

# Datasheet: Fiber OneShot™ PRO Singlemode Fiber Distance and Fault Locator; Fiber QuickMap™ Multimode Fiber Distance and Fault Locator

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Fiber OneShot™ PRO and Fiber QuickMap™ measure length and identify high loss events on single mode (Fiber OneShot PRO) and Multimode (Fiber QuickMap) fiber optic cable. Like an OTDR, a laser sends light pulses through the fiber and measures the power and timing of light reflected from high loss connections and splices, and the end of the fiber.

They are very simple to use:

1. Turn on the unit.
2. Connect your fiber to the SC connector on the unit (optional adapters for LC, FC and ST, are available) – remember to clean connector end faces first
3. Press 'Test'.
4. In about 5-6 seconds the unit displays loss and distance of the first incident detected. Additional incidents can be seen by pressing the up or down buttons. The unit automatically checks to make sure the fiber is not active before allowing the test to begin.

User-selectable loss and reflectance thresholds exceeded

Distance to incident being displayed; in this case the 4th of 4

LOSS LIMIT  $\Delta$   
REFLECTION LIMIT  $\Delta$   
**22096** m  
BREAK OR ENDRL **6.2** dB Loss  
▲ MORE ▼ 4 of 4

Scroll through all incidents

Loss measurement



## Locate Faults beyond the range of a Visual Fault Locator (VFL)

VFLs work well for exposed lengths of fiber near a patch panel by illuminating bad connections and breaks. They are not very helpful for cable runs more than a few meters, or when the cable is not visible or accessible, or when the laser light can't penetrate the jacket.

Optical Time Domain Reflectometers (OTDR) provide graphical data and analysis along the entire length of a cable, way beyond the reach of a VFL, but they can be expensive and require more time and skill to operate.

Fiber OneShot PRO and Fiber QuickMap fill the gap between a VFL and an OTDR. These models have the simplicity of a VFL, and provide distance and power information on high losses, breaks, and the end of the fiber. They also identify live fiber.



| Feature                               | Typical VFL | Fiber OneShot PRO<br>Fiber QuickMap | Typical OTDR |
|---------------------------------------|-------------|-------------------------------------|--------------|
| Illuminates high loss areas           | ✓           |                                     |              |
| One button operation                  | ✓           | ✓                                   |              |
| Long range                            |             | ✓                                   | ✓            |
| Live fiber detection                  |             | ✓                                   | ✓            |
| Numeric distance display              |             | ✓                                   | ✓            |
| Numeric reflectance loss (dB) display |             | ✓                                   | ✓            |
| Graphic display of traces             |             |                                     | ✓            |
| Trace analysis                        |             |                                     | ✓            |
| Power Meter Options                   |             |                                     | ✓            |
| Data Storage                          |             |                                     | ✓            |
| Data Transfer to PC or Cloud          |             |                                     | ✓            |
| Cost                                  | Low         | Low-medium                          | High         |

**Applications:**

- Measure and locate high-loss splices
- Measure and locate high loss connections and breaks
- Locate the end of a fiber
- Find potential sources of high bit error rates caused by reflectance from dirty or poor connections
- Detects live optical signals before it begins testing

| Feature           | Fiber OneShot PRO   | Fiber QuickMap                  |
|-------------------|---|---------------------------------|
| Fiber type        | Singlemode  | Multimode                       |
| Fiber size        | 9/125µm   | 50/125µm and 62.5/125µm         |
| Output Wavelength | 1550nm. Compatible with standard PON wavelengths: 1310, 1490, 1550 and 1625nm | 850nm                           |
| Range             | up to 23,000 meters / 15 miles  | up to 1,500 meters / 4,921 feet |

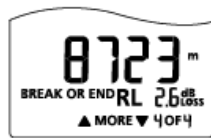
**Features common to both Fiber OneShot PRO and Fiber QuickMap**

- Quick set-up. Connect your fiber and press the Test button. No lengthy set-up necessary
- Find problems quickly. Six-second test time—no more blind troubleshooting that can waste hours
- Key information visible on a large display; power loss in db and distance in meters or feet
- Set loss and reflection limits
- Change the Index of Refraction (IOR) to improve fiber length accuracy
- Visible in dark areas. Backlighting display turns off automatically
- Removable SC adapter is easily cleaned
- Optional LC, ST and FT interchangeable adapters are available
- Long battery life, 1,500 tests (typical) from 2 AA alkaline batteries
- Rugged construction; vibration and drop tested to 1 meter



## When and Where to Use Fiber OneShot PRO and Fiber QuickMap

Fiber OneShot PRO provides immediate and in-depth visibility into a singlemode fiber cable (below). Fiber QuickMap operates the same, except on multimode fiber up to 1,500 meters / 4,921 feet.



