JDSU

PRELIMINARY DATASHEET

T-BERD™/MTS Platforms

Short Range LAN (SRL) OTDR Module

Key Features

- **Optimized for 10 Gigabit Ethernet (GigE) multi-mode testing**
- **FTTx-ready with 1310 and 1550 nm wavelengths**
- **CWDM/DWDM-ready with 1310, 1550, and 1625 nm wavelengths**
- **Dual-, Quad- and Penta-lambda multi-mode and single mode combined**
- **0.5/0.8 meter (m) event dead zone in multi-mode/single mode for highest network precision**
- **High dynamic range (24/24/40/38/37 dB)**
- **Bend detection in single mode**
- **Propagation delay measurement in multi-mode**

Applications

- Access/Local Area Network (LAN) construction and turn-up
- Access/LAN troubleshooting

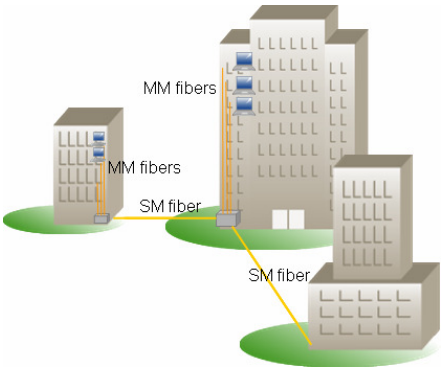
Multi-application optical test module

In today's telecommunications market, test solutions must be cost-effective, increase productivity, and reduce the complexity of field testing. The JDSU Short Range LAN (SRL) optical time domain reflectometer (OTDR) module offers a high-performance test functionality that has been specifically developed in response to these industry demands.

Configurable at the time of order, the SRL OTDR module offers multiple wavelength test capabilities (850, 1300, 1310, 1550, and 1625 nm), providing field technicians with all-in-one test instrument.

The SRL OTDR module's performance enables effective testing on short haul (Access and LAN) in both multi-mode and single mode.

OTDRs are the primary test tool for fiber optic characterization and enable several measurements, including fiber link attenuation, attenuation coefficient, reflection, splice/connector loss, and point-of-error.



1. LAN network architecture

The right test solution at the right wavelength

As fiber installers and technicians continue to look for ways to reduce time and costs during field operation, it is essential for them to use the right tool for the job at hand. The combination of an unprecedented 0.1 s refreshing time, the shortest event resolution (0.5/2 m event/attenuation dead zones in multi-mode, 0.8/4 m in single mode), and a high dynamic range makes the SRL OTDR module an ideal tool for the qualification of any type of LAN or Access network.

The SRL OTDR module accommodates multiple applications:

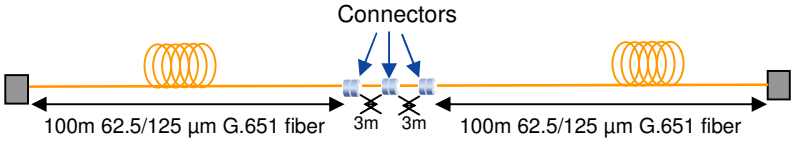
- For multi-mode LAN, a dual-wavelength (850/1300 nm) SRL OTDR Module is available for fiber characterization, installation and troubleshooting
- For LAN and Access networks, multi-mode and single mode are combined in a quad-wavelength (850/1300/1310/1550 nm) SRL OTDR Module, offering full flexibility in the field. A penta-wavelength version combines out-of-band testing capabilities at 1625 nm with the quad module

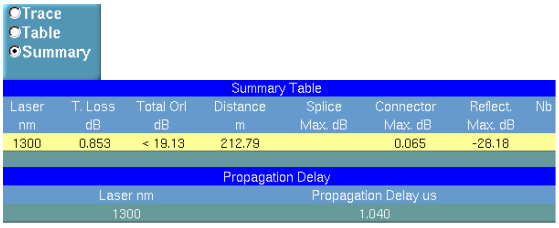
A new standard in OTDR performance

The SRL OTDR module is a high-performance OTDR capable of characterizing sections of multi-mode and single mode fiber links that are traditionally difficult. With a 0.5/0.8 m event dead zone in multi-mode/single mode, it is now possible to qualify and troubleshoot problems in never before investigated sections of the fiber link:

