

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *AFL / Noyes OFI-200* at our website: ***Click HERE***

AFL Telecommunications
A Fujikura Business

Test & Inspection

OFI Optical Fiber Identifier
User's Guide

NOYES
Test & Inspection

A Division of AFL Telecommunications

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

AFL Telecommunications
A Fujikura Business

Test & Inspection

OFI Optical Fiber Identifier
User's Guide

NOYES
Test & Inspection

A Division of AFL Telecommunications

© 2002-2008, AFL Telecommunications, all rights reserved. OFI1-11-1000 Revision A, 05.02.08
Specifications are subject to change without notice.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Limited Warranty

One Year Limited Warranty

All Noyes products 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 will be repaired or replaced by Noyes. In no case will Noyes 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 modification
- Misuse, negligence, or accident

CE Information

CE These instruments have been designed and tested to comply with the relevant sections of any applicable specifications including full compliance with all essential requirements of all applicable EU Directives.

Returning Equipment

To return equipment, please contact Noyes to obtain additional information and a Service Request (S.R.) number. To allow us to serve you more efficiently, please include a brief description specifying the reasons for the return of the equipment.

AFL Telecommunications

Noyes
16 Eastgate Park Road
Belmont, NH 03220
Phone: 800-321-5298
603-528-7780
Fax: 603-528-2025

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Contents

Safety

Important Safety Information iv

Section 1: General Information

Introduction 1
Contacting Noyes Customer Service 1
Unpacking and Inspection 2
Feature Overview 2

Section 2: Functional Description

OFI 200 Model Features 4
  Front Panel Indicators 6
OFI 400 Model Features 8
  Front Panel Features 10
  Display Readings 12

Section 3: Operating Instructions

Precautions 14
Identifying Tone on Fibers 16
  Identifying Tone with OFI 400 Model 16

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Identifying Tone with OFI 200 Model 18
Testing 250µm/900µm Coated Fibers with OFI 200 20
Testing 250µm/900µm Coated Fibers with OFI 400 22
Testing Ribbon Fibers (OFI 200/ OFI 400) 23
Testing 2mm/3mm Jacketed Fibers with OFI 200 24
Testing 2mm/3mm Jacketed Fibers with OFI 400 26
Measuring Core Power with OFI 400 Model 28
Measuring Relative Power with OFI 400 Model 29

Section 4: Maintenance

Repair and Calibration 30
Verifying OFI Performance 30
Cleaning Optical Assembly 31
OFI 200 Battery Replacement 32
OFI 400 Battery Replacement 33

Section 5: Specifications

OFI 200 Specifications 34
Detectable signal range 34
Optical Specifications 35
General Specifications 35

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

OFI 400 Specifications 36
Detectable signal range 36
Optical Specifications 37
General Specifications 38

List of Figures

Figure 2-1: OFI 200 Assembly 5
Figure 2-2: OFI 200 Front Panel Indicators 7
Figure 2-3: OFI 400 Assembly 9
Figure 2-4: OFI 400 Keys and Indicators 11
Figure 2-5: OFI 400 Display 13
Figure 3-1: Shielding the Optical Assembly Area 15
Figure 4-1: Cleaning Optical Assembly 31
Figure 4-2: OFI 200 Battery Replacement 32
Figure 4-3: OFI 400 Battery Replacement 33

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Safety

Important Safety Information



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.



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.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Section 1: General Information

Introduction

The purpose of this User's Guide is to explain how to use and maintain Noyes test equipment. Please check our web site at **www.AFLtele.com (click on Products > Noyes Test & Inspection)** for updates to this manual, software updates, and additional application information. If you have any questions about your instruments and recommended accessories, or if you need technical or sales support, please contact Noyes Customer Service.

Contacting Noyes Customer Service

You may call Noyes Customer Service between 8 a.m. and 5 p.m., United States Eastern Time, as follows:

Phone 800-321-5298 (North America)

603-528-7780

Fax 603-528-2025

Web noyestechsupport@afltele.com

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Unpacking and Inspection

OFI Optical Fiber Identifier has been carefully packed in accordance with standard shipping procedures. Examine your OFI for damage that may have occurred during shipment. If you find any damage, please contact Noyes.

Feature Overview

Noyes Optical Fiber Identifiers are rugged, handheld, and easy-to-use fiber optic test instruments for the installation and maintenance of fiber optic networks. The OFI models have been designed to discriminate optical signals transmitted through a single-mode fiber when performing routing and general installation, routine maintenance procedures, rerouting, or restoration.

Noyes Optical Fiber Identifiers can locate specific fibers from a bundle without disrupting normal service within a Central Office (CO), at the splice point, or the Controlled Environmental Vault (CEV).

The loss induced in the fiber during testing is limited, thus service is not interrupted. This method is commonly referred to as Local Detection (LD). The two most widely used LD techniques are macro-bending and micro-bending of the fiber. The macro-bending technique, which offers several advantages over micro-bending, is the technique used in the OFI 200 and OFI 400 design.

By simply clamping an Optical Fiber Identifier onto a gently banded fiber, the unit will indicate if there is [NO SIGNAL], [TONE], or [TRAFFIC] and identify signal direction.

The OFI 200 model features [TRAFFIC] signal presence detection and [TRAFFIC] direction

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

identification, 2 kHz [TONE] signal detection, audible indication when the [TONE] signal is detected, and low battery indication.

