OTDR Modules (4100 Series A, B, C)

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

Platforms Compatibility

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
Three-slot handheld modular test platform for fiber, wireless and transports applications

Key Features and Benefits

Match every test configuration and network lifecycle:

- Point to Point, PON, unbalanced taps
- Dual/tri-wavelength versions with 1310/1550/1625 nm 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:

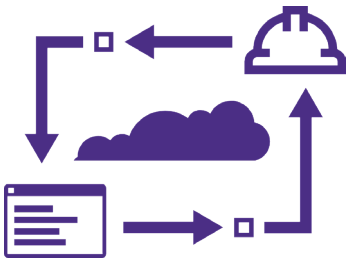
- Embedded launch cable measurement feature
- Step by step guidance: pre-configured tests, test port health check, multiple result views
- Successful high fiber count cable projects management with Cable-SLM

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.

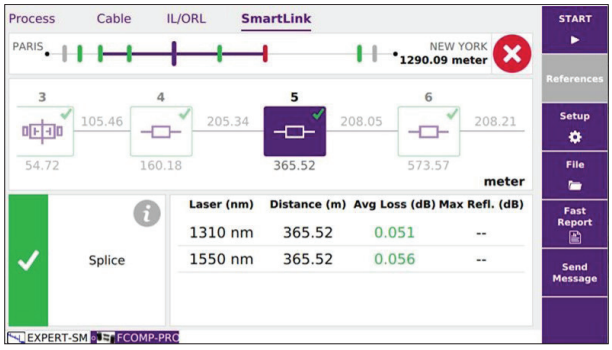
Managing your workforce, task and test data

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.

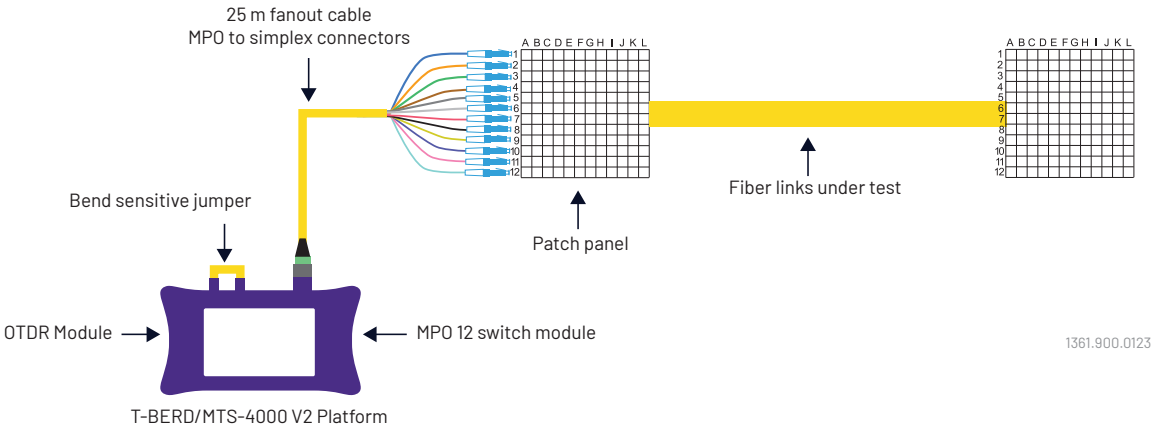


TrueBIDIR and Loopback – On-board Real Time bidirectional OTDR Analysis

The TrueBIDIR application offers real time bidirectional OTDR results analysis. Bidirectional OTDR analysis marries up loss information about every event on a fiber link and averages the measurements to provide a more accurate or 'True' loss measurement as per ITU-T and IEC standards. Removing the need for any post processing analysis work and enabling corrective actions to fix or repair failing fibers to be carried out while you are still on site.



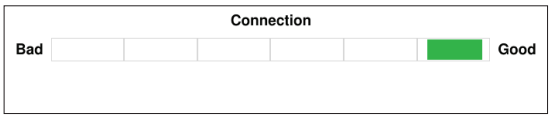
Automated batch testing with MPO-based multifiber Switches, up to 192 ports



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

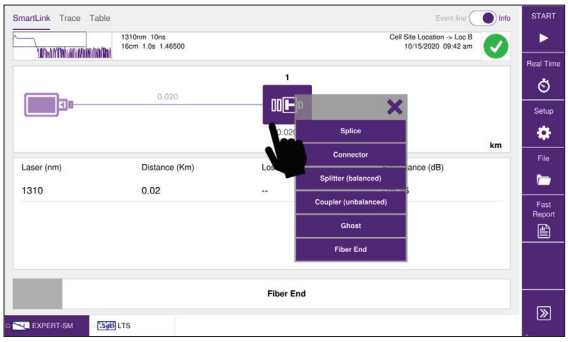
Test with confidence

With every test an OTDR Test port health check ensures good launch conditions to achieve high measurement accuracy. Permanent live traffic detection avoids any potential damage to transmission equipment and poor measurement results.



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.

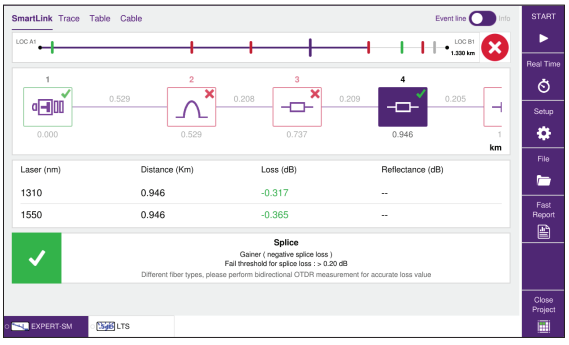


See information the way you want to

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.