- Pinpoint any fault in the network
- Discriminate a failure or break within the patch panel or distribution frame
- Reduce testing time for short haul and multi-mode LAN
- Obtain a superior and cleaner trace form for high link loss

2. High detection of close events



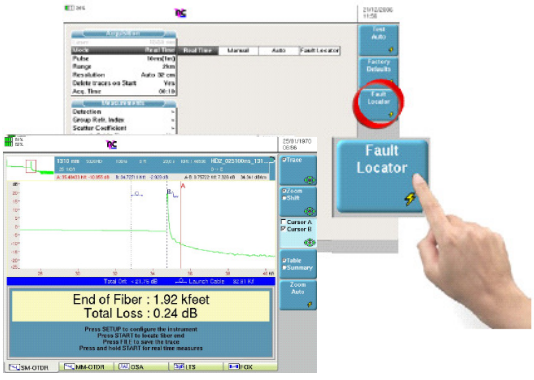


3. Summary page in Multimode

Improve productivity and efficiency in the field with JDSU's innovative software

With the impressive performance of the SRL OTDR module, the time required to characterize, test and troubleshoot a fiber network is drastically reduced. Test any fiber link or network configuration in record time!

- The SRL OTDR module configures itself with its automated functionality and sets the best-suited acquisition parameters, including optimized acquisition time, as defined by the instrument
- Obtain the trace form with the correct auto zoom, evaluate the fiber link, and save the results through one-button operation
- Quickly review your test result thanks to the summary screen, including bend detection in single mode and the propagation delay measurement in multi-mode (according to ANSI/TIA/EIA 568 B.3 and ISO/IEC 11801 standards)
- Minimize handling errors with the pass/fail indicator. By viewing a quick snapshot, technicians can easily identify incorrect results



4. Fault locator mode

Test 10 GigE and Enterprise networks with the best-available performance

With the combination of an impressive acquisition time, event dead zone, and dynamic range, technicians are able to test any type of LAN with unprecedented accuracy using the SRL OTDR Module:

- Optimized for any type of multimode Ethernet link, including 10 GigE according to IEEE 802.3ae (10G Base-SX/LX)
- In compliance with ITU-T G.651, the SRL OTDR module provides two mono-wavelength versions (850 and 1300 nm) and one dual-wavelength version (850/1300 nm)
- Combines a high dynamic range and short event dead zones in order to characterize short fiber lengths

Two-in-one functionality… From simple Fault Locator to Expert OTDR

MTS/T-BERD platforms combine a powerful, easy-to-use Fault Locator and a complete, fully-configurable OTDR instrument. With the SRL OTDR module, you are free to test LAN and Access networks according to your own needs!

The Fault Locator boosts your productivity in the field by providing:

- Completely automatic, no settings required

- One-click operation
- End of fiber, Loss and ORL displayed automatically after measurement

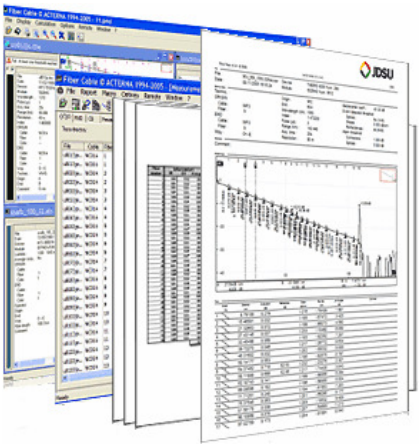
The advanced mode offers high-level trace analysis possibilities, making your MTS/T-BERD platform a powerful instrument for commissioning and troubleshooting by offering:

- Manual settings (pulse, average time, events)
- Connector and Splice characterization
- A large screen for convenient multi-trace analysis (with zoom, cursors)
- A detailed event table

Error-free professional report

A complete PC-based software application within a Microsoft Windows environment offers detailed generation of professional OTDR trace reports, including:

- Proof-of-performance reports with a high degree of customization capabilities
- Dedicated tables for each test result (splice loss, connector, and length)
- Out-of-range value summaries with analysis of macro-bends
- Results comparison between the different wavelengths to identify bends and constraints
- Complete fiber characterization reports, including OTDR, CD, PMD, and spectral attenuation



5. Acceptance report

Enhanced testing solution

With the modular design of the MTS/T-BERD 6000 optical test platform, field technicians can quickly and easily plug in the appropriate test. The optical platform offers a full range of fiber characterization test modules with OTDR, CD, and spectral attenuation measurement as well as DWDM testing capabilities.

