



Optical Wavelength Laboratories

N9623 West US HWY 12 Whitewater, Wi. 53190



850 nm LIGHT SOURCE

ECONO OWL FIBER LOSS SET

RUGGED-FRIENDLY-ECONOMICAL



MULTIMODE OPTICAL
POWER METER

Owner's Manual



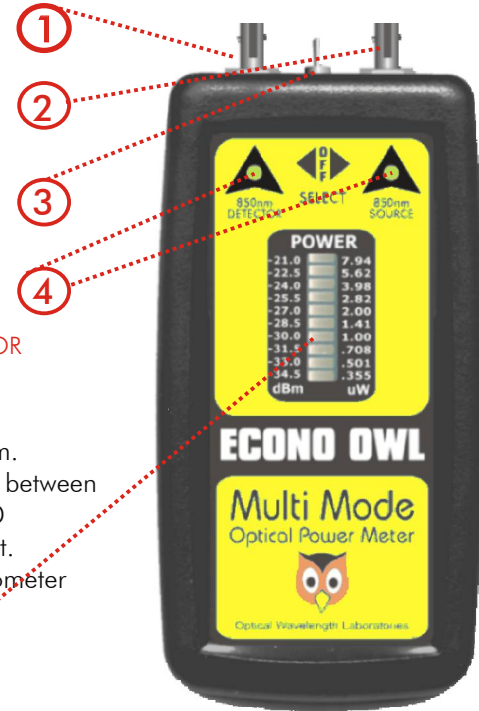
MADE IN USA

Table of Contents

| | |
|---|---------|
| Econo OWLä-General Features ----- | Page 1 |
| Econo OWLä-Description ----- | Page 2 |
| Econo OWLä-Specifications ----- | Page 2 |
| 850 OWLä-General Features ----- | Page 3 |
| 850 OWLä-Description ----- | Page 4 |
| 850 OWLä-Specifications ----- | Page 4 |
| Testing Link-Standards ----- | Page 5 |
| Testing Link-Diagram ----- | Page 6 |
| Recording Results ----- | Page 7 |
| Spool Testing ----- | Page 8 |
| Technical Support ----- | Page 9 |
| Warranty ----- | Page 9 |
| Consulting and Training ----- | Page 9 |
| Calibration ----- | Page 10 |
| Care Instructions----- | Page 11 |
| Econo OWL and Ranger Specifications ----- | Page 12 |

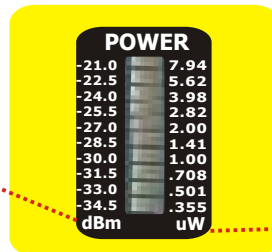
ECONO OWL[®]-GENERAL FEATURES

- ① 850 NANOMETER (nm) ST **DETECTOR** PORT
- ② 850 NANOMETER (nm) ST **SOURCE** PORT
- ③ **TOGGLE SWITCH SELECT** - Allows you to choose between 850nm **DETECTOR** (left), **OFF**(center), or built-in 850nm **LIGHT SOURCE and DETECTOR** (right). Remember, when you are finished with a test session, return the toggle switch to the center **OFF** position otherwise you will drain your 9-Volt battery completely down! The light source should be left on for one minute to stabilize before taking measurements.
- ④ Indicator LEDs- LEDs indicate the selected item(s). Detector LED only-**DETECTOR ON**. Both source and detector LEDs on-**DETECTOR** and **LIGHT SOURCE ON**. **IF THE DETECTOR LED IS OFF WHEN THE SWITCH IS TOGGLED TO EITHER SIDE, THE METER MAY GIVE INACCURATE READINGS**. If this is the case, replace the batteries.
- ⑤ No bar LEDs lit indicates less than -35 dBm of optical power detected in the system. Top bar LED lit indicates a power level of -21.0 dBm or greater. If the LED hovers between two values you can estimate measurement between levels. For instance, if the LED hovers equally between -25.5 and -27.0, then you could record -26.25 as a result. **MAXIMUM TIA-568-A network losses are around (-31.5dBm) for a typical 2.0 Kilometer link.** (See TIA-568-A Documents for detail) ([Internet TIAONLINE.org](http://Internet.TIAONLINE.org))



Decibels relative to a milliwatt
(Power Scale)