The OFI 400 model is the next generation of Noyes Optical Fiber Identifiers. It has all the features of the OFI 200 model plus an easy-to-read LCD display with Backlight, multiple [TONE] signal detection (270 Hz, 330 Hz, 1000 Hz, or 2000 Hz), power saving feature, and [Set Reference] feature. The OFI 400 also measures and displays fiber core power or relative power on an LCD display.

The OFI 200 and OFI 400 are designed specifically for single-mode fibers carrying 1310 and 1550 nm signals. All specifications indicate performance on a single-mode fiber.

Recommended Accessories

When using the OFI 200 or OFI 400 for fiber identification, a light source capable of generating a modulated [TONE] signal is required. The procedure of using a light source in conjunction with an optical fiber identifier for fiber identification is referred to as [toning out the fiber]. Noyes laser sources, models OLS 2 and OLS 4, provide multiple Tone generation and may be used for [toning out the fiber] procedure.

The OFI 200 and OFI 400 models are designed for single-mode fibers carrying 1310 and 1550 nm signals, but for better results the recommended wavelength for [TONE] identification is 1550 nm.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Section 2: Functional Description

OFI 200 Model Features

The OFI 200 is powered by a standard 9 volt alkaline battery that typically provides over 10,000 operations. Power is controlled by the clamping trigger located on backside of the instrument. The OFI 200 operates only when the trigger is engaged. This ensures extended battery life and minimizes ambient light influence.

The fiber under test is placed in the fiber groove and depressed into the optical assembly by gently pulling the clamping trigger. The OFI 200 will turn on when the plunger is closed and the fiber is in the appropriate position.

Once the plunger is closed, the appropriate indicator [TRAFFIC], [TONE], or [NO SIGNAL] will illuminate to indicate an optical signal detection. An audible tone generator will “beep” when the unit is energized and will produce continuous sound when a [TONE] signal is detected. The [Low Battery] indicator will illuminate when a standard 9V alkaline battery requires replacement.

Figure 2-1 illustrates the OFI 200 assembly parts listed below.

1 Plunger cover
2 Plunger
3 Optical assembly
4 Fiber groove
5 Battery plate
6 Retaining screw
7 9V alkaline battery
8 Clamping trigger

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

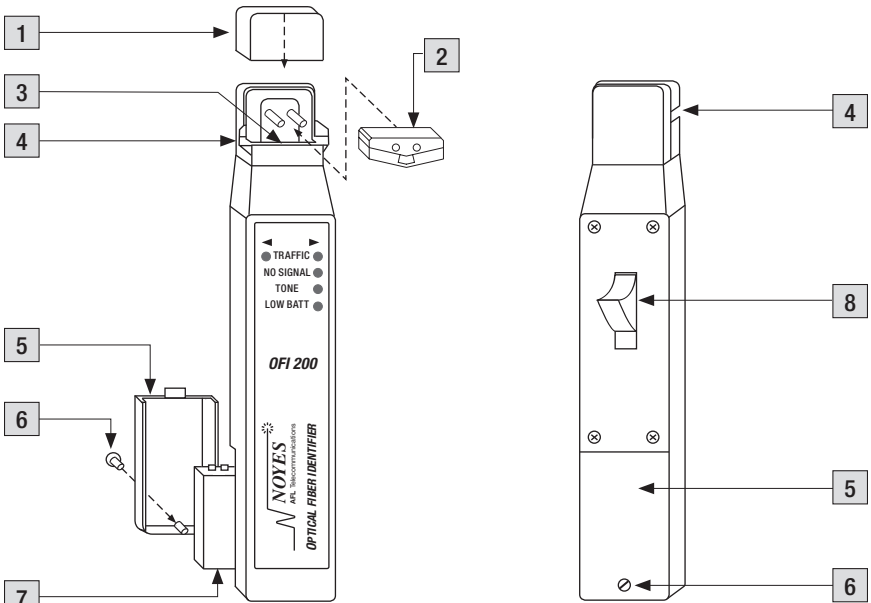


Figure 2-1: OFI 200 Assembly

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Front Panel Indicators

Figure 2-2 illustrates the OFI 200 front panel indicators described below.

1 **[DIRECTION OF TRAFFIC] indicators -** [Left] and [Right] arrows identify the direction of the detected [TRAFFIC] signal.

2 **[TRAFFIC] indicator -** Illuminates when a [TRAFFIC] signal is present regardless of the transmission rate.

Note: [TRAFFIC] is a light signal modulated by a random data sequence.

3 **[NO SIGNAL] indicator -** Illuminates to indicate absence of an optical signal.

4 **[TONE] indicator -** Illuminates when the OFI 200 detects the 2 kHz [TONE] signal, an audible beeper is also activated.

Note: [TONE] is a light signal modulated into a nominal 50% duty cycle square wave.

5 **[LOW BATT] indicator -** The [Low Battery] indicator illuminates when a standard 9V alkaline battery requires replacement.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

