

Data Sheet

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

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, FTTH-SLM, and FTTH-SLM intelligent optical application software
- Instantly detects traffic when connected to live fiber



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



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 ±110 ⁻⁵ x distance (excluding group index uncertainties) for MA2, MA3, MP2 ±1m ±sampling resolution ±110 ⁻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/U/PC-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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