

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.

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
- VIAVI TPA™ (Test Process Automation) enabled — centralized cloud based asset, configuration, test data and workflow management via Job Manager option



APPLICATIONS

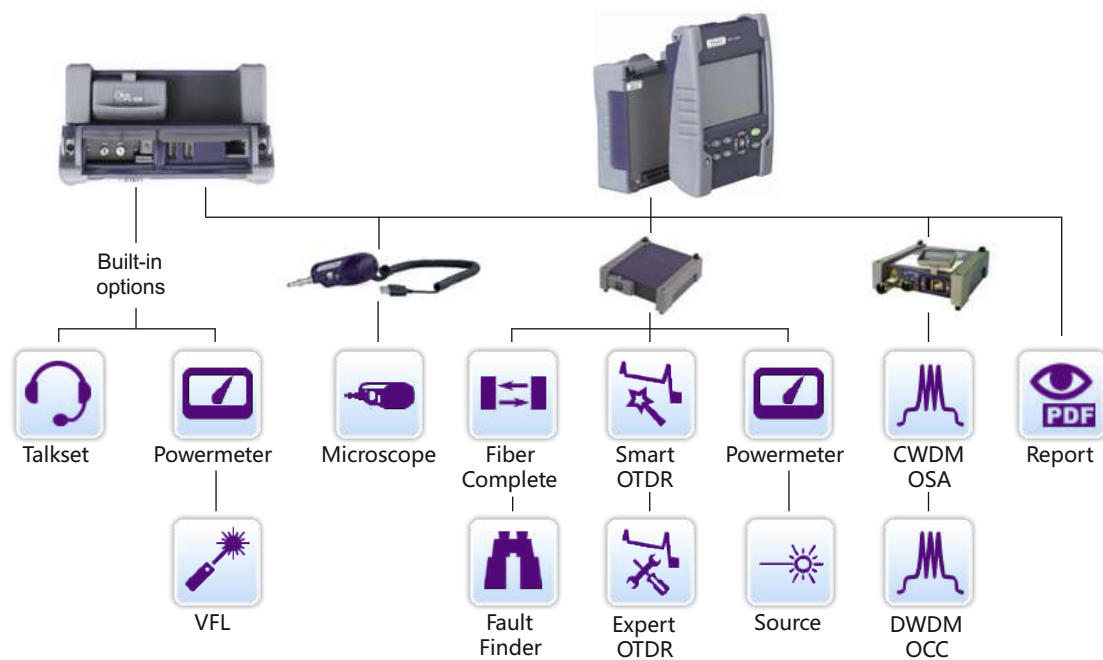
- Fiber optic test, qualification, certification and reporting
- Certify the fiber physical layer on FTTx/ PON, access, metro and enterprise networks
- FiberComplete automated uni & bidirectional IL, ORL, Length, OTDR certification
- Automated fiber inspection and IEC pass/fail analysis

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.

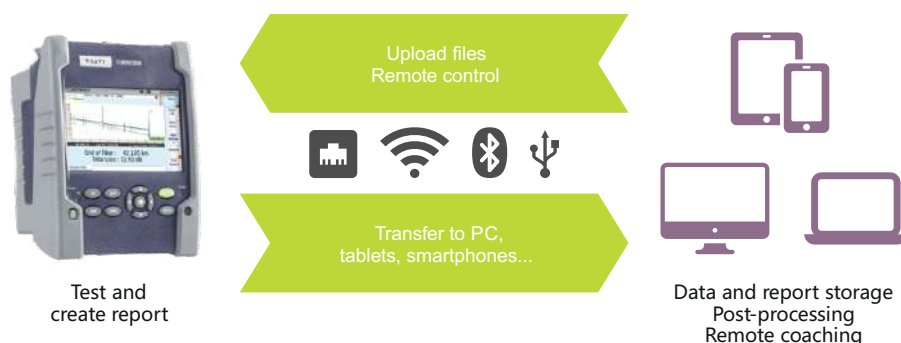
The instrument supports the whole range of essential fiber analysis tools including connection inspection, connection check, source, ORL, OTDR, a power meter, and DWDM Optical Channel Checker (DWDM-OCC).

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.





