

FIBER TESTERS

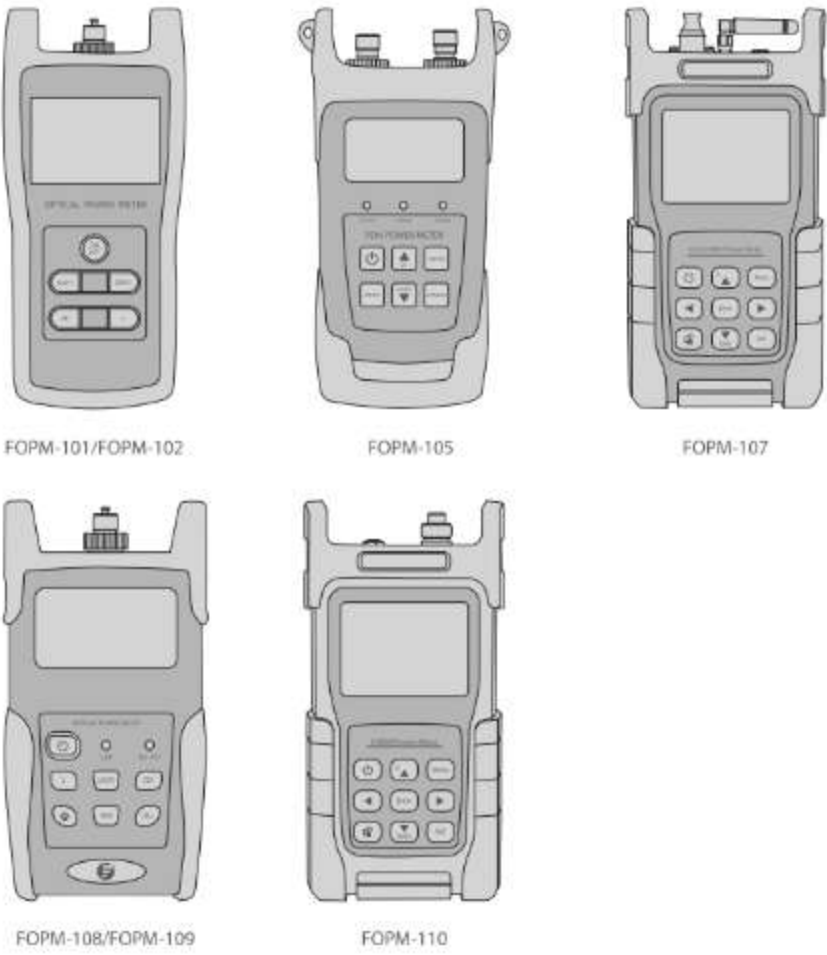
OPTICAL POWER METER

Quick Start Guide **V1.0**

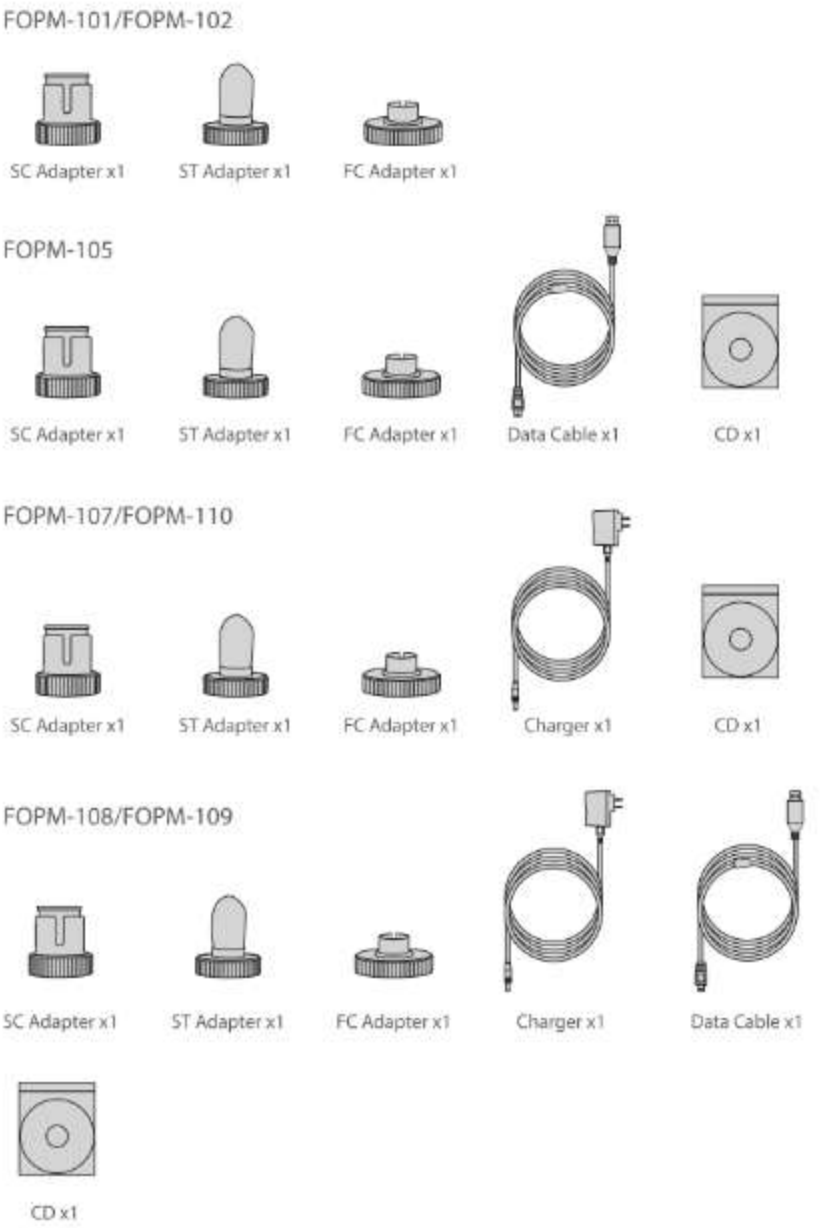


Introduction

Handheld fiber optical power meters (FOPM) aim at the installation, engineering acceptance and maintenance of fiber network. FS provides seven optical power meters of FOPM series which feature compact size, friendly operation interface, broad power measurement range and high precision. The figures below display the product images of the seven optical power meters.

