FD-FS Series
Fiber Laser Sources

OPERATING INSTRUCTIONS

CONTENTS

Figures

General

Model FD-FS1316

General

Thank you for purchasing a Fiberdyne Labs, Inc. FD-FS Series Fiber Source. This lightweight, hand held fiber source is a precision optical fiber laser source in a pocket size case.

The model FD-FS1316 (1310nm/1550nm) is a dual wavelength, single output unit. This unit is intended for field installation, testing and commissioning of all types of optical fiber systems.

The unit offers a continuous wave (CW) output, and a modulation output at 270 Hz, 1 kHz, and 2 kHz for easy fiber identification when used with an optical fiber identifier such as the FL-OFI-1 or FL-OFI-2. The highly efficient, stabilized outputs use rear facet diode technology to compensate for short and long term drift. The user may select one of the modulated modes for quick cable identification or the continuous mode for taking standard optical loss measurements.

The unit is equipped with "Low Bat" LED indicators to monitor the state of its AA batteries. The unit can be ordered with a variety of optical connector styles.

Each fiber source is contained in a rugged molded case and has an overall size of 6.3 x 3.3

Features

- 1310 and 1550nm Wavelengths FD-FS1316 (Single Output Port)
- FC, SC, ST, LC, or MU type optical connectors
- Output power adjust for each wavelength
- Multimode and Singlemode operation
- Accurate and stable
- Cable Identification mode
- Modulation capability (CW, 270Hz, 1kHz, and 2kHz)
- Pocket size, robust and lightweight
- Membrane switch overlay
- Visual output indication

Applications

- Cable and link loss measurement
- Network auditing and maintenance
- Troubleshooting and repair
- Connector and coupling losses
- Field test and repair
- Bare fiber loss measurement
- Fiber identification

Safety

The Fiberdyne Labs, Inc. Model FD-FS1316 Fiber Source is a Class I laser product under the requirements of the US. Center for Devices and Radiological Health and the American Standard Institute[1]. As such it presents no hazard to users who view the output when using proper operating procedures. However, it is recommended that users should not stare directly into the beam.

[1] *American National Standard for Safe Use of Lasers, Publication: ANSI Z136.1-1993, American National Standards Institute, 11 West 42nd Street, New York, NY 110036.*

NOTE: This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Precautions

Use care when working with any optical transmission equipment. It is good practice to avoid looking directly at any optical fibers or optical sources. The Fiberdyne Labs, Inc. Fiber Source emits laser light, and one should not look directly into the connector port. It is best to refer to your company's safety procedures when working with optical systems.

It is important to keep all optical connections and surfaces free from dirt, oils or other contamination to ensure proper operation. This applies to all connectors that are connected to the optical port on the any one of the fiber sources, as well as the optical port itself. Scratched or contaminated connectors can reduce system performance. Refer to your company practices for cleaning optical connectors. Always replace the protective dust cap after use.

