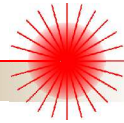




**O.W.L.**

MANUFACTURER OF QUALITY OPTICAL FIBER TEST EQUIPMENT

**OPTICAL WAVELENGTH LABORATORIES**



# Precision Coupled Visual Fault Locator (VFL)



Operations Manual  
Version 1.0  
December 28, 2001  
OWL Part VFL-1

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## SYMBOLS



This symbol signifies a potentially dangerous operation. **Extreme caution must be exercised when performing this operation.**



This symbol signifies a tip or suggestion for ease of use.

# GENERAL

This manual describes the operation of OWL's Precision Coupled Visual Fault Locator (PCVFL). This product designed to precision-couple high-intensity red laser light into optical fibers for two purposes: visual fault location and visual fiber identification.

## Functional Diagram



### (1) Visible Laser Transmitter

This port houses a laser diode that emits visible light into optical fibers, either continuously or intermittently (flashing), depending upon the mode selected.

### (2) Mode Selector Switch

This 3-way switch selects between OFF (center), visual fault location mode (left), and visual fiber identification mode (right).

### (3) Output Mode LED

This LED indicates that the tester is emitting red laser light, either intermittently or continuously. Caution should be taken when this LED is lit.

NOTE: During normal operation, if the Output LED (3) is not lit, this indicates that the battery has insufficient power, and must be replaced.

## PRECAUTIONS

**Safety.** Extreme caution must be exercised when operating the PCVFL. It produces an ultra-bright beam of red light that can cause permanent damage to the eye with prolonged exposure.



**NEVER LOOK INTO A LIGHT SOURCE OR THE END OF A FIBER THAT MAY BE ENERGIZED BY A SOURCE!**

Whenever possible, follow these safety tips when operating the PCVFL:



Do NOT look directly at the beam of light. Use your peripheral vision or view the beam of light at an angle.



Use a sheet of paper or your hand to reflect the beam of light from the fiber end into your range of vision.



Dim the lights in the room. This will make the beam more visible from a distance.

**Operational.** In order to ensure optimum coupled laser light, it is vitally important to clean the ports on the PCVFL, as well as the ferrules on the patch cords, before each use. If dirt, dust, or oil are allowed to build up inside the connector, the surface of the laser diode may become scratched, producing erroneous results. Replace the dust caps on the connector ports and patch cords when not in use.

## REQUIRED ACCESSORIES

**Cleaning Supplies.** Fiber ferrules, connector ports and bulkheads should be cleaned with 99% or better isopropyl alcohol and a lint-free cloth. A can of compressed air should be available to dry off the ferrules, and to blow dust from the connector ports and bulkheads.

**Patch Cords.** One patch cord is required to connect the PCVFL to the system under test. The connector styles on the patch cord must match the type on the PCVFL and the connector type of the system under test.

# APPLICATIONS

**Visual Fiber Identification.** The PCVFL provides a FLASH mode for easy visual fiber identification. Fibers are identified by locating the fiber end with the flashing red light on the opposite end of the fiber cable. This is useful for locating fibers that are marked incorrectly or not marked at all.



**NEVER LOOK INTO A LIGHT SOURCE OR THE END OF A FIBER THAT MAY BE ENERGIZED BY A SOURCE!**

**Visual Fault Location.** In Continuous Wave Mode, a steady beam of ultra-bright red laser light is injected into the fiber. If this light encounters breaks, microbends, or manufacturing anomalies in the fiber, the light will be redirected into the buffer. If the anomaly is severe enough, this light will be visible through the fiber jacket, informing the user of a break or microbend in the fiber.



**NEVER LOOK INTO A LIGHT SOURCE OR THE END OF A FIBER THAT MAY BE ENERGIZED BY A SOURCE!**

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# OPERATION

**Visual Fiber Identification** (*Figure 1 - Visual Fiber Identification Configuration - Page 4*)

- (1) Connect the PCVFL to the fiber you are testing via a patch cord as shown in Figure 1.
- (2) Power ON the PCVFL into visual fiber identification mode by flipping the switch to the right. This mode emits a flashing beam of high-intensity red light into the fiber.
- (3) Identify the fiber by looking for the flashing red light emitting from the fiber connector at the other end of the link.



