

## Insertion Loss Test Kit for 850 and 1300 nm



### For Use With:

50, 62.5  $\mu\text{m}$  GiHCS® and 200  $\mu\text{m}$   
HCS® Cable Assemblies

SC, SC-RJ and LC Ofs Connectors

# Important Safety and Warranty Information

## Precautions To Take

### CAUTION:

Never look directly into the output ports of the Light Source or the ends of a fiber optic connector. The light may not always be visible, but can still cause damage to the eye. It is the responsibility of the user to ensure their eyes and the eyes of those around them are not exposed to light emitted from the Light Source or the optical connectors.

### IMPORTANT:

Keep all optical ends clean to avoid poor insertion loss readings and also to prevent contamination of the optical ports and detectors on the test units. Use isopropyl alcohol, lint free wipes, and filtered compressed gas to clean dirty connector ends. Always replace the protective dust caps onto the optical ports when not in use.

### WARRANTY:

One year Limited Warranty: OFS Test Kits are warranted against defective material and workmanship for a period of one year from the date of shipment to the original customer. Any product found to be defective within the warranty period would be repaired or replaced. In no case will OFS' liabilities exceed the original purchase price of the product. Exclusions: The warranty on your equipment shall not apply to defects resulting from the following:

- Unauthorized repair or modifications
- Misuse, negligence or accident

### CONTACT:

For technical support, please contact the sales representative in your region or call the factory:

Monday-Friday, 8:00 am-5:00 pm EST.

**888-438-9936** [Toll free in the US and Canada]

**860-678-0371** [International]

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## Complete Test Sets Sold Separately

All kits include:

- Light Source and Power Meter
- Owner's Manual

Each kit also includes custom components which correspond to the type of connector(s) being tested and the size of the fiber.

- Adapter Cap(s)
- Factory-Connectorized launch jumper(s)
- Splice Bushing(s)

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## Complete Test Sets Sold Separately

### Insertion Loss Test Kits

Each kit includes corresponding jumpers, splice bushings and adapter caps.

for this OFS HCS fiber size	with these OFS Crimp & Cleave Connectors	Part Number
50 $\mu\text{m}$	ST	P10188-10
62.5 $\mu\text{m}$	ST	P10188-10
200 $\mu\text{m}$	V-Pin	P10188-01
400 $\mu\text{m}$	V-Pin	P10188-02
200 $\mu\text{m}$	ST	P10188-03
400 $\mu\text{m}$	ST	P10188-04
200 $\mu\text{m}$	SMA	P10188-05
400 $\mu\text{m}$	SMA	P10188-06
200 $\mu\text{m}$	F07	P10188-07
200 $\mu\text{m}$ Multi Test Set	V-Pin, ST, SMA and F07	P10188-08
400 $\mu\text{m}$ Multi Test Set	V-Pin, ST and SMA	P10188-09
50 $\mu\text{m}$	SC, SC-RJ	P10188-14
62.5 $\mu\text{m}$	SC, SC-RJ	P10188-14
200 $\mu\text{m}$	SC, SC-RJ	P10188-14
50 $\mu\text{m}$	LC	P10188-15
62.5 $\mu\text{m}$	LC	P10188-15
200 $\mu\text{m}$	LC	P10188-15

## Specifications

### Optical Specifications

Light Source Emitter Type . . . . . LED  
 Power Meter Detector type . . . . . Germanium (Ge)  
 Calibrated wavelengths . . . . . 850 nm, 1300 nm  
 Accuracy (@25 °C and -10 dB/m) . . . . .  $\pm 0.25$  dB  
 Resolution . . . . . 0.01 dB

### General Specifications

Operating temperature range . . . . . -10 to +50 °C  
 Storage temperature range . . . . . -30 to +60 °C  
 Relative humidity range . . . . .  
 . . . . . 0 to 90% (non-condensing)  
 Dimensions (H x W x D) . . . . . 5.5 x 3.2 x 1.5 inches  
 Battery life . . . . .  
 . . . . . (Light Source) 30 hours typical  
 with 2 x "AA" alkaline.  
 . . . . . (Power Meter) 300 hours typical  
 with 2 x "AA" alkaline.