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|---------------------------------|------------------------------|
| ① 5-inch touch screen | ⑫ Results page |
| ② Charge indicator | ⑬ Loudspeaker |
| ③ On indicator | ⑭ Headset jack |
| ④ File menu | ⑮ AC/DC input |
| ⑤ Setup menu | ⑯ Slave mini USB port |
| ⑥ Start/Stop | ⑰ RJ45 connector |
| ⑦ Testing indicator | ⑱ Master USB ports (2) |
| ⑧ On/Off | ⑲ Power meter port |
| ⑨ Home page | ⑳ VFL or talk set port |
| ⑩ Cancel | ㉑ WiFi and Bluetooth options |
| ⑪ Direction and validation keys | ㉒ Stylus for touch screen |





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.

General (typical at 25°C)	
Display	5-inch TFT color touch screen (12.5 cm) Resolution 800 x 480 WVGA
Interfaces	2 x USB 2.0 ports, 1 x RJ45 LAN 10/100/1000 Mbit/s port, 1 x mini USB 2.0, 1 x 2.5 mm female jack port (headset), built-in WiFi 802.11 b/g/n & Bluetooth 4.2 (optional)
Storage	1 GB standard (20,000 OTDR traces typical)
Battery	Rechargeable lithium-polymer battery 9-hour operation as per Telcordia GR-196-CORE
Power supply	AC/DC adapter, input 100-240 V AC, 50-60 Hz; 2 A max, output 12 V DC, 24 W
Size with module (H x W x D)	175 x 138 x 80 mm (6.9 x 5.4 x 3.2 in)
Weight (battery included)	Mainframe only: 864 g (1.89 lb) Mainframe with one OTDR module: 1.21 kg (2.67 lb)
Operating temperature	-20 to +50°C (-4 to +122°F) ²
Storage temperature	-20 to +60°C (-4 to +140°F)
Humidity	(non condensing) 5 to 95%
Built-in Broadband Power Meter Option (InGaAs) ³	
Tone detection	270 Hz, 330 Hz, 1 kHz, 2 kHz
Power range	-60 to +10 dBm
Measurement accuracy	±0.2 dB ⁴
Wavelengths	Calibrated: 850/1310/1490/1550/1625/1650nm Selectable: 800 to 1650 nm in 1 nm step
Display resolution	0.01dB/0.01 nW
Connector type	2.5 mm Universal Push/Pull (UPP) (1.25 mm UPP adapter optional)

Built-In Visual Fault Locator (VFL)	
Wavelength	650 nm ±10 nm
Emission mode	CW, 1 Hz
Laser safety class	Class 2 per IEC 60825-1:2014 and FDA21 CFR Part 1040.10 standards
Connector type	2.5 mm UPP adapter (1.25 mm UPP adapter optional)
Built-In Talk Set	
Dynamic range	32 dB ⁵
Wavelength	1625 nm
Laser safety	Class 1 per IEC 60825-1:2014 and FDA21 CFR Part 1040.10 standards

1. Per Telcordia GR-196-CORE
2. With modules/all mainframe options: 0 to +40 °C (+32 to +104°F)
3. At 25 °C, after 20-minute warm-up
4. At calibrated wavelengths (except 1650 nm)
5. With a FC/PC connector

ORDERING INFORMATION

Each mainframe comes with a Lithium-Polymer battery, an AC/DC adapter/charger, a stylus and a glove soft case with a shoulder strap.

Description	Part Number
Mainframes and Built-in Options	
T-BERD/MTS-2000 Platform with Capacitive Touchscreen	ETB2000HVT / EM2000HVT
Built-in Broadband Power Meter option	E20PM
Built-in Power Meter and VFL options	E20PMVFL
Built-in Talkset and Broadband Power Meter options	E20TSPM
Built-in WiFi/Bluetooth / External WiFi/Bluetooth USB dongle	E20WIFIBLUE / EWIFIBLUE
Accessories	
Spare AC/DC Adapter/Charger with UK/US/EU/AUS plugs or US plug only	E20PWMC / E20PWUS
Spare Lithium-Polymer battery	E20LIPO
Spare stylus for capacitive touchscreen	EHVTSTYLUS
Spare wrap-around/glove soft case	E20GLOVE
Soft carrying case	FBPP-SCASE2
Hookstrap*	E40HOOKSTRAP1
Hardcase for one T-BERD/MTS-2000 platform and accessories	E20HCASE1
12 V car lighter adapter	E40LIGHTER
USB GPS receiver	EUSBGPSRECEIVER
1.25 mm UPP adapter for built-in VFL option	FFL-050-U12
1.25 mm UPP adapter for built-in Power Meter option	EUPP125PM
Software Options (Other software options available depending on optical test modules)	
SmartAccess Anywhere - Remote Access and Control from Anywhere	SAA-L2
GPS - Embedded GPS coordinates into test files and reports	EGPS
Password Protection - To prevent resell/use of stolen units	EPASSWORDPROTECT
Job Manager - To deploy test plan procedures to simplify and automate tests.	EJOBMANAGER