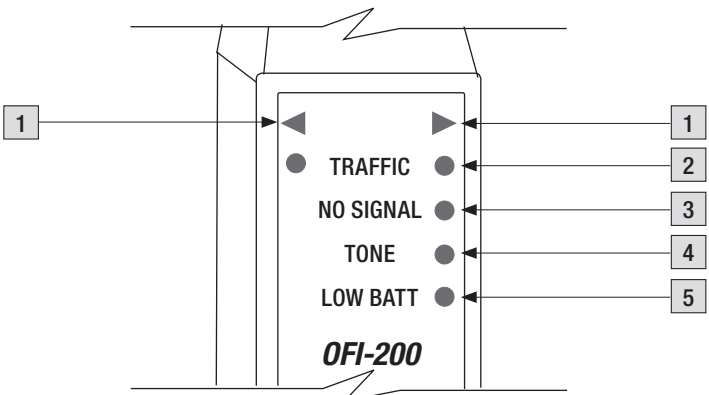


Figure 2-2: OFI 200 Front Panel Indicators

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

OFI 400 Model Features

The OFI 400 model is powered by standard 2 x 1.5V alkaline batteries that typically provide over 10,000 operations. Power is controlled either by pressing the [Power] key located on the front panel of the instrument or by pulling the trigger all the way down. To ensure extended battery life, the OFI 400 will turn [Off] after 4 minutes of inactivity. To disable this [Auto Off] feature, press and hold the [Power] key during power up until the letter [P] appears on the display. Unit will remain [On] until the [Power] key is pressed to turn it [Off].

The fiber under test is placed in the fiber groove and depressed into the optical assembly by gently pulling the clamping trigger. The OFI 400 will start taking measurements when the plunger has closed and the fiber is in the appropriate position.

Once the plunger is closed, the appropriate indicator [LEFT], [RIGHT], or [NO SIGNAL] will illuminate to indicate [TRAFFIC] detection. Also, the LCD display will show core power measurements or [TONE] signal frequencies (if present). An audible tone generator will “beep” when the unit is energized and will produce continuous sound when a [TONE] signal is detected. The OFI 400 will continue to take measurements as long as the plunger is closed.

Figure 2-3 illustrates the OFI 400 assembly parts listed below.

1 Plunger cover
2 Plunger
3 Optical assembly
4 Fiber groove
5 Battery plate
6 Retaining screw
7 2 x 1.5V alkaline batteries
8 Clamping trigger

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

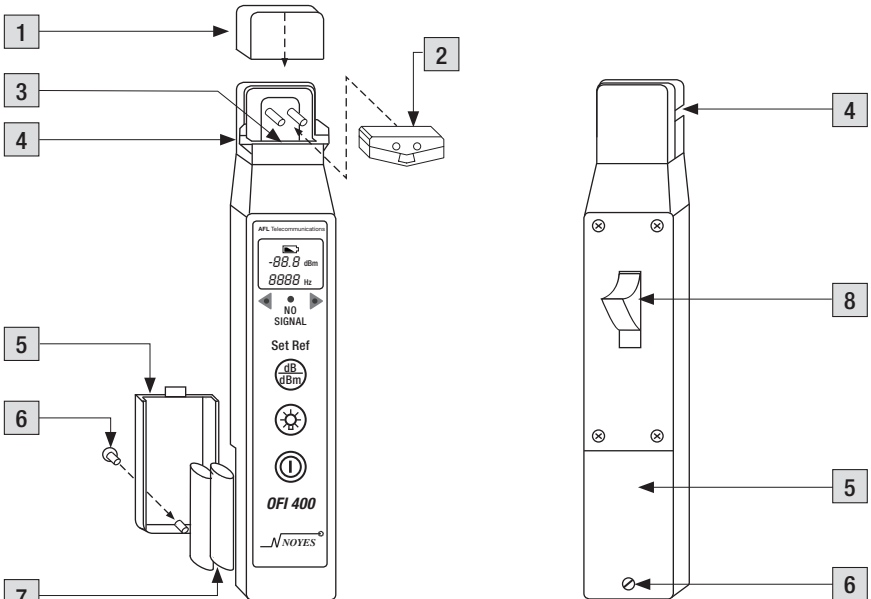


Figure 2-3: OFI 400 Assembly

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Front Panel Features

Figure 2-4 illustrates the OFI 400 front panel keys and indicators described below.

1 **Display -** Shows core power measurements (absolute - dBm or relative - dB), multiple test tone frequencies - Hz (if present), and low batteries status.

2 **[Direction of Traffic] indicators -** [Left] and [Right] arrows identify the direction of the detected [TRAFFIC] signal. They 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.

3 **[NO SIGNAL] indicator -** Illuminates to indicate absence of an optical signal.

4 **[$\frac{\text{dB}}{\text{dBm}}$ /Set Ref] key -** provides two functions as follows:

- [Press and Hold] the key until the word [HELD] is displayed to store the currently measured level as the new reference level. Once the new reference is set, the OFI 400 switches to the relative power [dB] measurement mode.
- [Press and Release] the key to toggle the displayed core power measurements between [dBm] and [dB]

5 **[Backlight] -** When the OFI 400 is turned [On], press the key to toggle the Backlight feature [On] or [Off].

6 **[Power] key -** provides two functions as follows:

- [Press and Release] the key to turn the OFI 400 [On] or [Off]. The unit will turn off

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

automatically 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. Unit will remain [On] until the [Power] key is pressed to turn it [Off].

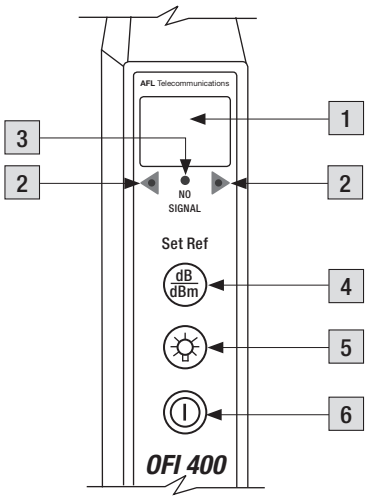


Figure 2-4: OFI 400 Keys and Indicators

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Display Readings

Figures 2-5 illustrate the OFI 400 display readings described below.

