VIAVI Solutions | SAVITRI TELECOM SERVICES

T-BERD/MTS-2000

Handheld Modular Test Set

Fiber Optic Multitest Tool for Smarter, Faster Field Testing

StrataSync™ ENABLED

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.

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

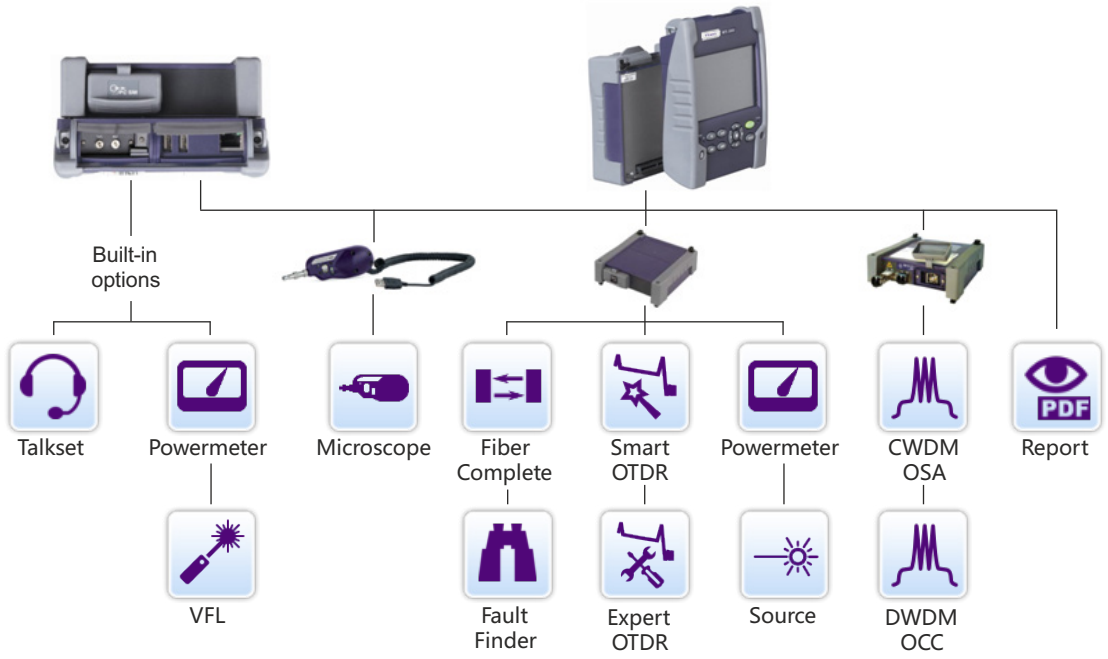
- Fiber optic test, qualification, certification and reporting
- Certify the fiber physical layer on FTTx/ PON, access, metro and enterprise networks
- FiberComplete automated uni & bidirectional IL, ORL, Length, OTDR certification
- Automated fiber inspection and IEC pass/fail analysis

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.

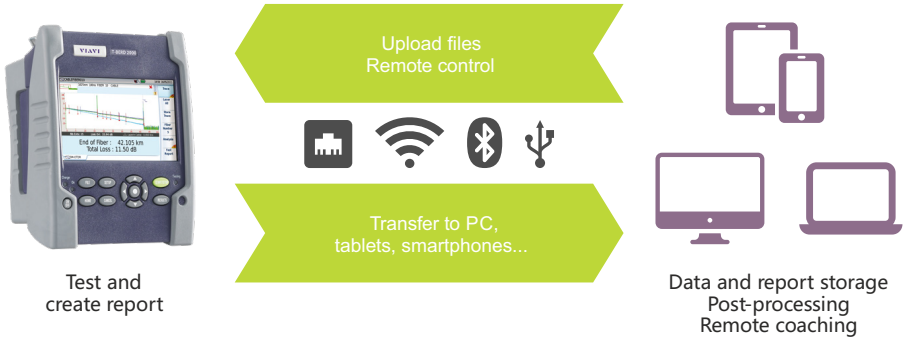
The instrument supports the whole range of essential fiber analysis tools including connection inspection, connection check, source, ORL, OTDR, a power meter, and DWDM Optical Channel Checker (DWDM-OCC).