## Related Products and Accessories Sold Separately

### Accessories

Part Numbers	Description
P10199-10	SC Adapter Cap for Light Source
P10199-06	2.5 mm (for SC) Adapter Cap for Power Meter
P10199-11	LC Adapter Cap for Light Source
P10199-07	LC Adapter Cap for Power Meter
P25561-31	SC Splice Bushing
P25561-35	SC-RJ Splice Bushing
P61573	LC Splice Bushing
K19102	62.5 $\mu\text{m}$ Launch Mandrel
K22261	50 $\mu\text{m}$ Launch Mandrel

Part Numbers	Description
P10198-14	SC 50 $\mu\text{m}$ Launch Jumper
P10198-12	SC 62.5 $\mu\text{m}$ Launch Jumper
P10198-16	SC 200 $\mu\text{m}$ Launch Jumper
P10198-19	LC 50 $\mu\text{m}$ Launch Jumper
P10198-18	LC 62.5 $\mu\text{m}$ Launch Jumper
P10198-20	LC 200 $\mu\text{m}$ Launch Jumper

## Function Definitions and Descriptions



LC Connectors pictured.

\*Parts vary by test set connector type and size.

### Device Under Test

The connectorized cable assembly being tested.

### Light Source

Emits light at both 850 nm and 1300 nm wavelengths.

### Power Meter

Also known as a **Detector**, the device with a window display showing dB loss.

### Launch Jumper

A “golden” reference jumper assembly of known good quality. The fiber type of the launch jumper must be the same as the fiber type of the device under test. See “Related Products and Accessories” section for available launch jumper types.

### Adapter Caps

Screw onto output port of Light Source and detector head of Power Meter to allow for mating of connectors. See “Related Products and Accessories” section for available styles. Style of adapter cap should match the connector type of the device under test.

### Splice Bushing

Also often referred to as a mating adapter. Allows mating of two connectors. Style of splice bushing should match the connector type of the device under test. See “Related Products and Accessories” section for available splice bushings.

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## Function Definitions and Descriptions

### Power Switch ⓘ

Pressing this button turns the power meter on or off. The power meter will automatically turn itself off to conserve battery life if no keys have been pressed for approximately 5 minutes. To disable the automatic shut down, hold down the button during power up until “P” appears on the display.

### dB/dBm Button

Pressing this button switches the measurement mode from absolute power (dBm) to loss (dB). OFS procedures outlined in this manual for simple insertion loss measurements utilize the “dB” mode.

### Ref Button

Pressing and holding down this button until “HELD” appears on the display stores the “zero” reference for the launch jumper.

$\lambda$

The Greek symbol lambda ( $\lambda$ ) is used to denote wavelength. Pressing this button selects the wavelength desired. Also, holding this button down until “HELD” is displayed will show the percentage of battery life remaining.

## Insertion Loss Testing Overview

### Single Ended Method

- A test launch jumper is connected to a source and a detector as shown in Figure 1. The detector is “zeroed” to eliminate the effects of loss through both the launch jumper and the connection between the launch jumper and source.

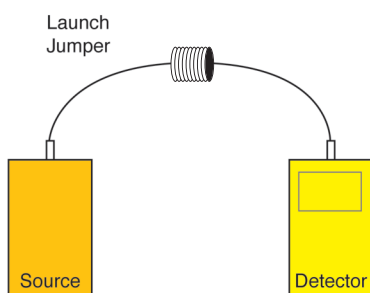


Figure 1

### NOTE:

**For 50 and 62.5  $\mu$ m testing only.**

Wind the launch jumper around the mandrel ensuring the cable follows each groove and is clipped into both ends of the mandrel where pinch ports are evident.



Use the gray mandrel for 50  $\mu$ m.  
Use the black mandrel for 62.5  $\mu$ m.

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## Insertion Loss Testing Overview

### Single Ended Method continued

- The test launch jumper is disconnected from the detector and connected to connector end “X” of the device under test via a splice bushing. Connector end “Y” of the device under test is connected to the detector. See Figure 2. The detector displays dB loss which represents optical power loss at the “X” connection (due to misalignment, concentricity, angularity, etc.) plus the loss due to attenuation through the length of fiber in the device under test.

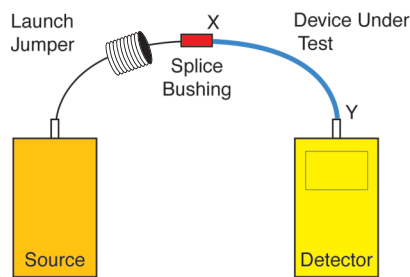



Figure 2

## Insertion Loss Test Procedure

### STEP 1

- Turn “ON” Light Source by holding the  button until the unit powers on.
- Select the wavelength(s) to use with the “850 nm / 1300 nm” button.
- Remove protective cap from source. Install appropriate adapter cap onto source.