1 **[Battery status] indicator -** The Battery icon will appear on the display to indicate a "low battery" condition. The discharged 2 x 1.5V alkaline batteries will require replacement.

2 **Core power measurements -** This field will display core power measurements [dBm or dB]. If an optical signal is not present -[NO SIGNAL] mode, this field will display [LO].

3 **Tone frequencies values -** This field will display the detected test Tone frequencies (270 Hz, 330 Hz, 1000 Hz, or 2000 Hz).

4 **Power units of measure -** Depending on the selected measurement mode, this field will display dBm for absolute power measurements or dB for relative power measurements. Once reference level is set, press the [$\frac{\text{dB}}{\text{dBm}}$ /Set Ref] key to toggle between the [dBm] and [dB] units of measure.

5 **Frequency units of measure -** This field will display frequency unit of measure - [Hz]

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

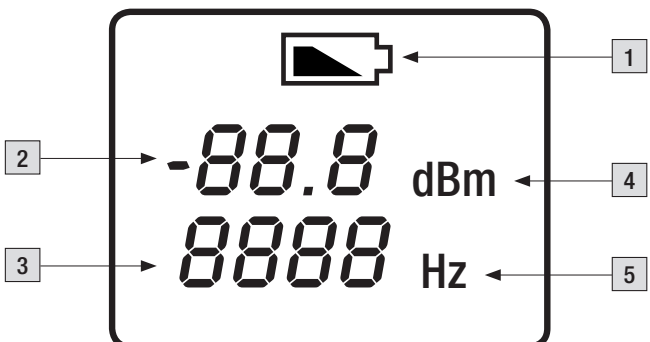


Figure 2-5: OFI 400 Display

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Section 3: Operating Instructions

Precautions

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

All optical test equipment should be kept free of dirt and other contaminants. The OFI models utilize an optical assembly, which must be kept free of dirt and grease. Refer to Section 4 for cleaning information.

The OFI models head assembly 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 the fiber may induce optical losses above specifications.

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 as shown in Figure 3-1. Bright ambient light cannot cause false [NO SIGNAL] readings; however, low level traffic signals in color-coated fiber may not be detected.

Important: The OFI models will not falsely indicate [TONE]. Therefore, only fibers identified as carrying a [TONE] signal should be cut.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Caution: Core Power Accuracy is not specified with the OFI 400. Displayed power levels on the OFI 400 should not be used to determine actual signal strength in the optical fiber.

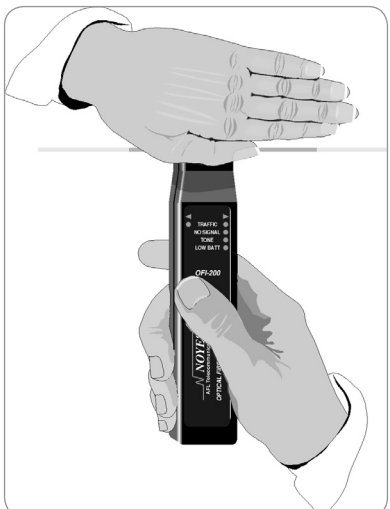


Figure 3-1: Shielding the Optical Assembly Area

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Identifying Tone on Fibers

During installations, maintenance, rerouting, or restorations it is often necessary to isolate a specific fiber from a bundle without disrupting service. By simply clamping the OFI 200 or OFI 400 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.

Used in conjunction with a light source capable of generating a modulated [TONE] signal, the OFI 200 and OFI 400 will isolate the fiber carrying the [TONE] from service fibers and dark fibers. The procedure of using an optical laser source in conjunction with an optical fiber identifier for fiber identification is referred to as [toning out the fiber]. To isolate the fiber carrying the [TONE] signal, perform the following procedures.

Identifying Tone with OFI 400 Model

1 Connect an optical laser source producing a [TONE] signal to the fiber to be tested.

2 Turn on the OFI 400 by pressing the [Power] button.

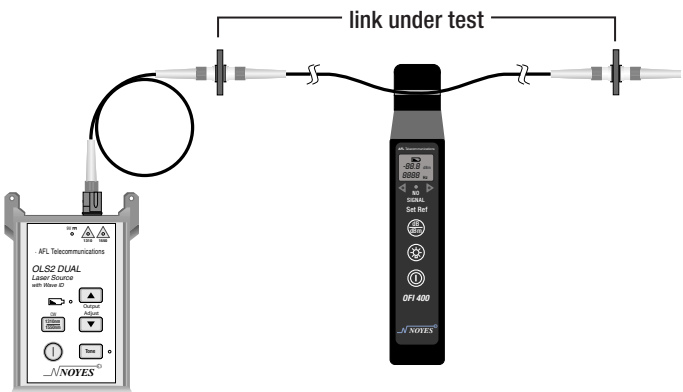
3 Place the fiber to be tested in the fiber groove.

4 Pull down and hold the clamping trigger to depress the fiber under test into the optical assembly.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

5 When a [TONE] signal is detected, the OFI 400 will produce the continuous “beep” signal and show the [TONE] frequency value on the display.

Important: The displayed level measurements (dBm) on the OFI 400 are strictly dependent upon the amount of signal striking the photodiodes in the detector head. Light reaching the detector head is dependent on fiber coating color, coating thickness and



Light source OFI 400

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

varies significantly when testing 250 micron fiber up to 3 mm jacketed fiber. In no situation will the displayed level be an accurate representation of the actual signal strength in the fiber. Under no circumstances should an optical fiber be cut or disconnected based on displayed levels on the OFI 400.

