

# TFS-FS1

## Optical Leakage Detector

- Identify Fibers up to 300 Kilometers
- Long Distance and Local Applications
- Optimize Mechanical Splices and Connectors
- Find Breaks in Dark Buffered Fiber
- Locate Signals through Bulkheads / Dust Caps
- Audio / Visual Leak Indication
- Pinpoint Faults to Within Inches



(Patent Pending)

### Overview

The TFS-FS1™ Optical Leakage Detector is designed to locate energy leaks in fiberoptic systems due to splice loss, connector loss, breakage, or bending and to identify fibers over long distances.

This optical leakage detector is the most sensitive fiber light finding instruments on the market today. By simply sweeping over a fiber, the leak detector will give an audio and visual indication whenever it encounters a light loss point. Often performing the same function as a visible laser source, this product is used in OTDR dead zone areas or splice enclosures where exact pinpointing of a fault is critical.

The major advantage of the TFS-FS1 over a visible laser however is that it can “see” cable faults in bright room light and in many blue, green, and black coated fibers. Find light reflected from connectors mated in bulkhead adapters and even through some dust caps. Locate fibers at distances up to 300 kilometers, not just a few miles.

### Applications

#### RAW FIBER IDENTIFICATION (End Access, Short and long distance)

In applications where it is necessary to find a strand of fiber in a bundle and the user has access to fiber ends, the TFS-FS1 allows scanning of the bundle without the use of a clamping device or bare fiber adapter. In addition, because of its infrared operation, the TFS-FS1 can outperform visible laser sources by over 1000%.

#### RAW FIBER IDENTIFICATION (Side Access, Short and long distance)

In emergency applications where a fiber identifier is not available and it is necessary to find a strand of fiber, the technician may bend a fiber or fibers over an appropriate mandrel to induce a detectable leak. In this way, the TFS-FS1 Optical Leakage Detection may function as a fiber identifier.

# TFS-FS1

## Optical Leakage Detector

### **CONNECTOR PANEL PORT IDENTIFICATION (Short and long distance)**

In applications where it is necessary to find a specific connector port in a patch panel, the TFS-FS1 allows scanning of the entire face of the box without internal access and use of a clamping device or bare fiber adapter. In addition, because of its infrared operation, the TFS-FS1 can outperform visible laser sources by over 1000%.

### **FIBER BENDING LEAK DETECTION**

The TFS-FS1 can locate severe bending due to crimped, folded, or otherwise pinched fibers where a loss is created. While the function is similar to a visible laser in this application, the TFS-FS1 Optical Leakage Detector will work in bright indoor or outdoor applications without the need to block ambient light. In addition, because of its infrared operation, the TFS-FS1 will work with many blue, green, and black buffer coatings which block visible red laser light.

### **BROKEN FIBER LEAK DETECTION**

The TFS-FS1 can locate fully fractured fibers and again, while the function is similar to a visible laser in this application, the TFS-FS1 Optical Leakage Detector will work in bright ambient light conditions. Also, as with bending loss location, the probe will work with many blue, green, and black buffer coatings which block visible red laser light.

### **CONNECTOR END FACE SPLATTER DETECTION**

By probing connectors from the side with the TFS-FS1 Optical Leakage Detector, it is possible to identify damaged connector end faces by light they splatter from the normal emission cone without the need for a microscope.

### **SPLITTER TROUBLESHOOTING**

By scanning the secondary side of splitters, function may be verified in places where visible lasers will not function.

### **SUB-SURFACE FRACTURE DETECTION (Ceramic ferrule based connectors)**

By probing ceramic ferrule based connectors (ST, SC, FC, LC, MU, Military Termini, etc) from the side with the TFS-FS1 Optical Leakage Detector, it is possible to identify connectors where the fiber has either fractured inside the ferrule or where the fiber first meets the ferrule inside a connector. This is particularly common with anaerobic adhesive based connectorizations.