⑤



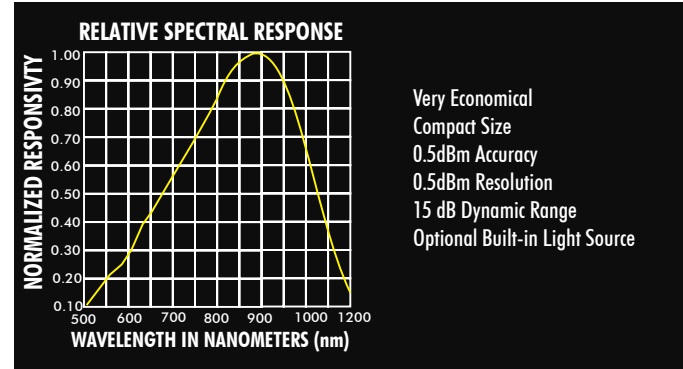
microwatt

ECONO OWLä-DESCRIPTION

The Econo OWLä is an economical optical fiber power meter. It provides accurate testing of multimode fiber cables when used with a -20dBm 850nm light source. The smooth-scrolling LED bar graph allows higher resolution measurements and an optional integrated 850nm light source allows quick testing of fiber patch cords and spools. LED indicators confirm selection of the detector and source and verify that battery power is sufficient to maintain accurate measurements.

The Econo OWLä is designed with the cost-conscious installer in mind. Its intuitive interface makes it very simple to use.

ECONO OWLä-SPECIFICATIONS



- Very Economical
- Compact Size
- 0.5 dBm Accuracy
- 0.5 dBm Resolution
- 15 dB Dynamic Range
- Optional Built-in Light Source

850 OWL[®]-GENERAL FEATURES

- ① 850 NANOMETER (nm) ST SOURCE PORT
- ② TOGGLE SWITCH SELECT - Toggles the light source between **ON** and **OFF**. Remember, when you are finished with a test session that you return the toggle switch to the center **OFF** position, otherwise you will drain your 9-Volt battery completely down! The light source should be left on for one minute to stabilize before taking measurements.
- ③ Indicator LED- LED indicates **ON** or **OFF**. If the LED does not light up when switch is toggled, the light source will cause the meter to produce inaccurate readings; replace the battery.

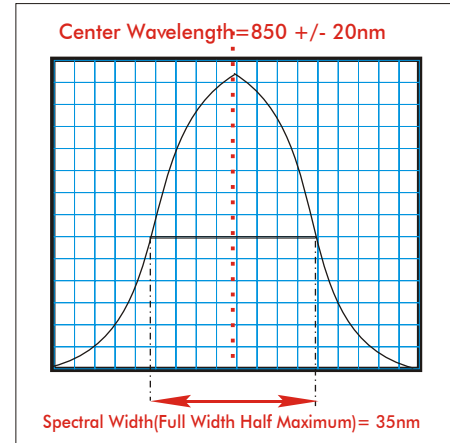


850 OWL_a-DESCRIPTION

The 850 OWL_a is a cost effective, compact, handheld light source. The temperature compensated outputs are calibrated to couple -20dBm of optical power into 62.5um multimode fibers. The light source is offered in a single 850nm version. The power coupled into a 50um multimode fiber is typically 2 to 4 dB less. The 850nm version can be easily upgraded to include a 1300nm source as well. When used with the Econo OWL_a this source will provide 15 dB of measurement range. You will have 20 dB of measurement range when used with the Econo OWL_a Ranger.

The source is simple to operate with a single switch controlling power and selecting the output wavelength. LED indicators highlight the selected source and verify that battery power is sufficient to maintain the calibrated output power.

850 OWL_a-SPECIFICATIONS



- Very Economical
- Compact Size
- 20 dBm Calibrated Output Source
- Temperature Compensated
- Extended Battery Life
- Low Battery Indicator
- Optional Upgrade to dual 850/1300nm

TESTING LINK - STANDARDS

EIA-TIA 568-A

Commercial Building Telecommunications Cabling Standard

Concerning fiber optics, the 568-A sets standard values for all components contained in a fiber optic link. Each component is assigned a loss value to be used when calculating actual power values against standards compliance values.

For multimode fibers at 850nm, the standards require graded index multimode fiber. The loss for the fiber is 3.75 dB per kilometer, up to a maximum of 2 kilometers.. This standard also details losses associated with connectors and splices. Connector pairs each add 0.75 dB each, and splices add 0.3 dB.

Each component attenuates the signal originating the light source. Too many connectors and/or splices will eventually drain the signal so far that the detector will not be able to reliably sense the signal.

Compliance to this standard ensures that the fiber plant will work as installed.