The result loss of the fiber (RL) is 2.6dB.



The receive fiber adds 130m to the length measurement.



The end of the link. The length of the link (without the launch fiber) is 8463m.

Blinking

A bad splice on the fiber at 2450m caused a reflectance incident that is larger than -45dB (the default limit).

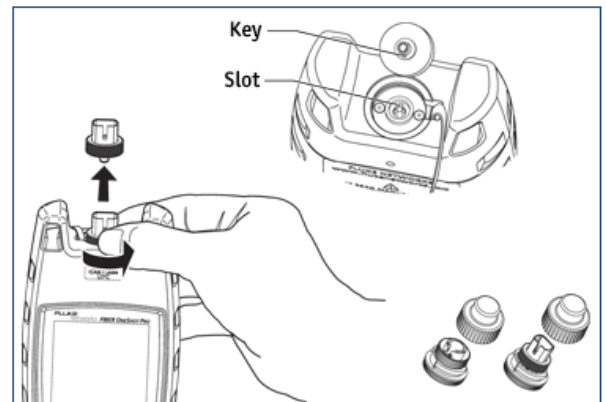
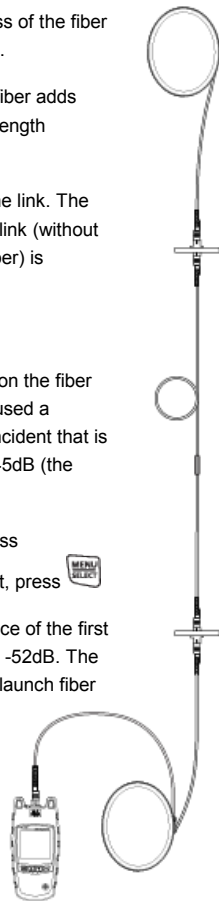


To see the loss measurement, press

The reflectance of the first connection is -52dB. The length of the launch fiber is 130m.



Incident 0 is the connection to the troubleshooter.



Screw on interchangeable SC adapter. Older models have rectangular latching style adapter.






## Specifications for Fiber OneShot™ PRO

|   |   |
|---|---|
| Output wavelength                               | 1550nm ± 20nm at 25°C   |
| Fiber Types Tested                              | 9/125µm, Single mode  |
| Maximum distance                                | 75,459 feet or 23,000 meters  |
| Detection of reflective incidents <sup>1a</sup> | -45dB default threshold (user-selectable: -24dB to -62dB in 1dB increments)   |
| Maximum reflectance measurement                 | -24dB   |
| Live fiber detection                            | Detects optical signals from 1250nm to 1625nm and shows ACTIVE LINE if a signal is there. Looks for a signal every 3 seconds after the first detection. +7dB maximum input power. |

## Specifications for Fiber QuickMap™

|   |   |
|---|---|
| Output wavelength                               | 850nm ± 10nm  |
| Fiber Types Tested                              | 50/125µm or 62.5/125µm multimode  |
| Maximum distance                                | 1500 meters or 4921 feet  |
| Detection of reflective incidents <sup>1b</sup> | -35dB default threshold (User selectable: -20dB to -45dB in 5dB increments)   |
| Maximum reflectance measurement                 | -20dB   |
| Live fiber detection                            | Detects optical signals from 600 nm to 1050nm and shows ACTIVE LINE if a signal is there. Looks for a signal every 3 seconds after the first detection. +7dB maximum input power. |
| Detection of loss incidents <sup>2</sup>        | 0.70dB default threshold (user-configurable from 0.5dB to 6.1dB in 0.2dB increments)  |
| Reflectance accuracy <sup>3</sup>               | ± 4dB   |
| Dynamic range                                   | 11dB  |

## Specifications common to both

|  |   |
|--|---|
| Dimensions   | 17.5cm H, 7.8cm W, 3.8cm D, .35kg weight including batteries  |
| Operating temperature with the battery             | 0°C to 50°C   |
| Non-operating temperature                          | -20°C to 60°C   |
| Operating relative humidity (without condensation) | 95% (10°C to 35°C) 75% (35°C to 40°C) uncontrolled < 10°C   |
| Vibration  | Random, 5Hz to 500Hz, MIL-PRF-28800F CLASS 2  |
| Shock  | 1-meter drop test   |
| Altitude   | 9,842 feet/3,000 metres   |
| EMC  | EN 61326-1:2004   |
| Battery type                                       | 2 AA alkaline batteries (no battery charger)  |
| Battery life                                       | More than 1,500 tests (typical)   |
| Laser safety and classification                    | Class 1 CDRH Complies to EN 60825-2   |
| LCD type   | Backlit black and white (segments)  |
| Index of refraction range                          | 1.45 to 1.5 (factory default is 1.468)  |
| Auto turnoff                                       | Automatically turns off after 5 minutes if no keys are pressed. Backlight turns off first.  |
| Factory calibration interval                       | None  |
| Maximum number of incidents shown                  | 9   |
| Testing speed                                      | 6 seconds typical testing time  |
| Connector  | Removable/cleanable SC adapter, UPC   |
| Loss Threshold Setting                             | 1.5dB default warning threshold (user-configurable from 0.5dB to 6.1dB in 0.1dB increments)   |
| Distance accuracy                                  | $\pm (1\text{m} + 0.1\% \times \text{length})$ for reflective incidents <sup>4</sup> $\pm (3\text{m} + 0.1\% \times \text{length})$ for non-reflective incidents <sup>4</sup> |
| Bulkhead quality                                   | If no fiber is attached or if the connector is dirty, the troubleshooter displays 0m or 0ft.  |
| Certifications and compliance                      |  Conforms to relevant European Union directives  |
|  |  Conforms to relevant Australian standards   |
|  |  Listed by the Canadian Standards Association CSA C22.2 No. 61010.1.04                     |
|  |  Conforms to FCC Rules, Part A, Class A  |
|  |  <b>RoHS</b><br>Compliant RoHs   |

1a. Detects the location of an incident that has a reflectance larger than -62dB. Detects incidents >2m after the bulkhead connector when the bulkhead reflectance is <35dB. Detects incidents >3m after an incident when the incident reflectance is <35dB.

1b. Finds and gives the location of an incident that has a reflectance larger than -55dB. Detects incidents >1m after the bulkhead connector when the bulkhead reflectance is 3 m after an incident when the incident reflectance is .

2. Detects incidents >10m after the bulkhead connector or any prior incident when the bulkhead reflectance is <-35dB and the reflectance of any prior incident is <-35dB. The maximum link loss prior to the incident is -7dB

3. With a backscatter coefficient of -63dB at 850nm using a calibrated -14dB reference.

4.  $\pm$  user-configurable Index of Refraction (IOR) error  $\pm$  the incident location error.

## Fiber OneShot™ PRO Ordering Information

| Model         | Description   |
|---------------|---|
| FOS-S         | Fiber OneShot™ PRO. Includes single mode fiber fault locator unit, screw on interchangeable SC adapter, 4-language Quick Reference Guide (manuals in 9 languages available on-line), safety instruction manual, and batteries.  |
| FOS-100-S     | Fiber OneShot™ PRO-Kit. Includes single mode fiber fault locator unit, screw on interchangeable SC adapter, UPC-UPC 2-meter patch cord, carrying case, 4-language Quick Reference Guide (manuals in 9 languages available on-line), safety instruction manual, and batteries. |
| FOS-100-S-VFL | Fiber OneShot™ PRO-Kit with VisiFault. Includes all the items in the FOS-100-S plus the VisiFault Visual Fault Locator with 2.5 mm universal adapter.   |
| FOS-SFP-PM    | Fiber OneShot™ PRO-SC-Kit with SimpliFiber Pro— Includes all the items in the FOS-100-S plus SimpliFiber Pro optical power meter and SC adapter.  |

## Fiber QuickMap™ Ordering Information

| Model         | Description  |
|---------------|--|
| FQM-M         | Fiber QuickMap™. Includes multimode fiber fault locator unit, screw on interchangeable SC adapter, 4-language Quick Reference Guide (manuals in 9 languages available on-line), safety instruction manual, and batteries.  |
| FQM-100-M     | Fiber QuickMap™ Kit. Includes multimode fiber fault locator unit, screw on interchangeable SC adapter, UPC-UPC 2-meter patch cord, carrying case, 4-language Quick Reference Guide (manuals in 9 languages available on-line), safety instruction manual, and batteries. |
| FQM-100-M-VFL | Fiber QuickMap™ Kit with VisiFault. Includes all the items in the FQM-100-M plus the VisiFault Visual Fault Locator with 2.5 mm universal adapter.   |
| FQM-SFP-M     | Fiber QuickMap™ Kit with SimpliFiber Pro— Includes all the items in the FOS-100-M plus SimpliFiber Pro optical power meter and SC adapter.   |

## Accessories for Single Mode Fiber OneShot PRO™

| Model         | Description  |
|---------------|--|
| SRC-9-SCSC    | Single mode test reference cord (2m) for testing SC terminated fibers (SC/SC)        |
| SRC-9-SCSCAPC | Single mode test reference cord (2m) for testing SC APC terminated fibers (SC/SCAPC) |
| SRC-9-SCLCAPC | Singlemode test reference cord (2m) for testing LCAPC terminated fibers (SC/LCAPC)   |
| SMC-9-SCLC    | Single mode launch cable 9µm SC/LC   |

LC Adapter for older meters with a rectangular optical port. Use SMC-9-SCLC SC launch cable.

## Accessories for Multimode Fiber QuickMap™

| Model         | Description  |
|---------------|--|
| MRC-50-SCSC   | Multimode test reference cord (2m) for testing 50µm SC terminated fibers (SC/SC)   |
| MRC-50-LCLC   | Multimode test reference cord (2m) for testing 50µm LC terminated fibers (LC/LC)   |
| MRC-50-FCFC   | Multimode test reference cord (2m)for testing 50µm FC terminated fibers (FC/FC)    |
| MRC-50-STST   | Multimode test reference cord (2m) for testing 50µm ST terminated fibers (ST/ST)   |
| MRC-625-SCSC  | Multimode test reference cord (2m) for testing 62.5µm SC terminated fibers (SC/SC) |
| MRC-625-LCLC  | Multimode test reference cord (2m) for testing 62.5µm LC terminated fibers (LC/LC) |
| MRC-625-FCFC  | Multimode test reference cord (2m)for testing 62.5µm FC terminated fibers (FC/FC)  |
| MRC-625-STST  | Multimode test reference cord (2m) for testing 62.5µm ST terminated fibers (ST/ST) |
| MMC-50-SCSC   | Multimode launch cable 50µm SC/SC  |
| MMC-50-SCLC   | Multimode launch cable 50µm SC/LC  |
| MMC-50-LCLC   | Multimode launch cable 50µm LC/LC  |
| MMC-50-SCST   | Multimode launch cable 50 µm SC/ST   |
| MMC-50-STST   | Multimode launch cable 50µm ST/ST  |
| MMC-50-SCFC   | Multimode launch cable 50µm SC/FC  |
| MMC-50-FCFC   | Multimode launch cable 50µm FC/FC  |
| MMC-50-SCE2K  | Multimode launch cable 50µm SC/E2K   |
| MMC-62-SCSC   | Multimode launch cable 62.5µm SC/SC  |
| MMC-62-SCLC   | Multimode launch cable 62.5µm SC/LC  |
| MMC-62.5-LCLC | Multimode launch cable 62.5µm LC/LC  |
| MMC-62-SCST   | Multimode launch cable 62.5µm SC/ST  |
| MMC-62.5-STST | Multimode launch cable 62.5µm ST/ST  |
| MMC-62-SCFC   | Multimode launch cable 62.5µm SC/FC  |
| MMC-62.5-FCFC | Multimode launch cable 62.5µm FC/FC  |

LC Adapters for older meters with a rectangular optical port. Use MMC-50-SCLC or SC to LC launch cables or MMC-62-SCLC launch cable

## Accessories for Fiber OneShot PRO™ and Fiber QuickMap™

| Model       | Description  |
|-------------|--|
| NFC-Kit-Box | Fiber Optic Cleaning Kit   |
| PA-SC       | Replacement screw on SC adapter (use SC-ADAPTER for older meters with rectangular style) |
| PA-LC       | Screw on LC adapter (not for older meters with rectangular style)                        |
| PA-FC       | Screw on interchangeable FC adapter (not for older meters with rectangular style)        |
| PA-ST       | Screw on interchangeable ST adapter (not for older meters with rectangular style)        |
| SC-ADAPTER  | Replacement rectangular latch style SC adapter (for older meters with rectangular style) |