SEPTEMBER 2018 EDITION 205

# FIS COMMUNICATOR

FIBER INSTRUMENT SALES, INC. | WWW.FIBERINSTRUMENTSALES.COM | 1-800-5000-FIS (347)

# Certifying Optical Networks

## Explaining The Differences Between Tier 1 and Tier 2 Fiber Optic Testing

***Robert Licari***
*Product Line Manager for Test Equipment*

*Prior to joining FIS in 2016 as a sales engineer, Bob gained his knowledge of the fiber optic industry as a field characterization technician for several years. During that time he conducted comprehensive testing to certify newly installed optical networks prior to them being turned up. It's this testing experience that led Bob to eventually become the product line manager of test equipment where he drives sales by working to develop and evolve the FIS test equipment product line. He also assists John Bruno with the FIS University training classes around the country.*

*Bob is a native of Central New York and obtained his bachelors and masters degrees at St. John Fisher College in Rochester, NY.*

**Shown are FIS Test Equipment: Thunder Bolt, E-Series Power Meter & Light Source, and TalkSet**

We can all agree that it's great having today's high bandwidth optical networks to fulfill our needs within our daily lives. While the capabilities that these networks provide cannot be matched, their higher sensitivity to back reflection and attenuation can be a constant concern. As the internet takes over more and more of our daily regimens in business, entertainment, etc. this concern becomes elevated.

For these reasons, end users are depending on the consistent reliability of these networks to support their day to day use. This makes selecting the proper test equipment so much more important today than it was a decade ago.

Within the industry there are two different levels or tiers of certifying a fiber optic network drawn up by the Telecommunications Industry Association (TIA): Tier 1 and Tier 2 testing. Depending which tier is required, specific test equipment is needed. Tier 1 is a basic test for attenuation, continuity, and polarity. Many times this testing can be achieved with a simple power meter and light source. Tier 2 is a bit more comprehensive. It involves an Optical Time Domain Reflectometer (OTDR) and in addition to measuring attenuation, it can measure back reflection, optical return loss (ORL) and give a pass/fail status for each event on the cable. This is what needs to be done to "certify" a network. The OTDR has the ability to characterize events and faults on the cable with several connections and shorter jumpers connecting patch panels. Because most OTDRs are available with on board power meters, light sources, ORL readings, and distance readings, it makes this piece of test equipment an all in one tester for Tier 2 Certification.

Another testing standard to be aware of is the International Electrotechnical Commission (IEC) standard for connector end face inspection. In this standard, there are four distinct zones that have an allotment or tolerance for each. Zone "A", which is the zone encompassing the core of the fiber cannot have any debris or defects in it. The other zones each have a specific tolerance and if any tolerance is exceeded the image will be marked failing. There are many digital inspection probes that come with software that analyzes an image to the IEC standard. This is a requirement needed by some customers who request images of each connector end face and whether it passed or failed when measured up to the IEC. This stresses the importance of proper cleaning techniques.

On the inside you will find one of our latest test equipment offerings to service the type of testing I have just outlined. If you need any further assistance please feel free to contact FIS ***1-800-5000-FIS(347) or visit our website at fiberinstrumentsales.com***.

**Continued on the inside**

The Solutionists™
Fiber Instrument Sales, Inc.
161 Clear Road, Oriskany, NY 13424
***www.fiberinstrumentsales.com***

# FIS Continues to Move Forward with T

We meet the ever changing demands of the industry.

Announcing A New Addition To The FIS Family Of Products!