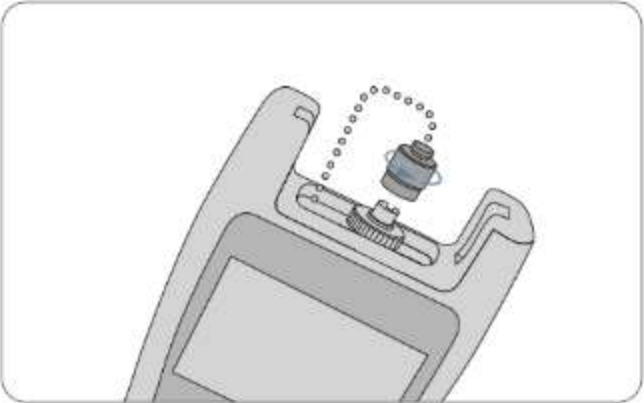


Accessories

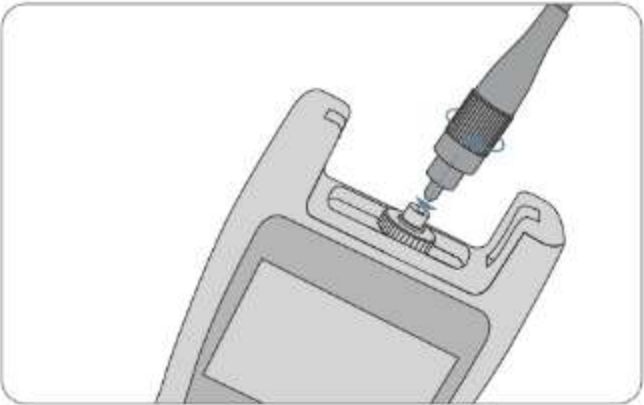


Installing

Inserting FC Cables

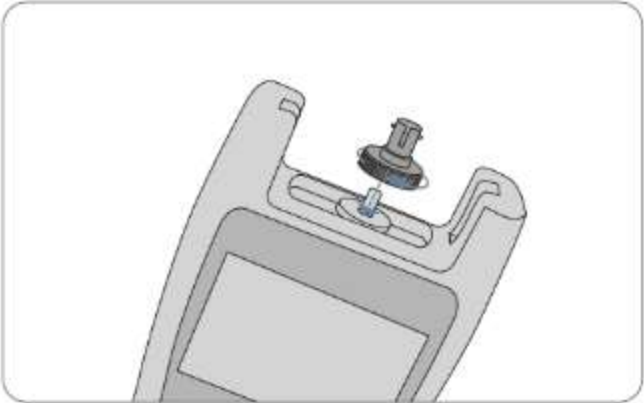


1. Remove dust cap.

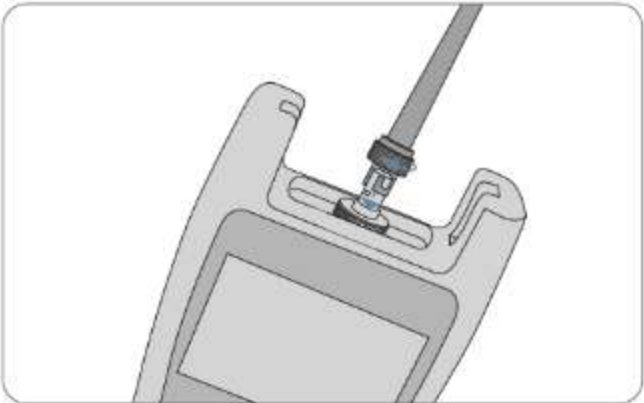


2. Install FC fiber cable.

Inserting ST Cables

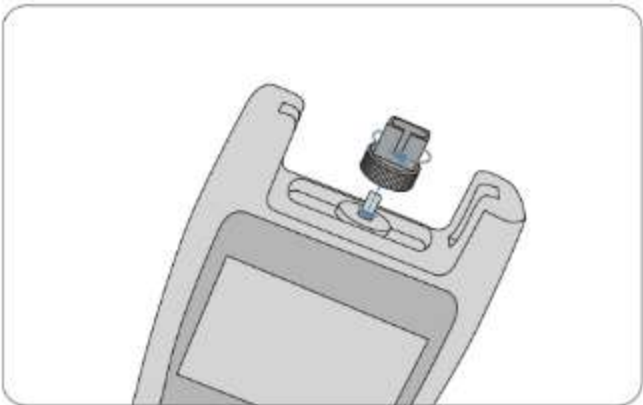


1. Install ST connector.

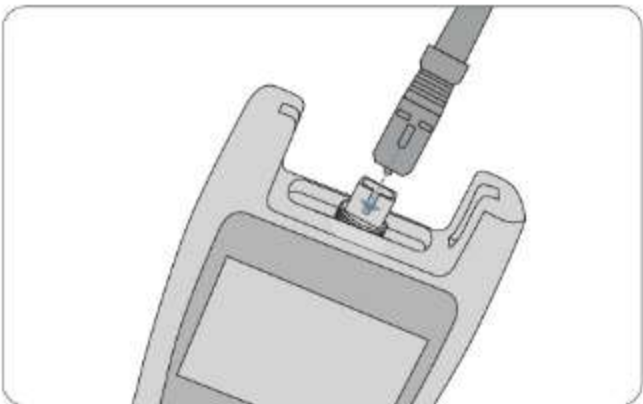


2. Install ST fiber cable.

Inserting SC Cables

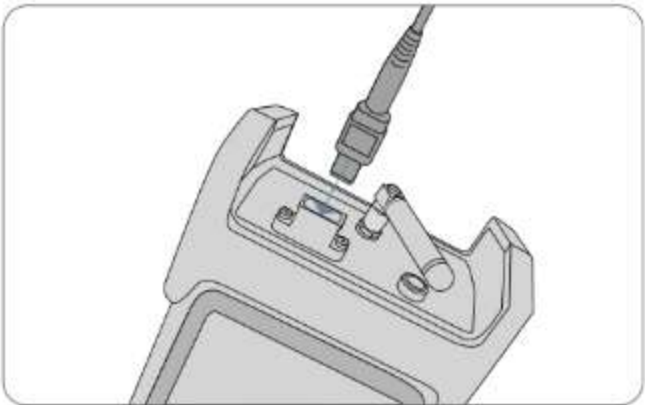


1. Install SC connector.



2. Install SC fiber cable.

Inserting MTP Cables



Install MTP fiber cable.

FOPM-101/FOPM-102

Function Introductions



Button	Name	Description
	ON/OFF	Press the key to turn on/off the unit
	LIGHT	Press the key to turn the background light on/off
	ZERO	Press the key for auto-zero
	dB	Press the key to test the power value under certain wavelength
	λ	Press the key to switch the current operating wavelength

Operation Instructions

- Absolute Power Measurement
 - Turn on the unit.
 - Press "λ" to switch the wavelength. The default wavelength is 1310nm.
 - Connect the light to be measured, the LCD screen will display the linear and nonlinear values.
- Relative Power Measurement
 - Select the wavelength to be measured.
 - Connect the light to be tested under absolute power measurement mode.
 - Press "dB" key, the current power value is stored as a reference value in dB unit, and the current absolute and relative value are 0dB.
 - Connect another beam of light to be tested, the current relative and absolute power values under-tested will be displayed on the LCD screen.
- Optical Fiber Link Loss Measurement
 - Turn on the unit and light source, press "λ" to select the wavelength. Wait for 1 to 2 minutes until it stabilizes.
 - Select a piece of patch cord to connect with the light source called emitting patch cord. Cleaning connector, the fiber type of the emitting source patch cord must be the same as the fiber under test.
 - Connect the light source with the power meter through the emitting source patch cord, then the power meter gets the power measurement value.
 - Press "dB" key, the 0.00dB will display on the LCD screen. The tested power value will be set as the reference value.
 - Connect the emitting source patch cord with the light source.

NOTE: Cleaning the connectors surface including the necessary optical adapters.

Troubleshooting

Description	Problems	Solutions
Faint LCD display	Battery is weak	Change battery
No display after turning on the unit	1. Battery is weak 2. Others	1. Turn on the unit again 2. Change battery
Insensitive display in LCD	Light interface is polluted	Check connector carefully and clean sensor's interface

FOPM-105

Function Introductions



Button	Name	Description
	ON/OFF	Press the key to turn on/off the unit
	VFL	In the first interface, press the key to switch to visual fault location model (VFL)
	ENTER	Press the key to confirm the function selection and save the data
	MENU	Press the key to select PON/CW power meter module
	MODE	In the first interface, press the key to switch VFL between continuous light (CW) and pulse light (HZ)
	CANCEL	Press the key to cancel functions

Operation Instructions

Connect PON power meter to computer by using the USB cable. Run the CD, install PON power meter. exe and USB driver software CP210x_VCP_Win2K_XP_S2K3.exe.



1. Date Processing

- (1) Open the PON power meter, click , connect PON power meter to the computer. Click  to set the language to be English.
- (2) Choose "Upload Data", click  "Upload history data" sign and the saved data can be read on the computer, and saved as a file format.
- (3) Click the  "Del Cur" or  "Del All" to delete the data.

2. Threshold Setting

- (1) Select "Threshold Setting", and click  to type or modify the threshold value. Click  to read the threshold setting. The used testing threshold values and the non-used threshold values will be displayed. Click  "Del Cur" or  "Del All" to delete the values.
- (2) Select "Calibration", the user can perform user self-calibration operation. User can also select "Factory Default" mode. For example, the current optical power at 1310nm is -10dBm, type "-10dBm" in the text box of input standard power, and click "Calibration" to finish the calibration operation at 1310nm wavelength.

NOTE: Threshold setting is used for PON module power meter operation instruction.

1. Multi-wavelength measurement

- (1) Turn on the unit, press "MENU" to enter into menu operation and press "CANCEL" to exit.
- (2) Press "VFL" or "MODE" to select the settings, and press "ENTER" to select the functions.
- (3) Use "VFL" or "MODE" to select the required threshold value. (The threshold rang and name have already set in the software, and download to the instrument.)
- (4) Press "CANCEL" to back to the testing menu.

2. Relative output power measurement

As per requirement of measurement to select the different wavelengths and Ref settings, relative power is equal to testing value minus Ref value.

- (1) Press "ON/OFF" to turn on the unit.
- (2) Press "VFL" or "MODE" to select the different wavelengths.
- (3) Press "ENTER" to change the Ref value.

FOPM-107

Function Introductions



Button	Name	Description
	ON/OFF	Turn on or turn off unit
	λ	Switch wavelength and up
	Menu	Select MPO/OPM working mode, set the threshold value and view the history
	Left	Left
	Enter	Saving data in MPO mode and enter the selected function in general mode
	Right	Right
	Display	Switch the shortcut of function, one key to switch line sequence test, single channel power meter, multi-channel power meter, and histogram
	Units	Switch unit and down
	Ref	Reference value

FOPM-108/FOPM-109

Function Introductions



Button	Name	Description
	ON/OFF	Press the key to turn on/off the unit.
	λ	Short press the key to switch the wavelength and display it on the top left of the LCD screen, 1310nm is the default wavelength. Long press the key to enter into wavelength auto-identify. "AU" will display on the upper right of screen.
	UNITS	Press the key to switch the absolute and relative measurement and xW of the optical power.
	REF	Press the key to store the current power value as the reference value which will be displayed on the top right of the LCD screen, the "Ref" will display on the upper right of screen.
	BACK LIGHT	Press the key to turn on/off the back light.
	SAVE	Data-saving. Press the key and the screen will display the data saving No. Double press the key to confirm the saving. Data-viewing. Long press the key to enter into the data-viewing interface. Short press the key to view the data.
	DEL	Delete date. When viewing the data, press the key to delete the record. Cancel the saving. When in the saving mode, press the key to cancel the current data saving.

Operation Instructions

1. Install the Device

Run the software in the PC, find the "CH341SER-CH340T" as shown in the below.



- (1) Double click the "exe" program.
- (2) Click "INSTALL".
- (3) Press "OK", exit this install interface.
- (4) Use USB cable to connect power meter with PC, and switch the instrument.
- (5) Press "NEXT".
- (6) Wait for a second, press "Finish", end the installation. After successfully installed the devices, turn off the power meter and disconnect the USB.

2. Install the Application Software

- (1) Run the CD in the PC, find the "setup" file.
- (2) Double click "setup".
- (3) Press "Next".
- (4) Choose "I accept the License Agreement".
- (5) Click "Next".
- (6) Press "Finish", end the installation.

3. Output power measurement

- (1) Turn on the unit and connect with the patch cord.
- (2) Short press "X" to select the calibrated wavelength.
- (3) Press "UNITS" to switch the absolute and relative measurement and xW of the power meter.
- (4) Press "REF" to set the current value as the reference value, and the relative value automatically calculated out. Top right of the screen will display the "REF" and setting dBm value.
- (5) Press "SAVE" and top right of the screen will display the data saving number. Double press "SAVE" to confirm the saving. press "CANCEL" to cancel the saving.
- (6) Long press "SAVE" can view the saving record, the screen will display the last saving data. Short press "SAVE" can view the data from the last record. Press "DEL" to delete the record, long press "SAVE" to exit the data view.

FOPM-110

Function Introductions



Button	Name	Description
	ON/OFF	Turn on or turn off unit
	λ	Switch wavelength and up
	Menu	Setting the threshold value and view the history
	Left	Left
	Enter	Enter the selected function in general mode
	Right	Right
	Display	Switch the shortcut of function, one key to switch multi-channel power meter and histogram
	Units	Switch unit and down
	Ref	Save date in multi-channel opm funtion

Operation Instructions

1. Main Menu Function Description

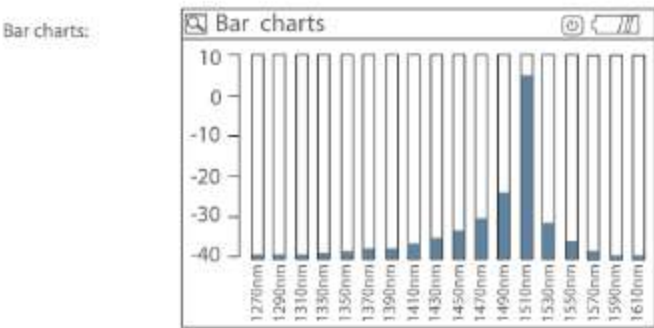
Press  to switch to multi-channel power interface, press  could choose all channels.

OPM Interface:

Power meter		
1270nm: Ref val 00.00dB -50.00dBm	1290nm: Ref val 00.00dB -50.00dBm	1310nm: Ref val 00.00dB -50.00dBm
1330nm: Ref val 00.00dB -50.00dBm	1350nm: Ref val 00.00dB -50.00dBm	1370nm: Ref val 00.00dB -50.00dBm
1390nm: Ref val 00.00dB -50.00dBm	1410nm: Ref val 00.00dB -50.00dBm	1430nm: Ref val 00.00dB -50.00dBm

Power meter		
1450nm: Ref val 00.00dB -50.00dBm	1470nm: Ref val 00.00dB -50.00dBm	1490nm: Ref val 00.00dB -50.00dBm
1510nm: Ref val 00.00dB -50.00dBm	1530nm: Ref val 00.00dB -50.00dBm	1550nm: Ref val 00.00dB -50.00dBm
1570nm: Ref val 00.00dB -50.00dBm	1590nm: Ref val 00.00dB -50.00dBm	1610nm: Ref val 00.00dB -50.00dBm

Press  to switch to bar charts interface.



Press  to enter in main menu interface.

Main menu interface:

history
Historical record
Threshold settings
The machine set
Aboutme

2. Submenu Setting

Press  enter main menu, choose "History records" to check history records.

History records interface:

History ID:00003 0001/1000		
1270nm: -20.50dB -20.50dBm	1290nm: -20.50dB -20.50dBm	1310nm: -20.50dB -20.50dBm
1330nm: -20.50dB -20.50dBm	1350nm: -20.50dB -20.50dBm	1370nm: -20.50dB -20.50dBm
1390nm: -20.50dB -20.50dBm	1410nm: -20.50dB -20.50dBm	1430nm: -20.50dB -20.50dBm

Press  to enter menu, choose "Threshold setting" to set threshold value.

Threshold setting interface:

Edit data:
12 -20.00dB

Press  to enter menu, choose "Setting" can set "Material calibration", "Back light", "Low light", "Auto off" and "Language".

Setting:

Setting
Material calibration
Back light 100%
Low light 50%
Auto off 5 min
Language: EN

3. Switch the Display Interface

Press the  button to switch to the multi-channel power display, if you want to choose single channel, press the  button, select all channel through double click  button.

Single channel:

Power meter		
1270nm: Ref val 00.00dB -50.00dBm	1290nm: Ref val 00.00dB -50.00dBm	1310nm: Ref val 00.00dB -50.00dBm
1330nm: Ref val 00.00dB -50.00dBm	1350nm: Ref val 00.00dB -50.00dBm	1370nm: Ref val 00.00dB -50.00dBm
1390nm: Ref val 00.00dB -50.00dBm	1410nm: Ref val 00.00dB -50.00dBm	1430nm: Ref val 00.00dB -50.00dBm

Multi-channel:

Power meter		
1270nm: Ref val 00.00dB -50.00dBm	1290nm: Ref val 00.00dB -50.00dBm	1310nm: Ref val 00.00dB -50.00dBm
1330nm: Ref val 00.00dB -50.00dBm	1350nm: Ref val 00.00dB -50.00dBm	1370nm: Ref val 00.00dB -50.00dBm
1390nm: Ref val 00.00dB -50.00dBm	1410nm: Ref val 00.00dB -50.00dBm	1430nm: Ref val 00.00dB -50.00dBm

Open the Software

Connect CWDM power meter and computer by using USB cable. Open the PC software, you can read record data and store it in computer with excel format, shown as figure.

Steps: 1. Select ports 2. Connect equipment 3. Read the data.

The data from CWDM power meter will save as excel format, coexist in the software in the folder.

