

# VIAVI T-BERD/MTS-2000

## Handheld Modular Test Set

Fiber Optic Multitest Tool for Smarter, Faster Field Testing

Costs, workflow, quality, network performance, and customer experience are critical for the success of today's fiber optic networks. Selecting the right test tools has become key toward meeting these needs. The VIAVI Solutions™ T-BERD®/MTS-2000 is a handheld multi-test platform that provides field technicians with a single handheld unit to install, turn-up and maintain these networks to the highest standards.

Its innovative design and hands-free bag ensure that all essential fiber test tools are close at hand, whatever the job or location. A large color screen with graphical user interface drives simple operation and optimal workflow in the field.

Test capabilities include a range of OTDR modules for multimode and single-mode testing, including CWDM & DWDM OTDR, as well as a range of FiberComplete™ modules for automated insertion loss/optical return Loss (IL/ORL), OTDR and fault finding. Both OTDR and FiberComplete modules are passive optical network (PON) optimized. The unit is also ready for connector end face pass/fail analysis to IEC standards with a digital analysis microscope.

The CWDM-OSA and DWDM-OCC modules also enable turn-up and troubleshooting of coarse or dense wavelength division multiplexing (CWDM DWDM or Hybrid) networks.



T-BERD/MTS-2000

### Key Benefits

- Ensure the highest-quality connectorizing, splicing, and turn-up of new fiber links
- Improve workflow with hands-free solution, driving best practices to IEC standards
- Smarter and faster field testing with simple setup and instantaneous pass/fail results
- Boost productivity with improved report generation and flexible connectivity
- Decrease OpEx and increase field productivity when combined with StrataSync™ & CerTiFi

### Key Features

- High-visibility touch-screen display
- Wide range of field installable OTDR modules including QUAD and PON
- Optional built-in optical power meter, visual fault locator (VFL), and optical talk set
- Flexible connectivity with Ethernet, USB, Bluetooth®, and WiFi capabilities
- Smart Access Anywhere (SAA) for remote control & field tech support
- StrataSync enabled — centralized cloud based asset, configuration, test data and workflow management



## Applications

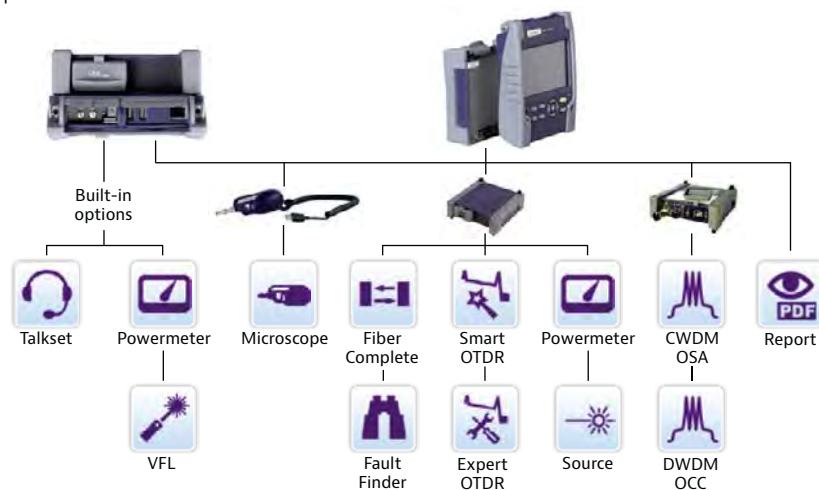
- Fiber optic test, qualification, certification and reporting
- Certify the fiber physical layer on FTTx/ PON, access, metro and enterprise networks
- FiberComplete automated uni & bi-directional IL, ORL, Length, OTDR certification
- Automated fiber inspection and IEC pass/fail analysis

## Widest Range of Applications for Maximum Flexibility

The T-BERD/MTS-2000 provides the largest range of test capabilities offered in one handheld unit. The modular design allows service providers the maximum flexibility to scale their investment and evolve with the growth of their network.

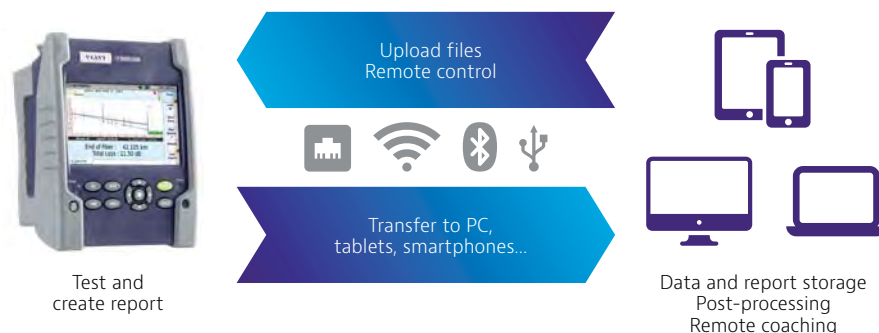
The instrument supports the whole range of essential fiber analysis tools including connection inspection, connection check, source, ORL, OTDR, a power meter, and DWDM Optical Channel Checker (DWDM-OCC).