### NOTE:

It is recommended to allow the light source to warm-up and stabilize for 5 minutes before use.



## Insertion Loss Test Procedure

### STEP 2

- Turn “ON” the Power Meter by pressing the On/Off button.
- Press the dB/dBm button to toggle units to “dB”.
- Press the  $\lambda$  button until the appropriate wavelength is displayed.
- Remove protective cap.
- Install appropriate Adapter Cap onto the Power Meter.
- Allow 2 minutes for the test set to stabilize.



### NOTE:

To enable the 5-minute auto-off feature, hold down the “On/Off” button during power up until “HELD AOFF” appears on the display.

### STEP 3

#### Single Ended Method See Figure 1 on page 4.

- **For 50 and 62.5  $\mu\text{m}$  testing only.** Wind the launch jumper around the mandrel ensuring the cable follows each groove and is clipped into both ends of the mandrel where pinch ports are evident.

Use the gray mandrel for 50  $\mu\text{m}$ .  
Use the black mandrel for 62.5  $\mu\text{m}$ .



- Insert connector of Launch Jumper into appropriate output port on Light Source.
- Insert other connector end of Launch Jumper into Adapter Cap on Power Meter.
- “Zero” the Power Meter by pressing and holding down the “Ref” button until “HELD” and “0.00 dB” is displayed.

### NOTE:

It is recommended to repeat this “zero” procedure at least every 30 minutes.

## Insertion Loss Test Procedure

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### STEP 4

#### Single Ended Method See Figure 2 on page 5.

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- Disconnect connector end of Launch Jumper from Adapter Cap on Power Meter and insert into Splice Bushing.
- Insert one connector end of the Device Under Test into the Splice Bushing.
- Insert the other connector end of the Device Under Test into the Adapter Cap on the Power Meter.
- The number on the Power Meter display represents the insertion loss due to the connector at the Splice Bushing plus the attenuation through the length of cable.

## Maintenance & Calibration

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To replace the “AA” batteries, remove the unit from its protective rubber boot and remove the compartment cover (located on back of unit) by sliding the cover away from the unit in the direction indicated by the arrow on the cover.

Keep all optical ends clean to avoid poor insertion loss readings and also to prevent contamination of the optical ports and ends. Always replace the protective dust caps onto the optical ports when not in use.

Repair of the test units beyond battery replacement is not recommended in the field. Return to OFS for repair.

Calibration of the test units is recommended once per year. Contact OFS 888 438 9936 [US & Canada] or 860 678 0371 for proper calibration.

## Trouble Shooting Guide

Problem	Solution
<b>High loss on device under test</b>	Ensure fiber is crimped and cleaved properly. Read trouble shooting guide in termination kit instruction booklet. Ensure you used the appropriate mandrel in the correct location on the launch jumper attached to the source.
<b>Power meter set at dBm instead of dB</b>	Push dB/dBm button on power meter to switch to dB mode "dB" will appear on LCD.
<b>Reference value on power meter has drifted from 0.00 dB</b>	Re-zero the power meter, launch the light source to reset the test reference number.
<b>No light signal in Device Under Test</b>	Device Under Test is damaged - reterminate or replace.
<b>"Bat" appears on LCD of power meter</b>	Replace two "AA" batteries. Low battery on light source or power meter "Bat" indicates need for battery replacement.

Problem	Solution
<b>Unable to plug in device under test to test unit or splice bushing</b>	Incorrect launch jumper, splice bushing, adapter cap. Test equipment must match the fiber types and connector type that is being tested.
<b>Dirty optical fiber ends</b>	All fiber optic ends must be free of dirt, oils (finger oils), dust and contaminates. Use isopropyl alcohol, lint-free wipes, and filtered compressed air to clean dirty ends. Always keep rubber dust caps on optical fiber connectors and test equipment when not in use.
<b>Damaged launch cable</b>	Contact factory to replace.

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55 Darling Drive, Avon, CT 06001

**To learn more, please call or visit our website.**

Phone: **1 860 678 0371**

Toll Free: **1 888 438 9936**

Web: **[www.ofsoptics.com](http://www.ofsoptics.com)**

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