Optical Wavelength Laboratories

OPERATIONS GUIDE

WaveSource Series

Fiber Optic Light Sources

WS-MDSD: WSA13001 and later
WS-MD: WSB11001 and later
WS-SD: WSC11001 and later
WS-VSD: WSF11001 and later
WS-MDV: WSG10301 and later

INTRODUCTION

BEFORE YOU BEGIN

All personnel testing optical fibers should be adequately trained in the field of fiber optics before using any fiber optic test equipment.

If the user is not completely familiar with testing fiber optics, they should seek competent training. Such training can be acquired from a variety of sources, such as local hands-on training classes.

Valuable information about fiber optic testing can also be gathered from reading printed literature carefully or by thoroughly reading supplied operations manuals.

Fiber optic testers vary from other types of test equipment due to issues such as:

1) standards-based testing
2) proper fiber optic test procedures (FOTPs)
3) "zeroing" or referencing of power levels
4) determining the correct link budget to pass or fail by

Complete understanding of each of these issues is critical for performing proper fiber optic tests.

ABOUT THIS MANUAL

Throughout this manual you will find various symbols that assist with understanding the procedures outlined in this manual. Below is a list of these symbols and a short description of their purpose:

Shows a helpful tip that will make a procedure go more smoothly

Tells the user some useful information about the successful completion of a procedure

Warns the operator of a potentially dangerous condition

INTRODUCTION

DESCRIPTION

Optical Wavelength Laboratories (OWL) WaveSource series fiber optic light sources are simple to operate with four buttons: power; port selection; output selection (CW-continuous wave vs. MOD-modulated); and wavelength selection/AUTO.

WaveSource series light sources contain various combinations of source type and wavelength configurations for all applications, including 850 and 1300nm LED sources for multmode, and 1310 and 1550nm lasers for singlemode.   These sources conform to international testing standards, and are designed to provide stable temperature compensated laser output for accurate testing of typical singlemode optical fibers. These sources are are NIST-calibrated to couple -20dBm of optical power into multimode fibers, and -10dBm into singlemode fiber.

Wavelength selection LEDs indicate device power status and port selection status. The charger LED indicates charging status when the unit is powered OFF, and battery status when the unit is powered on. A bright 7-segment LED display indicates which wavelength is currently active.

Each WaveSource series fiber optic light source comes with a protective rubber boot and a non-rechargeable 9-volt battery.

Typical applications (when used with an optical power meter) include optical loss testing of telecommunications networks, data networks, cable television, and industrial equipment control, among others.

In addition, WaveSource light sources have auto-wavelength switching capability when used with AUTO-capable OWL optical power meters.

GENERAL FEATURES

PRECAUTIONS

Safety - Exercise caution when working with any optical equipment. High-intensity fiber optic laser sources output potentially dangerous high energy invisible light, and could cause serious, irreparable damage to the eye. Thus, it is recommended to **NEVER** look into the connector port of a laser source or the end of a fiber.
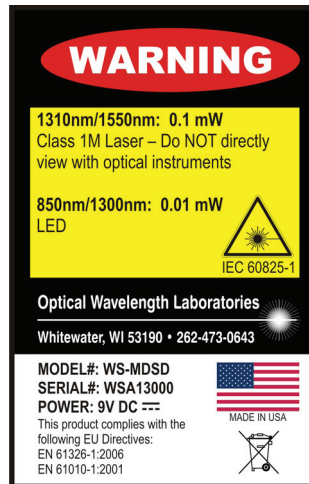
Operational - It is important to keep connector ferrules and optical connector ports clean. If dirt, dust, and oil are allowed to build up inside connector ports, irreparable damage may occur to the optics inside the port. For best results, replace dust caps after each use.

Light source Connectors - Do NOT insert APC (Angled Physical Contact) connectors into the light source ports on your WaveSource fiber optic light source as this may damage the internal source endfaces or the angled ferrule on the APC connector.

LABEL

On the back of each unit is a label similar to the one shown below containing model number, serial number, power requirements, and special cautionary information.