EIA-TIA 526-14A

OFSTP-14A Optical Power Loss Measurement of Installed Multimode Fiber Cable Plant

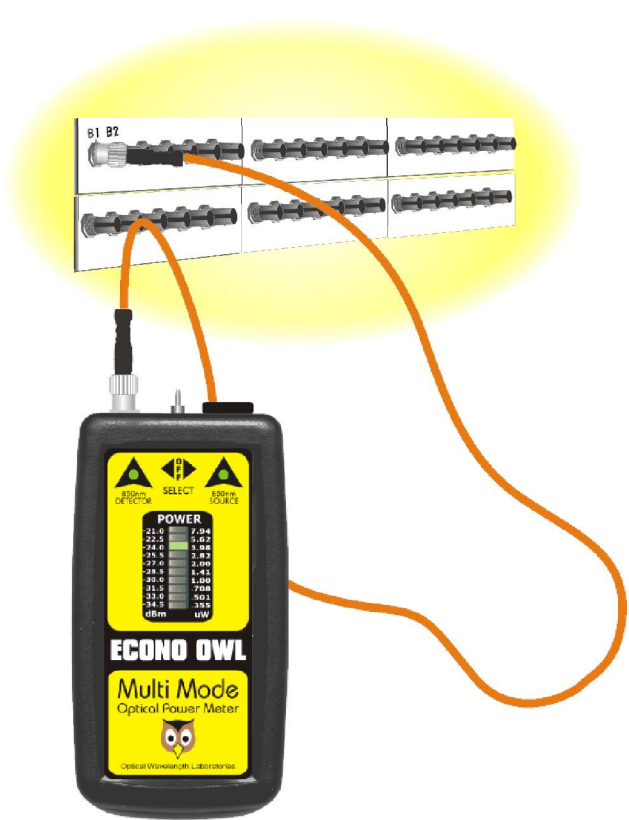
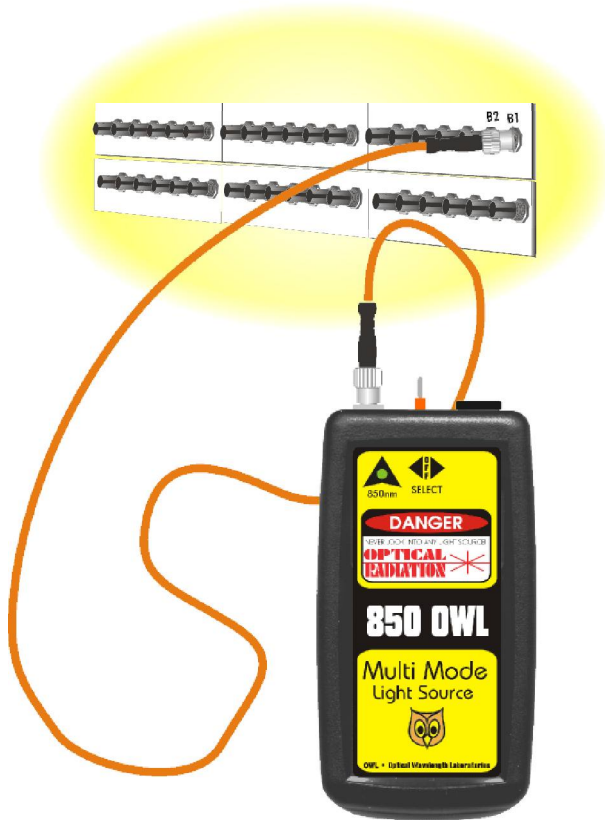
The 526-14A was written to ensure that meaningful data can be obtained when performing tests on a multimode fiber optic link.

Light sources must adhere to the spectral characteristics detailed in the following table.

| Center Wavelength (nm) | Spectral Width (nm, FWHM) |
|------------------------|---------------------------|
| 850 \pm 30 | 30 - 60 |
| 1300 \pm 20 | 100 - 140 |

Certain procedures must be followed in order to set optical reference values before actual link testing can begin.

TESTING LINK

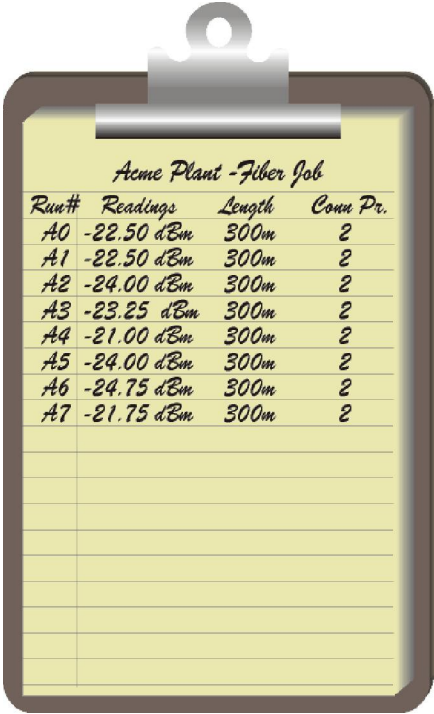


RECORDING RESULTS

The Econo OWLä and 850 OWLä optical test set can be used with a simple clipboard for an economical way to record multiple fiber runs.

Just write down the reading from the Econo OWLä on the clipboard. This data can then be transferred to a spreadsheet for standards compliance calculations, chart graphing, or printout for hard-copy administration purposes.

The example to the right shows typical data to be recorded with this method.



