Datasheet: OptiFiber® Pro OTDR

Accelerates enterprise fiber troubleshooting and certification.

The OptiFiber Pro OTDR is the Tier 2 (extended) fiber certification solution and part of the Versiv™ Cabling Certification product family. The Versiv line also includes copper certification, OLTS and Wi-Fi analysis modules. Versiv is designed around the revolutionary ProjX™ management system and Taptive™ user interface. ProjX tracks jobs to ensure they're done correctly the first time, thus reducing rework. With the intuitive Taptive user interface, instrument set-up and operation are so simple, even operators with limited cabling skills can successfully test and troubleshoot a system. Analysis of measurement data and professional test reports are easy with the familiar LinkWare™ management software.

Get ready to overachieve.

Designed for enterprise fiber

As enterprise networks and datacenter architectures evolve, IT infrastructure administrators demand better OTDR technology to maintain fiber network performance. Many OTDRs (Optical Time Domain Reflectometers) used for fiber troubleshooting are designed for carriers and contain cumbersome and complicated features that enterprise users don't need. Few OTDRs are built with features and usability for enterprise network engineers, SAN designers and cable installers.

As enterprises consume more storage resources and adopt higher bandwidth (40G, 100G) datacenter architectures, the resilience of the cabling infrastructure becomes highly dependent upon maintenance tools to ensure fiber reliability. OptiFiber Pro is the industry's first purpose-built OTDR that meets the unique challenges of an enterprise fiber infrastructure. With its simple Taptive user interface and powerful feature set, the OptiFiber Pro turns anyone into an efficient and expert premise fiber troubleshooter or installer.

Unique features:

- Versiv enables users to accomplish more than ever with a cable tester, accelerating every step of the testing process
- ProjX management system eases tasks from initial set-up of a job to system acceptance. It eliminates redundant steps, and ensures that all tests are completed correctly the first time, and every time.
- Taptive user interface puts advanced data analysis and easy set-up and operation at the fingertips of of technicians of all skill levels.
- LinkWare management software provides unmatched analysis of test results and professional test reports

Performance:

- Test times as short as two seconds in Quick Test mode
- Quickly test datacenter fiber with pre-programmed settings
- Troubleshoot datacenter fiber links with short patch cables and many connectors because of ultra short dead zones
- Easily characterize all connectors, splices and areas of high loss with graphical EventMap™ view
- ProjX management system increases return on investment by enabling OTDR project sharing among users and different jobs
- Reduce network downtime by quickly and precisely identifying faults on all fiber types
- Built-in Visual Fault Locator (VFL) easily identifies damaged fibers.

Standards:

- Full OTDR capability that certifies fiber performance based on industry standards or customer specifications
- Complaint with ISO and TIA standards

Unique certification with flexibility and efficiency

An important aspect in maximizing an OTDR's value is to properly plan its day-to-day usage. With ProjX management system, OptiFiber Pro allows a project manager to define each user's role, settings and the associated tasks to be performed – transforming the OTDR into an all-in-one fiber testing tool complete with planning, inspection, certification and reporting.

Advantages:

- Powerful ProjX management system facilitates OTDR sharing with clear job assignment for each operator
- Easy monitoring of job progress with pass/fail results
- Built-in Visual Fault Locator (VFL) to facilitate troubleshooting
- On-screen report generation and upload to LinkWare™ application

Taptive user interface

Most OTDRs are designed for a myriad of applications, causing the user interface to be difficult to navigate and interpret. OptiFiber Pro has the Taptive user interface which combines the latest "gesture-based" interface technology with a capacitive touchscreen to deliver the most innovative and user-friendly OTDR.