**NEVER LOOK INTO A LIGHT SOURCE OR THE END OF A FIBER THAT MAY BE ENERGIZED BY A SOURCE!**

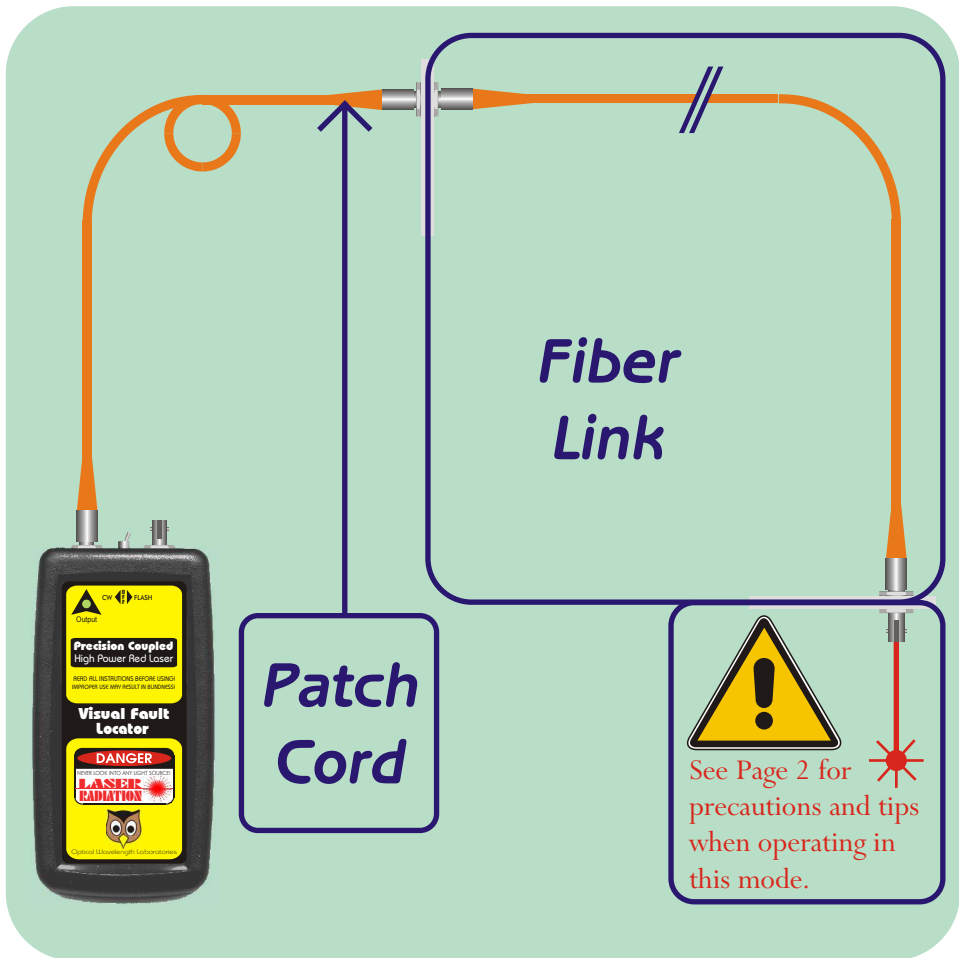


Figure 1 - Visual Fiber Identification

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### Visual Fault Location (Figure 2 - Visual Fault Location Configuration - Page 5)

- (1) Connect the PCVFL to the fiber you are testing via a patch cord as shown in Figure 2.
- (2) Power ON the PCVFL to visual fault location mode by flipping the switch to the left. If there is a fault in the fiber, red light will appear as a red glow through the fiber jacket at the point of the fault.

