



**Test and Inspection**

# **OLS Series Light Sources, OPM Series Optical Power Meters, and Optical Loss Test Kits**

**Quick Reference Guide**

## Warranty

AFL's optical power meters and light sources are warranted for a period of warranty (5) five years from the date of delivery to the end user.

Any product that is found defective within the warranty period will, at the discretion of AFL, be repaired or replaced. Warranty will be voided if the product has been repaired or altered by other than an authorized AFL product repair facility, if the void sticker has been compromised, or which have been subject to misuse, negligence, or accident.

In no case shall AFL liabilities exceed the original purchase price.

## 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

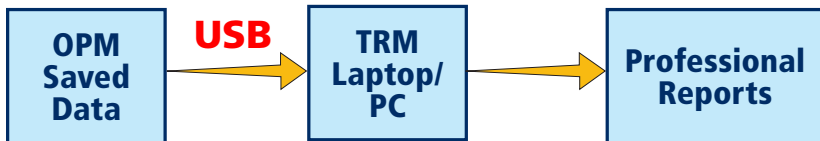


These instruments have been designed and tested to comply with the relevant sections of any applicable specifications including full compliance with all essential requirements of all applicable EU Directives.

# OPM Series Optical Power Meters

## OPM5 File Management and Reporting Software

File Management system allows simple organization of power or insertion loss measurements into multiple files. Using the supplied TRM® 2.0 Basic Test Results Manager software and USB connection, test records are transferred to a PC for analyzing, generating professional test reports, and printing.



TRM archiving and reporting capabilities take your OPM5 to a new level.

- Simple USB transfer of saved files (cable supplied)
- View test results
- Save test results on your PC/network
- Organize standard loss test data into bi-directional loss test data
- Create professional reports for your customers
- Add link length to loss data and select standard rules to generate network certification reports for your customers.

For more information, see TRM user's guide (available on supplied USB and [www.AFLglobal.com](http://www.AFLglobal.com)).

# OPM Series Function Keys

## Dual Function Keys Legend

**YY** ← Secondary function of a key → Press and hold to activate

**XX** ← Primary function of a key → Press and release to activate



### Power key

Provides two functions:

- Press to turn On/Off (OPM turns off after five minutes of inactivity).
- Press and hold to disable/enable the Auto Off feature.

File



### ▲ Arrow/File key (OPM5 models only)

Provides several functions:

- Testing mode: press and hold to enter File mode.
- File mode: Press to increment the File number.
- Fiber and Recall mode: press to increment the Fiber number.

Fiber



### ▼ Arrow/Fiber key (OPM5 models only)

Provides several functions:

- Testing mode: press and hold to enter Fiber mode.
- Fiber mode: press to decrement the Fiber number.
- File and Recall mode: press to decrement the File number.



### Wavelength/Backlight key

Provides two functions:

- Press to cycle through the calibrated wavelengths.  
**Note:** When an OPM is receiving a wavelength ID'd light, it automatically switches to the ID wavelengths. [WAVE ID] indicator appears on the display.
- Press and hold to toggle the Backlight on or off.

# OPM Series Function Keys

$\mu$ W



## dB/dBm/ $\mu$ W key

Provides two functions:

- Press to toggle test readings between insertion loss in [dB] and power in [dBm].
- Press and hold to view power in [ $\mu$ W].

Set



## Ref/Set key

Provides two functions:

- Press to display the stored reference level for the currently selected wavelength or multiple wavelengths.
- Press and hold until [HELD SET] is displayed to store the currently measured level or multiple levels as the new reference levels. Once the new reference is set, an OPM switches to the [dB] measurement mode.

Store



## Store key (OPM5 models only)

Provides two functions:

- Test mode: press to save the currently displayed measured data in the next available memory location (next Fiber) of the current File.
- File/Fiber/Recall/Clear mode: press to return to the Test mode.

Recall



## Recall key (OPM5 models only)

Press to enter the Recall mode that allows viewing and deleting stored test records. Press again to exit the Recall mode.

Store



Recall



Clear

## Clear

The Clear mode screen may be accessed and used as follows:

- From the File mode screen to delete a file
- From the Recall mode screen to delete a fiber


# OLS Series Light Sources


## Dual Function Keys Legend


**YY** ← Secondary function of a key → Press and hold to activate

**XX** ← Primary function of a key → Press and release to activate

## Keys and Indicators common for all models


 → **Power key** - Press and hold until all indicators light up to turn OLS On/Off.