View traces

Pinch and zoom in for trace detail
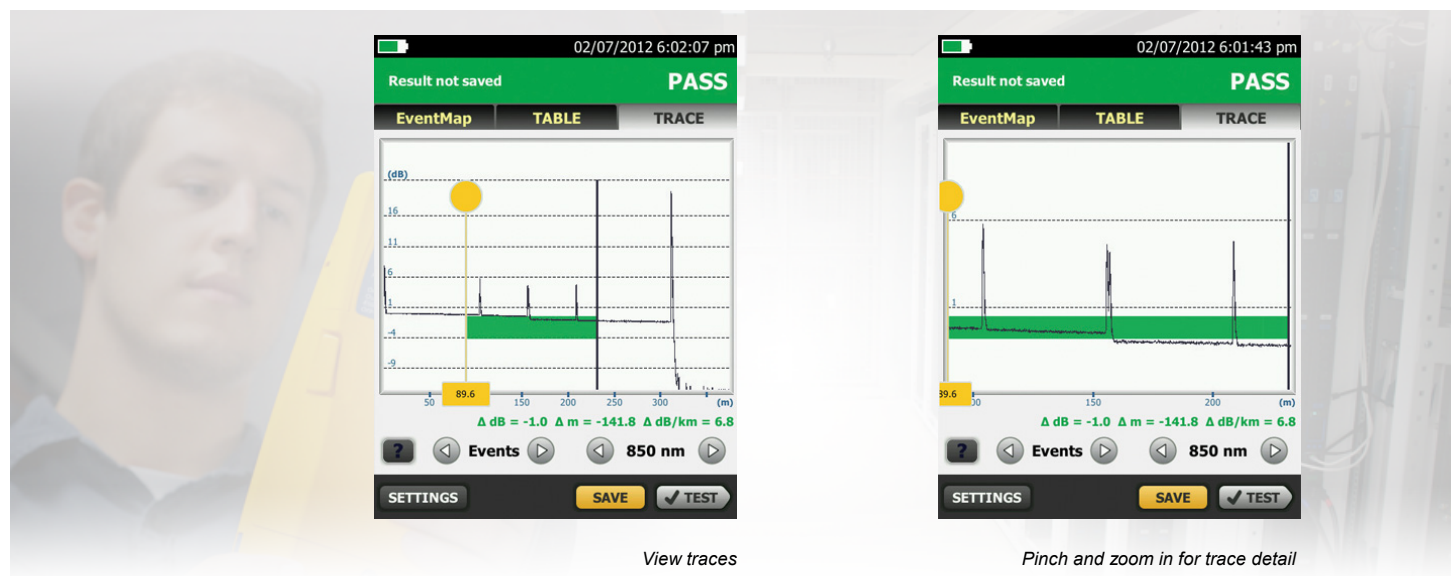
Optimized for the datacenter

Driven by server virtualization and multi-gigabit links between servers, networks and storage, the datacenter architecture employs more patch cords and dense topology connectors, rendering carrier-class OTDRs with long dead-zones ineffective. OptiFiber Pro not only makes fiber deployment in datacenters possible, but provides the highest level of accuracy for quick problem resolution.

Advantages:

- Ultra-short event and attenuation dead-zones precisely locates events and faults on fiber links
- Datacenter OTDR™ mode automatically sets the configuration to quickly test datacenter fiber
- The EventMap feature depicts fiber events in a way that requires no trace analysis expertise

**Extremely short event and attenuation dead zone**

The OptiFiber Pro leverages the most sophisticated optical technology to provide the shortest event dead zone (0.5 m typical for MM) and attenuation dead zone (2.5 m typical for MM and 3.6 m typical for SM) of any OTDR. This technological advancement allows OptiFiber Pro to detect and measure closely spaced faults where no other OTDR can in today's connector-rich datacenter and storage area network environments.