Important: Optical fibers should only be cut or disconnected after the fiber has been positively "toned" using an optical laser source transmitting one of the OFI 400 tones: 270 Hz, 330 Hz, 1000 Hz, 2000 Hz.

Identifying Tone with OFI 200 Model

Used in conjunction with an optical laser source capable of generating modulated 2 kHz [TONE] signal, the OFI 200 will isolate the fiber carrying the 2 kHz [TONE] from service fibers and dark fibers. To isolate the fiber carrying the 2 kHz [TONE] signal, perform the following steps.

1 Connect an optical laser source producing 2 kHz [TONE] signal to the fiber to be tested.

2 Place the fiber to be tested in the fiber groove.

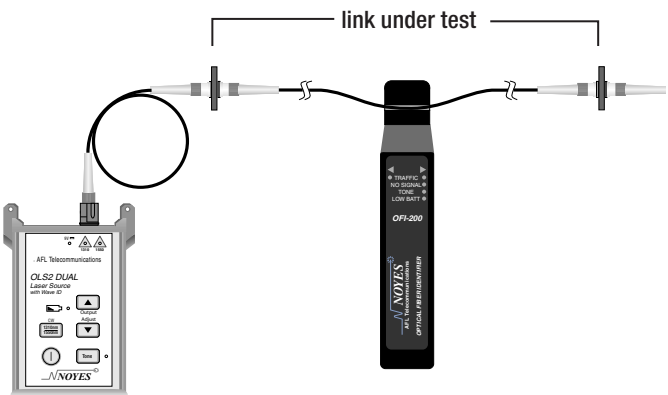
3 Pull down and hold the clamping trigger to depress the fiber under test into the optical assembly.

4 When the 2 kHz [TONE] signal is detected, the OFI 200 will illuminate the [TONE] indicator and produce the continuous "beep" signal.

Note: Traffic direction indication is disabled when a 2 kHz [TONE] signal is detected.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Important: Optical Fibers should only be cut or disconnected after the fiber has been positively “toned” using an optical laser source transmitting the 2 kHz [TONE].



Light source OFI 200

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Testing 250µm/900µm Coated Fibers with OFI 200

The following procedure may be used for testing 250 µm or 900 µm coated fibers.

Note: It is important to place the plunger in the correct position. Please refer to the illustration to the right.

1 Remove the plunger cover.

2 Make sure the plunger is oriented as shown in the illustration. If not, lift the plunger from the two retaining pins.

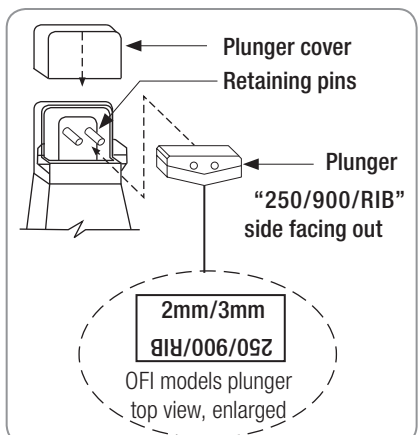
3 Rotate the plunger such that the side labeled "250/900/RIB" is facing out and will be used for aligning the fiber.

4 Replace the plunger and plunger cover.

5 Select the fiber to be tested.

6 Gently insert the fiber being tested into the fiber groove at the top of the OFI 200 head (refer to Figure 2-1).

7 Pull down and hold the trigger to depress the fiber against the optical assembly.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

8 Once the trigger is completely retracted, the OFI 200 will power up and discriminate optical signals transmitted through a single-mode fiber.

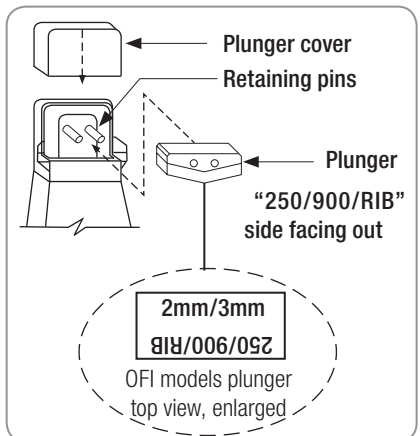
- If the fiber is carrying service, the [TRAFFIC] indicator will illuminate showing the presence of service and the signal direction.
- If the fiber is carrying the 2 kHz [TONE] signal, then the OFI 200 will activate the beeper (continuous beep) and illuminate the [TONE] indicator.
- When no signal is present, the [NO SIGNAL] indicator illuminates.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Testing 250µm/900µm Coated Fibers with OFI 400

The following procedure may be used for testing 250 µm or 900 µm coated fibers.

Note: It is important to place the plunger in the correct position. Please refer to the illustration to the right.



1 Remove the plunger cover.

2 Make sure the plunger is oriented as shown in the illustration. If not, lift the plunger from the two retaining pins.

3 Rotate the plunger such that the side labeled "250/900/RIB" is facing out and will be used for aligning the fiber.

4 Replace the plunger and plunger cover.

5 Select the fiber to be tested.

6 Turn on the OFI 400 by pressing the [Power] button.

7 Gently insert the fiber being tested into the fiber groove at the top of the OFI 400 head (refer to Figure 2-3).

8 Pull down and hold the trigger to depress the fiber against the optical assembly.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

9 Once the trigger is completely retracted, the OFI 400 will discriminate optical signals transmitted through a single-mode fiber.