SPOOL TESTING

BULLET

The Bullet[®] Bare Fiber Adaptor is an affordable and easy method for temporarily connecting bare fiber with all industry standard connectors. The Bullet[®] provides a simple and easy method to quickly interconnect any standard fiber connector to a piece of unterminated (bare) fiber to meet service, test, or communication requirements.

A few unique and distinctive features set the Bullet[®] apart from other available products. These features are the fiber holding mechanism, removable - interchangeable connector modules (tips), and the small amount of bare fiber required to expose after cleaving for insertion. The Bullet[®] was also recognized worldwide as a Technology Award Finalist for a product which demonstrated the widest range of technological merit, usefulness to the marketplace and design.



TECHNICAL SUPPORT

Technical support is provided between 8AM and 5PM Central Standard Time. Items covered by tech support include return authorization, warranty inquiries, and equipment operation questions. Technical support is not meant for consultation on fiber optic system design, or other consulting and/or training advice. All inquiries not relating to tech support will be referred to the appropriate department.

WARRANTY

Optical Wavelength Laboratories offers a one-year warranty that covers manufacturing and parts defects. You can activate your warranty by registering online at OWL-INC.COM.

CONSULTING AND TRAINING

Optical Wavelength Laboratories offers a consulting service for all aspects of fiber optic networking: theory, design, installation, testing, and troubleshooting. You can also become a OWL Certified Fiber Optic Technician by attending our Fiber Optic Technician course -- a four-day course that covers the knowledge necessary for a technician in the fiber optic industry. A passing score on the examination will ensure that you are armed with the tools that every fiber optic technician needs.

CALIBRATION

Optical Wavelength Laboratories can also calibrate your meter. We recommend calibrating a fiber optic power meter once every two years. This ensures that you are getting accurate and precise measurements from your meter. For calibration pricing call 262-473-0643 or look on our web site at owl-inc.com.

Calibration shipping address:

Optical Wavelength Laboratories
Calibration Department
9623 Breidsan Drive
Whitewater, WI 53190

CARE INSTRUCTIONS

The Econo OWLä is a sensitive piece of scientific equipment. Great care should be taken when handling and cleaning it.

HANDLING TIPS

- 1) Do NOT drop the meter. Damage may occur to the case or electronic components on the circuit board may become dislodged.
- 2) Keep the meter in its neoprene case when not in use. This will help protect the meter from the elements and accidental droppage.
- 3) Store the meter in a cool dry area when not in use in order to keep the meter in top working condition.
- 4) Always remember to replace the rubber cap on the connector(s). This will keep dust and dirt out of it when you are not using the meter.

CLEANING TIPS

- 1) Use only 99% or better Isopropyl alcohol when cleaning the detector. Any less than 99% contains too much water and will begin to corrode the components. 99% Isopropyl alcohol is very flammable, so additional care must be taken when cleaning the detector. 99% Isopropyl alcohol can be purchased at your local drug store.
- 2) Whenever possible, use specially designed 2.5mm cleaning sticks to clean the detector. These do not require alcohol and do not damage the insides of the connector. Do not used sticks or swabs of any other type because they may damage the zirconium ferrule or the coating of the detector inside the connector, or may leave behind dust or fibers that will add loss to the fiber reading.
- 3) The detector port should be cleaned at the beginning and end of the testing day to keep connector loss during testing at a minimum.
- 4) When cleaning the meter itself, do not use any household cleaner that contains ammonia as this will damage any plastic it comes in contact with.
- 5) The case is splash-proof, so it is not necessary to clean the inside of the meter.

ECONO OWL SPECIFICATIONS

Detector:----- Si 1mm
Calibrated Wavelength:----- 850nm
Measurement Range:----- -21 to -35dBm
Dynamic Range:----- 15dB
Accuracy:----- 0.5dBm
Resolution:----- 0.5dBm
Battery Life:----- ~60hrs
Operating Temperature:----- 0to55°C
NIST Traceability:----- Yes
Battery Capacity Display:----- Yes
Connector(Adapters available call)-- ST
WIDTH----- 2.75"
HEIGHT----- 4.94"
DEPTH----- 1.28"
Weight with battery:----- 154g

RANGER SPECIFICATIONS

Detector:----- Si 1mm
Calibrated Wavelength:----- 850nm
Measurement Range:----- -20to -40dBm
Dynamic Range:----- 20dB
Accuracy:----- 1.0dBm
Resolution:----- 1.0dBm
Battery Life:----- ~60hrs
Operating Temperature:----- 0to55°C
NIST Traceability:----- Yes
Battery Capacity Display:----- Yes
Connector(Adapters available call)-- ST
WIDTH----- 2.75"
HEIGHT----- 4.94"
DEPTH----- 1.28"
Weight with battery:----- 154g



OWL
THE WISE CHOICE!

“Hootsy Owl”

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