Extremely short event and attenuation dead zone

Two second trace per wavelength

Another breakthrough with OptiFiber Pro is the data acquisition speed. While in Quick Test mode, a complete set of data is acquired in as little as two seconds per wavelength. OptiFiber Pro then analyzes the data and displays it as an EventMap event, Table or Trace. The end result is less time spent testing and more time performing other tasks.
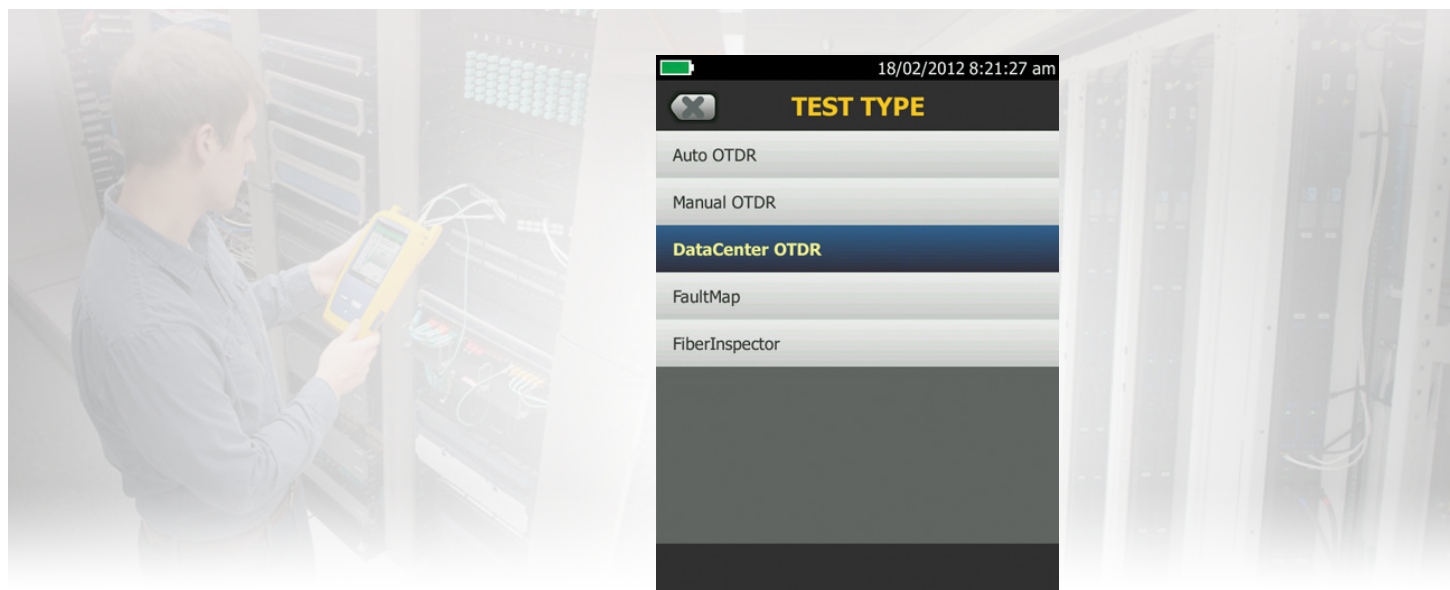
DataCenter OTDR mode

DataCenter OTDR™ mode

With a simple one-touch selection, users enter DataCenter OTDR mode – without setup time for fine tuning as needed in legacy OTDRs. DataCenter OTDR mode automatically detects OTDR parameters – end-detection algorithms, pulse widths – without getting confused by the short links or number of connectors.

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Graphical EventMap™ view

To eliminate the learning curve associated with reading an OTDR trace, OptiFiber Pro's advance logic automatically interprets the information to create a detailed and graphical map of events that includes connectors, splices and anomalies. To accommodate different preferences, users can easily switch between the EventMap, the Event Table and the Trace for test details. Any faulty events will be highlighted with RED icons to facilitate quick troubleshooting.

On-screen "help" suggests corrective action(s) for resolving fiber problems during each testing step. The "help" offered is context sensitive which allows users to quickly pinpoint possible resolutions. An easy-to-read, gray icon in the bottom, left-hand corner shows detailed corrective action recommendations.


Graphical EventMap™ view - PASS

Eventmap™ - FAIL. See Help icon for on screen corrective action.
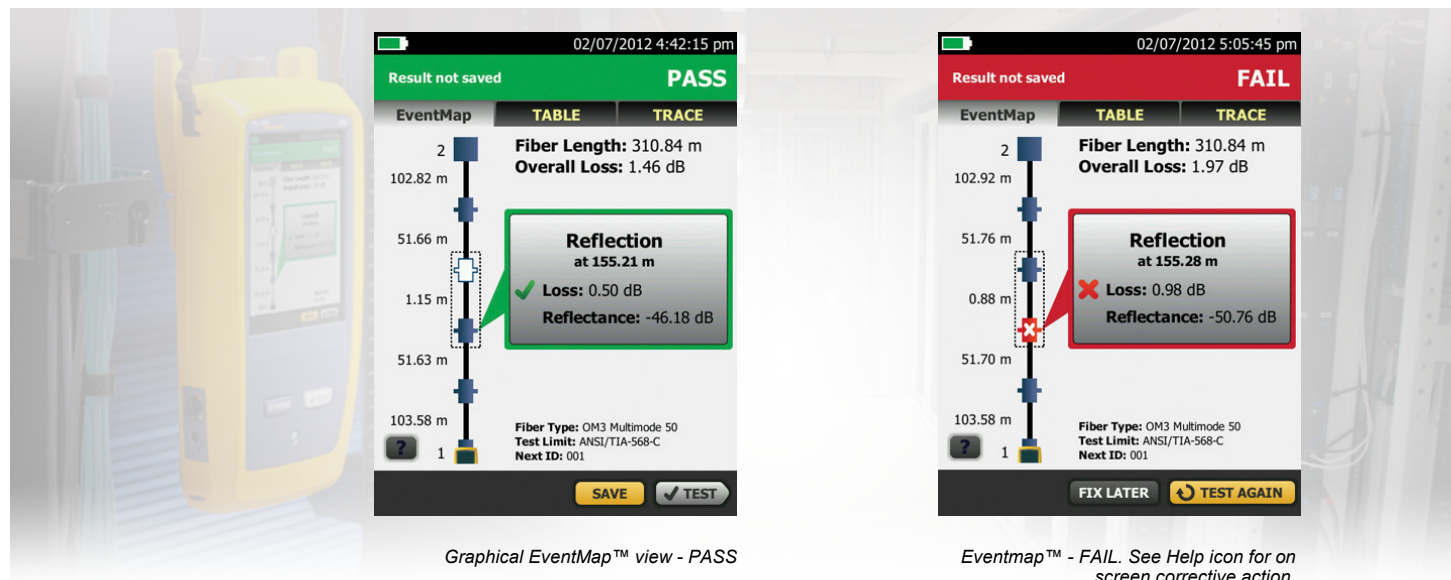
Dynamic project and user profile management with ProjX management system