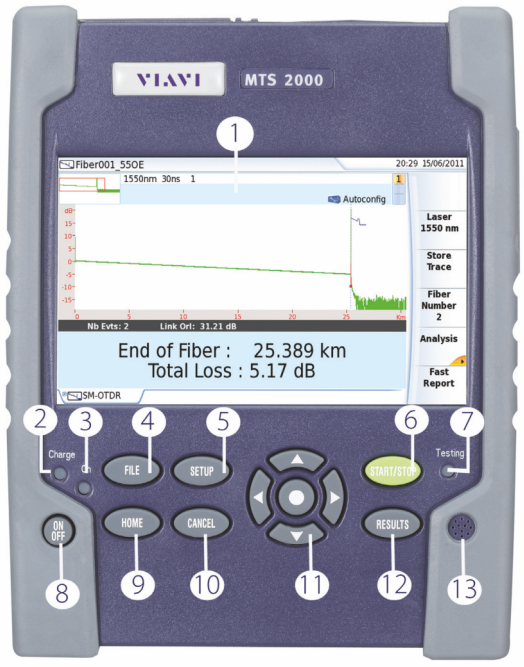
Application modules used with the T-BERD/MTS-2000 can also be used with the T-BERD/MTS-4000 V2 and the two products are interoperable.



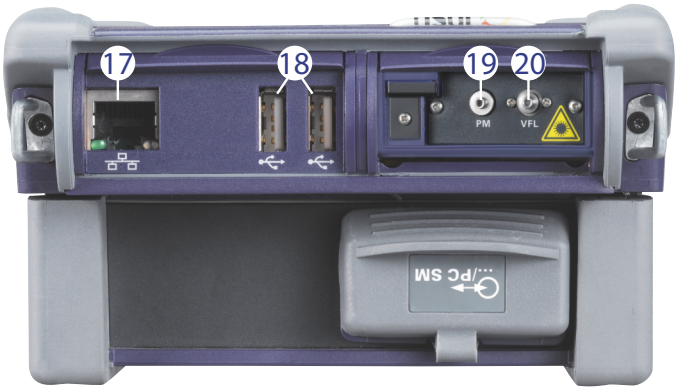
BOOSTED PRODUCTIVITY WITH SEAMLESS DATA WORKFLOW

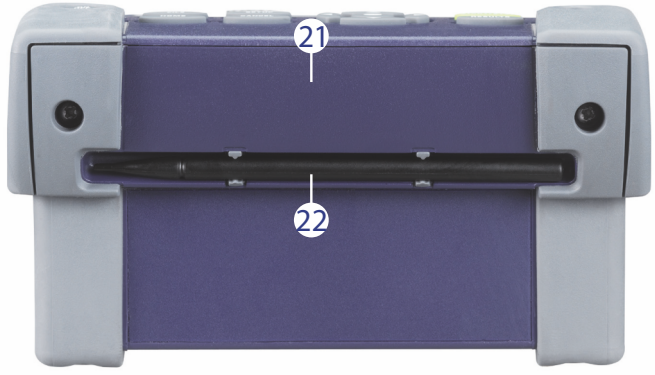
The T-BERD/MTS-2000 integrates various communication capabilities allowing remote control, data and setup uploads/downloads, and report transfer. The unit has one high-speed 1G Ethernet port, three USB ports, and optional WiFi and Bluetooth network connections.





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
22. Stylus for touch screen





STRATASYNC — EMPOWER YOUR ASSETS

StrataSync Core capabilities are included when you purchase any StrataSyncenabled 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.

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 Meter1	
Calibrated wavelengths	850/1310/1490/1550/1625/1650
Wavelength range	800 to 1650 nm in 1 nm steps
Accuracy[2]	±0.2 dB
Measurement range[3]	+5 to −50 dBm
Maximum resolution	0.01 dB/0.01 nW
Connector type	Universal push pull (UPP)

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

Built-In Visual Fault Locator (VFL)	
Wavelength 650 nm	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
T-BERD/MTS-2000 Handheld Modular Test Set 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

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4100 Series OTDR A, B and C Modules

For T-BERD/MTS-2000 V2, -4000 V2, -5800 and OneAdvisor platforms

VIAVI Solutions 4100-Series OTDR modules let field technicians rapidly, reliably, and cost-effectively install, turn up, and troubleshoot any optical network architecture: data center interconnection, metro, long-haul and FTTx/access for wireless/5G x-haul, point-to-point or point-to-multipoint passive optical networks (PONs).

