SMARTFiber Pro

Fiber Optic Power Meter
for Wavelength 850/1300/
1310/1490/1550/1625

User Manual
Model No. 257835Pro

Hobbes® INNOVATION

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Introduction

The Optical Power Meter is a high accuracy optical power measurement tool. It tests dynamic range of optical power from +3 to –60dBm with six calibrated wavelengths: 850nm, 1300nm, 1310nm, 1490nm, 1550nm and 1625nm.

With Hobbes Optical Power Meter, it displays a pass or fail result according to the threshold the user has defined. It also has the capability to identify modulate signals (270Hz, 1kHz, 2kHz) simultaneously by the power source for identification purposes. For fast and easy operation in testing the corresponding wavelengths, we recommend the Hobbes optical light source (OPTIsource) as a complete instrument in auto-identifying wavelength of optical power source.

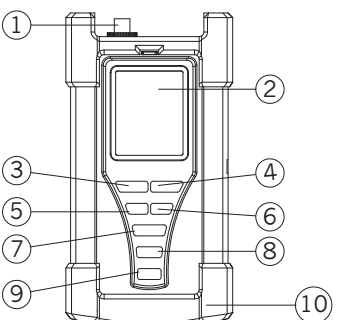
It utilizes an InGaAs detector for an improved sensitivity and temperature stability. It also has the capacity to record up to 1000 test data that is up-loadable to a PC via USB connection for easy and convenient report purposes.

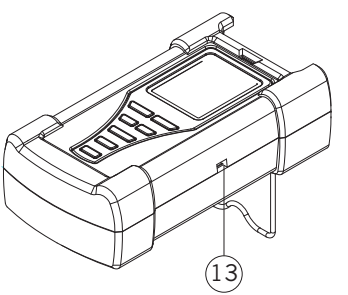
Features

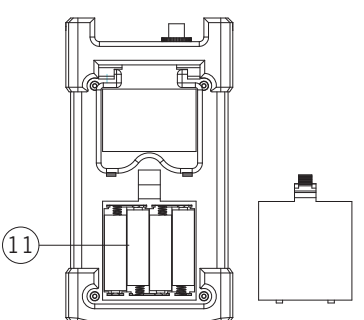
- Portable, high accuracy and dynamic power meter
- Calibrated at 850nm, 1300nm, 1310nm, 1490nm, 1550nm and 1625nm
- Relative and absolute power display
- With self-calibrated ZERO function
- Ideal for both multi-mode and single-mode optical fibers
- Identify modulate signals (270Hz, 1kHz, 2kHz) for identification purposes
- Automatic wavelength switching
- Optional adapter to test both 2.5mm/1.25mm fiber cables
- Battery low indicator and auto power shut off
- 1000 data item storing and uploading
- Pass/fail indication by user-defined threshold

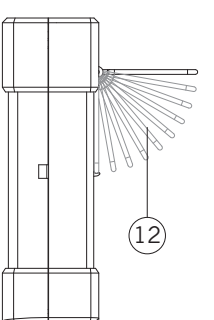
Product description

1. Replacement connector
2. LCD display
3. On/Off (cancel)
4. Mode (backlight)
5. λ(Wavelength)
6. dBm/W
7. Up
8. Down
9. Enter (save/edit)
10. Rubber cover
11. Battery holder
12. Stand
13. USB connector

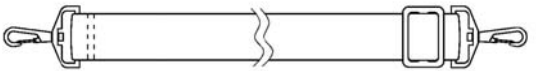




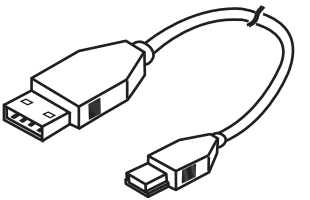




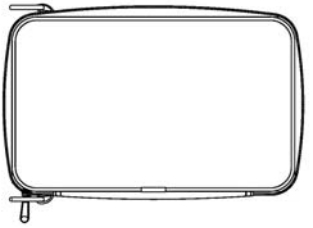
Accessories



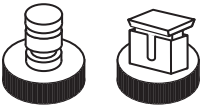
(Portable strap)



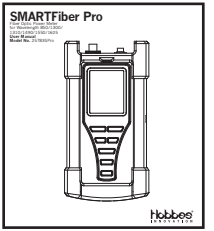
(USB 2.0 cable)



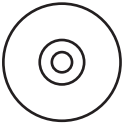
(Protective zipped bag with PU foam inside)



(SC and ST connector)



(User manual)



(Driver installation CD)

Key definition

Marking	Name	Function
On/Off (cancel)	Power button Cancel button	1. Press the button for a few seconds to power the unit “on” or “off” 2. When the power is on, press the button to activate or deactivate auto off function. 3. Cancel setting button, return to test mode.
Mode (backlight)	1.Mode button 2.Backlight button	1. 6 Selection modes: TEST (default mode) RECO/BROW/ SET/ZERO/LIMIT Mode. 2. Press the button for a few seconds to activate or deactivate the backlight.
λ	Wavelength selection button	Wavelength selection for 850nm, 1300nm, 1310nm, 1490nm, 1550nm and 1625nm
dBm/W	Unit selection button	Optical power measurement in dB, dBm, Watt.
Up	Increase the number	Increase the number or letters
Down	Decrease the number	Decrease the number or letters
Enter (save/edit)	Key operation (execution)	Selection or execution

Specifications

Sensor type: InGaAs

Wavelength: 850nm, 1300nm, 1310nm, 1490nm, 1550nm, 1625nm

Dynamic Range: +3 to –60dBm

Accuracy: ±0.15dB±1nW@1300nm/1310nm/1490nm/ 1550nm, ±0.25dB±1nW@850nm/1625nm

Resolution: 0.01dBm

Unit: dBm, Watt, dB

Fiber connector: Replacement type for FC, ST, SC

Battery: AA battery x 4(1.5V)

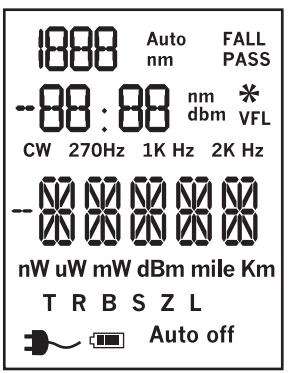
Dimension: 202.8 x 107 x 64.5mm

Weight: Around 550g (without battery)

Instructions for operation

1.Turn on/off the unit

Turn the unit on:
Press and hold the “On/Off” button for a few seconds, the unit will display all the screen contents on the LCD until button is released. The unit then enters the TEST MODE automatically.



When power is on, press “On/Off” button to activate/ deactivate auto power off function. (Note: auto off time is 5 minutes)

When power is on, press “On/Off” button for a few seconds to turn off the unit.

2. Backlight function

When power is on, press “Mode” button for a few seconds to activate/deactivate LCD backlight.

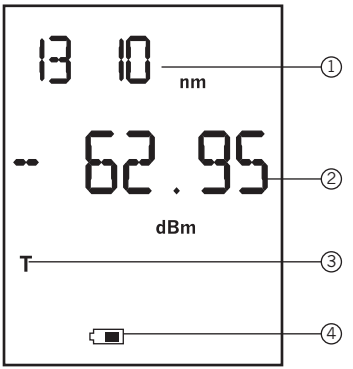
3. Mode selection

When Power is on, press “Mode” button to enter the mode selection menu. 6 Selection Modes: TEST MODE, RECORD MODE, BROWSE MODE, SET MODE, ZERO MODE, and LIMIT MODE.

Press the “Mode” button to switch between mode options and press the “Enter” to select the corresponding mode.

3-1 TEST MODE

TEST Mode is set by default when powering the unit on. In TEST MODE, the meter receives fiber power source, tests and displays power value, and a pass/fail indicator by user-defined threshold.



Note:
During the power value -dBm rate measuring.

1. Current Wavelength
2. Power Value
3. TEST mode
4. Battery Status

How to measure in **db** power value
Step 1: First, set power reference value (REF):
(Press and hold “dBm/W” button for a few seconds to set the current power values as power reference value)

Step 2: Formula and Example are as follow:
Formula:
The current value (in dBm) –REF = the current value (in dB)

Example:
REF= –46.97dBm, the current value (in dB)= –13.79
Then the current value (in dBm) = (–46.97dBm) + (–13.79dB) = –60.76dBm

Switch power measure of three types to power value.

Press “dBm/W” button to switch power measure (dB, dBm, or Watt)

Change wavelength
Press “button” to change wavelength at 850nm, 1300nm, 1310nm, 1490nm, 1550nm and 1625nm.

Reference value setting
Press “dBm/W” button for a few seconds to set the current power values as power reference value (in dBm measure)

Saving data in TEST MODE

Step 1: Press “Enter” button for a few seconds to save the current test result.

Step 2: User can press “Up” and “Down” button for setting the fiber ID. Otherwise, the unit prepares the fiber ID according to 1 step increment. The fiber ID is from 1 to 999.

3-2 RECORD MODE

By using SMARTFiber Pro RECORD MODE function, user can test the stability of LD light source in a period of time. In RECORD MODE, the unit tests and restores fiber power value automatically in a period of time. The recording test result from record mode is only viewable in SMARTFiber Pro application after recording data upload to the PC, it is not available in browse mode. Once the record set up is finished, device will test and record power value in set up test time. The default test time is 15 minutes, and default sample frequency is 5 seconds.

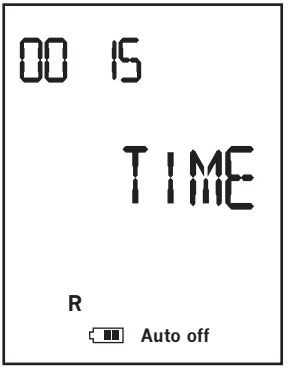
RECORD MODE Selection

Press “Mode” button to select the RECO mode, and then press Enter button to enter the mode.

In wavelength selection submenu, pressing “Up” and “Down” button will change wavelength. After selection, pressing the “On/Off” button will cancel the operation and return to previous menu.

Set auto test time parameter

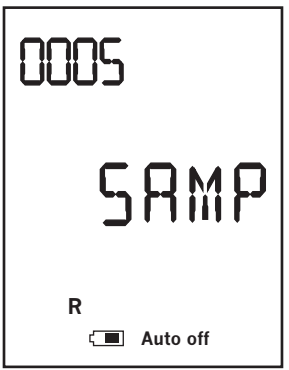
Pressing the “Enter”buttons to increase or decrease the value parameter and sample frequency parameter, 15/ 30/ 60/ 120/ 180/ 240/ 300 minutes is available (default is 15 minutes). Press “On/Off” button to cancel the operation, and return to previous menu.



Note:
The 0015 stands for 15 minutes. It is test parameter.

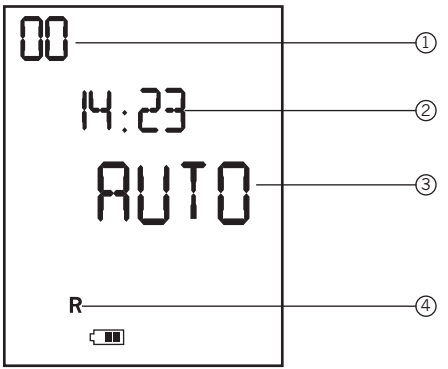
Set sample frequency parameter

Press the “Up” and “Down” buttons to increase or decrease the value, 5/10/15/20/30/60 seconds is available, default is 5 seconds, then press “On/Off” button to cancel the operation, and return to previous menu.



Note:

The 0005 stands for 5 seconds. It is sample frequency parameter. After setting, press ‘‘Enter’’ button to start the auto test. Then press the ‘‘On/Off’’ button to stop the auto test.



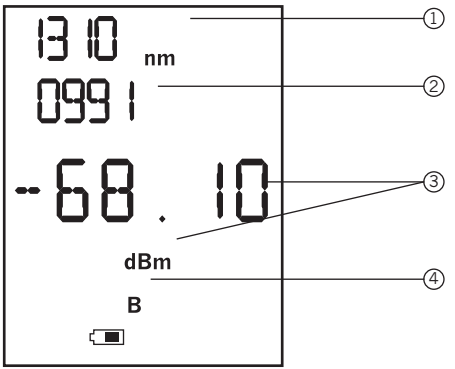
Note:

LCD displays the remaining time. It is 00 hour, 14 minutes, 23 seconds.

1. Hour (Counting down automatically)
2. Minutes and Seconds (Counting down automatically)
3. Testing automatically
4. RECORD Mode

3-3 BROWSE MODE

In the mode, user can browse fiber ID, power value and wavelength.



Note:

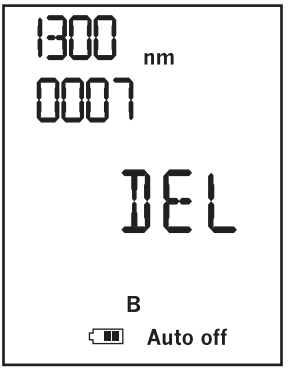
LCD displays current wavelength, fiber ID, power value.

1. Current wavelength
2. Fiber ID or the number of Records
3. Power value in dBm
4. BROWSE Mode

Step 1: Press “Mode” button to select the BROWSE mode, and then press “Enter” button to enter the mode.

Step 2: Press the “Up” and “Down” button to change the test results forward or backward.

Step 3: Pressing and Holding the “Enter” button a few seconds will delete the current record.



Note:
The deleted record item can not be browsed.

3-4 SET MODE

In SET MODE, user can set identification number for each fiber cable in order to identify the cable test result. Cable name is only viewable in SMARTFiber Pro application, it is not available in BROWSE MODE.

For example:

When saving the test results in TEST mode, user can set the fiber ID and the cable name to be displayed when test result data are uploaded to a PC.

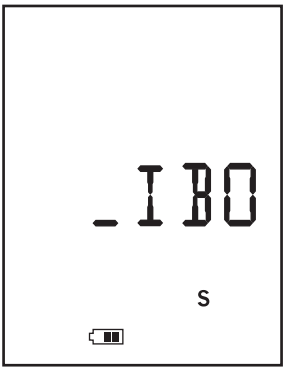
Step 1: Press “Mode” button and select the SET mode. Then press “Enter” button to enter the mode. Cable naming can be set up to 4 characters: from 0 to 9, then to A to Z sequences.

Step 2: Press “Up” and “Down” button to increase/decrease each character number.

Step 3: Press “Enter” button to begin next character setting.

Step 4: Press “Enter” button for a few seconds to save the setting. When cable naming is incomplete, the corresponding field will flash to indicate missing field.

Step 5: Press “On/Off” buttons to return to previous menu.



Note:

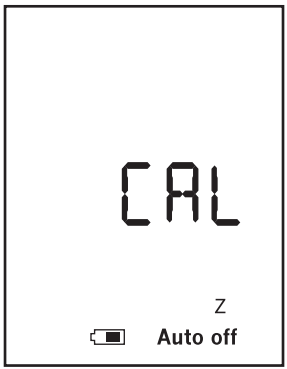
The default fiber name is setting by user. Press ‘‘Up’’ and ‘‘Down’’ to increase or decrease the character number.

3-5 ZERO MODE

Whenever the environmental conditions (temperature, humidity, etc.) changes, user may zero the unit for more accuracy. User can clear the meter’s memory to return to manufacturer’s default settings.

Step 1: Press “Mode” button to select the ZERO mode, and then press Enter button to enter the mode.

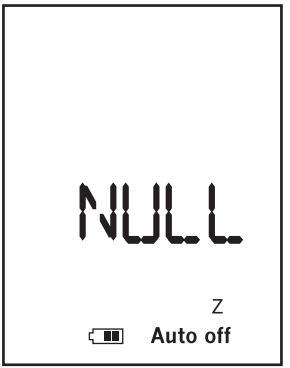
Step 2: Two submenus are in the mode; CAL and CLEAR. Use “Up” and “Down” button to choose the submenu.

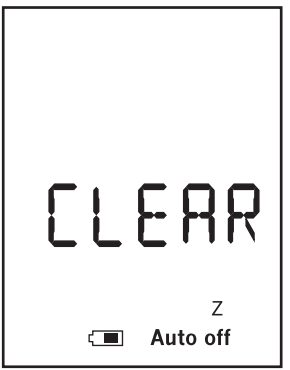


Note:
CAL menu in ZERO mode.

CAL menu

Before CAL operation, user need to cover fiber input port with dust–protection cap. Press “Enter” button to begin the zero/CAL operation. The LCD displays “NULL” for 2 seconds then return to CAL menu. Press “On/Off” button to cancel and return to the previous menu.





Note:
CLEAR menu in ZERO mode.

CLEAR menu
The menu is used for clear all memory data. In the menu, press “Enter” button to begin the clearing operation. LCD displays MEM for clearing data item, P/F for clearing

threshold value, REF for clearing dB measure ratio. After clearing, LCD displays CLEAR again. Press “On/Off” button to return to the previous menu.

3-6 LIMIT MODE

User can define threshold to specify acceptable power values in dBm. When a threshold is activated, the unit will indicate the test result pass or fail. If the current power value is more than the threshold, the meter indicates “Pass”;
Otherwise “Fail”.

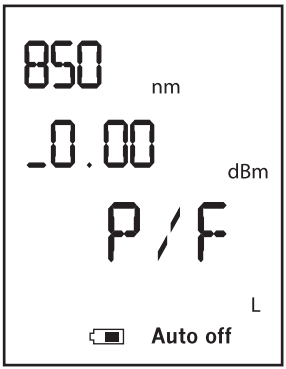
For example:
The threshold is –46.97dBm, the power value is –60.76, the meter indicates “fail”.

Step 1: Press “Mode” button to select the LIMIT mode, and then press Enter button to enter the mode.

Step 2: In LIMIT MODE, 3 information’s will be displayed on the screen. First line indicates the current wavelength.

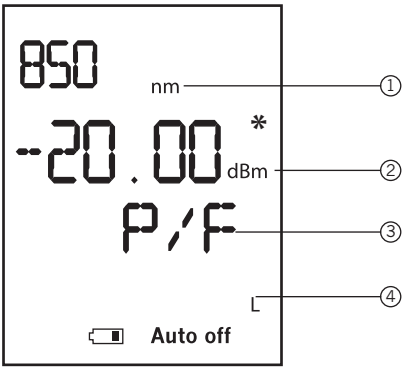
Second line indicates the threshold.

Third line indicates “P/F” for pass/fail.



Step 3: Press "λ" button to change wavelength

Step 4: Press the "Enter" Button to edit the threshold and then press "Up" and "Down" button to increase/decrease each character value. Press the " Mode "button to edit the value's positive (+) or negative (–). After setting the first character, press "Enter" button to begin to the next character setting. Press and hold "Enter" button a few seconds to save the settings (an asterisk * appears). Threshold value is made of 4 bits, 2 bits integer and 2 bits decimal. Each character is from 0 to 9 in dBm.

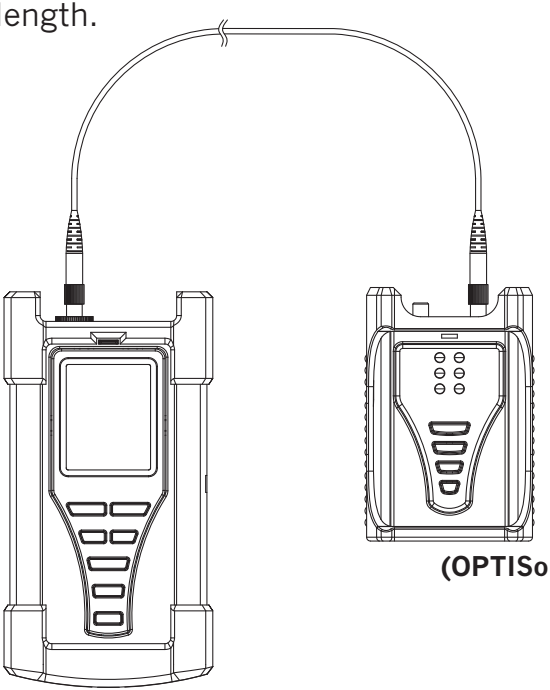


1. Current wavelength
2. The threshold value which user has defined
3. Asterisk: Saving the settings once pressing "Enter" button a few seconds
4. Pass or Fail
5. LIMIT mode

4. Identifying the wavelength automatically

Cooperates with compatible optical laser light source (Hobbes' OPTISource)

Compatible optical laser light source simultaneously sends wavelength code along the fiber. The meter can identify the code, and switch to the corresponding wavelength, avoiding manually changing the power meter wavelength.



(OPTISource)

(SMARTFiber Pro)

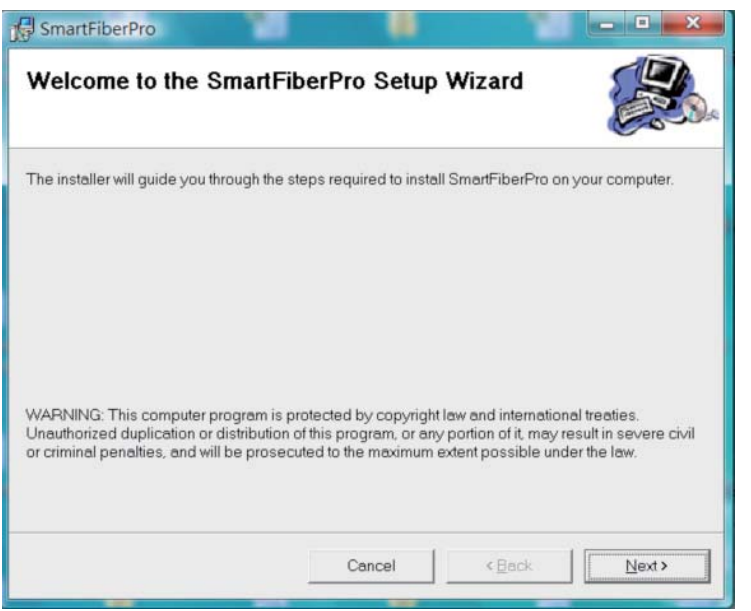
Instructions for battery

The SMARTFiber Pro displays a battery icon on the screen to indicate the battery status. When the “Low Battery icon” flashes on the screen, it is indicating that the battery status is low and need to be replaced.

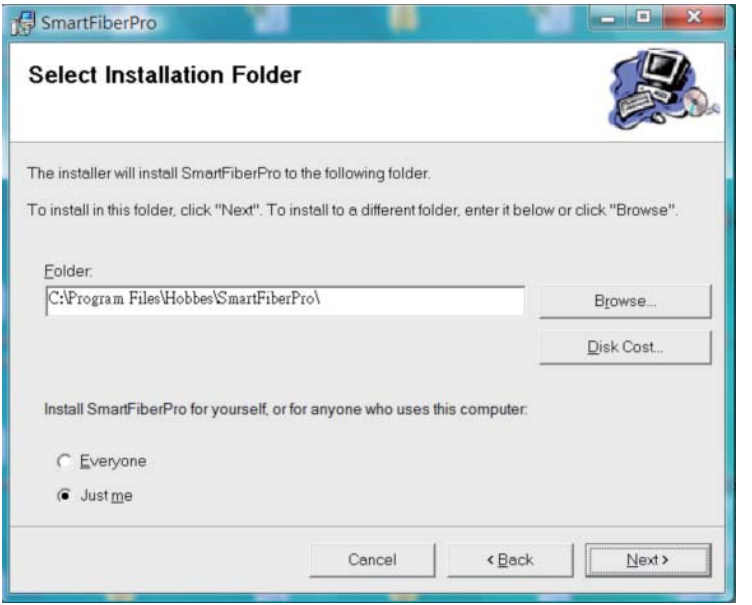
Driver installation

Steps:

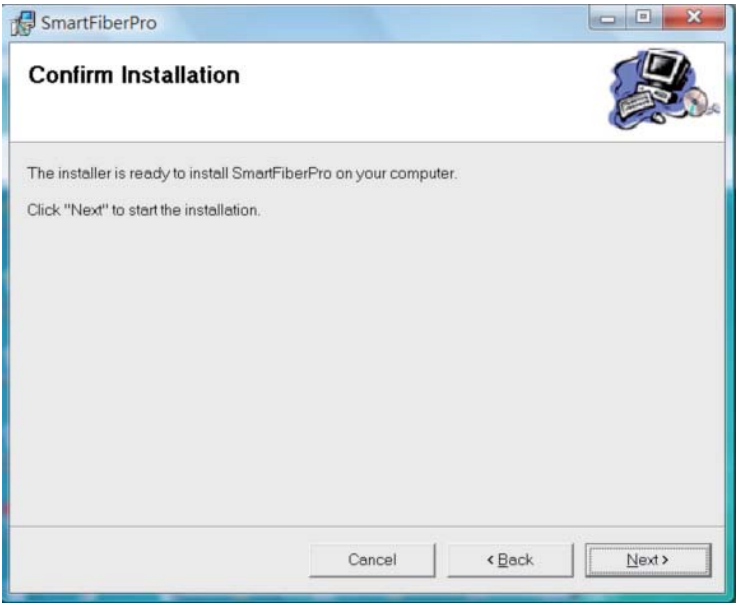
1. Insert the SMARTFiber Pro CD into the computer and press “Next” to start the installation:



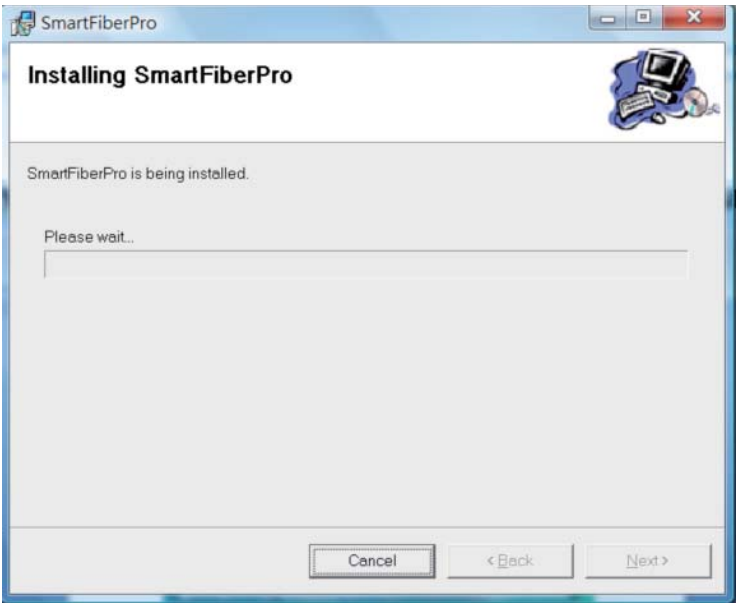
2. To install in this folder, click “Next”. To install in a different folder, enter it below or click “Browse”.



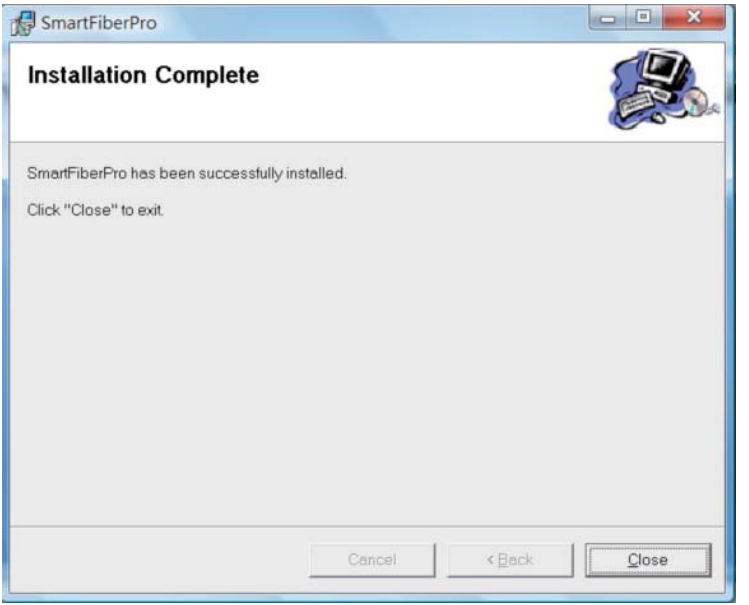
3. Click “Next” to start the installation.



4. The SMARTFiber Pro is being installed.

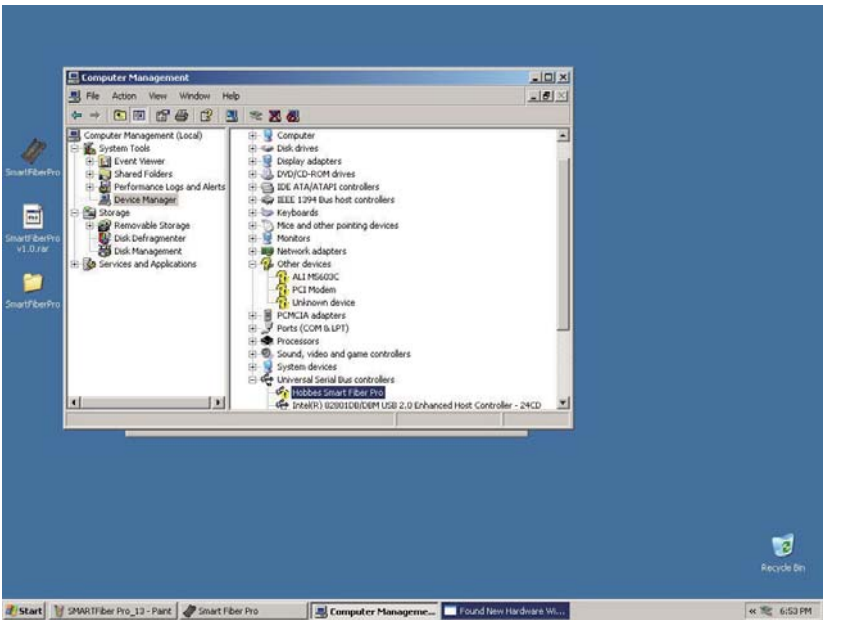


5. The SMARTFiber Pro has been installed.

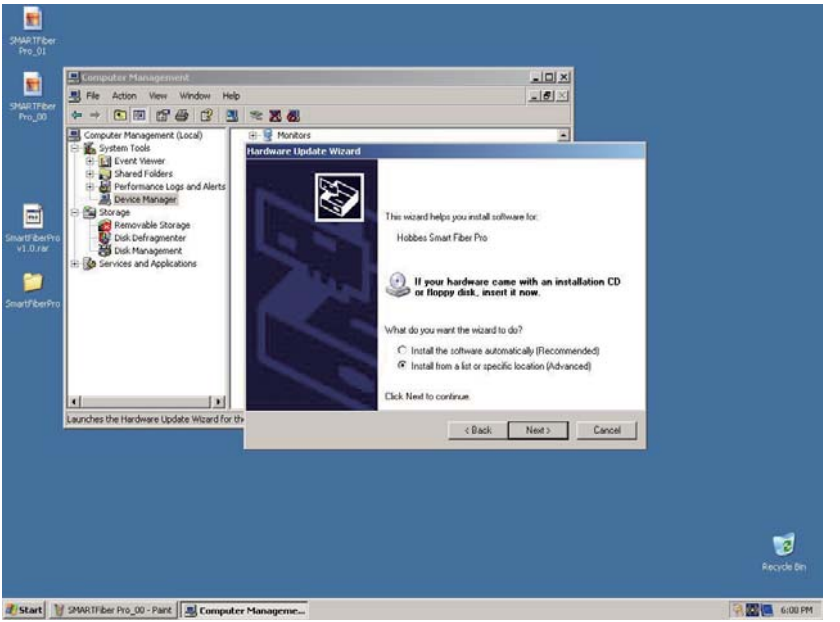


6. After the driver has been installed, connect SMARTFiber Pro with your computer through USB cable. After device is connected, please go to my computer, and right click your mouse to choose manage.

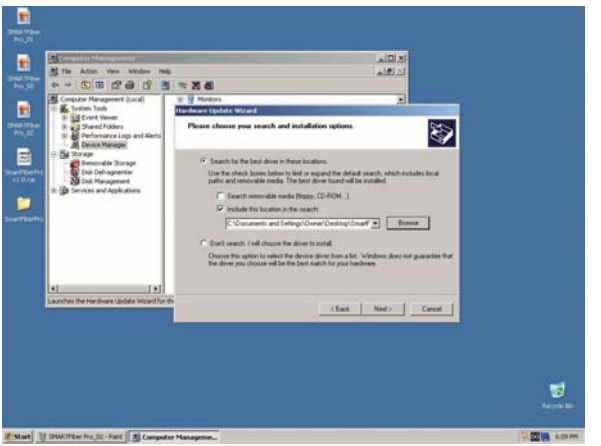
7. In Computer Management, please choose Device Manager from Universal Serial Bus Controllers. Choose Hobbes SMARTFiber Pro and right click mouse to choose update driver.

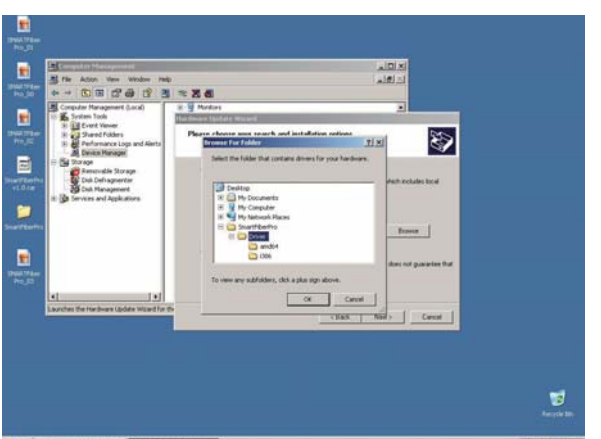


8. Windows will display Hardware Update wizard, and choose install from a list or specific location (Advanced)

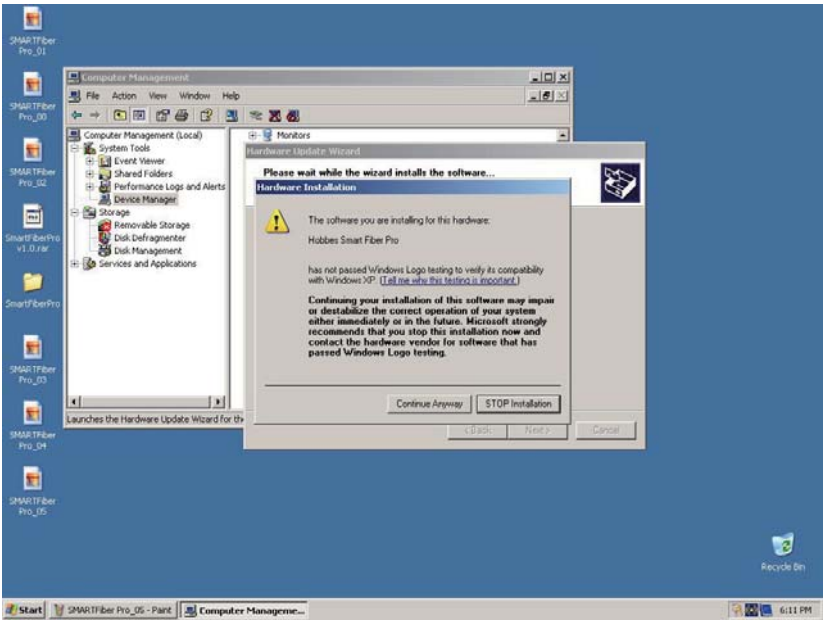


9. From search and installation options, choose include this location in this search and browse your SMARTFiber Pro driver.

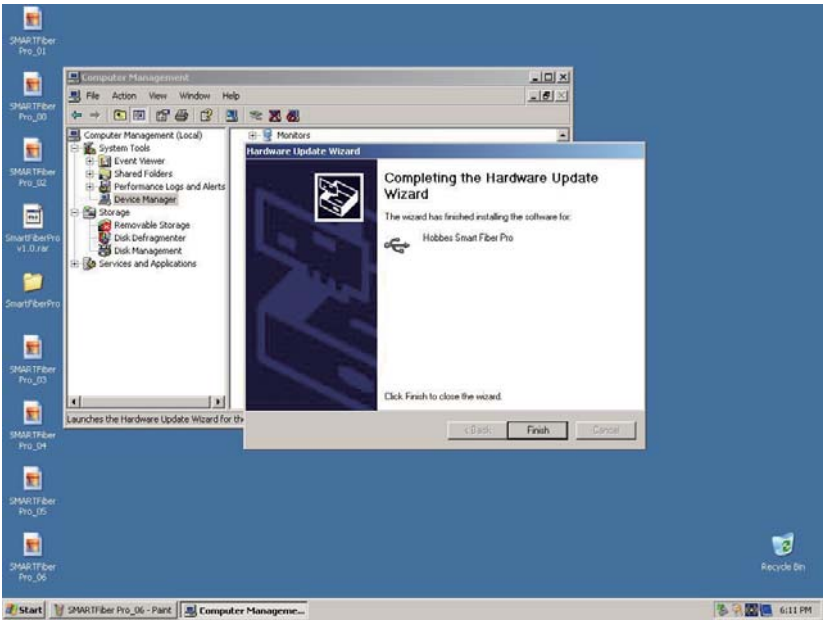




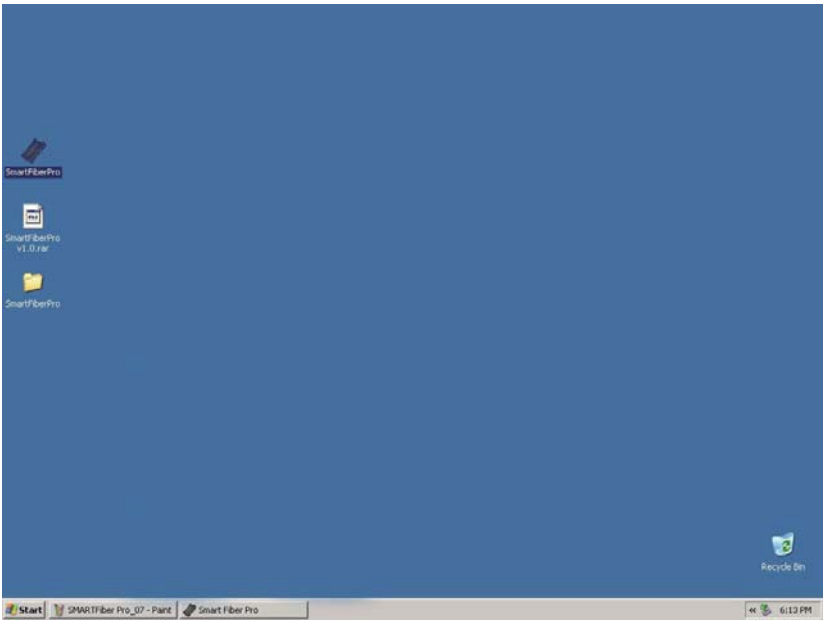
10. While you istall, it might shows a Hardware installation warning. Click continue Anyway.



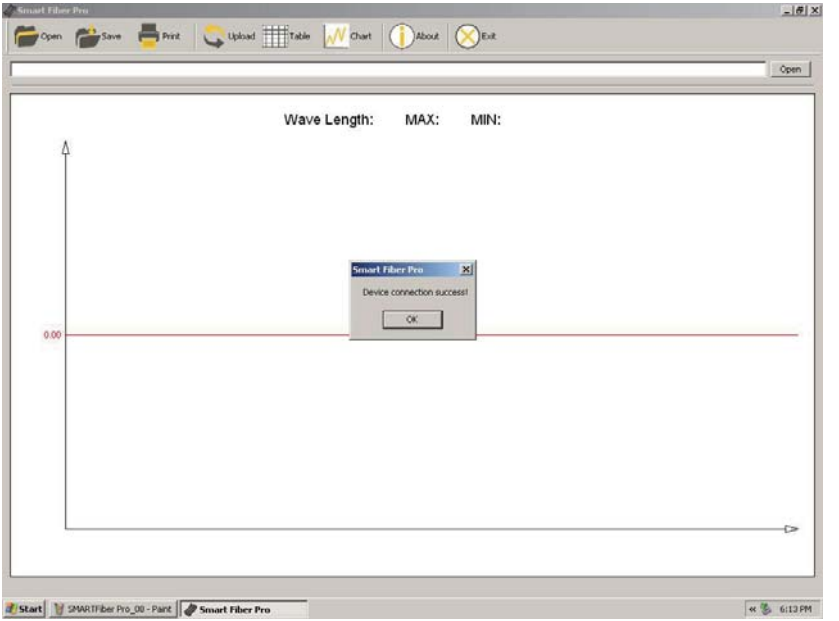
11. Hardware update is complete

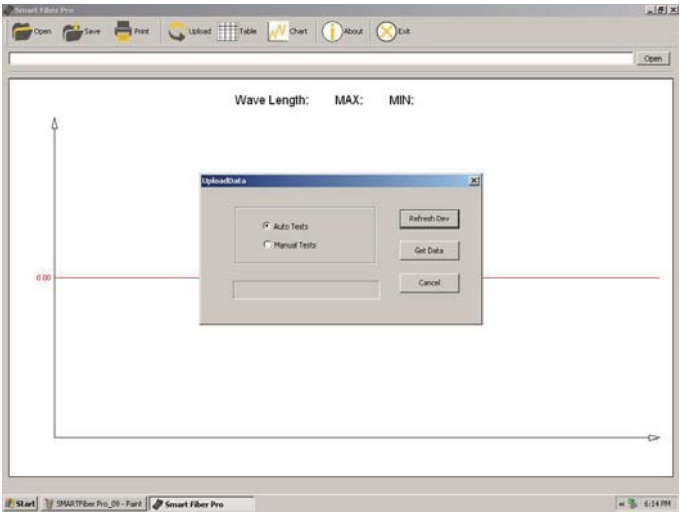


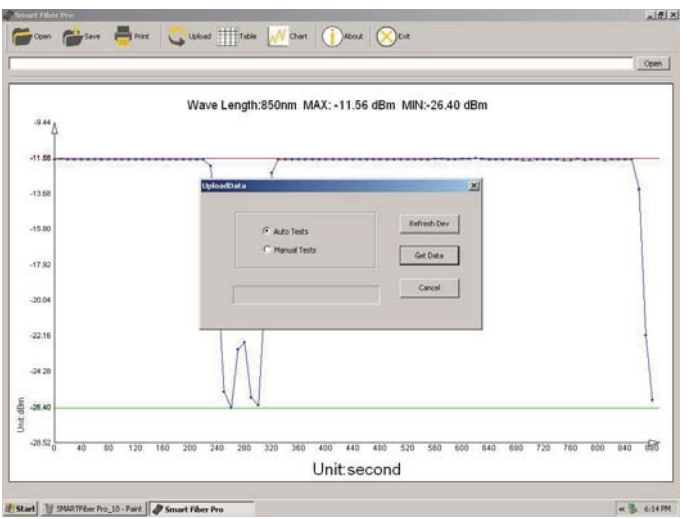
12. On your desk top, choose the SMARTFiber Pro icon.



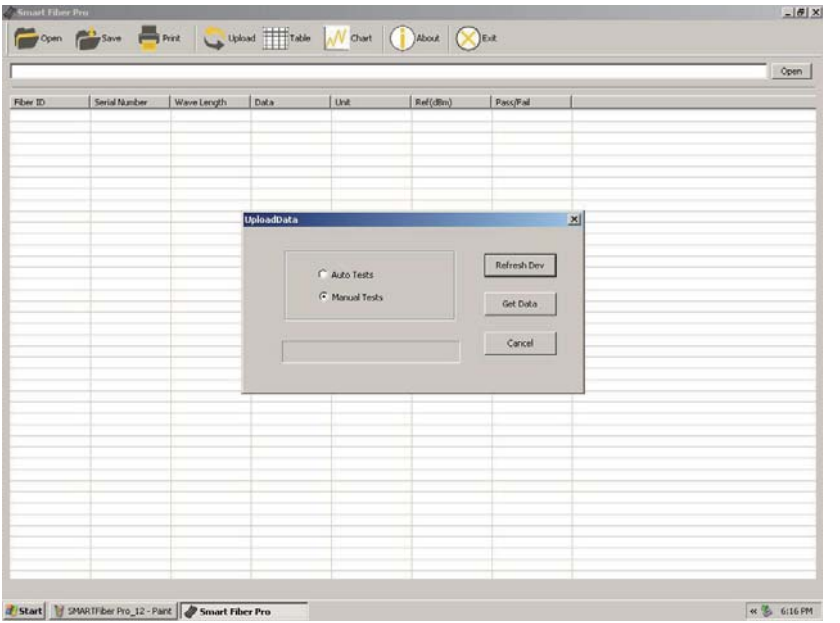
13. In SMARTFiber Pro software, choose update. If you would like to see your auto test result, choose Auto Tests and click get data.



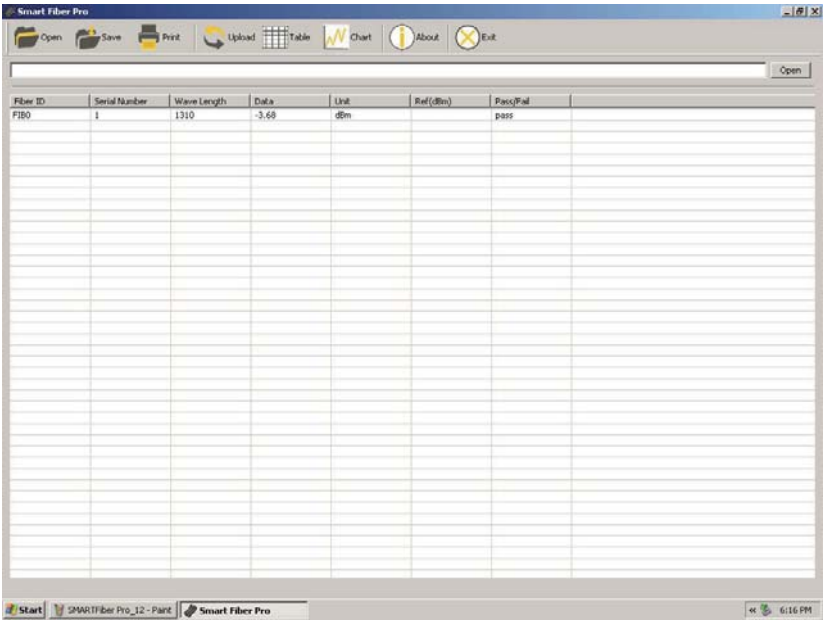

Open
Save
Print
Upload
Table
Chart
About
Exit
Open
Wave Length: MAX: MIN:
UploadData
Auto Tests
Manual Tests
Refresh Dev
Get Data
Cancel
0.00
Start
SMARTFiber Pro_09 - Paint
Smart Fiber Pro
6:14 PM


Open
Save
Print
Upload
Table
Chart
About
Exit
Open
Wave Length:850nm MAX: -11.56 dBm MIN:-26.40 dBm
-9.44
-11.56
-13.68
-15.80
-17.92
-20.04
-22.16
-24.28
-26.40
-28.52
Unit:dBm
0 40 80 120 160 200 240 280 320 360 400 440 480 520 560 600 640 680 720 760 800 840 880
Unit:second
UploadData
Auto Tests
Manual Tests
Refresh Dev
Get Data
Cancel
Start
SMARTFiber Pro_10 - Paint
Smart Fiber Pro
6:14 PM

14. If you would like to see your manual test result, please go to Table and click upload. From upload data, choose manual Tests and click get data.



15. Your manual test result has been uploaded.



Maintenance
Carefully check cleanliness of sensor surface. Do not use nonstandard optical connectors and plugs with bad polished ends as it can damage the sensor surface.

Storage conditions
From –30 to +60°C and humidity non-condensing up to 95% at temperature 35°C.

Warranty
The device is guaranteed for two years after completing the registration procedure from the date of original sale in Hobbes Group web site.

The manufacturer will repair the device free of charge if manufacturer determines the product failed due to manufacture defect. This warranty is only valid if the device is used for its intended purposes only.

Manufacturers warranty is voided if the product has been tampered and damaged from misused.

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