OptiFiber Pro enhances job efficiency by allowing the project manager to create and manage operator and job profiles per project. Defined jobs or sets of cable IDs can be assigned to specific operators. The progress and status of each project can also be easily monitored.

ProJX: Dynamic project and user profile management

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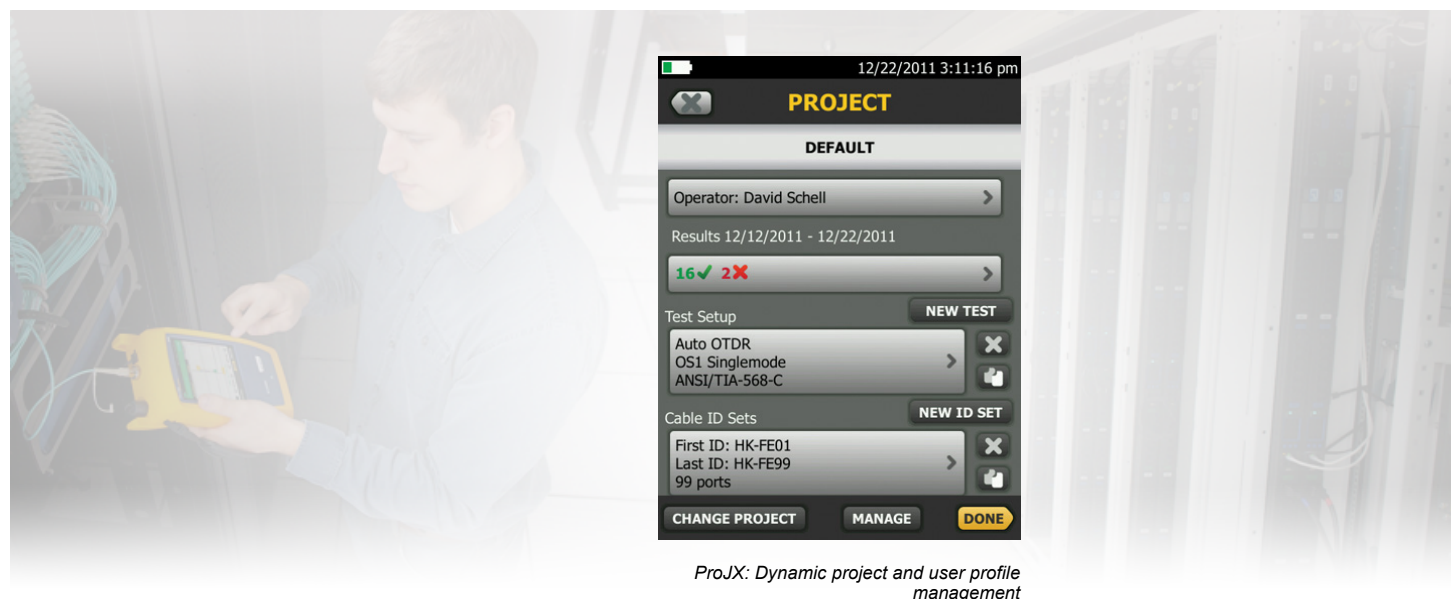
FiberInspector™ probe