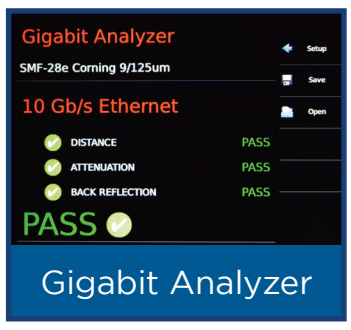
# THUNDERBOLT

## 1 UNIT - 7 CRITICAL FIBER OPTIC TESTS

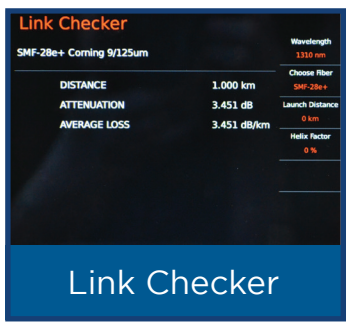
*A certification solution for contractors, supporting FIS FTTx Zeus Solution*

**$3,900.00**

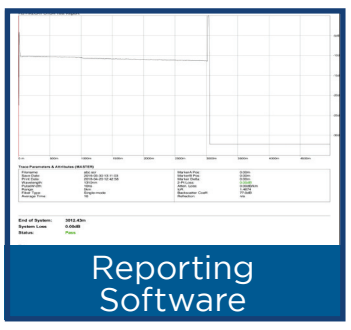

| | |
|---|---|
| Dynamic Range | 38dB |
| Screen | 6.5" color |
| Pulse Widths (ns) | 10, 50, 100, 500, 1,000, 2,500, 5,000, 10,000, and 20,000 |
| Storage | 4 GB |

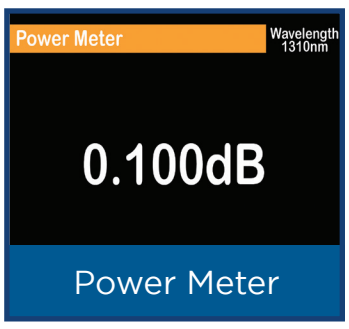

Gigabit Analyzer



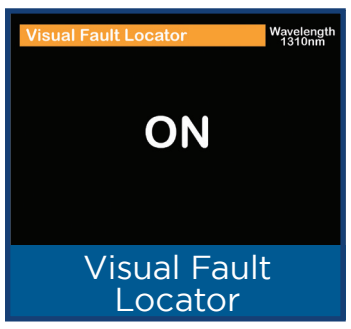

Link Checker



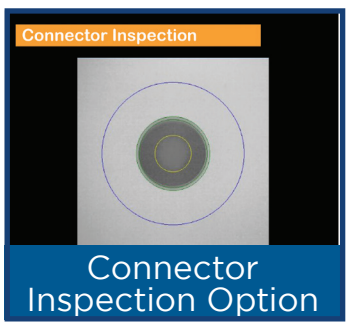
Reporting Software




Power Meter




Visual Fault Locator




Connector Inspection Option

**PN:** F1-DI1000

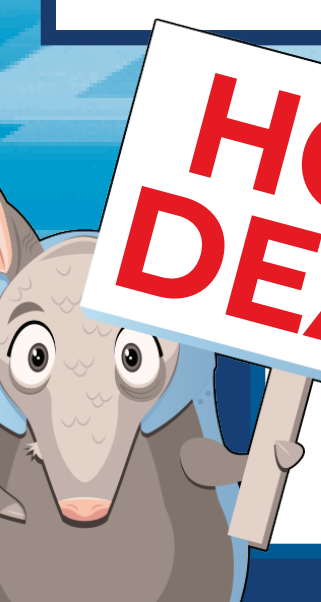
## Contact us for more information or to order

# 1-800-5000-FIS(347)

### USE AS OTDR

The Thunder Bolt is a full featured OTDR with trace overlay and event chart options displaying ORL and dB loss values. Models are available in 1310/1550nm Singlemode, 850/1300nm Multimode and 850/1300/1310/1550nm Quad wavelength configurations. With a dynamic range of 38dB, the OTDR is an outstanding value in optical testing performance for standard testing. Additional features include an optional Video Inspection Probe, Power Meter, Link Checker and Gigabit Ethernet verification test. The Thunder Bolt can quickly and accurately verify a break, end of fiber or highly reflective event such as a contaminated (dirty) connector.