* Can be attached to the mainframe or to the glove case

4100 Series OTDR A, B and C Modules

For T-BERD/MTS-2000, -4000 V2, -5800, CellAdvisor 5G,
OneAdvisor 800 and FTH-9000

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-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



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



OneAdvisor 800
All-in-One wireline and wireless network
Installation and Maintenance Test Solution

BENEFITS

Match every test configuration and network lifecycle:

- Point to Point, PON, unbalanced taps
- Dual/tri-wavelength versions with 1310/1550/1625nm or Filtered 1650 nm
- Up to 45 dB dynamic range and 256,000 acquisition points

Speed up and automate the test workflow:

- Cloud-based job assignment, instant results submission with Job Manager
- Bidirectional OTDR FiberComplete PRO solution:
 - End to end, On-board, instant bidirectional OTDR with TrueBIDIR option (patented)
 - 2 fibers instant bidirectional OTDR with Loopback option
- Automated batch testing with MPO-based multifiber Switches, up to 192 ports

Ease testing for increased confidence:

- Embedded launch cable measurement feature
- Step by step guidance: pre-configured tests, test port health check, multiple result views
- Successful high fiber count cable projects management with Cable-SLM

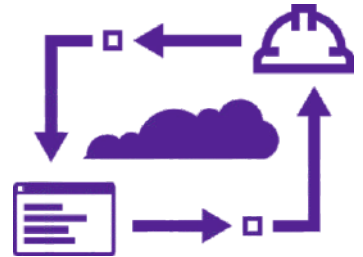


One tool for the network lifecycle

A single port approach combining 3 wavelengths, including a 1650 nm filtered wavelength, delivers a single tool for construction, maintenance and live network troubleshooting. No need to move test ports in the presence of live traffic, simply switch to in-service/filtered wavelengths for seamless change between construction and troubleshooting tasks. It also certifies a fiber is ready for future C or L-band (xWDM) operation.

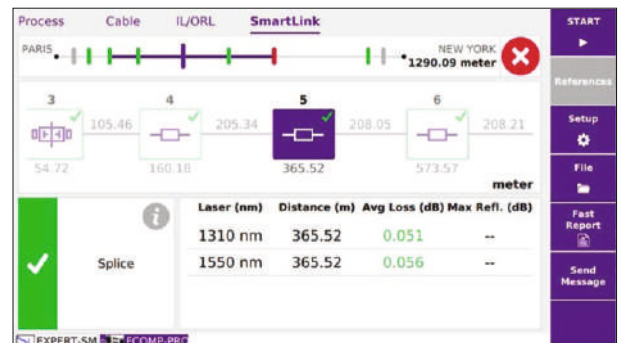
Managing your workforce, task and test data

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.