The SRL OTDR module is compatible with the scalable MTS/T-BERD 8000 platform and can be combined with additional measurement capabilities.

With the new SRL OTDR module and the current range of available OTDR modules, JDSU offers the broadest range of fiber optic test solutions on the market, making JDSU the provider of choice for all telecommunications operators and fiber optic installers.

6. MTS/T-BERD 6000 platform with OTDR module

Multi-mode/Single mode SRL OTDR Module

General technical specifications (typical at 25°C)

Weight	0.6 kg (1.1 lb)
Dimensions (w × h × d)	213 × 124 × 32 mm (8.38 × 4.88 × 1.26 in)
Optical interfaces	
Applicable fiber	MMF 50/125 µm, MMF 62.5/125 µm, SMF 9/125 µm
Interchangeable optical connectors	PC, FC, SC, DIN, LC and ST

OTDR Optical performance

	Multimode SRL Plug-in	Multimode/Singlemode SRL Plug-in	
Central wavelength[1]	850/1300 nm ±20 nm	850/1300 nm ±20 nm	1310/1550/1625 nm ±20 nm
Laser safety class (21 CFR)	Class 1M	Class 1M	
Pulsewidth	3 ns to 300 ns	3 ns to 300 ns	3 ns to 20 µs
Distance range	Up to 80 km	Up to 80 km	Up to 380 km
RMS Dynamic Range[2]	24/24 dB	24/24 dB	40/38/37 dB
Event dead zone[3]	0.5 m	0.5 m	0.8 m
Attenuation dead zone[4]	2 m	2 m	4 m
Continuous wave output power	-	-	-3.5 dBm

(1) Laser at 25°C and measured at 10 µs. Other wavelengths are available.
(2) The one-way difference between the extrapolated backscattering level at the start of the fiber and the RMS noise level, after 3 minutes averaging.
(3) Measured at ±1.5 dB down from the peak of an unsaturated reflective event.
(4) Measured at ± 0.5 dB from the linear regression using a FC/PC type reflectance.

Technical characteristics	
Distance units	Kilometers, feet, and miles
Group index range	1.30000 to 1.70000 in 0.00001 steps
Number of data points	Up to 128,000 data points
Distance measurement	Automatic or dual cursor
Display span	2.6 m to 260 km
Cursor resolution	1 cm
Sampling resolution	4 cm
Accuracy	±1 m ±sampling resolution ±1.10-5 x distance (Excluding group index uncertainties)
Attenuation measurement	
Automatic, manual, 2-point, 5-point, and LSA	
Display span	1.25 dB to 55 dB
Display resolution	0.001 dB
Cursor resolution	0.001 dB
Linearity	Multimode / Singlemode: ±0.03 dB/dB
Threshold	0.01 to 5.99 dB in 0.01 dB steps
Reflectance/ORL measurements	
Reflectance accuracy	+/-2 dB
Automatic or manual	
Display resolution	0.01 dB
Threshold	-11 dB to -99 dB in 1 dB steps
Storage	Bellcore/Telcordia compatible Version1.1 and Version 2.0

Ordering information

Short Range LAN 24dB 850nm OTDR plug-in	E8111SRL
Short Range LAN 24dB 1300nm OTDR plug-in	E8112SRL
Short Range LAN 24/24dB 850/1300 OTDR plug-in	E8123SRL
Short Range LAN 24/24/40/38dB 850/1300/1310/1550nm OTDR plug-in	E8146SRL
Short Range LAN 24/24/40/38/37dB 850/1300/1310/1550/1625nm OTDR plug-in	E8156SRL
Continuous Source option (singlemode wavelength only)	E81OTDRLS

Universal optical connectors

Straight connectors (singlemode port)	EUNIPCFC, EUNIPCSC, EUNIPCST, EUNIPCDIN, EUNIPCLC
8° angled connectors (singlemode port)	EUNIAPCFC, EUNIAPCSC, EUNIAPCST, EUNIAPCDIN, EUNIAPCLC
Straight connectors (multimode port)	EUNIPCFCMM, EUNIPCSCMM, EUNIPCSTMM, EUNIPCDINMM

For more information on the MTS/T-BERD 6000 and 8000 test platform, test modules, adapters, and fiber optic couplers, refer to the separate datasheets and brochures.