Within the SM OTDR application the user can scan with a single wavelength or both 1310/1550nm to overlay traces on trace screen for easy macro-bend detection. In OTDR project mode user can test multiple fibers quickly one after another and there is no need to waste time renaming files. Collected files are easily transferred to PDF format to meet customer certification requirements. The Thunder Bolt is Made in the USA.



**HOT DEAL**

***Free FIS AC4 Fusion Splicer***

*with purchase of 1,250 FIS Splice-On Connectors.*

***Call Your FIS Sales Representative TODAY!***

***1-800-5000-FIS(347)***

*minimum purchase 1,250 pieces FIS Splice-On Connectors

# Test Equipment

fis The Solutionists™

## NFOC2018 CONFERENCE

**October 2nd - 3rd, 2018**
The Franklin Institute
Philadelphia, PA

## Same Great Conference, New Venue

FTTx | FIBER OPTICS | TELECOMMUNICATIONS | BROADBAND | WIRELESS

### ABOUT NFOC 2018

Join us for the 11th Annual NFOC 2018 Conference at The Benjamin Franklin Institute Science Museum and Center of Science Education, in historic Philadelphia, Pennsylvania.

In addition to fiber, telecom, broadband and wireless applications, this year's Conference will showcase FTTx products and that industry's key manufacturers and service providers.

### WHO SHOULD ATTEND?

- Fiber network designers, planners and technicians
- MDU owners, operators and managers
- ILEC's, CLEC's, MSOs and municipal utility managers

NFOC 2018 will offer a variety of free training sessions and seminars. Please continue checking the Event Schedule for information and updates.

**Registration is now open.**
General attendance to NFOC is free for industry professionals

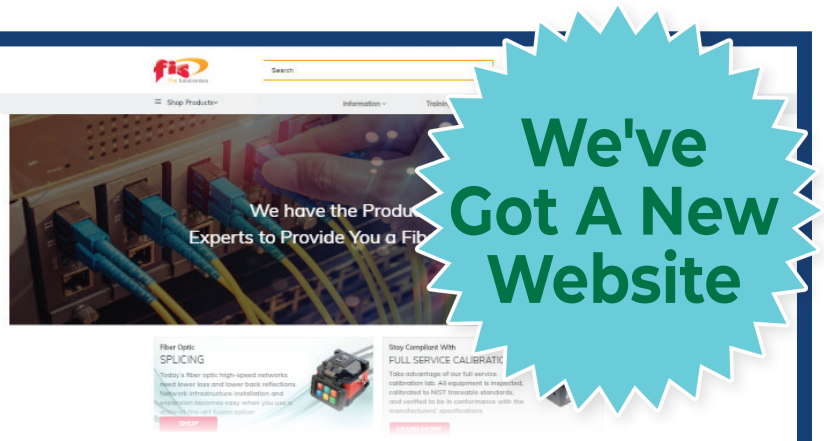
**FREE Fiber 1 Course brought to you by FIS**
Normally a $450.00 value

**FOR MORE INFORMATION OR TO REGISTER VISIT US AT**
**www.nfoc.org**

## SEE YOU THERE!

### FALL 2018 Tradeshow Schedule

September 9 - 13 | BICSI Fall | San Antonio, TX
September 24 - 26 | ECOC | Rome, Italy
October 2 - 3 | NFOC | Philadelphia, PA
October 8 - 12 | WISPAPALLOOZA | Las Vegas, NV
October 22 - 25 | Cable Tec Expo | Atlanta, GA
November 1 | BICSI CALA PR | San Juan, Puerto Rico



