OFI-400 Series Optical Fiber Identifiers

Quick Reference Guide

OFI-400 Series Models

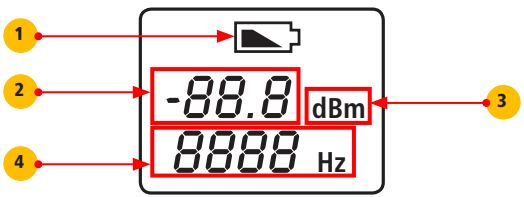
MODEL	FIBER SIZE	DESCRIPTION AND FUNCTION
OFI-400	SM fibers: • 250 µm coated • 900 µm coated • Ribbon • 2 mm jacketed • 3 mm jacketed	• Designed for use with a wide range of single-mode fibers. • Ideal for network personnel involved in installation, reconfiguration, restoration, and maintenance tasks that involve bare, buffered, jacketed, or ribbon fibers in outside plant pedestals, fiber cabinets, aerial enclosures, and inside plant premises demarcation cabinets. • Facilitates access in crowded splice trays.
OFI-400C	SM fibers: • 2 mm jacketed • 3 mm jacketed	• Ideal for general purpose maintenance, configuration, and installation tasks. • Functionally equivalent to the OFI-400 model but includes an optical head design and a calibration scheme optimized for use with jacketed fibers.
OFI-400HP	SM fibers: • 2 mm jacketed • 3 mm jacketed	• Designed for use where high levels of optical power are present. • Ideal for fibers carrying a single high-power signal, CWDM or DWDM signals with high total power levels, amplified optical signals, or pump lasers associated with EDFA or Raman amplifiers. • When display reaches +23 dBm (200 mW) or greater, the OFI-400HP displays "High" warning indication.

Front Panel Keys and Indicators

FEATURE	NAME	KEY OR INDICATOR FUNCTION
	Power key	This key provides two functions as follows: • Press and release the key to turn the OFI identifier On or Off (optionally pull the trigger to activate the OFI). OFI automatically turns off after four (4) minutes of inactivity. • Press and hold the key during power up until the letter "P" is displayed to disable the Auto Off feature. **Note:** OFI identifier will stay powered up until the Power key is pressed to turn it Off.
	Direction of Traffic indicators	• Left and Right arrows identify the direction of the detected "Traffic" signal and will illuminate accordingly when a traffic signal is present regardless of the transmission rate. **Note:** Traffic is a light signal modulated by a random data sequence.
	No Signal indicator	Illuminates to indicate absence of an optical signal.
	dB/ dBm/ Set Ref key	Provides two functions as follows: • Press and hold the key until the word "HELD" is displayed to store the currently measured absolute power (dBm) level as the new reference level. Once the new reference is set, the OFI identifier switches to the relative power (dB) measurement mode. • Press and release the key to toggle the displayed core power measurements between dBm and dB.
	Backlight key	When the OFI identifier is turned on, press the key to toggle the Backlight feature On or Off.
	LCD Display	Shows various test and settings data • Core power measurements or absence of signal • When present multiple Tone frequencies • "High" (OFI-400HP only), "HI" and "LO" warnings • Low batteries status

Display Readings

REF #	DESCRIPTION
1	The Battery icon appears on the OFI display to indicate a "low battery" condition. The discharged 2 x 1.5 V alkaline batteries require replacement.
2	• This field displays core power measurements values: absolute power in dBm or relative power in dB. • If an optical signal is not present, this field displays "LO". • When power exceeds the OFI's measurement range, this field displays "HI" indication.
3	Depending on the selected measurement mode, this field will display the following: • dBm for absolute power measurements. • dB for relative power measurements. **Note:** once reference level is set, the user may press the dB/dBm//Set Ref key to toggle between the dBm and dB units of measure.
4	• When detected, this field displays test Tone frequencies values 270 Hz, 330 Hz, 1000 Hz, or 2000 Hz. • In the "Set Ref" mode, this field shows "HELD" label to indicate that new reference power level is set. • During disabling the Auto Off feature procedure, this field displays "P" to indicate that the Auto Off feature is disabled. • **OFI-400HP model only:** when the OFI-400HP display reaches +23 dBm (200 mW) or greater, this field displays "High" warning indication. If a Tone signal is present, this field will alternate between the Tone value and the "High" indication.



Safety and Precautions

Safety

Caution: To avoid serious eye injury, never look directly into the optical outputs of fiber optic network equipment, test equipment, patch cords, or test jumpers. Always assume that optical outputs are on.

