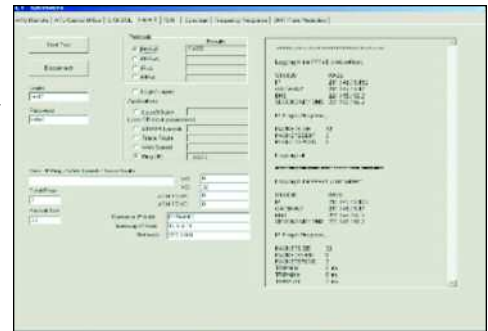
- Maximum Bit Rates;
- Fast Bit Rates;
- Interleaved Bit Rates;
- Signal-to-Noise Ratio;
- Output Power;
- Attenuation; and
- Carrier Load (Bits/Bin).

For CO testing, the N(x)DSL-3 uses a Globe-stream ADSL chipset that can support up to 8 Mbps downstream and 1.5 Mbps upstream.

In addition, the SHDSL chipset can support rates up to 2.32 Mbps in downstream and upstream for either CO and CPE.

Broadband Internet Access Testing Suite

- PPPoE (RFC 2516)
- PPPoA / LLC (RFC 2364)
- PPPoA/VC-MUX (RFC 2364)
- RFC 1483
- RFC 2684
- Bridged Ethernet
- Authentication via PAP and/or CHAP
- IP PING
- Traceroute
- Web Download Speed Test



N(x)DSL-3 Specifications

Power

Input Voltage -48V input
Current 2A maximum
Power Consumption 30W

Environment

Operating Temperature 0°C to +50°C
Humidity Range Up to 95% (non-condensing)

Physical

Dimensions 1.72" (H) X 9.5" (D) X 19" (W)
Weight 6.6 lbs.
Mounting 19" and 23" mid-mount or front-mount rack
with 1" (telecom) or 1.25" (EIA) spaced mounting holes

Interface

Console Ports 10/100 Base-T, RS232C (optional pass-through capability
between 10/100 Base-T Port to Aux RS232), Line Terminal Block
Pass Through Ports 2 X 10 Base-T ADSL pass-through ports

Ordering Information

Please contact your Tollgrade representative for ordering information.



Corporate Headquarters:

493 Nixon Road
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Other Locations:

Bridgewater, NJ
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www.tollgrade.com

N(x)DSL-3

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NON SWITCHED ACCESS MATRIX