### **EPOXYLESS CONNECTOR LEAK DETECTION**

By probing epoxyless connectors from the side with the TFS-FS1, it is possible to identify connectors where the internal mechanical splice is inefficient by sensing light leaking through the ferrule or the connector itself.

### **MECHANICAL SPLICE LEAK DETECTION**

By scanning mechanical splices from the side with the TFS-FS1, it is possible to identify leaks either through the splice body or by light scattered into the jacket of the secondary fiber in the splice. Because of its infrared operation, the TFS-FS1 can outperform visible laser sources in this application by over 1000%.

### **RAW FIBER IDENTIFICATION (Side Access)**

By scanning the secondary side of connectorized bulkhead adapters in a patch panel, the technician may be able to locate worn or fractured alignment ferrules by virtue of the light scattered into the jacket of the secondary fiber.

### **FUSION SPLICE LEAK DETECTION**

By scanning fusion splices from the side with the TFS-FS1 Optical Leakage Detector, it is possible to identify damaged splices through the splice jacket. Because of its infrared operation, the TFS-FS1 can outperform visible laser sources in this application as well by over 1000%.

### **BULKHEAD ADAPTER ALIGNMENT FAILURE DETECTION**

By scanning the secondary side of connectorized bulkhead adapters in a patch panel, the technician may be able to locate worn or fractured alignment ferrules by virtue of the light scattered into the jacket of the secondary fiber.

# TFS-FS1

## Optical Leakage Detector

### ACCESSORIES

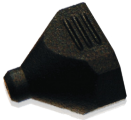
These accessories are available for the TFS-FS1 Optical Leakage Detector.

#### TFS-TSA™ Aerial Lens & Scope Kit (P/N 2011392000)



The TFS-TSA Aerial Lens and Scope Kit to identify aerial fiber breaks from the ground. The complete kit includes the aerial lens, red-dot scope, and narrow band IR filter (1550 nm).

#### TFS-F1280™ Filter Kit (P/N 0770005000)



The TFS-F1280 Filter Kit includes a wide band IR filter (1280 to 1620 nm).

#### TFS-F1310™ Filter Kit (P/N 0770005001)



The TFS-F1310 Filter Kit includes a narrow band IR filter (1310 nm).

#### TFS-F1490™ Filter Kit (P/N 0770005002)



The TFS-F1310 Filter Kit includes a narrow band IR filter (1490 nm).

#### TFS-F1550™ Filter Kit (P/N 0770005003)



The TFS-F1310 Filter Kit includes a narrow band IR filter (1490 nm).

### SPECIFICATIONS

Source Emitter	Laser
Source Port Style	ST, FC, SC, others available
Source Fiber Size (MAX)	100/140
Source Wavelength	1550 nm
Source Power	< -1 dBm
Source Stability	0.20 dB/8hr
Source Modulation	500 Hz
Bandwidth	5 nm
Operating Temperature	0° C to +50° C
Storage Temperature	-10° C to +60° C
Humidity	10% to 90%, non-condensing
Power	1 x 9 VDC Alkaline Battery
Battery Life	8 hours

### INCLUDES THE FOLLOWING:

TFS-FS1 Optical Leakage Detector  
Wide Band IR Filter (1280 to 1620 nm)  
9 V DC Battery  
User's manual on CD

### RELATED PRODUCTS:

TFS-201 Optical Power Source  
**P/N 2011386000**  
TFS-290 Optical Tracer Source  
**P/N 2011417000**  
TFS-291 Optical Tracer Source  
**P/N 2011417010**  
TFS-401 Optical Loss Test Kit  
**P/N 2011388000**  
TFS-FS1K505 Optical Leakage Detector Kit  
**P/N 2011391000**  
TFS-FS1K555 Optical Leakage Detector Kit  
**P/N 2011391010**  
TFS-FS1K557 Optical Leakage Detector Kit  
**P/N 2011391020**