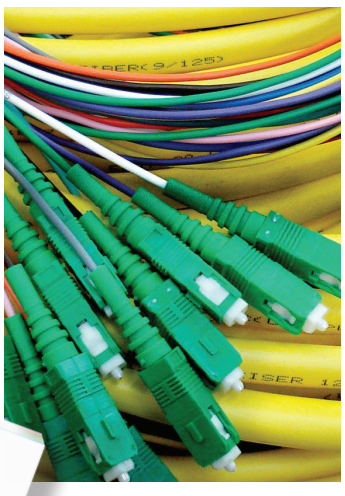

## We hope you like the changes.

We're excited to announce that our new and re-freshed website is live. The updated site includes changes to navigation, with dropdown menus for both mobile and desktop versions. We've also improved the structure of our content. You'll receive more information from a quick read. There's a whole host of smaller but impactful changes. They will make our site easier to use. Enjoy your new experience with Fiber Instrument Sales site.

**SHOP ONLINE**
**www.fiberinstrumentsales.com**

## The Industries *Fastest* Delivery For Fiber Optic Assemblies

### Standard configurations typical lead-time 2-4 days



- Convert your next project to "plug n' go" by having your cable assemblies preterminated by FIS.
- Expert technicians prepare assemblies from 1-fiber patch cords to 144-fiber assemblies.
- Create the perfect assembly for your application.

- Simplex Patchcords
- Unclipped Duplex Patchcords
- Clipped Duplex Patchcords
- Loosetube Cable Assemblies
- Ribbon Fanout Assemblies
- Node Cable Assemblies
- Distribution - Indoor / Outdoor Assembles

**FASTEST DELIVERY**

**Online Custom Configurator**

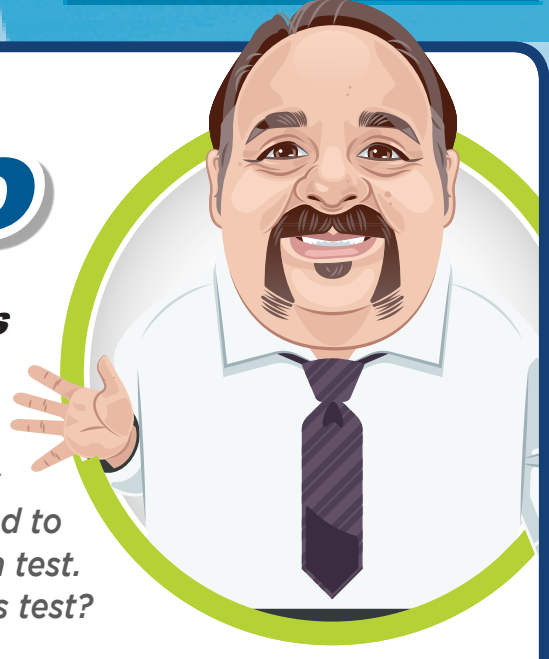
For special applications, visit our site
www.fiberinstrumentsales.com or call an FIS representative 1-800-5000-FIS(347)

## Order your FREE FIS Catalog today!

**www.fiberinstrumentsales.com**

# Ask Bruno

**Vice President of Technical Services**



***I have been testing fiber (OTDR and OLTS) for years but just recently I was asked to do a Fiber Characterization test. What is different about this test?***

More and more I am seeing requests for Fiber Characterization. Fiber Characterization is performed on installed Singlemode fiber cables to determine the integrity of the fiber's performance and transmission rate. The owners of the fiber need to know what performance they can expect from all of their installed fibers. Once the fiber is characterized it can be decided what services can be provided. If a fiber is determined to be underperforming then appropriate actions can be taken, such as replacement or repair of the offending fiber(s). A desired transmission rate of at least OC-48 is typically required.

Fiber Characterization testing can and may be performed several times over the fiber's lifetime, after fiber installation and before system turn up, verifying maintenance or repairs, after purchasing and taking possession of a system and during carrier upgrades are several reasons to test an optical system.