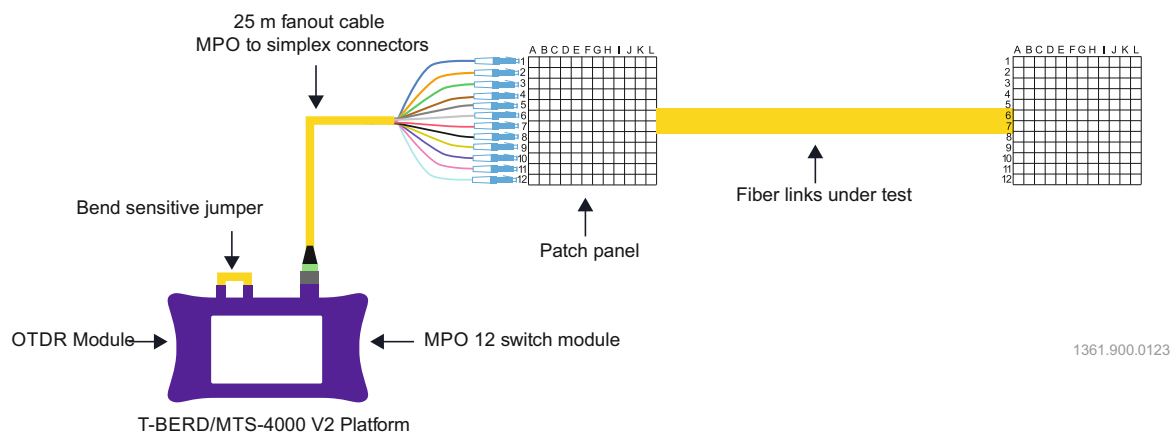


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Automated batch testing with MPO-based multifiber Switches, up to 192 ports



An onboard MPO based switch module with fanout/breakout cable for bulk certification of simplex fibers

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Ease of use for minimal learning time and greater control

First OTDR with intuitive smart device control and ergonomic user interface. Fast and responsive, it puts control at your fingertips. The multi-touch, swipe, pinch zoom, scroll and long press gestures allow for greater instrument control and results manipulation.

See information the way you want to

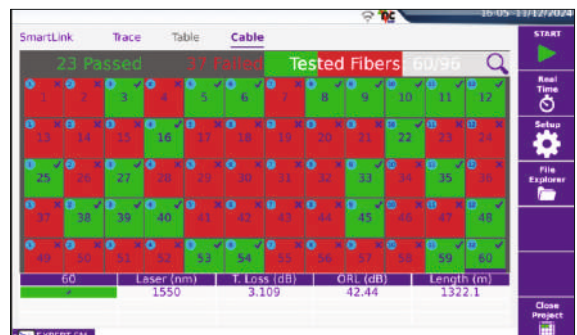
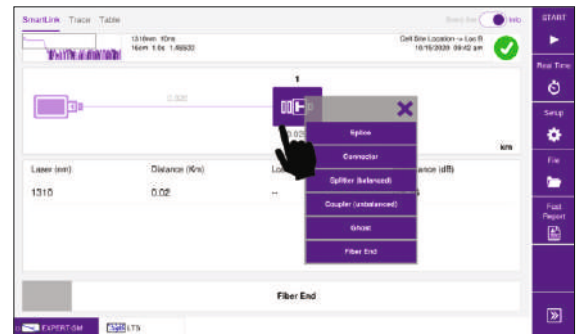
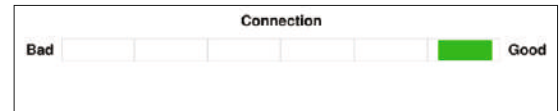
It's your preference on how to review results, whatever works best for you with SmartLink, Trace, and Table views all in one place. Instant switching, no retest, with data correlated across the views providing seamless analysis to make your life easier.

Take the headache out of trace analysis

Let SmartLink Mapper (SLM) perform the analysis and provide diagnosis for you, with guidance on how to fix faulty elements. Quickly identifies and labels all elements represented in a simple link map with enhanced event description plus clear pass/fail information. Easy toggle between SmartLink, Trace and Table views with direct correlation of a selected event.

Optimize high fiber count cable testing with Cable-SLM SW option

- Cable-SLM Software option allows to associate a project to a full cable commissioning/acceptance test.
- It facilitates all high fiber count cable test process through:
 - Custom configuration including pass/fail criteria
 - Dedicated results view
 - Summary report



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/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 ¹	±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	1310/1550/1625 nm
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) ⁸	<±0.1 dB
Power meter (optional)	
Input power range	-3 to -55 dBm
Calibrated wavelengths	1310/1490/1550/1625/1650 nm
Power level accuracy ⁷	±0.5 dB

OTDR specifications (Typical at 25°C)