WARNING

1310nm/1550nm: 0.1 mW
Class 1M Laser – Do NOT directly view with optical instruments

850nm/1300nm: 0.01 mW
LED

IEC 60825-1

Optical Wavelength Laboratories

Whitewater, WI 53190 • 262-473-0643

MODEL#: WS-MDSD
SERIAL#: WSA13000
POWER: 9V DC ===
This product complies with the following EU Directives:
EN 61326-1:2006
EN 61010-1:2001

MADE IN USA

GENERAL FEATURES

1: Port A - Consult the serial number label for the configuration in Port A; can be either SC or ST connector port.

2: Charger Port - Allows for charging of re-chargeable 9-volt batteries, as well as wall power operation.

3: Port B - Consult the serial number label for the configuration in Port A; can be either SC or ST connector port.

4: Port A indicator LED - indicates the power status of the light source in Port A.

5: Port B indicator LED - indicates the power status of the light source in Port A.

6: Charger Indicator LED - when the source is powered off, indicates the charging staus; when the source is powered on, indicates the battery life.

Battery life ranges from green (full) > yellow > orange > red (near empty.)

7: CW/MOD button - toggles the selected wavelength to either CW (continuous wave) or MOD (modulated). Most applications will require CW mode.

8:Wavelength/AUTO button - <u>press</u> the button to change the output wavelength for the selected port; <u>hold</u> the button to set the unit into AUTO mode (i.e. if two wavelengths are present, the source will alternate between these two wavelengths). When activating AUTO mode, the display will indicate AUtO

9:Power button

10:PORT select button - switches the unit between PORT A and PORT B.

11:7-segment LED display - shows the currently selected wavelength, or any changes in status of the light source.

NOTE: do NOT use battery charging port with non-rechargeable batteries. Doing so risks damage to the unit and/or harm to the user.

NOTE: some versions will only have a single optical port.

SPECIFICATIONS

GENERAL	
Battery Type	9-volt
Battery Life	up to 20 hours (9-volt battery)
Operating Temperature	0 to 55 C
Storage Temperature	0 to 75 C
Dimensions	2.75" x 4.94" x 1.28"
Weight	6 ounces (154 g)

FIBER OPTIC LIGHT SOURCE	
Type (MM / SM)	LED / FP Laser
Center Wavelength	850 +30/-10 nm 1300 ±50 nm 1310 ±30 nm 1550 ±30 nm
Spectral Width (FWHM)	850 nm: 50 nm 1300 nm: 180 nm 1310 nm: 2 nm 1550 nm: 2 nm
Output Power (MM / SM)	-20 dBm / -10 dBm
Initial Accuracy (Uncertainty)	±0.1 dB
Output Modes	CW, Modulated

VFL PORT (OPTIONAL)	
Type (MM / SM)	Red Laser
Center Wavelength	650nm
Output Power	0 dBm (1mw)
Output Modes	CW, Modulated
Connector Type	2.5mm universal

INTRODUCTION

WARRANTY INFORMATION

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

Cleaning. For accurate readings, the optical connectors on WaveSource series light sources and the connectors on test cords should be cleaned prior to attaching them to each other. Minimize dust and dirt buildup by replacing the dust caps after each use.

Calibration. It is recommended to have Optical Wavelength Laboratories calibrate this unit once per year.

Warranty. Optical Wavelength Labs products have a two-year factory warranty, which covers manufacturer defect and workmanship only, valid from the date of shipment to the original customer.

Products found to be defective within the warranty will be either repaired or replaced, at the option of Optical Wavelength Labs.

This warranty does not apply to units that have been repaired or altered by anyone other than Optical Wavelength Labs, or have been subjected to misuse, negligence, or accident.

In no way will Optical Wavelength Labs liabilities exceed the original purchase price of the unit.

To return equipment under warranty, please contact Optical Wavelength Labs (see below) for a RMA number. To ensure quick turnaround, please include a short description of the problem and a phone number where you can be reached during normal business hours.

CONTACT INFORMATION

Address:
Optical Wavelength Laboratories
N9623 Old Hwy 12
Whitewater, WI 53190

Telephone:
262-473-0643

Internet:
OWL-inc.com