There are commonly 5 tests performed when characterizing the performance of a fiber. The tests are Optical Time Domain Reflectometer (OTDR), Optical Return Loss (ORL), Optical Loss testing using an Optical Loss Test Set (OLTS, Power Meter and Light Source), Chromatic Dispersion (CD), and Polarization Mode Dispersion (PMD). IEC 61300-3-35 End face inspection testing can also be required for Fiber Characterization Testing.

Fiber Instrument Sales is finalizing the curriculum for a 2 day Fiber Characterization class that will teach the attendee the theory and hands on applications for this series of tests. Classes will be listed soon on the Fiber Instrument Sales Web Site.

Visit us online to view our full library of instructional videos! YouTube

# FIS UNIVERSITY

## PREMIER FIBER OPTIC EDUCATION

FIS University was founded in 1985 by Fiber Instrument Sales, the nation's leading supplier and manufacturer of fiber optic components. FIS University's instructors have trained more than 20,000+ professionals world-wide in both basic and advanced techniques related to connectorization, test and fiber optic splicing.

## *Fiber Optics I and II – Two Days*

In two consecutive days, students gain hands-on experience with the essential tools used by network installers and technicians. Classes cover fiber optic splicing, termination methods, network testing and more. Fiber Optics I and II is great for beginners as well as seasoned professionals who want to sharpen their skills.

- September 10-12, 2018 | Brightside, NY
- September 11-12, 2018 | Albuquerque, NM
- September 24-26, 2018 | Brightside, NY
- October 8-10, 2018 | Brightside, NY
- October 22-24, 2018 | Brightside, NY
- November 5-6, 2018 | Chicago, IL
- November 7-8, 2018 | Detroit, MI
- December 10-11, 2018 | Boston, MA
- December 12-13, 2018 | NYC, NY

## *Custom and Corporate*

*Are you looking for fiber optic training uniquely geared for your organization?*

FIS University has taught thousands of customized courses at companies and organizations around the world.

***View the full curriculum and register online at www.fisuniversity.com***

# Product of the Month

## FIBER OPTIC CLEANING STATION


**$265.00**

*PART NUMBER F16714MPO*

### FEATURES

- Standard kit contents: (100) 4"x4" Clean Dry Wipes, 2 oz. Cleaning Solution, Auto-Advance Connector Cleaner, 2.5mm & 1.25mm back plane ferrule cleaning tools.
- Optional kits with MPO/MTP cleaning tool or choice of IBC™ Cleaners/AFL One Click Cleaners.

The FIS Fiber Optic Cleaning Station is a unique product that provides immediate access to cleaning supplies for technicians. These cleaning kits are wall mountable similar to First Aid kits found throughout many facilities. Open the top cover and find cleaning notes for technicians not familiar with fiber optics. Kits include cleaning instruments for both 2.5mm and 1.25mm ferrules on patch cords and through adapters in the back plane of enclosures. MPO/MTP cleaning tools are included in this kit as well. Special edition and custom kits are available.

For more information call or visit us online

**1-800-5000-FIS(347)**
**www.fiberinstrumentsales.com**

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# Fiber Optic Equipment Rentals

**Why buy expensive equipment for occasional use when you can rent it? Our Rental Program provides a great way to save!**

The FIS Rental Department offers OTDR's, Fusion Splicers and Test Sets, which you may rent for one, two or four-week rental periods. These units are well maintained and calibrated to ensure top performance.

Fusion splicers for rent include a cleaver and one spare set of electrodes. OTDRs for rent are supplied with a launch cable and required accessories.


### FUSION SPLICER RENTALS

AFL, SUMITOMO, OFS/FITEL and FIS

### OTDR RENTALS

AFL, EXFO, ANRITSU and FIS

### TEST EQUIPMENT RENTALS

EXFO, FLUKE, AFL and FIS

Additional Rental Equipment Available.
Visit us at

***www.fiberinstrumentsales.com***

For more information call or email

**1-800-5000-FIS(347)**
**rentals@fissales.com**

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