 → **External Power indicator** - Lights up, whether the unit is on or off, when the correct AC power adapter is connected


 → **Low Battery indicator** - Lights up when a Low Battery condition exists; batteries require replacement

Refer to keys and indicators that are applicable to your OLS light source model.

## OLS1-Dual LED Light Source Keys and Indicators

**CW**  
 → **Wavelength/CW select key**

- Press to select multimode single or dual Wave ID wavelengths
- Press and hold to switch to the CW mode at the currently transmitted wavelength, then press the key to toggle between wavelengths

 → **Active Output indicators** - Light up when the corresponding output port is ON

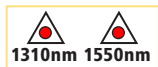
- Single or dual Wave ID - ON continuous light
- CW - ON blinking light

## OLS2-Dual Laser Source Keys and Indicators



→ **Wavelengths select key**

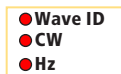
- Wave ID mode - selects SM single or dual Wave ID wavelengths
- CW or Tone mode - selects single wavelength



→ **Active Output indicators** - will be illuminated when the corresponding output port is ON



→ **Mode key** - Press to select operating mode (Wave ID, CW, Tone)



→ **Active Mode indicators** - light up as the corresponding mode is enabled



→ **Output Adjust keys** - allow entering Output Adjust mode and increase (▲) or decrease (▼) current power level within ~ 3 dB range between the factory preset maximum and minimum power levels

## OLS4 Integrated LED & Laser Source Keys and Indicators

CW



→ **Multimode Wavelength/CW select key**

- Press to select single or dual Wave ID wavelength(s)
- Press and hold to switch to the CW mode at the current wavelength, then press the key to select a single wavelength



→ **Active Output indicators** - Light up when the corresponding output port is ON



- Single or dual Wave ID - ON continuous light
- CW - ON blinking light

## OLS4 Integrated LED & Laser Source Keys and Indicators

CW

**1310nm**  
**1550nm** → **Single-mode Wavelengths/CW select key**

- Press to select single or dual Wave ID wavelength(s)
- Press and hold to switch to the CW mode at the current wavelength, then press the key to select a single wavelength



→ **Active Output indicators** - Light up when the corresponding output port is ON

- Single or dual Wave ID - ON continuous light
- CW or Tone (at 1550 nm) - ON blinking light



→ **Tone key** - Press to enable/disable 2 kHz Tone on the SM port at 1550 nm wavelength

→ **Tone indicator** is ON when OLS4 is transmitting a Tone signal

## OLS7 Triple Wavelength Laser Source Keys and Indicators



→ **Wavelengths select key**

- Wave ID mode - selects single, dual, or triple Wave ID wavelengths
- CW or Tone mode - selects single wavelength

**OLS7-3**



or

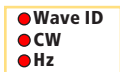
**OLS7-FTTH**



**Active Output indicators** - will be illuminated when the corresponding output port is ON



→ **Mode key** - Press to select operating mode (Wave ID, CW, Tone)



→ **Active Mode indicators** - light up as the corresponding mode is enabled



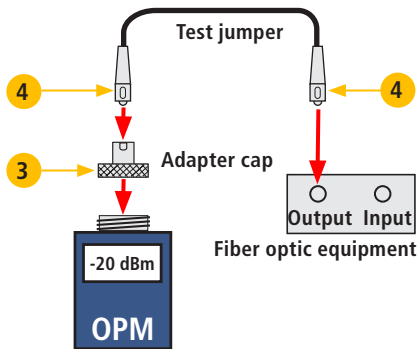
## Measuring Optical Power with OPM meter

It is important to keep all optical connections and surfaces clean to ensure accurate measurements and operation. Always clean all test jumpers before conducting tests.

1. Turn on OPM (optical power meter).
2. Select the appropriate fiber optic test jumper. The fiber type of this jumper must be the same as the fiber type normally connected to the output being measured.
3. Mount the appropriate adapter cap on the OPM port. This adapter cap must match the connector on the end of the test jumper you will connect to the OPM.
4. Connect one end of the test jumper to the OPM adapter cap and the other end to the optical output to be measured.

