Operation Manual for OPM-1315 Optical Power Meter

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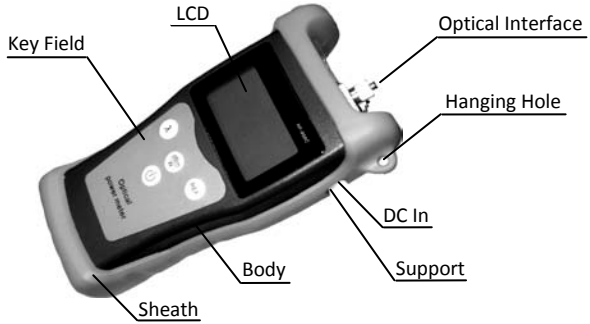
1. INTRODUCTION

This is the operation manual for the OPM1315 Optical Power Meter.

Image 1 below shows the location and function of the OPM1315



1.1 SUMMARY

The OPM1315 is a newly developed portable optical power meter. It is equipped with a 1.0 mm large area detector so that stability and reliability can be enhanced effectively. This unit is designed to fit the hand comfortably, and can be used for installation, debugging, and maintenance of any fiber network but is particularly suited for a singlemode network. It is light weight, has a backlight display, as well as an automatic shutdown feature. The OPM can be widely used in a variety of fields such as cable construction and maintenance, optical fiber transmission, optical fiber communication, fiber optical sensor, and CATV. It is ideally paired with the OLS1315 Optical Light Source for network or passive testing.

1.2 PRODUCT FEATURES

The OPM1315 has six optical wavelengths to choose from for testing many different systems. The OPM1315 uses a standard 9V battery which will normally yield approximately 200 hours of continuous operation. An optional AC power supply can be used for continuous operation. The OPM1315 is supplied with a SC optical adapter and there are FC and ST available as options. The OPM1315 has auto-off function and backlight switch which can be set from the front panel.

1.3 TECHNICAL PARAMETERS

Model	OPM1315	
Wavelength (nm)	800 ~ 1700	
Probe	InGaAs	
Detection Limit	© 1.0 mm	
Power Detecting range (dBm)	-70~+10	-50~+26
Uncertainty Degree	± 5%	
Standard Wavelength (nm)	850, 1300, 1310, 1490, 1550, 1625	
Display Resolution	0.01 dBm	
Working Temp (°C)	-20~+70	
Storage Temp (°C)	-30~+80	
Automatic Shutdown Time (min)	15	
Battery (hrs.)	200	
Overall Dimension (mm)	185X105X50 (7X4X1.75")	
Power Supply	9V battery, AC adaptor	
Weight (g)	350 (13 oz)	

1.4 MAIN APPLICATIONS

- Measurement of the power of an optical transmitter (dBm and W)
- Testing loss of a optical fiber link
- Testing insertion loss of optical passive device
- Installation and maintenance of fiber optic systems

2. OPERATION INSTRUCTIONS

2.1 TURNING OPM1315 ON AND OFF

Press the ⏻ button to turn unit on.
(NOTE: When the meter is switched on, the auto-off function is automatically activated.)

Press the ⏻ button and hold for 2 or 3 seconds to turn the meter off.

2.2 AUTO-OFF FUNCTION

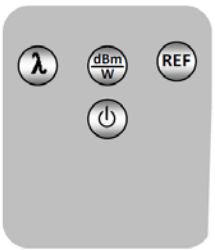
When the meter is turned on, the auto-off function is activated. If the meter is not used for 15 minutes, it will automatically shut off.

To disable the auto-off function, simply push the ⏻ a second time after the meter is turned on. Pushing the ⏻ again will turn the auto-off function back on.

2.3 BACKLIGHT OPERATION

The backlight will automatically turn off when the meter is not used for about 1 minute to conserve battery, pressing any button will turn the light back on.

2.4 CONTROL PANEL DESCRIPTION



Power Button ⏻
Used to turn meter on and off.
Auto-off function operates through the use of this button.

Wavelength Button λ
This button is used to select the wavelength. 850nm, 1300nm, 1310nm, 1490nm, 1150nm, and 1625nm. Press the button repeatedly to step through the wavelengths.