OptiFiber Pro's video inspection system examines patch cords and patch panel bulkheads to avoid the number one cause of fiber link failure – contamination. Significant time is saved because the probe is inserted directly into the patch panel's bulkhead to examine installed fiber terminations without disassembling the patch panel. Technicians assign a pass or fail grade to the fiber, can add a comment and save it for use in certification reports.
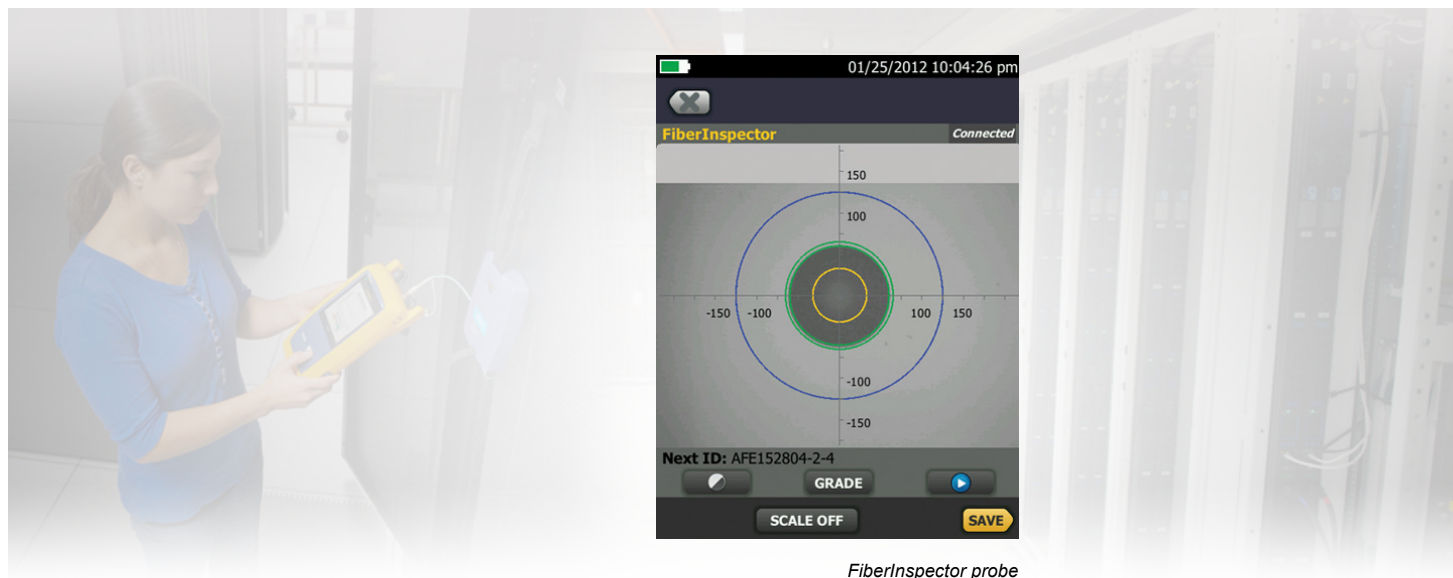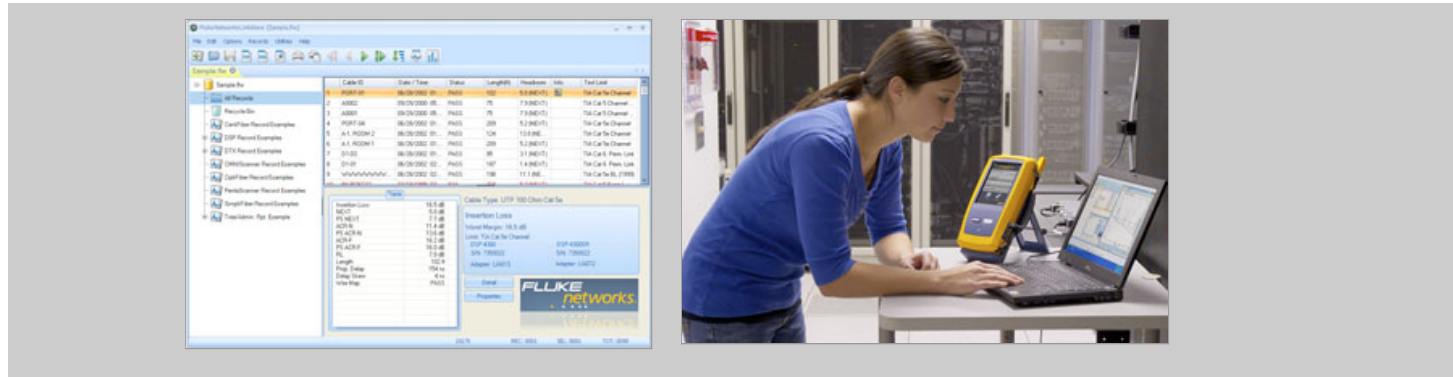