Fiber infrastructure is the foundation of the network performance and the quality of delivered services. An OTDR is the only tool that verifies the condition of installed cables and passive components to ensure fiber links meet design specifications and contractor's workmanship meets the required quality.

Module portability allows migration of fiber test capabilities between different VIAVI platforms, offering the flexibility to move existing fiber certification tools to different technologies such as coax and RF, active xWDM, MPO/ribbon cables or network layer tests such as Ethernet, BERT, CPRI, etc.

T-BERD/MTS-2000 V2
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

OneAdvisor-800
All-in-One Cell-site Installation and Maintenance Test Solution

BENEFITS

- Up to 46 dB dynamic range and 256,000 acquisition points
- PON-optimized for next generation architectures, up to 1x256 split ratio and unbalanced splitters
- Dual/tri-wavelength versions with 1310/1550/1625 or 1650 nm, quad(850/1300/1310/1550)nm
- Single test port connection for standard and filtered wavelengths – faster, error free testing avoiding customer services disruption
- Consolidated reporting for all wavelengths tested reduces volume of test results to manage by 50%
- Test port condition check to prevent poor launch conditions and inaccurate event detection
- Supports SLM application tailored for various network applications (FTTA, FTTH, Enterprise, High fiber count cables)
- Field upgradeable for FiberComplete PRO applications - OTDR loopback, bi-directional OTDR analysis (TrueBIDIR), high fiber count (MPO)

Standard feature benefits include:

- Standard multi-pulses acquisition **(SmartAcq)** – improves event detection (splices, connectors, bends, ...) and removes the need for expensive and heavy launch cables.
- Icon-based map view (**Smart Link Mapper** – SLM) – eliminates OTDR interpretation errors and speeds up the results analysis with instant identification of faults and impairments
- The **SmartTEST** mode assists the fiber technicians (new or experienced) throughout the steps of OTDR testing. It is eliminating the complex OTDR tasks (setup configuration, analysis and reporting) and guiding the user through an easy and clear test process.
- For more information, please refer to the OTDR Features brochure.

SPECIFICATIONS (TYPICAL AT 25°C)

General	
Weight	0.35 kg (0.77 lb)
Optical interfaces	
Interchangeable optical connectors	FC, SC and LC
Technical characteristics	
Laser safety class (21CFR)	Class 1
Group index range	1.30000 to 1.70000 in 0.00001 steps
Sampling points	Up to 256,000
Pulse width	From 3ns[1]/5ns to 20µs
Distance measurement	
Modes	Automatic or dual cursor
Display range	0.1 up to 260 (A and B module), 400 km for C module
Cursor resolution	1 cm
Sampling resolution	4 cm
Accuracy[2]	±0.5 m ±sampling resolution ±+0.001% x distance
Attenuation measurement	
Modes	Automatic, manual, 2-point, 5-point, and LSA
Display resolution	0.001 dB
Linearity	±0.03 dB/dB
Reflectance/ORL measurement	
Reflectance accuracy	±2 dB
Display resolution	0.01 dB
Threshold	-11 to -99 dB in 1 dB steps
Optical light source (standard)	
Wavelengths	Same as OTDR port[3]
Output power level	-3.5 dBm in CW mode
Tone generation	270Hz, 330Hz, 1 kHz, 2kHz
Auto λ mode	Yes (with VIAVI power meters)
Stability (8h)	<±0.1 dB
Power meter (optional)	
nput power range	-3 to -55 dBm
Calibrated wavelengths	1310/1490/1550/1625/1650 nm
Power level accuracy[4]	±0.5 dB