Measurement Selection Button 

This button is used to select either dBm or mW, nW between the absolute and relative measurements of optical power. (mW is milliwatt, or 10 -3, nW is nanowatt or 10 -9 watt)

Calibration Button 

Press this button to save the current power value (zero the test setup). This value can be used as a reference and will be displayed in the upper right hand corner of the LCD screen. Pressing this button quickly will switch the function to a relative power measurement. With the reference power value showing, the relative value will now be displayed between the current measurement and the reference power.

The meter is now dB.

3. INSTRUCTIONS FOR OPM1315 POWER METER

3.1 LCD DISPLAY

Once the power is turned on the following information will display on the LCD screen:

(1) When the meter is on battery power, a battery level indicator will be displayed in the lower left hand corner. When the indicator goes down to one bar, it is time to replace the battery.

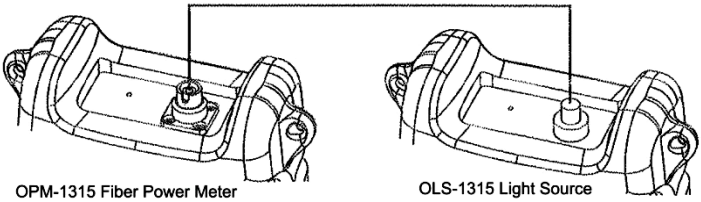
(2) When operating on the AC adapter, a plug symbol will be displayed above the battery indicator.
(3) In the lower left hand corner of the LCD screen next to the battery indicator is the auto-off indicator. When the meter is turned on this is automatically activated and will turn the meter off after 15 minutes if the meter is not used.
(4) The middle of the screen is where the optical power level is displayed, either in dBm or mw.
(5) In upper right hand corner, the reference power value will be displayed when the meter is dBm. This is used when "zeroing" the power meter with a light source.
(6) In the upper left hand corner, the optical wavelength selected will be shown in nm (nanometers).

3.2 WAVELENGTH SELECTION

There are a wide range of wavelengths including 850nm, 1300nm, 1310nm, 1490nm, 1550 nm for your convenience. These are available by pressing the λ button.

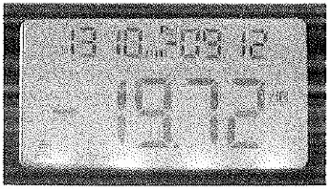
3.3 ABSOLUTE POWER MEASUREMENT (dBm)

(1) Use one fiber optic jumpers to connect the output port of the light source with the detecting port of the fiber power meter as shown in the following figure:



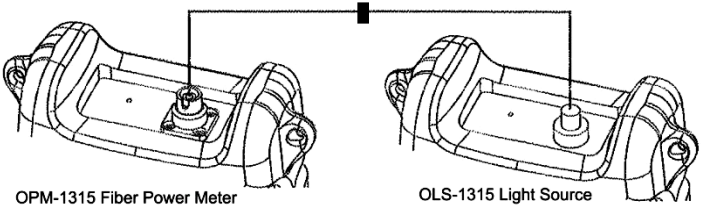
(2) Turn on the light source and then select the wavelength to be tested.

(3) Turn on the fiber power meter and select the specified wavelength.
(4) The LCD display now shows the actual output power of the light source as shown in the following figure (power shown is 09.73 dBm).



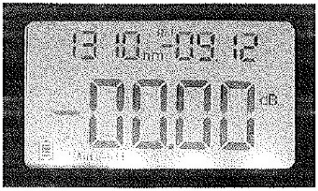
3.4 RELATIVE POWER (LOSS) MEASUREMENT nW (nanowatt)

The nW mode is mainly used for the measurement of relative power or insertion loss. Under nW mode, the power value measured is reduced by the reference value. The insertion loss or the loss of optical fiber link will be shown on the LCD screen. Note: It is necessary to set up the reference value for each wavelength (zero the meter).
(1) Use two fiber optic jumpers and a mating sleeve to connect the output port of the light source, and with the detecting port of the fiber power meter as shown in the following figure:



(2) Turn the light source on and select the wavelength to be tested.

(3) Turn on the fiber power meter and select the wavelength being tested.
(4) When the power meter displays the level received from the light source, press REF button and the power value will be saved as the current reference value (the display is zeroed and the actual level in dBm is displayed in the upper right of the LCD display.) this is the actual loss of the two jumpers and the mating sleeve. See figure below where the meter is zeroed and the REF shows -09.12.



(5) Now disconnect the two fiber jumpers from the mating sleeve and connect to the network or device that is to be tested. The reading on the LCD screen shows the insertion loss of the network or device being tested.