FiberInspector probe

LinkWare™ Management Software

With LinkWare management software, OptiFiber Pro users can easily access the ProjX management system data, generate reports and upgrade the software in their testers. Project managers have full capabilities to monitor workflow and consolidate test results. LinkWare stats, provides automated statistical reports. This application moves you above and beyond the page-per-link report to see your entire cabling infrastructure in one summary. It analyzes and transforms LinkWare test results into charts to reveal your cabling plant performance. The report even summarizes your entire cabling infrastructure in a compact, graphical format so it's easy to verify margins and spot anomalies. Previous versions of LinkWare are backwards compatible with new versions, so you can stay current and integrate tests from different testers into one-test report. Combine OLTS Tier 1 (basic) and OTDR Tier 2 (extended) fiber certification results in a single report while allowing management of multiple jobs simultaneously. Users can provide the finishing touch by adding their company logo to the report and before offering to their customers for system acceptance. Keep your business tools simple. No matter which Fluke Networks cabling certification tester you use, LinkWare reports it all.

LinkWare Report

Key OTDR specifications

	Mutimode module	Singlemode module	Quad module
Wavelengths	850 nm +/- 10 nm 1300 nm +35/-15 nm	1310 nm +/- 25 nm 1550 nm +/- 30 nm	850 nm +/- 10 nm, 1300 nm +35/-15 nm, 1310 nm +/- 25 nm, 1550 nm +/- 30 nm
Compatible fiber types	50/125 µm 62.5/125 µm	Singlemode	50/125 µm, 62.5/125 µm, Singlemode
Event dead zone [1]	850 nm: 0.5 m (typical) 1300 nm: 0.7 m (typical)	1310 nm: 0.6 m (typical) 1550 nm: 0.6 m (typical)	850 nm: 0.5 m (typical), 1300 nm: 0.7 m (typical), 1310 nm: 0.6 m (typical), 1550 nm: 0.6 m (typical)
Attenuation dead zone [2]	850 nm: 2.5 m (typical) 1300 nm: 4.5 m (typical)	1310 nm: 3.6 m (typical) 1550 nm: 3.7 m (typical)	850 nm: 2.5 m (typical), 1300 nm: 4.5 m (typical), 1310 nm: 3.6 m (typical), 1550 nm: 3.7 m (typical)
Dynamic range [3, 5, 6]	850 nm: 28 dB (typical) 1300 nm: 30 dB (typical)	1310 nm: 32 dB (typical) 1550 nm: 30 dB (typical)	850 nm: 28 dB (typical), 1300 nm: 30 dB (typical), 1310 nm: 32 dB (typical), 1550 nm: 30 dB (typical)
Max distance range setting	40 km	130 km;	MM: 40 km, SM: 130 km
Distance measurement range [4, 5, 7, 8, 9, 10]	850 nm: 9 km 1300 nm: 35 km	1310 nm: 80 km 1550 nm: 130 km	850 nm: 9 km, 1300 nm: 35 km, 1310 nm: 80 km, 1550 nm: 130 km
Reflectance range [4, 5]	850 nm: -14 dB to -57 dB (typical) 1300 nm: -14 dB to -62 dB (typical)	1310 nm: -14 dB to -65 dB (typical) 1550 nm: -14 dB to -65 dB (typical)	850 nm: -14 dB to -57 dB (typical), 1300 nm: -14 dB to -62 dB (typical), 1310 nm: -14 dB to -65 dB (typical), 1550 nm: -14 dB to -65 dB (typical)
Sample resolution	3 cm to 400 cm	3 cm to 400 cm	3 cm to 400 cm
Pulse widths (nominal)	850 nm: 3, 5, 20, 40, 200 ns 1300 nm: 3, 5, 20, 40, 200, 1000 ns	3, 10, 30, 100, 300, 1000, 3000, 10000, 20000 ns	850 nm: 3, 5, 20, 40, 200 ns, 1300 nm: 3, 5, 20, 40, 200, 1000 ns, 1310/1550 nm: 3, 10, 30, 100, 300, 1000, 3000, 10000, 20000 ns
Test time (per wavelength)	Auto setting: 5 sec (typical) Quick test setting: 2 sec (typical) Best resolution setting: 2 to 180 sec FaultMap setting: 2 sec (typical), 180 sec (max) DataCenter OTDR setting: 1 sec (typical at 850 nm), 7 sec (max) Manual setting: 3, 5, 10, 20, 40, 60, 90, 120, 180 sec	Auto setting: 10 sec (typical) Quick test setting: 5 sec (typical) Best resolution setting: 5 to 180 sec FaultMap setting: 10 sec (typical), 180 sec (max) DataCenter OTDR setting: 20 sec (typical), 40 sec (max) Manual setting: 3, 5, 10, 20, 40, 60, 90, 120, 180 sec	Auto setting: MM - 5 sec (typical) SM – 10 sec (typical) Quick test setting: MM – 2 sec (typical) SM – 5 sec (typical) Best resolution setting: MM – 2 to 180 sec SM – 5 to 180 sec FaultMap setting: MM – 2 sec (typical) MM – 180 sec (max) SM – 10 sec (typical) SM – 180 sec (max) DataCenter OTDR setting: MM – 1 sec (typical at 850 nm) MM – 7 sec (max) SM – 20 sec (typical) SM – 40 sec (max) Manual setting: MM - 3, 5, 10, 20, 40, 60, 90, 120, 180 sec SM - 3, 5, 10, 20, 40, 60, 90, 120, 180 sec

1. Measured at 1.5 dB below non-saturating reflection peak with the shortest pulse width. Reflection peak < -40 dB for multimode and < - 50 dB for singlemode.

2. Measured at +/- 0.5 dB deviation from backscatter with the shortest pulse width. Reflection peak < -40 dB for multimode and < - 50 dB for singlemode.

3. For typical backscatter coefficient for OM1 fiber: 850: -65 dB, 1300: -72 dB.

4. Typical backscatter and attenuation coefficients for OM2-OM4 fiber: 850 nm: -68 dB; 2.3 dB/km: 1300 nm: -76 dB; 0.6 dB/km.

5. Typical backscatter and attenuation coefficients for OS1-OS2 fiber: 1310nm : -79 dB; 0.32 dB/km; 1550 nm: -82 dB; 0.19 dB/km.

6. SNR=1 method, 3 minute averaging, widest pulse width. 7. 850 = 9 km typical to find the end or 7 km typical to find a 0.1 dB event (with a maximum of 18 dB attenuation prior to the event).

8. 1300 = 35 km typical to find the end or 30 km typical to find a 0.1 dB event (with a maximum of 18 dB attenuation prior to the event).

9. 1310 = 80 km typical to find the end or 60km typical to find a 0.1 dB event (with a maximum of 20 dB attenuation prior to the event).

10. 1550 = 130 km typical to find the end or 90 km typical to find a 0.1 dB event (with a maximum of 18 dB attenuation prior to the event).

11.Does not include index of refraction error and does not include automatic event location error.

12. dB variation per 1 dB step.

13. Applies along the trace backscatter within the distance range in which the OTDR can find a 0.1 dB event.

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Additional Key specifications

Magnification	~ 200X with OptiFiber Pro Display
Light source	Blue LED
Power source	TFS mainframe
Field of View (FOV)	Horizontal: 425 µm, Vertical: 320 µm
Minimum detectable particle size	0.5 µm
Dimensions	Approximately 6.75 in x 1.5 in (1175 mm x 35 mm) without adapter tip
Weight	200 g
Temperature range	Operating: 32°F to 122°F (0 °C to +50 °C), Storage: -4°F to +158°F (-20°C to +70°C)

On/Off control	Mechanical switch and a button on the touch screen
Output power	316 µW (-5 dBm) ≤ peak power ≤ 1.0 mW (0 dBm)
Operating wavelength	650 nm nominal
Spectral width (RMS)	±3 nm
Output modes	Continuous wave Pulsed mode (2 Hz to 3 Hz blink frequency)
Connector adapter	2.5 mm universal