Application modules used with the T-BERD/MTS-2000 can also be used with the T-BERD/MTS-4000 V2 and the two products are interoperable.



## Boosted Productivity with Seamless Data Workflow

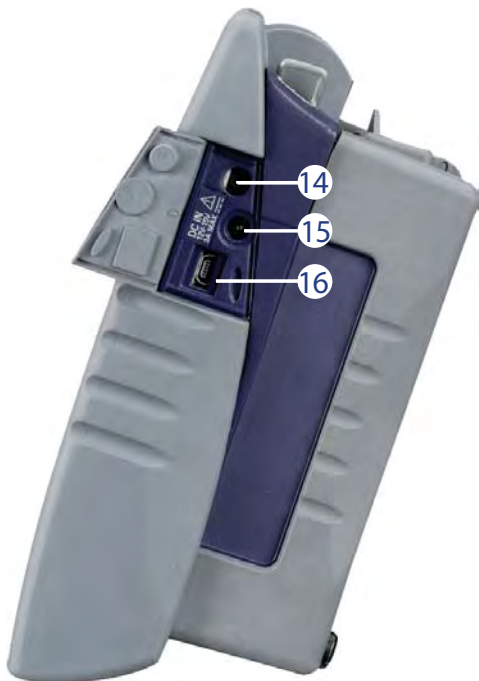
The T-BERD/MTS-2000 integrates various communication capabilities allowing remote control, data and setup uploads/downloads, and report transfer. The unit has one high-speed 1G Ethernet port, three USB ports, and optional WiFi and Bluetooth network connections.



## T-BERD/MTS-2000 Design Optimizes Operational Efficiency



- 1 5-inch touch screen
- 2 Charge indicator
- 3 On indicator
- 4 File menu
- 5 Setup menu
- 6 Start/Stop
- 7 Testing indicator
- 8 On/Off
- 9 Home page
- 10 Cancel
- 11 Direction and validation keys
- 12 Results page
- 13 Loudspeaker
- 14 Headset jack
- 15 AC/DC input
- 16 Slave mini USB port
- 17 RJ45 connector
- 18 Master USB ports (2)
- 19 Power meter port
- 20 VFL or talk set port
- 21 WiFi and Bluetooth options





## StrataSync — Empower Your Assets

StrataSync Core capabilities are included when you purchase any StrataSync-enabled instrument from VIAVI, there is nothing to buy to take advantage of these benefits. StrataSync Core includes asset and configuration management, test data management with 35 day limit, and even instrument self-management for techs via the Tech Portal. StrataSync Plus extends test data storage for up to 6 years and provides access to seasoned VIAVI StrataSync experts for assistance with setup, config, usage, reporting – just about anything that you desire.

### Specifications

General (typical at 25°C)	
Display	5-inch TFT color touch screen (12.5 cm) Resolution 800 x 480 WVGA
Interfaces	Two USB 2.0 ports One mini-USB 2.0 port RJ45 LAN 10/100/1000 Mbps Built-in Bluetooth (optional) Built-in WiFi 802.11 b/g/n (optional)
Internal memory	8 GB (1 GB for storage)
Battery	Rechargeable lithium-polymer battery 9-hour operation as per Telcordia GR-196-CORE
Power supply	AC/DC adapter, input 100-250 V AC, 50-60 Hz; 2.5 A max, output 12 V DC, 25 W Electrical safety: EN60950-compliant
Size with module (H x W x D)	175 x 138 x 80 mm (6.9 x 5.4 x 3.2 in)
Weight with battery with battery and LM OTDR	0.864 kg (1.89 lb) 1.21 kg (2.67 lb)
Operating temperatures No options/modules With options/modules	-20 to +50°C (-4 to 122°F) 0 to +40°C (32 to 104°F)
Relative humidity	0% to 95% noncondensing
Built-In Power Meter <sup>1</sup>	
Calibrated wavelengths	850/1310/1490/1550/1625/1650
Wavelength range	800 to 1650 nm in 1 nm steps
Accuracy <sup>2</sup>	±0.2 dB
Measurement range <sup>3</sup>	+5 to -50 dBm
Maximum resolution	0.01 dB/0.01 nW

1. At 25°C, after 20 minutes stabilization time and after zero setting.

2. At calibrated wavelength (except 1650 nm)

3. -45 dBm from 800 to 1250 nm

Connector type	Universal push pull (UPP)
Built-In Visual Fault Locator (VFL)	
Wavelength	650 nm
Emission mode	CW, 1 Hz
Laser class	Class 2 per standards EN60825-1 and FDA21 CFR Part 1040.10
Built-In Talk Set	
Dynamic range	32 dB (typical)
Connector types	SC, FC, and UPP (three adapters included)