4. MAINTENANCE
As a highly sensitive electric & optical instrument, this meter must be maintained carefully in order to preserve its high precision and flexibility. Please pay close attention to the following items:
• Before each use clean the optical fiber connector
• Keep away from dust
• Only keep the meter in a dry clean place away from direct sunlight
• Temperature variations should be avoided to maintain accuracy
• The meter cannot tolerate any kind of impact or vibration

4.1 HOW TO CLEAN PROBE
Clean the probe of the optical power meter regularly.
(1) Open the dust proof cap.
(2) Screw off the adapter.
(3) Use 2.5mm cotton swab with some anhydrous alcohol to lightly clean the surface of the probe.

WARNING: Do not use anything hard or abrasive when cleaning the surface of the probe. Do not drop since it may crack the probe and cause the meter to not work.

ATTENTION: Remember to cover the dust-cap when not using the meter.

4.2 9V BATTERY REPLACEMENT
Open the back cover in order to remove and install the battery. Following is some useful information for better operation:

(1) Install a new Alkaline 9V battery when the  icon is displayed on the LCD screen.
(2) Check the condition of the battery if the unit has been out of use for some time.

5. CALIBRATION AND MEASUREMENT
5.1 Accurate performance can only be achieved through the proper care and use of this meter. In order to ensure performance it is recommended that the calibration be checked annually, and if necessary recalibrate the meter.

5.2 To perform a calibration of the optical power meter a light source with a known output level is required. The light source must be on the wavelength the meter will be calibrated to!

5.3 To calibrate the light source follow the following instructions:
(A) Open the back cover where the battery is located and you will see two toggle switches. To put the meter in calibration mode, turn either one of the toggle switches to the ON position. You are now ready to calibrate the meter.
(B) Connect the meter to a known light source and set to the correct wavelength. Compare the reading on the meter to the known power level of the light source. If the readings are different then you can adjust the reading on the power meter either up or down so that it reads exactly the same as the light source. Pressing the REF button increases the display value by 0.05dB. Pressing the dBm/W button reduces the display value by 0.05dB When done, press the On/Off button to save the calibration

REF Button	Increases the displayed value by 0.05dB
dBm/W Button	Decreases the displayed value by 0.05dB
ON/OFF Button	Quickly press this button to save the value calibrated. Press this button twice to turn off the power meter.

(C) Open the back cover where the battery is located and turn the toggle switch to the OFF position for normal operation.

6. TROUBLESHOOTING

PROBLEM	POSSIBLE REASON	CORRECTIVE MEASURE
Inaccurate measurements	Not matching the wavelength of the light source	Change the operating wavelength on the meter
Failed to start / no screen display	9V battery is dead	Change battery
Low LCD Display	Low battery power	Either use AC adaptor or change the battery
Some variation of optical power upon powering meter on	No preheating for optical maser	Turn on the light source and activate the operating wavelength. Calculate measurement after 30 min. of preheating
Low output power of light source	Dirty connectivity port of light source	Clean the connectivity port thoroughly

7. WARRANTY PERIOD

7.1 GENERAL INFORMATION

The meter has a one year free from defects warranty period. This warranty is from the date of delivery and shall be guaranteed for any defects or faults caused by material quality or non-performance. Performance under normal operating conditions is fully guaranteed. Under this guarantee the company reserves the right to carry out any maintenance it deems necessary to restore the meter to optimal performance. If maintenance fails then the unit will be replaced. One free calibration is included on any warranty item. Note: Any damage that is caused by improper use of any kind will be charged for any maintenance or necessary replacement. The company will not be responsible for any accidental damage caused by the use of this meter.

WARNING: If any of the following conditions takes place, the warranty shall be null and void.

(1) If the warranty label is removed.
(2) Case bolts (not mentioned in the manual) have been removed.
(3) Improper use of the meter.
(4) If the serial number has been altered or removed.
(5) If the meter has been damaged.
(6) If the meter has been exposed to moisture.

7.2 INCLUDED IN PACKAGE

OPM1315 Portable Optical Power Meter..... 1 piece
Operation Manual..... 1 piece
9V Battery..... 1 piece
Cotton Swab..... 1 piece

Options

AC Power Adapter model OPM-PS
FC Optical Adapater model OPM-FC
ST Optical Adapater model OPM-ST
SC Optical Adapater model OPM-SC

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