- If the fiber is carrying service, the LCD display will show the power readings and indicate the signal direction by illuminating the corresponding [Traffic Direction] indicator.
- If the fiber is carrying a [TONE] signal, then LCD display will show the value of the detected [TONE] frequency value and activate the beeper (continuous beep).
- When no signal is present, the OFI will illuminate the [NO SIGNAL] indicator and show the [LO] label on the LCD display.

Testing Ribbon Fibers (OFI 200/ OFI 400)

Ribbon fiber is typically comprised of 4, 8, or 12 fibers with a 250 µm coating attached together. The OFI models can test ribbon fiber; however, the user should be aware of the limitations. The OFI models do 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 will only identify the ribbon as carrying a [TONE] signal and no [TRAFFIC] will be indicated. Due to detector positioning and to ensure accurate readings, it is recommended to flip ribbon fiber to test both sides.

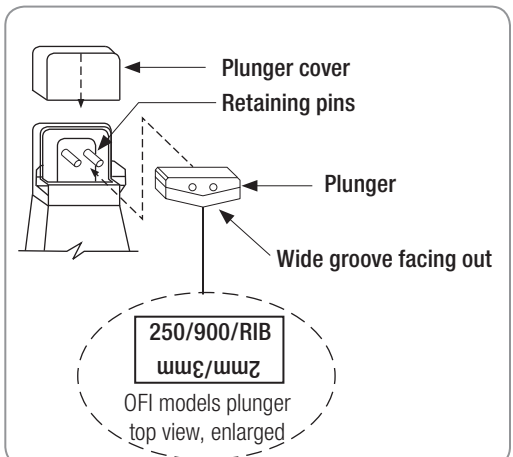
Caution: When testing ribbon fiber, which is not carrying a [TONE] signal, the OFI Optical Fiber Identifier could possibly give false [NO SIGNAL] identification if two service fibers in the ribbon are carrying equal power in opposite directions. The signals will cancel one another resulting in a false reading.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Testing 2mm/3mm Jacketed Fibers with OFI 200

The following procedure may be used for testing 2mm/3mm jacketed fiber cables.

Note: It is important to place the plunger in the correct position. Please refer to the illustration to the right.



1 Remove the plunger cover.

2 Make sure the plunger is oriented as shown in the illustration. If not, lift the plunger from the two retaining pins.

3 Rotate the plunger such that the wide groove (labeled "2mm/3mm") is facing out and will be used for aligning the fiber.

4 Replace the plunger and plunger cover.

5 Select the fiber to be tested.

6 Gently insert the fiber being tested into the fiber groove at the top of the OFI 200 head (refer to Figure 2-1).

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

7 Pull down and hold the trigger to depress the fiber against the optical assembly.

8 Once the trigger is completely retracted, the OFI 200 will power up and discriminate optical signals transmitted through a single-mode fiber.

- If the fiber is carrying service, the [TRAFFIC] indicator will illuminate showing the presence of service and the signal direction.
- If the fiber is carrying the 2 kHz [TONE] signal, then the OFI 200 will activate the beeper (continuous beep) and illuminate the [TONE] indicator.
- When no signal is present, the [NO SIGNAL] indicator illuminates.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Testing 2mm/3mm Jacketed Fibers with OFI 400

The following procedure may be used for testing 2mm/3mm jacketed fiber cables.

Note: It is important to place the plunger in the correct position. Please refer to the illustration to the right.

1 Remove the plunger cover.

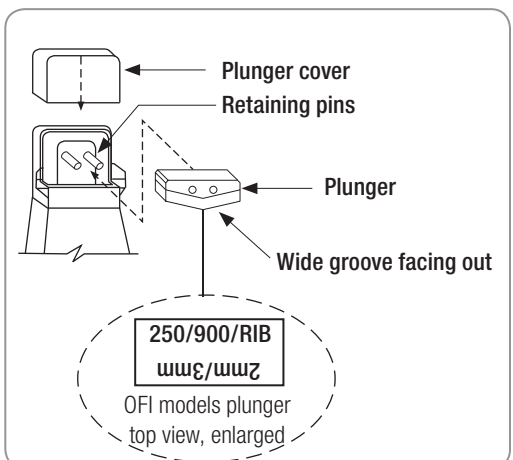
2 Make sure the plunger is oriented as shown in the illustration. If not, lift the plunger from the two retaining pins.

3 Rotate the plunger such that the wide groove (labeled "2mm/3mm") is facing out and will be used for aligning the fiber.

4 Replace the plunger and plunger cover.

5 Select the fiber to be tested.

6 Turn on the OFI 400 by pressing the [Power] button.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

7 Gently insert the fiber being tested into the fiber groove at the top of the OFI 400 head (refer to Figure 2-3).

8 Pull down and hold the trigger to depress the fiber against the optical assembly.

9 Once the trigger is completely retracted, the OFI 400 will discriminate optical signals transmitted through a single-mode fiber.

- If the fiber is carrying service, the LCD display will show the power readings and indicate the signal direction by illuminating the corresponding [Traffic Direction] indicator.
- If the fiber is carrying a [TONE] signal, then LCD display will show the value of the detected [TONE] frequency value and activate the beeper (continuous beep).
- When no signal is present, the OFI will illuminate the [NO SIGNAL] indicator and show the [LO] label on the LCD display.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Measuring Core Power with OFI 400 Model

The following procedure may be used for measuring fiber core power.