Precautions

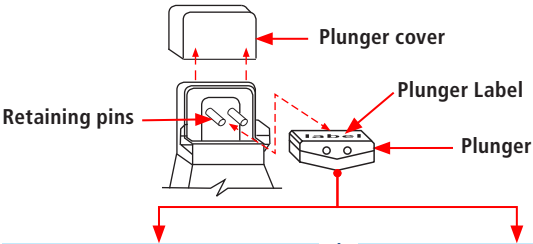
It is important that the precautions given below be followed to ensure operating efficiency and to prevent inducing excessive signal loss during testing.

- The OFI identifier utilizes an optical assembly, which must be kept free of dirt, grease and other contaminants.
- The OFI's head is designed to guide the fiber being tested to a precise position relative to the optical assembly. The user should be careful to place fibers gently and in the provided fiber groove. Forcing the fiber into the head assembly or misaligning it may induce optical losses above specifications.
- **Important:** The OFI identifier will not falsely indicate "Tone". Therefore, only fibers identified as carrying a Tone signal should be cut.
- **Caution:** Displayed power levels on the OFI identifier should not be used to determine actual signal strength in the optical fiber.
- **Note:** Actual results can vary by several dB depending on fiber type, coating material, jacket color, jacket hardness, and other factors.
- **Note:** Bright ambient room or outdoor light can cause the OFI to give false "Traffic" readings when testing dark fibers. To be sure that the fiber is carrying live traffic, shield the optical assembly area of the OFI with your hand. Bright ambient light cannot cause false "No Signal" readings, however, low level traffic signals in color-coated fiber may not be detected.

OFI-400 Model: Configuring the Proper Plunger Position

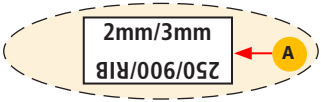
It is very important to place the OFI-400 model plunger in the correct position for testing 250 µm and 900 µm coated and ribbon fibers or for testing 2 mm and 3 mm jacketed fibers.

- Remove the plunger cover and observe the plunger position.
- Make sure the plunger is oriented correctly for the type of fiber to be tested.
- If not, lift the plunger from the two retaining pins.
- Rotate the plunger such that the correct side is facing out and will be used for the fiber under test alignment.
- Replace the plunger and cover.



Position for testing 250 µm, 900 µm and ribbon fibers

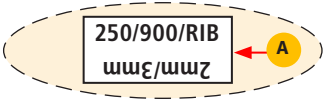
Plunger Label - Top View



The "250/900/RIB" side faces out for the 250 µm and 900 µm coated and ribbon fibers testing

Position for testing 2 mm and 3 mm jacketed fibers

Plunger Label - Top View



The "2mm/3mm" side faces out for the 2 mm and 3 mm jacketed fibers testing

Testing Fibers

OFI-400 model only: Prior to testing, make sure the plunger is oriented correctly for the type of fiber to be tested.

OFI-400, OFI-400C, OFI-400HP models:

1. Turn on the OFI identifier by pressing the Power key -  . Alternatively the OFI may be activated by pulling down the trigger. An audible tone generator will "beep" when the unit is energized.
2. Gently insert the fiber to be tested into the fiber groove located at the top of the OFI's head.
3. Pull down and hold the trigger to depress the fiber being tested against the optical assembly.
4. The OFI identifier will start taking measurements when the plunger has closed and the fiber is in the appropriate position.
   Once the trigger is completely retracted, the OFI will discriminate transmitted optical signals as follows:
   - If the fiber under test is carrying service, the OFI's display will show power readings and indicate the direction of the transmitted signal by illuminating the corresponding "Direction of Traffic" indicator -->  or  .
   - If the fiber under test is carrying a Tone signal, then the OFI's display will show the detected Tone frequency value and activate the beeper (continuous sound).
   - When no signal is present, the OFI will illuminate the "No Signal" indicator and show the "LO" label on the display.
   - If power exceeds the unit's measurement range , the OFI will display "HI".
   - **OFI-400HP model only:** when display reaches +23 dBm (200 mW) or greater, the OFI-400HP will display "High" warning indication.
     Note: When the **OFI-400HP reads "High",** do not clamp it onto fiber in one location for more than 30 seconds at a time, as the fiber may become heated.

Testing Fibers

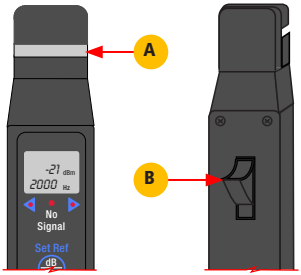
OFI-400 Model: Additional Information for Ribbon Fibers Testing

Ribbon fiber is typically comprised of 4, 8, or 12 fibers with a 250 µm coating attached together. The OFI-400 models will test ribbon fibers, however, the user should be aware of some limitations.