OTDR specifications (Typical at 25°C)						
	Central wavelengths[5]	**Pulse width**	**RMS dynamic range[6]**	**Event dead zone[7]**	**Attenuation dead zone[8]**	**Splitter attenuation dead zone[9]**
E4146A	850/1300 ±30 nm 1310/1550 ±20 nm	5 ns to 1 µs 5 ns to 20 µs	26/24 dB 37/35 dB	0.55 m 0.65 m	3 m 3 m	–
4100 A	1310±20 nm 1550±20 nm 1625±15 nm	5ns to 20 µs	37 dB[11] 36 dB[11] 36 dB[11]	0.65 m	2.5 m	–
4100 B	1310±20 nm 1550±20 nm 1625±10 nm 1650+10/-5 nm	5ns to 20 µs	43 dB 41 dB 41 dB 40 dB	0.60 m	2.5 m	45 m[9]
4100 C	1310±20 nm 1550±20 nm 1625±10 nm 1650±15 nm	3ns to 20 µs	46 dB 45 dB 45 dB 43 dB	0.50 m	2.5 m	20 m[10]

[1]With 4100 C OTDR modules and EPULSE3NS software

[2]Excluding group index uncertainties

[3]Except filtered wavelengths

[4]At calibrated wavelengths, at -30 dBm excluding connection uncertainty

[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, using 5ns pulsewidth at 1310 nm

[8]Measured at ±0.5 dB down from the linear regression using a FC/UPC-type reflectance, using 5 ns pulsewidth at 1310 nm

[9]Measured on a 16 dB loss (typical 1x32 split ratio) non-reflective splitter at 1310nm, using 200 ns pulsewidth

[10]Measured on a 16 dB loss (typical 1x32 split ratio) non-reflective splitter at 1310nm, using 100 ns pulsewidth

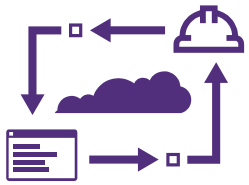
[11]RMS dynamic range extended to 40/38/38 dB with EXTRANGE or EXTRANGE-UPG license

ORDERING INFORMATION

Description	Part number
Multi-mode/single-mode -850/1300/1310/1550 nm – PC	E4146A-PC
Multi-mode/single-mode -850/1300/1310/1550 nm – APC	E4146A-APC
4100 Module A OTDR - 1310/1500 nm - PC/APC	E4126A-PC/-APC
4100 Module A OTDR - 1310/1625 nm - PC/APC	E4106A-PC/-APC
4100 Module A OTDR - 1310/1550/1625 nm - PC/APC	E4136A-PC/-APC
4100 MODULE B OTDR - 1310/1550 nm – PC/APC	E4126B-PC/-APC
4100 Module B OTDR - 1310/1550/1625 nm – PC/APC	E4136B-PC/-APC
4100 MODULE B OTDR - 1310/1550/Filtered 1650 NM – APC	E4138FB65-APC
4100 MODULE B OTDR - Filtered 1650 nm – APC	E4118FB65-APC
4100 MODULE C OTDR - 1310/1550 nm – PC/APC	E4126C-PC/-APC
4100 MODULE C OTDR - 1310/1550/1625 nm – PC/APC	E4136C-PC/-APC
4100 MODULE C OTDR - 1310/1550/Filtered 1625 nm – APC	E4136FC-APC
4100 MODULE C OTDR - 1310/1550/Filtered 1650 nm – APC	E4138FC65-APC
Universal PC connector adapters	EUSCADS, EULCADS, EUFCADS
Universal APC connector adapters	EUSCADS-APC, EULCADS-APC, EUFCADS
Optical power meter option	E41OTDRPM

TEST PROCESS AUTOMATION (TPA)

Allows your team to deliver expert-level test results and close projects on the first try, every time. TPA is a closed loop test system that optimizes workflows, eliminates manual, error prone work and automates immediate data reporting for job close out, team progress updates and network health analytics. Execute jobs efficiently to ensure high quality network builds, rapid turn-up/activation and enhanced operational visibility.



INSPECT BEFORE YOU CONNECT (IBYC)

Contamination is the number 1 reason for troubleshooting optical networks. Proactive inspection and cleaning of fiber connectors can prevent poor signal performance, equipment damage, and network downtime.

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203, Ansal Chamber-II, 6, Bhikaji Cama Place, New Delhi-110066
+91 11 26700500/26103358 +91 11 26183229 +91-9212605204
marketing@savitritelecom.com