Operating Controls

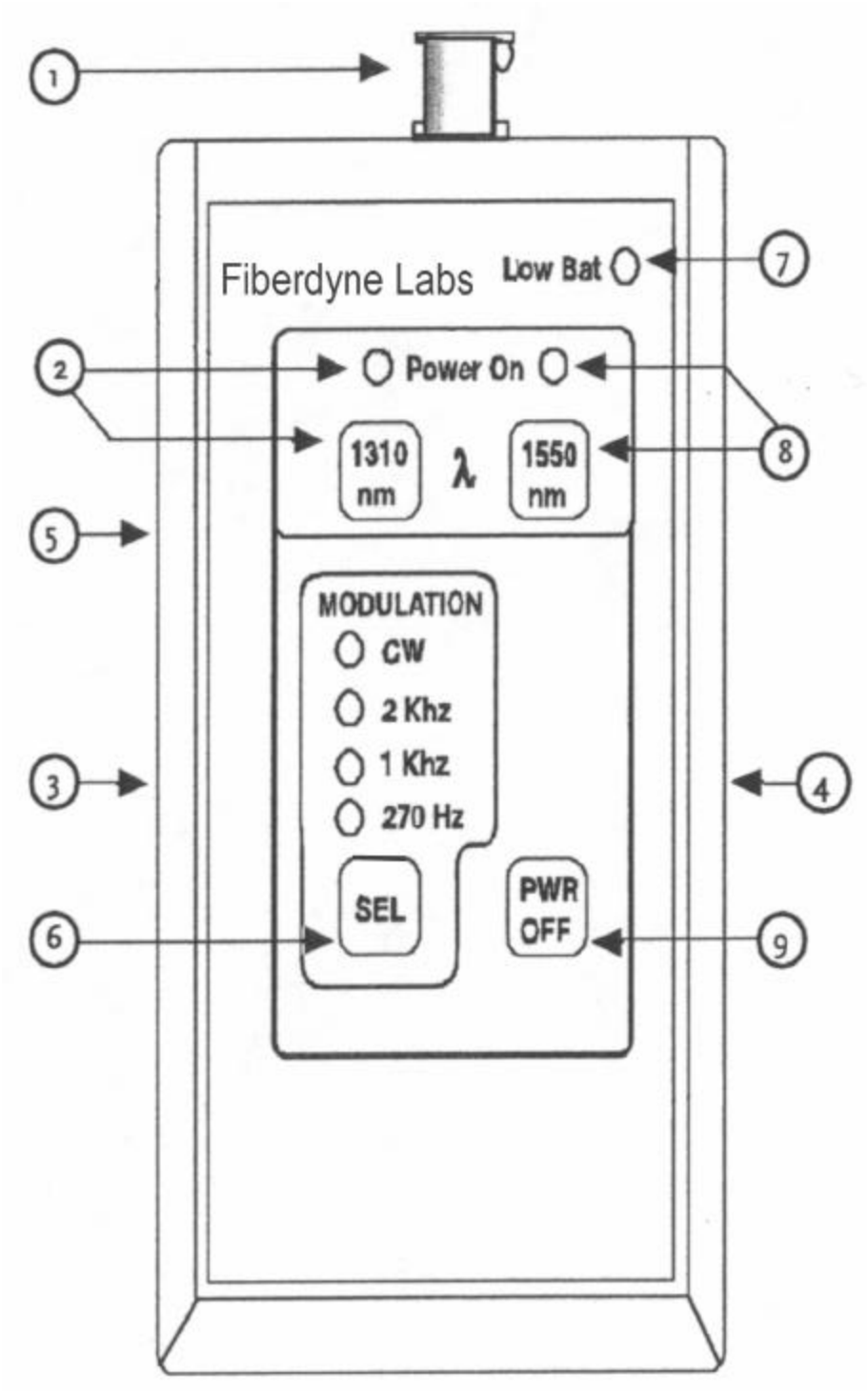


Figure 1 - FD-FS1316 Fiber Source Front Panel

Operating Controls

Fiberdyne Labs Model FD-FS 1316

(1) **FD-FS 1361**- Standard with a **SINGLE OPTICAL PORT** available with either ST, SC, FC, LC or MU connector.

(2) (8) **Wavelength** selection is done by depressing the desired **WAVELENGTH KEY.** An led illuminates indicating the desired selection.

(3) The absolute **OUTPUT POWER** level of the **"LEFT"** wavelength may be adjusted by approximately
+/-1DB.

(4) The absolute **OUTPUT POWER** level of the **"RIGHT"** wavelength may be adjusted by approximately
+/-1DB.

(5) **CHARGER JACK PORT** used only with optional NiCad batteries.

(6) The **SEL KEY** when depressed selects one of four modulations, **270HZ, 1KHZ, 2KHZ,** or **CW,** and allows the output to be modulated at 270HZ, 1KHZ, or 2KHZ, or continuous wave, respectively.

(7) **LOW BAT** led illuminates when the battery voltage has dropped below a working level. When battery voltage falls far enough, the laser and it's associated led will shut off.

(9) The **PWR OFF** key when depressed turns off the fiber laser source.

OPERATION

OPTICAL POWER VERIFICATION

Verification that the Fiberdyne fiber source is operating properly can be accomplished by following the procedure described below.