FOPM-110_CWDMV1.1																																																													
	<table><tr><th>Normal channel</th><th>English</th><th>Operat</th></tr><tr><td>Wavelength</td><td>Absolute</td><td>Record</td></tr><tr><td>1270nm</td><td>-20.00dBm</td><td>-20.00dBm</td></tr><tr><td>1290nm</td><td>-20.00dBm</td><td>-20.00dBm</td></tr><tr><td>1310nm</td><td>-20.00dBm</td><td>-20.00dBm</td></tr><tr><td>1330nm</td><td>-20.00dBm</td><td>-20.00dBm</td></tr><tr><td>1350nm</td><td>-20.00dBm</td><td>-20.00dBm</td></tr><tr><td>1370nm</td><td>-20.00dBm</td><td>-20.00dBm</td></tr><tr><td>1390nm</td><td>-20.00dBm</td><td>-20.00dBm</td></tr><tr><td>1410nm</td><td>-20.00dBm</td><td>-20.00dBm</td></tr><tr><td>1430nm</td><td>-20.00dBm</td><td>-20.00dBm</td></tr><tr><td>1450nm</td><td>-20.00dBm</td><td>-20.00dBm</td></tr><tr><td>1470nm</td><td>-20.00dBm</td><td>-20.00dBm</td></tr><tr><td>1490nm</td><td>-20.00dBm</td><td>-20.00dBm</td></tr><tr><td>1510nm</td><td>-20.00dBm</td><td>-20.00dBm</td></tr><tr><td>1530nm</td><td>-20.00dBm</td><td>-20.00dBm</td></tr><tr><td>1550nm</td><td>-20.00dBm</td><td>-20.00dBm</td></tr><tr><td>1570nm</td><td>-20.00dBm</td><td>-20.00dBm</td></tr><tr><td>1590nm</td><td>-20.00dBm</td><td>-20.00dBm</td></tr><tr><td>1610nm</td><td>-20.00dBm</td><td>-20.00dBm</td></tr></table>	Normal channel	English	Operat	Wavelength	Absolute	Record	1270nm	-20.00dBm	-20.00dBm	1290nm	-20.00dBm	-20.00dBm	1310nm	-20.00dBm	-20.00dBm	1330nm	-20.00dBm	-20.00dBm	1350nm	-20.00dBm	-20.00dBm	1370nm	-20.00dBm	-20.00dBm	1390nm	-20.00dBm	-20.00dBm	1410nm	-20.00dBm	-20.00dBm	1430nm	-20.00dBm	-20.00dBm	1450nm	-20.00dBm	-20.00dBm	1470nm	-20.00dBm	-20.00dBm	1490nm	-20.00dBm	-20.00dBm	1510nm	-20.00dBm	-20.00dBm	1530nm	-20.00dBm	-20.00dBm	1550nm	-20.00dBm	-20.00dBm	1570nm	-20.00dBm	-20.00dBm	1590nm	-20.00dBm	-20.00dBm	1610nm	-20.00dBm	-20.00dBm
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NOTE: You should install CH340 driver and Microsoft .NET Framework 4.0 before you use CWDM power meter software.

Data Communication

1. Open the Software

- (1) Double click  icon to open the software, user can choose the language on request (English or Chinese).
- (2) Connect optical power meter with computer via USB cable, turn on the power meter.
- (3) From the "Device Manager Port (COM and LTP)", user can see the power meter port is "COM4".
- (4) Choose "COM4" port.
- (5) Click "Connect".
- (6) Click "OK" to finish the connection.

2. Data Edit

- (1) Input the following basic information.

Test Operator:	Instrument Serial Number:
Company:	Instrument Model:
Notes:	

- (2) Click "Upload data", the saved data in the unit will be uploaded into computer.
- (3) Select the required data, click "Delete One" to delete it from the sheet. And the corresponding data from the power meter will be cleared accordingly.
- (4) Click "Delete All" to delete all data and all saved data will be cleared from the unit.
- (5) Click "Save".
- (6) Input the file name, choose the save path and press "OK" to store. File will be saved in "Excel" format.
- (7) Click  on the software, user can print testing report directly from the Excel.

3. Close Software

- (1) Click "Exit".
- (2) Click "OK" to exit the software.

Troubleshooting

Description	Problems	Solutions
Faint LCD display	1. Power supply is off 2. Battery is weak	1. Press "ON/OFF" key 2. Change the battery
Inaccurate measurement	1. Optical connector is not clean 2. Incorrect fiber connection	1. Clean optical connector 2. Re-connect the fiber

Maintenance

- (1) Keep using one type of adapter to avoid excess loss from different adapters.
- (2) Light interface is sensitive, please carefully plug in and pull out the adapter.
- (3) Do not plug in the power supply when installing the battery.
- (4) Please charge the battery before using.
- (5) Please cover the dust-proof cap when it is not in operation.
- (6) Choose the correct fiber connector before testing.
- (7) Take out the batteries when not in use.
- (8) Please keep all optical connectors and surface free from oil, dirt or other contamination to ensure proper operation.
- (9) Keep regular cleanings on optical port of power meter with cotton swabs.

Online Resources

- Download <https://www.fs.com/download.html>
- Help Center https://www.fs.com/service/help_center.html
- Contact Us https://www.fs.com/contact_us.html

Product Warranty

FS ensures our customers that any damage or faulty items due to our workmanship, we will offer a free return within 30 Days from the day you receive your goods.

-  Warranty: All Optical Power Meters enjoy 1 year limited warranty against defect in materials or workmanship. For more details about warranty, please check at <https://www.fs.com/policies/warranty.html>
-  Return: If you want to return item(s), information on how to return can be found at https://www.fs.com/policies/day_return_policy.html