**Press [ $\lambda$ ] to select wavelength that matches the nominal wavelength of the source being measured.**

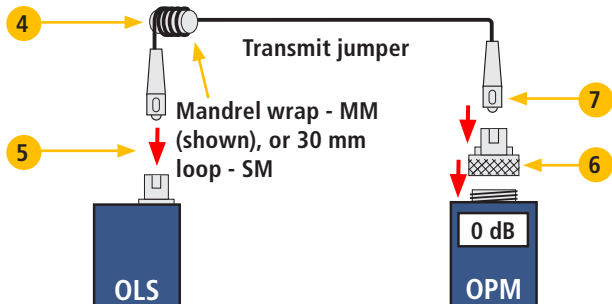
5. Press [dB/dBm/ $\mu$ W] to display power in [dBm] or press and hold to display power in [ $\mu$ W].
6. **OPM5 only:** Press [Store] to save the displayed measurement in the next available memory location.



# Testing Multimode or Single-mode Links

## Step I - Set the Reference (One Jumper Method)

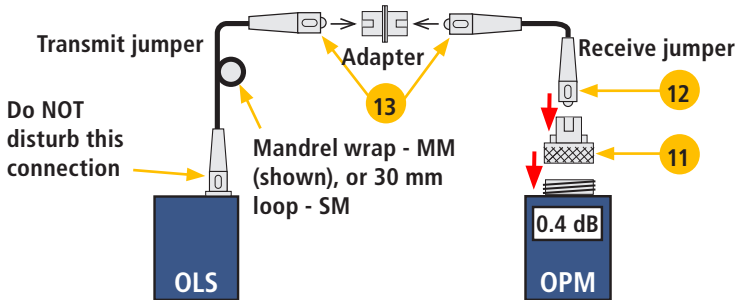
1. Turn on the OPM and OLS. Allow OLS to stabilize (minimum of 2 minutes).
2. If not using WAVE ID feature, set both instruments to the desired wavelength.
3. Select transmit and receive jumpers (fiber type must match link to be tested).
4. **MM:** Wrap and secure transmit jumper five times around mandrel.  
**SM (TIA testing only):** Make and secure 30 mm loop in a transmit jumper.  
**Clean both ends of the transmit jumper!**
5. Connect the transmit jumper to the OLS output port (MM or SM respectively).
6. Mount adapter cap on the OPM (must match free connector on transmit jumper).
7. Connect transmit jumper (free end) to the OPM. Display optical power in [dBm].
8. If measured power is outside of the normal range (specified by manufacturer), clean all fiber connections or replace the transmit jumper. Repeat steps 4 - 7.
9. Set reference level: on OPM, press and hold [Ref/Set] until [HELD SET] is displayed to store currently measured level as the new reference level. Once set, OPM switches to [dB] mode. OPM should display  $[0 \text{ dB}] \pm 0.05 \text{ dB}$ .



## Testing Multimode or Single-mode Links

### Step II - Verify Test Jumpers

10. Disconnect the transmit jumper from the OPM.  
**Do not disturb the transmit jumper at the OLS end!**
11. If needed, change OPM adapter cap to match receive jumper connector.  
**Clean both ends of the receive jumper!**
12. Connect the receive jumper to the OPM.
13. Mate free ends of transmit and receive jumpers using the appropriate adapter.
14. Verify that the insertion loss of this mated connector pair is under 0.75 dB - maximum allowed by TIA (AFL recommends 0.4 - 0.5 dB typical):
  - Observe the displayed value - insertion loss of the test jumpers in [dB].
  - If value is not acceptable, disconnect transmit and receive jumpers at the adapter, clean free ends of both test jumpers and repeat steps 13 & 14.
  - If value is still not acceptable, replace test jumpers and repeat steps 1-14.
15. If loss value is acceptable, disconnect transmit and receive jumpers at the adapter.
16. Move the OPM and OLS to opposite ends of the link to be tested.



## Testing Multimode or Single-mode Links

### Step III - Measure Multimode Link Insertion Loss

- Connect free ends of transmit and receive jumpers to the link under test.

**Clean jumper end that connects to patch panel prior to every test!**

- OPM will measure and display the insertion loss of the link under test.

- Perform one of the following:

**If using OPM4:** Record link insertion loss at the current test wavelength.

**If using OPM5:** Press the [Store] key on the OPM5 to save the displayed measurement in the next available memory location.

- Repeat steps 17-19 for all links to be tested at the current wavelength.