- The OFI-400 will not isolate a specific fiber from the group in a ribbon. If the ribbon being tested is carrying a Tone signal on one fiber and service Traffic signal on any of the other fibers in the group, the OFI-400 will only identify the ribbon as carrying a Tone signal and no Traffic will be indicated.
- **Caution!** When testing ribbon fiber that is not carrying a Tone signal, the OFI-400 could possibly give false "No Signal" identification if two service fibers in the ribbon are carrying equal power in opposite directions. The signals will cancel one another resulting in a false reading.
- Due to detector positioning and to ensure accurate readings, it is recommended to flip ribbon fiber to test both sides.

Measuring Core Power

1. Turn on your OFI unit by pressing the Power key - ⏻.
2. Gently insert the fiber to be tested into the fiber groove **A** located at the top of the OFI's head.
3. Pull down and hold the trigger **B** to depress the fiber against the optical assembly.
   Proceed to step 4.



Measuring Absolute Power

4. Observe the display readings.
5. The core power measurement is displayed in dBm.

Note: The OFI-400 model is calibrated for Corning 250 µm SMF-28 fiber at 1550 nm for core power measurements. Readings will be invalid for fibers other than 250 µm bare fiber (approximately 20 to 30 dB below the core power of 3 mm SMF jumper cable).

Measuring Relative Power

4. Press and hold the dB/dBm/Set Ref key for a couple of seconds until the word "HELD" is displayed to store the currently measured level as the new reference level. Once the new reference is set, the OFI switches to the relative power (dB) measurement mode.
5 Observe the display readings.
6. The relative power measurement is displayed in dB.

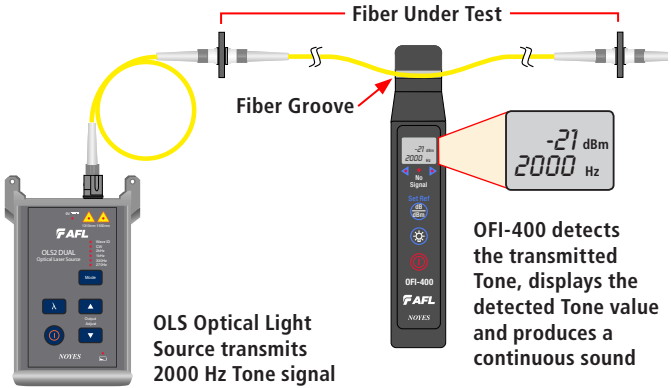
Note: You may press and release the dB/dBm/Set Ref key to toggle the displayed power measurements between dB and dBm.

Identifying a Specific Fiber

During installations, maintenance, rerouting, or restorations it is often necessary to isolate a specific fiber from a bundle without disrupting service. By simply clamping an OFI onto a fiber before making any cuts, the identifier will indicate if there is "Traffic", "Tone", or "No Signal" and display the detected Traffic signal direction. An audible tone generator will "beep" when the unit is energized and will produce continuous sound when a Tone signal is detected.

When used in conjunction with a light source capable of generating a frequency-modulated Tone signal, an OFI identifier will isolate the fiber carrying the Tone from service fibers and dark fibers.

1. Connect an optical laser source producing a frequency-modulated Tone signal to the fiber to be tested.
2. Turn on your OFI and insert the fiber to be tested in the fiber groove.
3. Pull down and hold the clamping trigger to depress the fiber under test into the optical assembly.
4. When a Tone signal is detected, the OFI will display the detected Tone frequency value and produce a continuous sound.



Cleaning Optical Assembly

Optical assembly of the OFI's must be kept free from dirt or other contaminants to ensure operating efficiency and accurate measurements.

Follow your company's approved cleaning procedures.

AFL recommends using lint free FiberWipes™ and FPF1 or FCC2 cleaning fluid.

1. Remove the OFI's plunger cover.
2. Lift the plunger from the two retaining pins.
3. Dampen the wipe with the FPF1 or FCC2 cleaning fluid and gently clean the exposed prism and optical windows.
4. Once completed, replace the plunger and plunger cover.

Battery Replacement

When the Battery indicator  appears at the top of the OFI's display, the 2 x 1.5 V alkaline batteries require replacement. To replace the discharged batteries:

1. Remove the retaining screw and slide the battery plate away from the unit.
2. Replace the discharged batteries.
3. Replace the battery plate and retaining screw.

Repair and Calibration

All NOYES test equipment products are warranted for a period of (1) one year from the date of delivery to the end user.

NOTICE! NOYES Optical Fiber Identifiers contain no user serviceable parts. Except for changing batteries, these units must be returned to NOYES or authorized agents for repair and calibration.