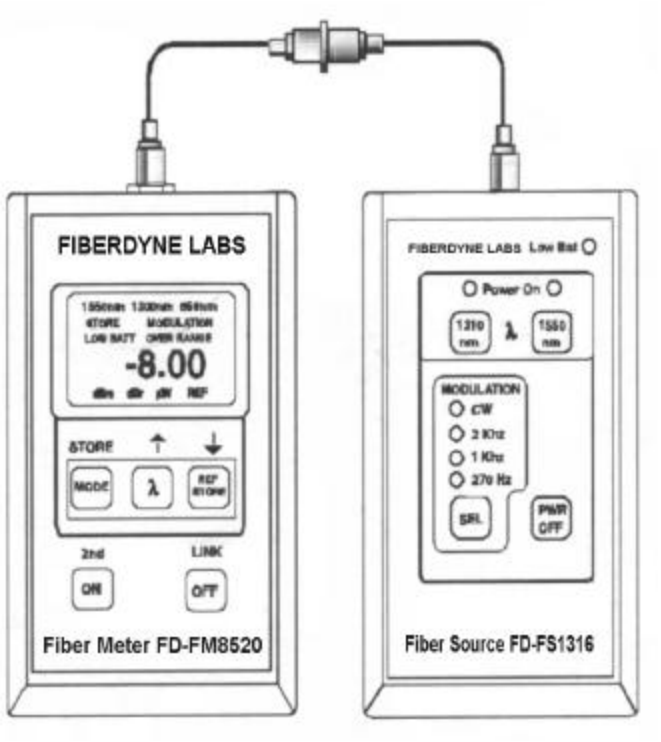


Figure 2 – **Optical Power Verification Diagram**

- Clean all optical ports and connectors according to your company procedures.
- Connect a patch cable to the Fiberdyne laser source.
- Connect a patch cable to a power meter such as Fiberdyne model FD-FM8515B/C or FD-FM8520.
- Connect the ends of the patch cables together using a coupling device as shown in **Figure 2.0**
- Turn on the Fiberdyne fiber laser source and select the desired wavelength. The unit will stabilize very quickly.
- Turn on the power meter and select the same wavelength as selected on the

Fiberdyne laser source.

- The launch output power of the Fiberdyne fiber laser source is factory set at **-08.0dBm.** This output can be adjusted **+/-1.0dB.**

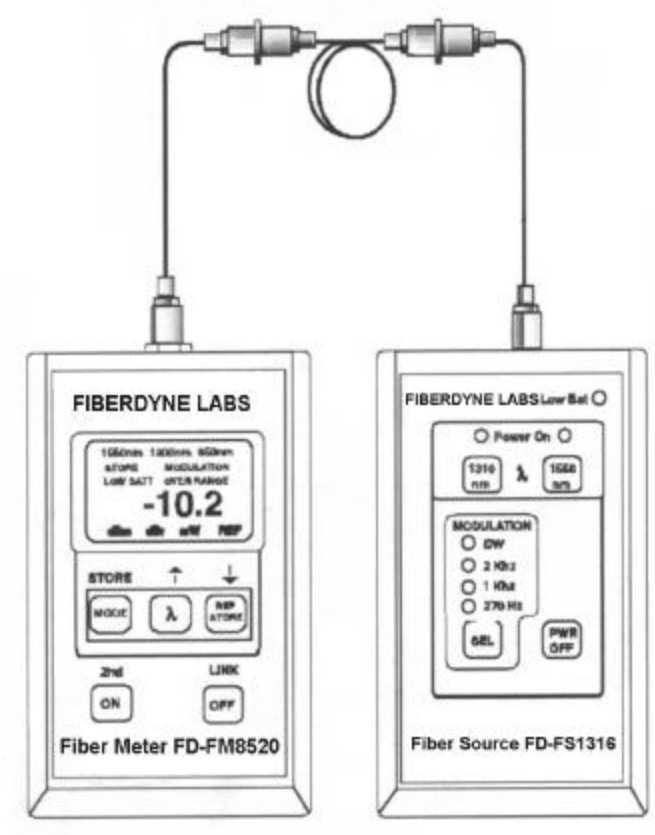
Optical Loss Measurements

- Verify the optical power and either record the reading, or if the power meter is a Fiberdyne model FD8515B/C or FD8520 simply depress the **REF STORE** key while in the **dBm Mode** and the power measurement will be stored automatically.

