VIAVI Solutions

Data Sheet

VIAVI

4100-Series OTDR Modules

T-BERD®/MTS-2000, –4000, –5800 platforms

VIAVI Solutions 4100-Series OTDR modules let field technicians rapidly, reliably, and cost-effectively install, turn up, and troubleshoot any optical network architecture—enterprise, metro, long-haul, and FTTx/access point-to-point or point-to-multipoint passive (PONs).

The OTDR modules' optical performance, combined with the complete suite of T-BERD/MTS platform testing features, ensures that testing is done right the first time.

Standard testing features include:

- Automatic macrobend detection
- Summary results table with pass/fail analysis
- Bidirectional OTDR analysis
- Fast-Report — onboard report generation
- Smart Link Mapper (SLM) icon-based map view of the fiber link
- SmartAcq perform a short and long pulse acquisition to improve measurement reliability
- SmartTEST Assistant guides users with an easy step by step process

T-BERD/MTS-2000 one-slot handheld modular platform for testing fiber networks

T-BERD/MTS-4000 v2 two-slot handheld modular platform for testing fiber networks

T-BERD/MTS-5800 handheld test instrument for testing 10 G Ethernet and fiber networks

Benefits

- Up to 45 dB dynamic range and 256,000 acquisition points
- PON-optimized to test through a 1x256 splitter
- Combined single-mode/multimode into one (quad)
- Single/dual/tri-wavelength versions with 1310/1550/1625/1650 nm
- Integrated CW light source and broadband power meter
- Ready for Enterprise-SLM, FTTA-SLM, and FTTH-SLM intelligent optical application software
- Instantly detects traffic when connected to live fiber

Specifications

General (typical at 25°C)	
Weight	0.35 kg (0.77 lb)
Dimensions (w x h x d)	Software can be enhanced and upgraded in the field
Optical Interfaces	
Interchangeable optical connectors[1]	FC, SC, LC (PC or APC) and ST (PC)
Technical Characteristics	
Laser safety class (21CFR)	Class 1
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 or 256,000 data points
Distance measurement	
Mode	Automatic or dual cursor
Display range	0.5 up to 260 km
Cursor resolution	1 cm
Sampling resolution	4 cm
Accuracy	±.5m ±sampling resolution ±1.10^{-5} x distance (excluding group index uncertainties) for MA2, MA3, MP2 ±1m ±sampling resolution ±1.10^{-5} x distance for LA, MM and QUAD

Attenuation Measurement	
Mode	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	±0.03 dB/dB/±0.05 for LA
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
Source and Broadband Power Meter (optional)	
CW source output power level	–3.5 dBm
Power level range (MM/SM)[2]	–3 to –30/0 to –55 dBm
Calibrated wavelengths (SM)	1310/1490/1550/1625/1650 nm
Calibrated wavelengths (MM)[3]	850/1300 nm
Measurement accuracy (SM)	±0.5 dB
Measurement accuracy (MM)[4]	±1 dB

OTDR Modules (typical at 25°C)

	Central Wavelength[5]	RMS Dynamic Range[6]	Event Dead Zone[7]	Attenuation Dead Zone[8]	Network Type	Applications
MM	850/1300±30 nm	26/24 dB	0.8 m	4 m	Enterprise/FTTA	Multimode network qualification
Quad	850/1300 ± 30 nm 1310/1550 ±20 nm	26/24 dB 37/35 dB	0.8 m 0.9 m	4 m	Enterprise/FTTA/ access/metro	Multimode and single-mode short- and medium-haul network qualification
LA	1310/1550/1650 ±20 nm	35/33/30 dB	1.5 m	6 m	FTTA/FTTH/access	Short-haul qualification FTTH drop-cable qualification/maintenance
MA2	1310 ±20 nm 1550 ±20 nm 1625 ±10 nm	40 dB 40 dB[9] 38 dB	0.7 m	3 m	FTTA/access/metro	Short/medium-haul qualification Wireless fronthaul and backhaul
MA3	1310 ±20 nm 1550 ±20 nm 1625 ±10 nm 1650 +10/–5 nm	43 dB 41 dB 41 dB 41 dB	0.7 m	3 m	FTTH/access/ metro/long-haul	Short/medium/long-haul qualification FTTH test up to 1x128 splitter
MP2	1310 ±20 nm 1550 ±20 nm 1625 ±10 nm 1650 ±10 nm	45 dB 43 dB 43 dB 42 dB	0.65 m	2.5 m	FTTH/long-haul/ very long-haul	long haul/very long haul qualification FTTH test up to 1x256 splitter

1. ST for QUAD/MM only
2. –2 to –50 dBm for Quad
3. Available on MM and Quad modules
4. Using a modal controller
5. Laser at 25°C and measured at 10 µs
6. The one-way difference between the extrapolated backscattering level at the start of the fiber and the RMS noise level, after 3 minutes averaging
7. Measured at ±1.5 dB down from the peak of an unsaturated reflective event
8. Measured at ±0.5 dB from the linear regression using a FC/UPC-type reflectance
9. Measured on optical fiber with Rayleigh parameter K(-82.01dB ± 0.17dB at 1546nm

Ordering Information

Description	Part Number
OTDR Modules	
Multimode 850/1300 OTDR module	E4123MM
Multimode/single-mode 850/1300/1310/1550 nm OTDR module	E4146QUAD
LA 1310/1550 nm OTDR module	E4126LA
MA2 1310/1550 nm OTDR module with straight connector	E4126MA2-PC
MA3 1310/1550 nm OTDR module with angled connector	E4126MA3-APC
MP2 1310/1550/1625 nm OTDR module with straight connector	E4136MP2-PC

For more information on T-BERD/MTS-2000, -4000 V2, -5800 test platforms or individual modules, refer to their respective data sheets and brochure.

Description	Part Number
Universal Optical Connectors (for MM and QUAD)	
Straight	EUNIPCFC, EUNIPCSC, EUNIPCST
8° angled	EUNIAPCFC, EUNIAPCSC
Universal Optical Connectors (for MA2, MA3 and MP2 modules)	
Straight	EUSCADS, EUFCADS, EULCADS
8° angled	EUSCADS-APC, EUFCADS, EULCADS-APC

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