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 power meter
- Ready for Enterprise-SLM, FTTA-SLM, and FTTH-SLM intelligent optical application software
- Instantly detects traffic when connected to live fiber (except on live/filtered port)
- ITU Fiber type identification (G65x A, B, C and D) with water peak detection at 1383nm

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 for MM, QUAD, LA - Up to 256,000 for MA2, MA3, MP2
Distance measurement	
Mode	Automatic or dual cursor
Display range	0.1 up to 400 km
Cursor resolution	1 cm
Sampling resolution	4 cm
Accuracy	±.5 m ±sampling resolution $\pm 1.10^{-5}$ x distance (excluding group index uncertainties) for MA2, MA3, MP2 ±1 m ±sampling resolution $\pm 1.10^{-5}$ 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[2] Power Meter (optional)	
CW source output power level	–3.5 dBm
Power level range (MM/SM)[3]	–3 to –30/0 to –55 dBm
Calibrated wavelengths (SM)	1310/1490/1550/1625/1650 nm
Calibrated wavelengths (MM)[4]	850/1300 nm
Measurement accuracy (SM)	±0.5 dB
Measurement accuracy (MM)[5]	±1 dB

OTDR Modules (typical at 25°C)

	Central Wavelength[6]	RMS Dynamic Range[7]	Event Dead Zone[8]	Attenuation Dead Zone[9]	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 1383 ±3 nm 1550 ±20 nm 1625 ±10 nm	40 dB 37 dB 40 dB[10] 38 dB	0.7 m 2 m 0.7 m 0.7 m	3 m 6 m 3 m 3 m	FTTA/access/metro	Short/medium-haul qualification Wireless fronthaul and backhaul Water peak detection at 1383nm
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	46 dB 45 dB 44 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. Sames wavelengths as the OTDR port. Not available on live port.
3. –2 to –50 dBm for Quad
4. Available on MM and Quad modules
5. Using a modal controller
6. Laser at 25°C and measured at 10 µs
7. The one-way difference between the extrapolated backscattering level at the start of the fiber and the RMS noise level, after 3 minutes averaging
8. Measured at ±1.5 dB down from the peak of an unsaturated reflective event
9. Measured at ±0.5 dB from the linear regression using a FC/UPC-type reflectance
10. 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
MA2 1310/1383/1550 nm OTDR module with straight connector	E4138MA283-PC
MA3 1310/1550 nm OTDR module with angled connector	E4126MA3-APC
MP2 1310/1550/1625 nm OTDR module with straight connector	E4136MP2-PC

Additional part numbers are available, please contact your VIAVI sales representative.

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