- Disconnect the patch cables at the coupling. Be sure not to disturb the connection at the end of the Fiberdyne fiber laser source or the power meter. This is to ensure accurate measurements. **Refer to Figure 2.0**

- Reconnect the patch cables to the fiber under test **Refer to the example in Figure 3.0**

- If the power meter is a Fiberdyne Model FD-FM8515B/C, or FD-FM1317 select dBr via the **Mode** key, and the power reading for the loss of the fiber.



Maintenance

Battery Replacement

The fiber source requires no periodic maintenance other than replacing the batteries. Under normal use the 2 AA alkaline batteries should provide greater than 25 hours of continuous use. To replace batteries, place the unit with its back side facing up. Use a small screwdriver to remove the 2 screws and release battery cover. Install batteries and then secure the unit with screws.

Optional Battery Charger

When the fiber sources are purchased with the *optional* battery charger, it is shipped with two AA NiCad rechargeable batteries. The batteries have been kept in the uncharged state for shipment. Therefore, be sure to fully charge it before use.

To charge the batteries, simply plug the chargers transformer into an AC outlet and the other end into the charger jack on the fiber source. Charge the unit overnight(about 14 hours). The batteries may be charged with any battery charger with the following specifications:

Input: AC 120V- 60 Hz in the USA and Canada
AC 110-240V-50/60 Hz in other countries

Output: 8.7-15V AC or DC @> 150mA,
2.1mm coax jack (tip-positive)

Important - When charging batteries in the unit, please be sure to use only NiCad batteries. Charging any other type of battery will cause damage to unit.

Warning: - Never attempt to charge alkaline batteries. Remove alkaline batteries and replace with NiCad batteries before using the AC charger/adapter.

Warning: - The AC NiCad battery charger is meant to charge the NiCad batteries only, and no attempt to operate the fiber laser source with the battery charger connection should be made.

General Care:

To avoid damage to the fiber source, do not use cable connectors that are dirty or faulty. A dust cap is provided for the optical output port, and should be in place when the unit is not in use to prevent foreign material from entering the port. It is best to clean the connectors first, using cotton swabs and Isopropyl alcohol.

Clean the fiber sources body with a damp cloth. Do not use solvents or abrasives.

Customer Support

Repair

If repair of the Fiberdyne fiber source is necessary, return the unit in accordance with the warranty instructions in the back of this manual to the address listed below:

Fiberdyne Labs, Inc
127 Business Park Drive
Frankfort, NY 13340
Tel(800)894-9694 or (315)895-8470
Fax(315)894-8436

Technical Assistance

Should you need Technical Assistance, contact Applications Engineering at the following toll free number:(800)894-9694 Within the United States
(315)894-8470 Outside the United States

Ordering Information:

Orders for the Fiberdyne Model FD-FS1316, Fiber sources and any optional accessories should be directed to the address shown above.

This item and many other can be found on our Internet Website at:
http://www.fiberdyne.com

Warranty

The Fiberdyne Labs, Inc. FD-FS8513A Fiber LED Source is warranted for a period of one year to be free of defects in material and workmanship.

Specifications

Model	FD- FS1316
Optical Connector Port	Single Port
Source Type	1310nm+/-20 1550nm+/-20
Wavelength (nm)	1310nm 1550nm
Spectral Width (nm)	5
Output Power (dBm)	-8 DBM Adjustable +/-1DB
Modulation	CW, 2KHz, 1KHZ, 270HZ
Stability	+/-0.1DB over 1hr. +/- 0.2 DB over 20 hr
Battery Life	25 hrs continuous use
Output Connector	ST, FC, SC, LC/F3000 or MU.
Power	Two AA size Alkaline or NiCad
Optional	NiCad charger (optional) 8.7-15 VAC/DC > 150 MA
Operating Temp.	-10° C to + 40° C
Storage Temp.	-20° C to +60° C