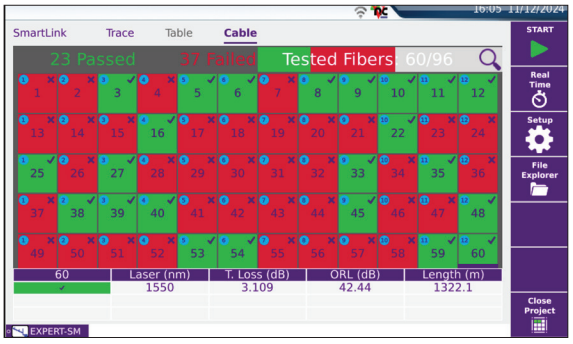
Take the headache out of trace analysis

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



Specifications (Typical at 25°C)

General			
Size (w x h x d)	128 x 134 x 40 mm (5.04 x 5.28 x 1.58 in)		
Weight	0.4 Kg (0.88 lb)		
Operating Temperature	0 to +50°C (+32°F to +122°F)[10]		
Storage Temperature	-20°C to +60°C (-4°F to 140°F)		
Humidity	5 to 95% (without condensation)		
OTDR			
Sampling Points	Up to 256,000 acquisition points		
Sampling Resolution	4 cm		
Distance Accuracy[1]	± (0.5 m + sampling resolution + 0.001% x distance)		
Attenuation Linearity	± 0.03 dB/dB		
Reflectance Accuracy	± 2 dB		
Modules Variant	4100 A	4100 B	4100 C
Central Wavelengths[2]	1310 ± 20 nm[11]	1310 ± 20 nm[11]	1310 ± 20 nm[2]
	1550 ± 20 nm[11]	1550 ± 20 nm[11]	1550 ± 20 nm[2]
	1625 ± 15 nm[2]	1625 ± 10 nm[2]	1625 ± 10 nm[2]
		1650 ± 10/-5 nm	1650 ± 15 nm[2]
RMS Dynamic Range[3]			
1310 nm	37 dB	42 dB	45 dB
1550 nm	36 dB	40 dB	45 dB[12]
1625 nm	36 dB	41 dB	44 dB
1650 nm		41 dB	42 dB
Live Wavelength Isolation Value	>45 dB; 1260 to 1620 nm		
Event Dead Zone[4]	0.7 m	0.65 m	0.65 m
Attenuation Dead Zone[5]	3 m	3 m	2.5 m
Splitter Attenuation Dead Zone[6]		45 m	20 m
Pulse Width	5 ns to 20 µs	5 ns to 20 µs	3 ns to 20 µs[9]
Distance Display Range	0.1 up to 260 Km	0.1 up to 260 Km	0.1 up to 400 Km

Specifications (Typical at 25°C) continued

Light Source	
Laser Safety Class	Class 1 - IEC 60825-1:2014
Wavelengths	1310/1550/1625 nm
Output Power Level	-3.5 dBm in CW mode
Modulation Frequency (Tone Generation)	270 Hz, 330 Hz, 1 KHz, 2 KHz
Stability (8 Hours)[8]	< ± 0.1 dB
Auto λ Mode	Yes (with VIAVI compatible power meters)
Power Meter (Hardware Option)	
Wavelengths	Calibrated 1310/1490/1550/1625/1650 nm
	Selectable : 1310 to 1650 nm in 1 nm step
Power Range	-3 to -55 dBm
Accuracy[7]	± 0.5 dB

Notes

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

Modules (all modules are delivered with a SC/PC or SC/APC test port adapter)	Order Number
4100 A OTDR – 1310/1550 nm – PC/APC	E4126A-PC/-APC
4100 A OTDR – 1310/1550/1625 nm – PC/APC	E4136A-PC/-APC
4100 B OTDR – 1310/1550 nm – PC/APC	E4126B-PC/-APC
4100 B OTDR – 1310/1550/1625 nm – PC/APC	E4136B-PC/-APC
4100 B OTDR – 1310/1550/Filtered 1650 nm – APC	E4138FB65-APC
4100 B OTDR – Filtered 1650 nm – APC	E4118FB65-APC
4100 C OTDR – 1310/1550 nm – PC/APC	E4126C-PC/-APC
4100 C OTDR – 1310/1550/1625 nm – PC/APC	E4136C-PC/-APC
4100 C OTDR – 1310/1550/Filtered 1650 nm – APC	E4138FC65-APC

Ordering Information continued

Hardware Option	
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

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.

VIAVI Care Support Plans

Increase your productivity for up to 5 years with optional VIAVI Care Support Plans:

- Maximize your time with on-demand training, priority technical application support and rapid service.
- Maintain your equipment for peak performance at a low, predictable cost.

Plan availability depends on product and region. Not all plans are available for each product or in every region. To find out which VIAVI Care Support Plan options are available for this product in your region, contact your local representative or visit: viavisolutions.com/viavicareplan

Features

*5-year plans only

Plan	Objective	Technical Assistance	Factory Repair	Priority Service	Self-paced Training	5 Year Battery and Bag Coverage	Factory Calibration	Accessory Coverage	Express Loaner
BronzeCare	Technician Efficiency	Premium	✓	✓	✓				
SilverCare	Maintenance & Measurement Accuracy	Premium	✓	✓	✓	✓*	✓		
MaxCare	High Availability	Premium	✓	✓	✓	✓*	✓	✓	✓

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