1 Turn on the OFI 400 by pressing the [Power] key.

2 Gently insert the fiber to be tested into the fiber groove at the top of the OFI 400 head (refer to Figure 2-3).

3 Pull down and hold the trigger to depress the fiber against the optical assembly.

4 Observe the OFI 400 display readings.
The core power measurement will be 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).

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Measuring Relative Power with OFI 400 Model

The following procedure may be used for measuring relative power.

1 Turn on the OFI 400 by pressing the [Power] key.

2 Gently insert the fiber to be tested into the fiber groove at the top of the OFI 400 head (refer to Figure 2-3).

3 Pull down and hold the trigger to depress the fiber against the optical assembly.

4 [Press and Hold] the [$\frac{\text{dB}}{\text{dBm}}$ /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 400 switches to the relative power [dB] measurement mode.

5 Observe the OFI 400 display readings.
The relative power measurement will be displayed in [dB]

Note: You may [Press and Release] the [$\frac{\text{dB}}{\text{dBm}}$ /Set Ref] the key to toggle the displayed measurements between [dB] and [dBm].

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Section 4: Maintenance

Repair and Calibration

Repair of the Noyes test equipment in the field is NOT recommended.

Calibration is recommended every 36 months. Noyes Calibration Department is in compliance with ANSI/NCSL Z540-1, ISO 10012-1, MIL STD 45662A, ISO Guide 25 and traceability to the National Institute of Standards and Technology. Call Customer Service to obtain a Service Request (S.R.) number before sending units in for calibration.

Verifying OFI Performance

To verify performance of an Optical Fiber Identifier, use an optical jumper and a light source capable of generating both the [CW] signal and the modulated [TONE] signal. When the light source is transmitting in the [CW] mode, the OFI should indicate [TRAFFIC] in the proper direction. Switching the light source to the [TONE] mode should activate the OFI audible beeper and indicate the [TONE] detection as follows:

- OFI 200 will illuminate the [TONE] indicator
- OFI 400 will show the detected [TONE] frequency on the LCD display

Noyes laser sources may be used for this procedure.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Cleaning Optical Assembly

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

Note:
- For cleaning the OFI optical assembly, use lint-free optical cleaning wipes and 99% IPA (isopropyl alcohol) that has not been contaminated.
- Do not immerse the plunger assembly in alcohol.

1 Remove the plunger cover.

2 Lift the plunger from the two retaining pins.

3 Dampen the wipe with the alcohol and gently clean the exposed prism and optical windows.

4 Once completed, replace the plunger and plunger cover.

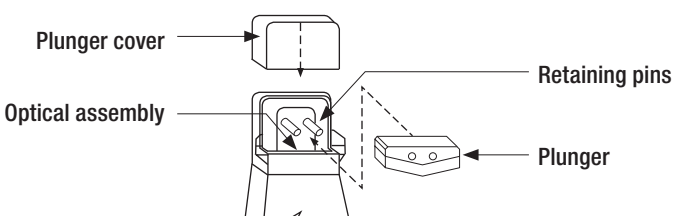


Figure 4-1: Cleaning Optical Assembly

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

OFI 200 Battery Replacement

When the [LOW BATT] indicator illuminates on the OFI 200 front panel, the discharged 9V alkaline battery requires replacement.

To replace the discharged battery:

1 Remove the retaining screw and slide the battery plate away from the unit.

2 Replace the discharged battery.

3 Replace the battery plate and retaining screw.

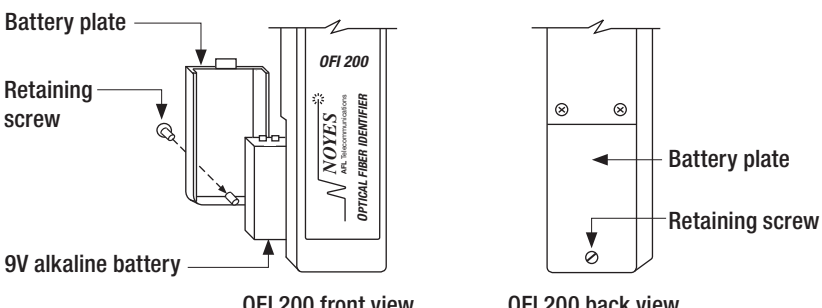


Figure 4-2: OFI 200 Battery Replacement

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

OFI 400 Battery Replacement

When the - Low Battery indicator appears at the top of the OFI 400 display, the 2 x 1.5V 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.

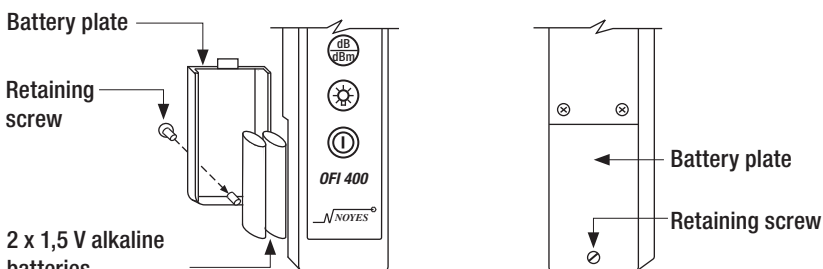


Figure 4-3: OFI 400 Battery Replacement

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Section 5: Specifications

OFI 200 Specifications

Detectable signal range

Fiber Type	Parameter	Wavelength, Signal	OFI 200
250 µm coated fiber (SMF-28 with 250 µm CPC6 coating)	Minimum detect level (average power, typical)	1310 nm, CW or Traffic 1310 nm, 2 kHz Tone 1550 nm, CW or Traffic 1550 nm, 2 kHz Tone	-40 dBm -43 dBm -45 dBm -50 dBm
	Insertion loss (typical)	1310 nm 1550 nm	0.6 dB 2.5 dB
3 mm jacketed fiber (SMF-28 with 250 µm CPC6 coating and a 3 mm, yellow jacket)	Minimum detect level (average power, typical)	1310 nm, CW or Traffic 1310 nm, 2 kHz Tone 1550 nm, CW or Traffic 1550 nm, 2 kHz Tone	-30 dBm -32 dBm -33 dBm -37 dBm
	Insertion loss (typical)	1310 nm 1550 nm	0.8 dB 2.5 dB