	Central wavelengths ⁵	Pulse width	RMS dynamic range ³	Event dead zone ⁴	Attenuation dead zone ⁵	Splitter attenuation dead zone ⁶	Live Wavelength Isolation Value	Distance Display Range
E4146A	850/1300 ±30 nm 1310/1550 ±20 nm	3 ns to 1 µs 3 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 ¹¹ 1550±20 nm ¹¹ 1625±15 nm ²	5ns to 20 µs	37 dB 36 dB 36 dB	0.7 m	3 m	–	>45 dB; 1260 to 1620 nm	0.1 up to 260 Km
4100 B	1310±20 nm ¹¹ 1550±20 nm ¹¹ 1625±10 nm ² 1650+10/-5 nm	5ns to 20 µs	42 dB 40 dB 41 dB 41 dB	0.65 m	3 m	45 m	>45 dB; 1260 to 1620 nm	0.1 up to 260 Km
4100 C	1310±20 nm ² 1550±20 nm ² 1625±10 nm ² 1650±15 nm ²	3ns to 20 µs ⁹	45 dB 45 dB ¹² 44 dB 42 dB	0.65 m	2.5 m	20 m	>45 dB; 1260 to 1620 nm	0.1 up to 400 Km

1. Excluding Group Index uncertainties

2. Laser at 25°C measured at 10 µs

3. The one-way difference between the extrapolated backscattering level at the start of the fiber and the RMS noise level, after 3 minutes averaging

4. Measured at ±1.5 dB down from the peak of an unsaturated reflective event, using 5 ns pulse width at 1310 nm

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

6. 4100B Measured on a 16 dB loss (typical 1x32 split ratio) non-reflective splitter at 1310 nm, using 200 ns pulsewidth; 4100C Measured on a 16 dB loss (typical 1x32 split ratio) non-reflective splitter at 1310 nm, using 100 ns pulsewidth

7. At calibrated wavelengths, at -30 dBm, excluding connection uncertainty

8. After warm up time of 20 min

9. 3 ns pulse width with Software option EPULSE3NS

10. Additional temperature restrictions may apply based on the mainframe used

11. Laser in CW and 25° C

12. 45 dB dynamic range with 5 min acquisition time and 44 dB with 3 min acquisition time

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 - 1310/1550/1625 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
Universal PC connector adapters	EUSCADS, EULCADS, EUFCADS
Universal APC connector adapters	EUSCADS-APC, EULCADS-APC, EUFCADS
Optical power meter option	E41OTDRPM

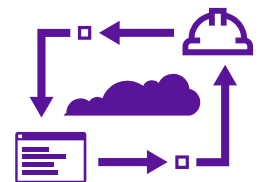
ORDERING INFORMATION CONTINUED

Hardware Option	Part number
Power meter	E41OTDRPM
Calibration Report	
OTDR module calibration report	E41OTDRCR
Modules Accessories	
SC/PC (Blue), SC/APC (Green) test port adapter – screw type	EUSCADS/-APC
LC/PC (Blue), LC/APC (Green) test port adapter – screw type	EULCADS/-APC
FC test port adapter – screw type	EUFCADS
Screwdrivers kit for screw type test port adapters	ESCREWDRIVER-SENKO
Software Options – Generic (to be installed on the mainframe)	
TrueBIDIR: Bidirectional OTDR Acquisition, on board real time analysis and averaging - All Networks*	ETRUEBIDIR-FCOMP-PRO/-UPG
Loopback: Bidirectional 2 fibers OTDR Acquisition, on board real time analysis and averaging - Access Networks*	ELOOPBACK-FCOMP-PRO/-UPG
Cable-SLM: Project cable management, up to 10,000 fibers	ECABLESLM/-UPG
FTTH-SLM Base: Tailored OTDR App. for FTTH Networks (Basic PON Architectures)	EFTTHSLM-BASE
FTTH-SLM: Tailored OTDR App. for FTTH Networks (Advanced PON Architectures, including Unbalanced/tap couplers)	EFTTHSLM
Software Options – Specific (to be installed on the mainframe)	
Increase RMS dynamic range for 4100 Module A OTDR	EXTRANGE/-UPG
Allow 3 ns pulse width for 4100 Module C OTDR	EPULSE3NS

* Not compatible with T-BERD/MTS-5800

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.