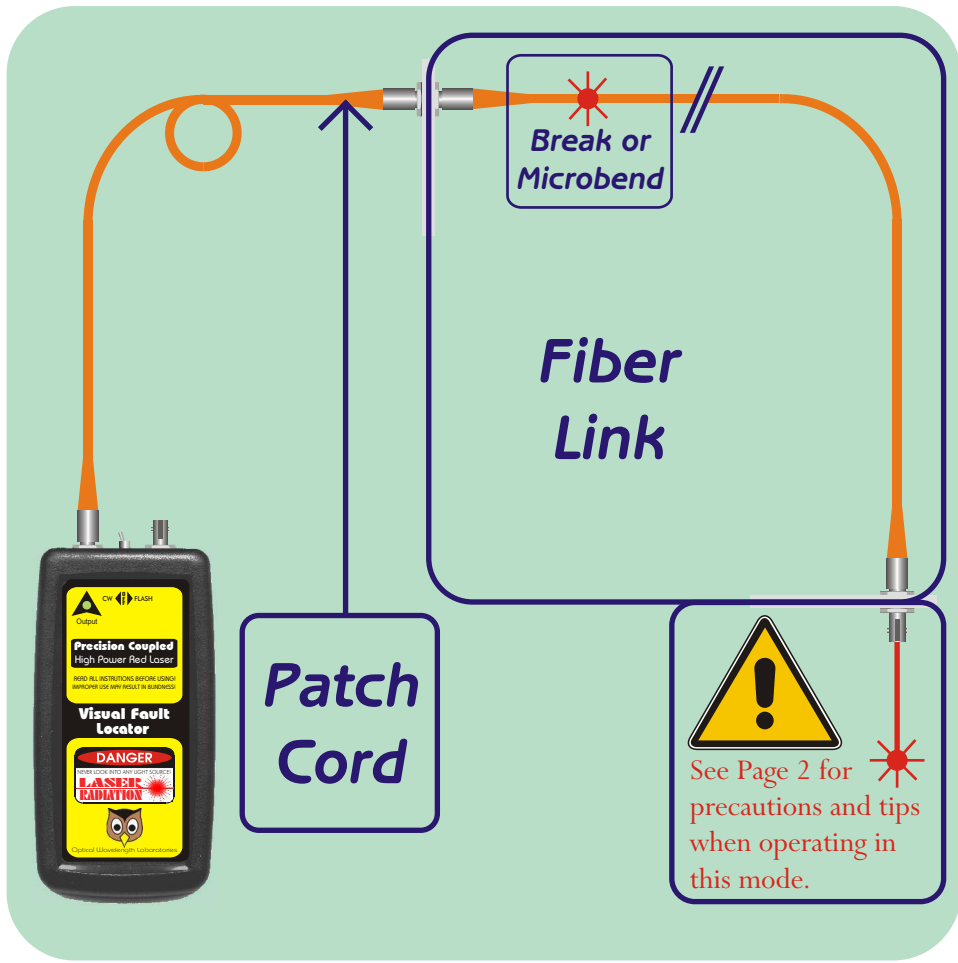


Figure 2 - Visual Fiber Identification Configuration

# MAINTENANCE/CALIBRATION PROCEDURES

**Repair.** Repair of this unit by unauthorized personnel is prohibited, and will void any warranty associated with the unit.

**Battery Replacement.** The battery compartment is covered by a sliding plate on the back of the unit. One 9v battery is required for operation.

**Cleaning.** The optical connectors on the PCVFL and the connectors on the patch cords should be cleaned prior to attaching them to one another. Minimize dust and dirt buildup by replacing the dust caps after each use.

**Re-calibration.** Due to the nature of the PCVFL's functions, re-calibration of this unit is not necessary.

**Warranty.** The PCVFL comes standard with a one-year factory warranty, which covers manufacturer defects and workmanship only.

## WARNING AND SERIAL NUMBER INFORMATION


The serial number and model number can be found on the back of the unit, as well as the laser source information.

**DANGER**

Visible Optical Radiation When Power Switch Is Set To The ON Position – Avoid Eye Exposure To Direct Or Scattered Radiation  
Fiber Laser: ~650 nm 1.0 mW

**Optical Wavelength Laboratories**  
Whitewater, WI 53190 (262) 473-0643

**MODEL# PCVFL-1**  
**SERIAL# VFxxxxx**  
**POWER: 9V DC**

  
MADE IN USA

# SPECIFICATIONS

Launch Method:	Red Laser
Output Power:	-2 dBm
Range:	5 kilometers
Battery Life:	15 hours
Operating Temperature:	0 to 55 ° C
Storage Temperature:	0 to 75 ° C
Low Battery Indicator:	Yes
Connector Style:	ST
Width:	2.75 inches
Height:	4.94 inches
Depth:	1.28 inches
Weight (with battery):	154 grams

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## CONTACT INFORMATION

**Address:**

Optical Wavelength Laboratories  
N9623 Hwy 12  
Whitewater, WI 53190

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(262) 473-0643

**Web:**

OWL-INC.COM