continued on the next page

Specifications are subject to change without notice
© 2002-2008 AFL Telecommunications. All rights reserved.
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Optical Specifications

Detector type	InGaAs
Specified wavelength of operation	1310 & 1550 nm
Fiber stress	<100 kPSI max
Fiber size	250 µm, 900 µm, 2 mm or 3 mm jacketed & ribbon fiber
Tone detection	2000 ±100Hz
Measurement time	<1.0 second

General Specifications

Operation temperature	0 to +50°C, 90% RH (Non-condensing)
Storage temperature	-30 to +60°C, 90% RH (Non-condensing)
Battery life	>10,000 operations typical (9 volt DC Alkaline)
Dimensions (H x W x D)	22 x 3.8 x 2.8 cm (8.5 x 1.5 x 1.1 in)
Weight	210 g (7.5 oz)

Notes:

1 250 µm coated fiber parameters are specified with OFI 200 plunger in the [250/900/RIB] position. 2 mm/ 3 mm jacketed fiber parameters are specified with OFI 200 plunger in the [2 mm/ 3 mm] position.

2 Unless noted otherwise, all specifications are typical. Actual results can vary by several dB depending on fiber type, coating material, jacket color, jacket hardness, and other factors. All specifications stated above are as measured at 25°C.

3 [CW] or Continuous Wave is a light signal that is not modulated. [TRAFFIC] is a light signal modulated by a random data sequence. [TONE] is a light signal modulated into a nominal 50% duty cycle square wave.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

OFI 400 Specifications

Detectable signal range

Fiber type	Parameter	Wavelength, signal	OFI 400
250 µm coated fiber (SMF-28 with 250 µm CPC6 coating)	Minimum detect level (average power, typical)	1310 nm, CW or Traffic 1310 nm, Tone 1550 nm CW or Traffic 1550 nm, Tone	-45 dBm -45 dBm -50 dBm -50 dBm
	Insertion loss (typical)	1310 nm 1550 nm	0.6 dB 2.5 dB
3mm Jacketed fiber (SMF-28 with 250 µm CPC6 coating and a 3 mm yellow jacket)	Minimum detect level (average power, typical)	1310nm, CW or Traffic 1310nm, Tone 1550nm CW or Traffic 1550 nm, Tone	-30 dBm -30dBm -33 dBm -33 dBm
	Insertion loss (typical)	1310 nm 1550 nm	1.0 dB 2.8 dB

continued on the next page

Specifications are subject to change without notice
© 2002-2008 AFL Telecommunications LLC. All rights reserved.
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Optical Specifications

Detector type	InGaAs
Specified wavelength of operation	1310 & 1550 nm
Calibrated size of fiber and wavelength	250 µm (SMF-28) @1550 nm
Fiber stress	< 100 kPSI max
Fiber size	250 µm, 900 µm, 2 mm or 3 mm & ribbon fiber
Tone detection	270, 330, 1000, or 2000 Hz (±5%)
Traffic/Tone detect range (250µm SMF28@1550nm)	+20 to –45 dBm
Core power measurement range	+13 dBm to – 50 dBm SMF28/28E 250um @ 1550nm
Measurement units	dBm, dB

continued on the next page

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

General Specifications

Display Type	Multi 7 segment LCD 3 LEDs 1 piezo buzzer
Operation temperature	0 to +50°C, 90% RH (Non-condensing)
Storage temperature	-30 to +60°C, 90% RH (Non-condensing)
Power	2 (two) x 1.5V alkaline batteries
Battery life	> 10,000 operation typical
Dimension (H × W × D)	22 × 3.8 × 2.8 cm (8.5 × 1.5 × 1.1 in)
Weight	168 g (6 oz)

Notes:

1 250 µm coated fiber parameters are specified with OFI 400 plunger in the [250/900/RIB] position. 2 mm/ 3 mm jacketed fiber parameters are specified with OFI 400 plunger in the [2 mm/ 3 mm] position.

2 Unless noted otherwise, all specifications are typical. Actual results can vary by several dB depending on fiber type, coating material, jacket color, jacket hardness, and other factors. All specifications stated above are as measured at 25°C.

3 [CW] or Continuous Wave is a light signal that is not modulated. [TRAFFIC] is a light signal modulated by a random data sequence. [TONE] is a light signal modulated into a nominal 50% duty cycle square wave.

Specifications are subject to change without notice
© 2002-2008 AFL Telecommunications. All rights reserved.
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Thank you for choosing Noyes Test & Inspection

16 Eastgate Park Road
Belmont, NH 03220
Phone: 800-321-5298
603-528-7780
Fax: 603-528-2025

NOYES ISO 9001 CERTIFIED

CE

www.AFLtele.com > Products > Noyes Test & Inspection

NOYES
Test & Inspection

A Division of **AFL Telecommunications**

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP