Test & Inspection Equipment
Utility FTTx Solutions

AFL

TEST & INSPECTION EQUIPMENT

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 ISG-UTL-FTTx Revision 2023-06-29

FTTx
Test & Inspection



Products and SOLUTIONS from AFL

Tools for seamless network deployment

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FTTx PON Deployment Made Easy

Challenges of Utility FTTx PON

Streaming 4K video, online gaming, work-from-home initiatives, richer internet content and more are fueling a global demand for higher bandwidth FTTx PON deployments. When it comes to test and inspection of these networks, there are many challenges unique to each PON application.

Trained Salesforce

With the increasing demand for FTTx PON installations, the labor need has never been higher and is expected to grow. Maintenance and troubleshooting of FTTx PON networks can be challenging, especially for large-scale installations in remote or hard-to-reach locations. Less experienced workers need to be equipped with training and easy-to-use tools for energy providers to stay competitive.

Purpose-Built Tools

PON troubleshooting is an important part of FTTx maintenance. Rugged, durable tools designed and developed for specific PON applications and environments are necessary for quick detection, identification, and resolution of network issues.

Speed of Operations

When a network fails, the time to identify, diagnose and resolve issues is critical. Troubleshooting tools should be intuitive to configure, easy to understand, provide rapid results and identify corrective actions.

How can AFL Help

AFL offers intelligent, intuitive tools to reduce the complexity of troubleshooting, cutting training costs and shortening the time spent troubleshooting network issues.

Typical Utility FTTx PON deployments include three distinct applications. While Larger electric utilities may have dedicated groups requiring dedicated tools for each application, smaller utilities may need a more all-in-one solution for a workforce responsible for all three applications.

Where to Use?

Understanding a tools application is as vital as its selection

Fiber Installation Verification

Typical Situations:

- Verify Split Ratio of installed splitters
- Verify link length/locate breaks
- Cleaning failed connectors
- Inspect and pass/fail certify connector end-faces
- Inspect and pass/fail certify MPO connector
- Inspect and clean connectors with excess loss or reflectance

Recommended Products:

- ✓ **FlexScan® FS200** SM OTDR
- ✓ **FOCIS Flex** Fiber Optic Connector Inspection System
- ✓ **FOCIS Lightning®2** Multi-Fiber Optic Connector Inspection System
- ✓ Fiber Optic Cleaning & Accessories

PON Verification and Activation

Typical Situations:

- Verify continuity and visually locate faults
- Measure downstream power levels
- Verify downstream power levels before connecting & activating ONT
- Last mile fiber drop troubleshooting with splitter continuity & ONT connectivity checks

Recommended Products:

- ✓ **FlowScout™** PON Optical Power Meter
- ✓ **FlexScan® TS100** FTTH PON Troubleshooter

PON Troubleshooting

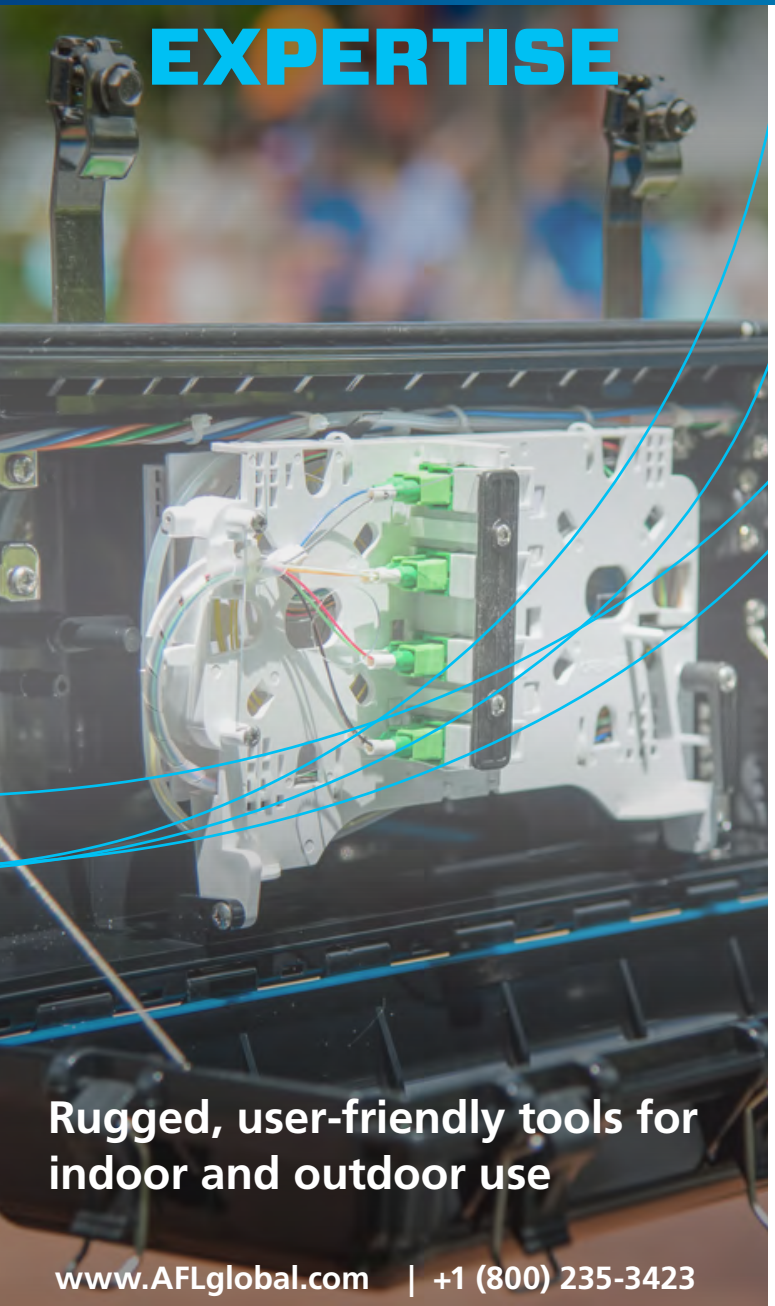
Typical Situations:

- Identify Active ONU
- Identify & locate sources of excess loss or reflectance (poor splices, dirty / damaged / mismatched connections, macro-bends, faulty splitters)
- Identify and Evaluate Live/In-service PONs

Recommended Products:

- ✓ **FlowScout™** PON Optical Power Meter
- ✓ **FOCIS Lightning®2** Multi-Fiber Optic Connector Inspection System
- ✓ **VFI4** Visual Fault Identifier
- ✓ **OFI-BIPM & OFI-BIPMe** Optical Fiber Identifiers
- ✓ **FlexScan® TS100** FTTH PON Troubleshooter
- ✓ Fiber Optic Cleaning & Accessories

Fiber Installation Verification



Application: Verify Fiber Infrastructure

Fiber verification is the process of testing and verifying the continuity and performance of the fiber optic system after it has been installed. This includes testing, verifying connectors and other hardware used to join the fibers. By performing continuity, attenuation, return loss and insertion loss testing, technicians can identify and correct any issues with the system before they become major problems.

Common Problem

Failed splices, dirty damaged connectors and more can all lead to a failed network infrastructure. AFLs comprehensive tools reduce the complexity of network verification and let novice technicians easily identify problems quickly saving costs on service time.

Solution

When verifying network service using an OTDR, technicians can perform the following tasks:

- Verify Insertion loss
- Verify splitter performance
- Verify splice loss
- Test for macrobends/microbends

When inspecting connectors, a connector inspection system can be used to inspect fiber optic connectors for damaged or dirty connections. Cleaning products can be used to quickly and easily clear debris and restore your network performance.

AFL offers the easiest to use solutions reducing the complexity of installation verification. Our palm-sized tools are designed to help reduce the time spent on verification with fast testing and results sharing.

Icon-based LinkMap® View

One Button Operation

Clear Insights

FlexScan® FS200 Single-mode OTDR

with SmartAuto® & LinkMap®

Quick Links

- Specification ▸
- Web ▸
- Quote ▸

Applications

- PON or point-to-point network verification & troubleshooting
- Visually pinpoint location of macro-bends or breaks

Highlights

- Single, dual, or triple wavelength SM OTDR
- FleXpress mode completes OTDR tests in <5 seconds
- Easy to understand LinkMap results with Pass/Fail indications

Key Benefits

- Auto setup is easy to use by novice installers and detects multiple wavelengths automatically
- Easily paired to AFL's FOCIS series of inspection products, ensuring technicians have everything they need to locate and quickly resolve network issues

FOCIS Flex

Fiber Optic Connector Inspection System

Quick Links

- Specification ▸
- Web ▸
- Quote ▸

Applications

- Inspect connectors on patch cords or in bulkhead adapters
- Network installation, troubleshooting, and maintenance

Highlights

- One button to auto-focus, center, capture, analyze, save
- IEC, IPC, and user-defined pass/fail analysis
- Untethered, compact, hand-held inspection

Key Benefits

- Tether-free, self-contained inspection with color LCD
- Small, lightweight, and fast with excellent repeatability and accuracy

FOCIS Lightning®2

Multi-Fiber Optic Connector Inspection System

Quick Links

- Specification ▸
- Web ▸
- Quote ▸

Applications

- Inspect multi-fiber and single-fiber connectors and adapters
- Data center network installation, turn-up, & troubleshooting

Highlights

- Large, simple-to-use HD touch screen
- Self-contained, tether-free, compact, hand-held inspection solution
- Auto-focus and auto-centering for fast, easy inspection
- Up to 8x zoom for enhanced fiber end-face viewing

Key Benefits

- 100x faster than manual single-fiber inspection; inspect 1,000 connectors in 3.2 hours
- Quickly document connector end-face conditions before and after cleaning

Push-type Cleaners: One-Click Cleaners

Quick Links
Specification ▸
Web ▸
Quote ▸

Highlights

- 775+ Cleans (One-Click® Cleaner PRO)
- 500+ Cleans (One-Click Cleaner)
- Integrated guide cap for cleaning speed & efficiency (PRO)
- Ergonomic design with single action cleaning

Push-type Cleaners: NEOCLEAN Cleaners

Quick Links
Specification ▸
Web ▸
Quote ▸

Highlights

- 750+ cleans
- Simple push action
- Replaceable cleaning cartridge

Reel-type Cleaners: CLETOP Series

Quick Links
Specification ▸
Web ▸
Quote ▸

Highlights

- 400 Cleans
- Roll and cassette tape replacement
- Side or top mounted tape advancement

FCP Field-portable Connector Cleaning Kits

Quick Links
Specification ▸
Web ▸
Quote ▸

Complete Cleaning

- One-Click® Cleaners
- FCC2 Cleaning Fluid
- FCC3 Debris Destroyer®
- FiberWipes
- Cletop SB
- Duffle Bag

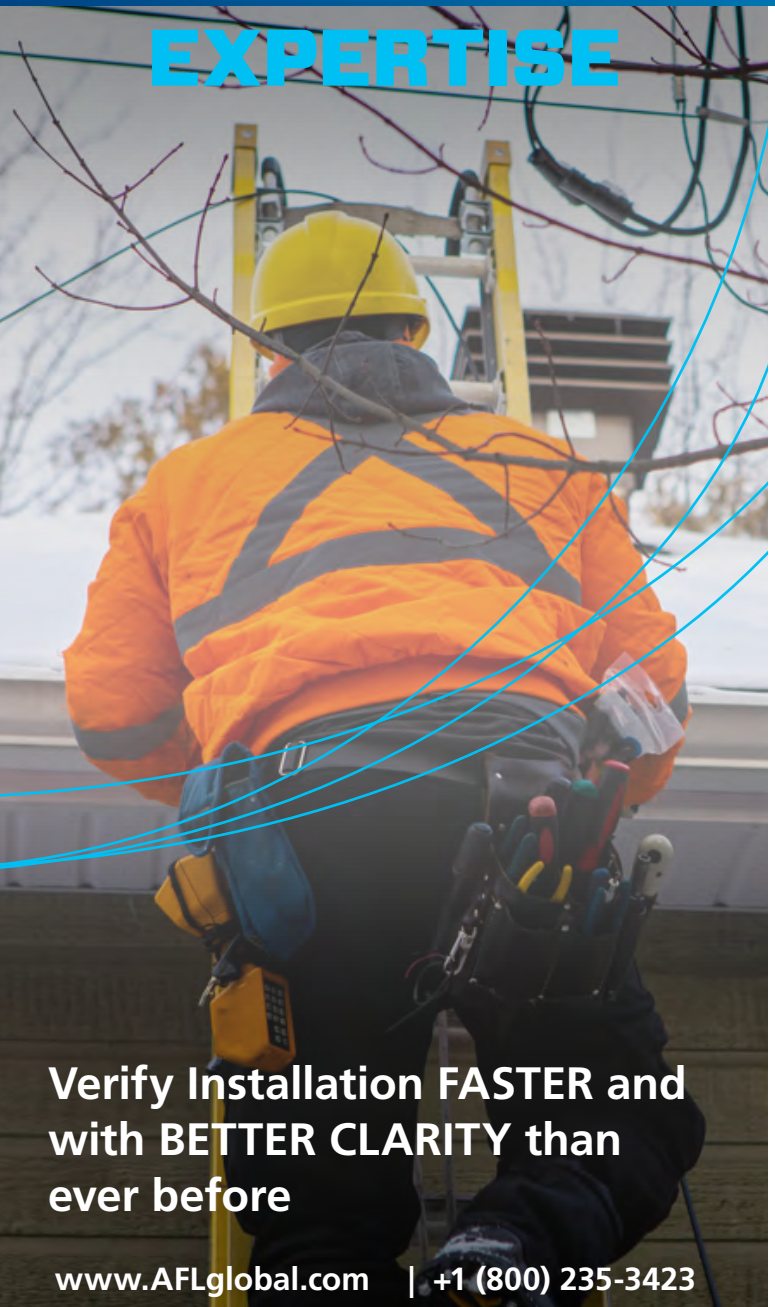
Enterprise Easy-Access Cleaning Kit

Quick Links
Specification ▸
Web ▸
Quote ▸

Complete Cleaning

- One-Click Cleaners
- FCC2 Cleaning Fluid
- FCC3 Debris Destroyer
- Connector Cleaning Sticks
- CCTS-12 for 1 .25 mm ferrule in adapters or sockets (LC, MU, etc.)
- CCTS-25 For 2 .5 mm ferrule in adapters or sockets (SC, FC, ST, etc.)
- Cletop-S
- Soft Carry Case

PON Verification & Activation



Application: Verify PON Signal Levels

PON verification and activation ensure that the system is functioning properly and delivering the required level of service to end users. With proper testing of various components, network administrators can ensure that the PON system is delivering high quality, reliable service to end users.

Common Problem

PON signal levels should be verified to ensure that a network is properly installed and performing within specification. If those signal levels are too low or too high, problems should be addressed before activation.

Solution

A PON troubleshooter can help a technician verify signal levels downstream from the OLT. Our FlowScout™ PON Optical Power Meter can measure power levels upstream to the ONT and downstream from the OLT to verify end-to-end connectivity

Common Problem

Specific wavelengths should also be measured to make sure they are present, operating within acceptable levels, ensure data is being transmitted correctly and that there is no interference. Multiple services can exist on the same PON, so specific wavelengths must be used correctly when transmitting data.

Solution

Using tools such as troubleshooter or power meter, a technician can test each wavelength and ensure network compliance.

AFL offers the easiest to use solutions reducing the complexity of verification and activation. Our solutions have instant-on capabilities that allow for ultra-fast detection of problems and test results in seconds.

- Fast Test Results
- Automated Setup
- Intuitive and User-Friendly

FlowScout™

PON Optical Power Meter

Quick Links

- FlowScout Specification ▸
- Web ▸
- Quote ▸

Applications

- Detect and measure FTTX PON upstream and downstream signals
- Guarantee optimal network power levels in both directions
- Verify both upstream and downstream power levels without ever going inside

Highlights

- Detect multiple wavelengths automatically
- Detects GPON, XGS-PON and video signals all at once
- QR code feature easily collects and transfers test data via smart devices

Key Benefits

- Easy to use – simple interface with clear Pass/Fail results, no setup required, inexperienced technician friendly
- PON future proof – measures XG-PON, XGS-PON, 10GEPON, B/E/GPON Video and RFoG

FlexScan® TS100

FTTH PON Troubleshooter

Quick Links

- Specification ▸
- Web ▸
- Quote ▸

Applications

- Troubleshoot PONs or Point-to-Point networks from one end
- Verify GPON, video and XG/XGS-PON or 10GEPON power levels

Highlights

- Pocket-sized, rugged, touchscreen activated PON troubleshooter
- Measure downstream PON power, link length, loss and ORL in under three seconds with the push of a button
- Displays link length, loss, ORL and pass/fail results
- Single-ended test reduces time and cost

Key Benefits

- Faster readings, quick evaluation
- Automated setup, ultra-fast fault location and color-coded icons enable novices to diagnose and repair single-mode networks like experts

PON Network Troubleshooting

EXPERTISE

Find Complex PON Network Faults Easily & Quickly

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Application: Troubleshooting, Fixing, Verification

With troubleshooting, network problems can be identified and repaired ensuring that the PON continues to deliver high-quality, reliable service to the end users.

Common Problem

Optical problems caused by failed splices, dirty damaged connectors and more can all lead to service outages.

Solution

Determine if the downstream power level is adequate. A PON troubleshooter can help a technician verify signal levels downstream from the OLT. A PON Optical Power Meter can measure power levels upstream to the ONT and downstream from the OLT to verify end-to-end connectivity.

Common Problem

Repairing faults is a step-by-step process. Are their signal levels present at the customer premise? There may be something wrong downstream. If upstream testing is fine, then there could be problems with the ONT or something inside the customer's home.

Solution

When verifying further network connectivity issues, an inspection system can be used to inspect fiber optic connectors for damaged or dirty connections. Fiber cleaners can be used to quickly and easily clear debris and restore your network performance.

AFL offers the easiest to use solutions reducing the complexity of troubleshooting and repair. We design easy-to-use tools to help keep your network running trouble-free with the least amount of time spent at the customer premise.

- **Compact**
- **Fast results**
- **No Training Required – Easy Use**

VFI4

Visual Fiber Identifier

Quick Links

- Specification ▸
- Web ▸
- Quote ▸

Applications

- Identify and trace fibers during activation & installation
- Identify poorly mated connectors
- Verify AFL's FASTConnect® field-installable connector installation
- Find faults inside OTDR dead zones

Highlights

- Eye-safe Class 3R visible red laser source, 650 nm
- Output power of 5.0 mW with 10 km range
- VFI4-L is available with low output power of 1.0 mW with 4 km range

Key Benefits

- Quickly identify fiber issues impossible to see with the naked eye
- Locate macrobands or errors with high-loss fusion splices
- Cost-effective way to see defects in fiber cables10GEPON, B/E/GPON Video and RFoG

OFI-BIPM/BIPMe

Optical Fiber Identifiers

Quick Links

- Specification ▸
- Web ▸
- Quote ▸

Applications

- Maintenance & troubleshooting of fiber optic networks
- Identification of live fibers or trace fibers
- Confirm the presence of optical signals in specific fibers during installation, maintenance, rerouting & restoration

Highlights

- World-class signal detection sensitivity
- Only Identifier on the market to work with bend-insensitive fibers
- Positive stop trigger lock for optimum detection

Key Benefits

- Assures live fibers are not connected
- Provides the ability to trace fiber end-to-end
- Detects 270Hz, 330Hz, 1kHz and 2 kHz tones, traffic, or CW signals indicating signal direction

FlexScan® TS100

FTTH PON Troubleshooter

Quick Links

- Specification ▸
- Web ▸
- Quote ▸

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Product Installation, Training and SUPPORT

Comprehensive, full circle support covering pre/post-sales and technical assistance through customer service.

Quick Links

Sales Support ▶	+1 (800) 235-3423 (Option 4)
Tech Support ▶	+1 (800) 235-3423 (Option 3)
Service Request ▶	+1 (800) 235-3423 (Option 2)

From product training through service and support, AFL offers the highest after-sales service in the industry. We have regional representatives across the country to help get your team trained, our products integrated and have you up and running promptly.

360° Support

Our dedicated U.S.-based technical support team is a phone call away and ready to help with any problems you may have over the life of the product. From hardware troubleshooting and software test result management to repair assistance, we can help.

AFL has authorized product calibration/repair facilities in the USA, Europe and Asia Pacific ready to serve while offering the fastest turnaround time of any splicer manufacturer in the event a repair is needed. We have dedicated phone support to help with technical product questions whether in the field or a data center.

We also have you covered globally. Fujikura Europe LTD is an Authorized European Repair and Calibration facility for AFL Test and Inspection products and can be contacted directly for service. Fujikura Asia LTD is an Authorized Asia Pacific Calibration facility for AFL Test and Inspection products and should be contacted directly for product calibrations.

AFL is committed to getting you up and running and maintaining the health of your products with full 360° service and support.

Resources

Sales and Support Contacts

Sales Support ▶	+1 (800) 235-3423 (Option 4)	Sales@AFLglobal.com
Tech Support ▶	+1 (800) 235-3423 (Option 3)	AFLtesttechsupport@AFLglobal.com
Service Request ▶	+1 (800) 235-3423 (Option 2)	AFLEquipmentService@AFLglobal.com

Post-Sales Support

Product Registration ▶

Software Updates ▶

Calibration and Repair ▶

Videos for Fusion Slicer Systems ▶

Videos for Test & Inspection Equipment ▶

Videos for Cleaning Supplies ▶

Product Related Collateral

Test & Inspection Buyer's Guide ▶

Inspection Adapter Tips Catalog ▶

Test Ports Adapters Catalog ▶

Cleaning Supplies Catalog ▶

Selection Guide: Inspection Tips & Cleaning Supplies for FO Connectors & Adapters ▶