### Ordering Information

Description	Part Number
<b>T-BERD/MTS-2000 Handheld Modular Test Set</b> Includes: touch screen, hands-free soft case, shoulder strap, power supply with 5 adaptable plugs (US, Europe, UK, Australia, Japan), on-line Getting Started manual	ETB2000HVT/ EM2000HVT
Built-in optical power meter and VFL, with 2.5 mm UPP connectors	E20PMVFL
Built-in optical power meter with 2.5 mm UPP connector	E20PM
Built-in visual fault locator (VFL) with 2.5 mm UPP connector	E20VFL
Built-in optical power meter and talk set	E20TSPM
Internal Bluetooth option	E20BLUE
Internal WiFi option	E20WIFI
USB2.0 digital video scope kit (P5000i), including 7 tips and soft case	EDFSCOPE5Ki
Soft carrying case for T-BERD/MTS-2000/4000	E40SCASE1
Hard carrying case for T-BERD/MTS-2000 Modular Test Set	E20HCASE
12 V car adapter for T-BERD/MTS-2000/4000	E40LIGHTER

# 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 <sup>1</sup>	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	$\pm 5$ m $\pm$ sampling resolution $\pm 1.10^{-5}$ x distance (excluding group index uncertainties) for MA2, MA3, MP2  $\pm 1$ m $\pm$ 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	$\pm 0.03$ dB/dB/ $\pm 0.05$ for LA
Threshold	0.01 to 5.99 dB in 0.01 dB steps
Reflectance/ORL Measurements	
Reflectance accuracy	$\pm 2$ dB
Display resolution	0.01 dB
Threshold	-11 to -99 dB in 1 dB steps
Source <sup>2</sup> Power Meter (optional)	
CW source output power level	-3.5 dBm
Power level range (MM/SM) <sup>3</sup>	-3 to -30/0 to -55 dBm
Calibrated wavelengths (SM)	1310/1490/1550/1625/1650 nm
Calibrated wavelengths (MM) <sup>4</sup>	850/1300 nm
Measurement accuracy (SM)	$\pm 0.5$ dB
Measurement accuracy (MM) <sup>5</sup>	$\pm 1$ dB

OTDR Modules (typical at 25°C)						
	Central Wavelength <sup>6</sup>	RMS Dynamic Range <sup>7</sup>	Event Dead Zone <sup>8</sup>	Attenuation Dead Zone <sup>9</sup>	Network Type	Applications
MM	850/1300 $\pm 30$ nm	26/24 dB	0.8 m	4 m	Enterprise/FTTA	Multimode network qualification
Quad	850/1300 $\pm 30$ nm 1310/1550 $\pm 20$ 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 $\pm 20$ nm	35/33/30 dB	1.5 m	6 m	FTTA/FTTH/access	Short-haul qualification FTTH drop-cable qualification/maintenance
MA2	1310 $\pm 20$ nm 1383 $\pm 3$ nm 1550 $\pm 20$ nm 1625 $\pm 10$ nm	40 dB 37 dB 40 dB <sup>10</sup> 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 $\pm 20$ nm 1550 $\pm 20$ nm 1625 $\pm 10$ nm 1650 $\pm 10/-5$ 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 $\pm 20$ nm 1550 $\pm 20$ nm 1625 $\pm 10$ nm 1650 $\pm 10$ 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. Same 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  $\mu$ s

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  $\pm 1.5$  dB down from the peak of an unsaturated reflective event

9. Measured at  $\pm 0.5$  dB from the linear regression using a FC/UPC-type reflectance

10. Measured on optical fiber with Rayleigh parameter K(-82.01dB  $\pm$  0.17dB at 1546nm)

## Ordering Information

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

For more information about our SLM (Smart Link Mapper) OTDR applications, refer to this document:

<https://www.viavisolutions.com/en-us/literature/smart-link-mapper-otdr-applications-promo-sheet-en.pdf>

**For More Information:**



**Vicom Australia**

1064 Centre Rd  
Oakleigh South Vic 3167  
Australia  
1300 360 251  
info@vicom.com.au  
www.vicom.com.au

**Vicom New Zealand**

Grd Floor, 60 Grafton Road  
Auckland 1010  
New Zealand  
+64 9 379 4596  
info@vicom.co.nz  
www.vicom.co.nz



Contact Us **+1 844 GO VIAVI**  
(+1 844 468 4284)

To reach the VIAVI office nearest you,  
visit [viavisolutions.com/contact](http://viavisolutions.com/contact).

© 2019 VIAVI Solutions Inc.  
Product specifications and descriptions in this  
document are subject to change without notice.  
otdr20004000-ds-fop-tm-ae  
30168330 909 0419