T-BERD®/MTS-4000 Multiple Services Test Platform

Multimode/Single-mode OTDR Modules



Key Features

- Combines Dual-, Quad-lambda multimode (MM), and single-mode (SM)
- Dynamic range of 27/25 dB (MM), 37/35 dB (SM)
- First-to-market MM/SM OTDR with truly integrated Loss Test Sets
- Automated bend detection
- Propagation delay measurement in multimode (TIA-568-C)
- Combines with the Ethernet Services Application Module* (ESAM)

* Requires ESAM compatible mainframe

Applications

- Optimized for testing 10 MB to 10 GigE
- Enables Tier 1 and Tier 2 certification of Premises networks
- Install, turn up, and maintain Access networks/LAN/WAN
- Wireless backhaul construction, turn-up, and maintenance

Compliance

- IEC 61280-4-1 using an external mode conditioner

In today's demanding communications market, test solutions must be even more cost-effective, must increase productivity, and must reduce the complexity of field testing. The JDSU Multimode (MM)/Single-mode (SM) Optical Time Domain Reflectometer (OTDR) Modules offer unmatched test functionality specifically developed in response to emerging industry demands.

The MM/SM OTDR module is an all-in-one field test instrument that integrates flexible configuration options and offers multiple wavelength test capabilities (850/1300 nm multimode, 1310/1550 nm single-mode).

With pace-setting short dead zones and enviable dynamic range performance, the MM/SM OTDR modules enable effective testing on both multimode and single-mode fiber links, addressing the needs of providers of Premises/Enterprise networks as well as wireless backhaul infrastructure.

Combining a true loss test set with the OTDR on the same port enables users to perform a full range of fiber certification tests (continuity check, total link loss, length, reflectivity of connectors, and events loss measurements) without changing fibers. This capability is integrated in both Single-mode and Multimode optical ports.

The Quad and Multimode OTDR modules work with the modular T-BERD/MTS-4000 platform to provide multi-layer testing capabilities with additional optical options including visual fault locator, talk set, and digital fiber inspection probes (with automated Pass/Fail analysis).

Specifications

Generic Technical (Typical at 25°C)

Weight	0.400 kg (0.88 lb)
Dimensions (W x H x D)	128 x 134 x 40 mm (5.04 x 5.28 x 1.58 in)
Storage	Bellcore/Telcordia-compatible (Version 1.1 and Version 2.0)

Optical Interfaces

Interchangeable optical connectors	FC, SC, DIN, LC, and ST

Technical Characteristics

Laser safety class (21 CFR)	Class 1
Distance units	Kilometers, feet, kilofeet, 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 range	3.25 m to 260 km
Cursor resolution	1 cm
Sampling resolution	4 cm
Accuracy	±1m±sampling resolution±1.10^{-5} x distance (Excluding group index uncertainties)

Attenuation Measurement

Automatic, Manual, 2-point, 5-point, and LSA

Display range	1.25 to 55 dB
Display resolution	0.001 dB
Cursor resolution	0.001 dB
Linearity	Multimode/Single-mode: ±0.03 dB/dB
Threshold	0.01 to 5.99 dB in 0.01 dB steps

Reflectance/ORL Measurements

Reflectance accuracy	±2 dB
Display resolution	0.01 dB
Threshold	−11 to −99 dB in 1 dB steps

OTDR Multimode Module Technical (Typical at 25°C)

Central Wavelength [1]	Pulse Width	RMS Dynamic Range [2]	Event Dead Zone [3]	Attenuation Dead Zone [4]
850/1300 nm ±30 nm	3 ns to 1 µs	27/25 dB	0.8 m	4 m

OTDR Multimode/Singlemode Module Technical (Typical at 25°C)

Central Wavelength [1]	Pulse Width	RMS Dynamic Range [2]	Event Dead Zone [3]	Attenuation Dead Zone [4]
850/1300 nm ±30 nm	3 ns to 1 µs	27/25 dB	0.8 m	4 m
1310/1550 nm ±20 nm	3 ns to 20 µs	37/35 dB	0.9 m	4 m

Power Meter (Optional–Typical at 25°C)

	Single-mode	Multimode
Optical connector	Shared with the OTDR (on the same port)	
Power level range	−2 to −50 dBm	−3 to −30 dBm
Measurement wavelengths	1310, 1490, 1550, 1625 and 1650 nm	850 and 1300 nm
Measurement accuracy [5]	±0.5 dB	±1 dB

Light Source (Optional–Typical at 25°C)

	Single-mode	Multimode
Optical connector	Shared with the OTDR (on the same port)	
Central wavelength	1310, 1550 nm	850, 1300 nm
CW output power level	−3.5 dBm	−3.5 dBm
Modulation frequency	CW; 270 Hz, 330 Hz, 1 kHz and 2 kHz; Auto-λ; TWINtest	

1. Laser at 25°C.
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, with the largest pulse width.
3. Measured at ±1.5 dB down from the peak of an unsaturated reflective event, at shortest pulse width.
4. Measured at ±0.5 dB from the linear regression using a typical FC/UPC reflectance, at shortest pulse width.
5. At –30 dBm for single-mode, and at –15 dBm for multimode using a mode conditioner.

Ordering Information

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Part Number	**Description**
E4146QUAD	Multimode/Single-mode 850/1300/1310/1550 nm OTDR
E4123MM	Multimode 850/1300 nm OTDR
EFJEF50CONSCPC	EF Modal Controller for 50 µm MM Fiber—SC/PC
EFJEF50CONFCPC	EF Modal Controller for 50 µm MM Fiber—FC/PC
E410TDRLS	Continuous and Modulated Source Option
E410TDRPM	Broadband Power Meter Option

Universal Optical Connectors	
EUNIPCFC, EUNIPCSC, EUNIPCST, EUNIPCDIN, EUNIPCLC	Straight Connectors (Single-mode port)
EUNIAPCFC, EUNIAPCSC, EUNIAPCDIN, EUNIAPCLC	8° Angled Connectors (Single-mode port)
EUNIPCFCMM, EUNIPCSCMM, EUNIPCSTMM, EUNIPCDINMM, EUNIPCLCMM	Straight Connectors (Multimode port)

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