

User Manual



**NetTek™ Analyzer
YOPM100 & 200
Optical Power Meter Modules
071-0995-00**

This document supports software version 1.3 and above.

www.tektronix.com

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General Safety Summary

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. To avoid potential hazards, use this product only as specified.

Only qualified personnel should perform service procedures.

While using this product, you may need to access other parts of the system. Read the *General Safety Summary* in other system manuals for warnings and cautions related to operating the system.

To Avoid Fire or Personal Injury

Do Not Operate Without Covers. Do not operate this product with covers or panels removed.

Wear Eye Protection. Wear eye protection if exposure to high-intensity rays or laser radiation exists.

Do Not Operate With Suspected Failures. If you suspect there is damage to this product, have it inspected by qualified service personnel.

Do Not Operate in Wet/Damp Conditions.

Do Not Operate in an Explosive Atmosphere.

Keep Product Surfaces Clean and Dry.

Safety Terms and Symbols

Terms in This Manual. These terms may appear in this manual:



WARNING. *Warning statements identify conditions or practices that could result in injury or loss of life.*



CAUTION. *Caution statements identify conditions or practices that could result in damage to this product or other property.*

Terms on the Product. These terms may appear on the product:

DANGER indicates an injury hazard immediately accessible as you read the marking.

WARNING indicates an injury hazard not immediately accessible as you read the marking.

CAUTION indicates a hazard to property including the product.

Symbols on the Product. These symbols may appear on the product:



CAUTION
Refer to Manual



**Double
Insulated**



**Protective Ground
(Earth) Terminal**



Preface

This manual contains operating instructions for the NetTek Analyzer YOPM100 & 200 Optical Power Meters.

Related Documentation

For online help for the power meter, within the YOPM application, select **Help > Help Topics**.

The power meter module runs on the Y350C and Y350M NetTek Analyzer platform. For platform information, refer to the following resources:

- *Y350C and Y350M NetTek Analyzer Platform User Manual*
- *Y350C and Y350M NetTek Analyzer Platform Online Help*
(Select **Start > Help** or tap the ? button in a dialog box.)
- *Windows CE Operating System Online Help*
(Select **Start > Help** or tap the ? button in a dialog box.)

For OTDR information, refer to the following resources:

- *NetTek Analyzer OTDR User Manual*
- *NetTek Analyzer OTDR Online Help*
(Within the OTDR application, select **Help > Help Topics...** or tap the ? button in a dialog box.)

Conventions

This book uses the following convention to represent menus:

To open the help window and find information on a specific topic, you would be instructed to select **Start > Help**. To accomplish this, tap **Start** in the toolbar at the bottom of the desktop window; then tap **Help** in the resulting WindowsCE menu.

Related Products

The Y350C and Y350M NetTek Analyzer Platform supports test tools including the NetTek Series of OTDRs and the YOPM100 & 200 Optical Power Meters.

Firmware Version

This manual supports firmware version 1.0 and above of the NetTek Analyzer YOPM100 & 200 Optical Power Meters.

To verify your firmware version, do the following:

1. Open the YOPM application.
2. Select **Help > About YOPM...**

Contacting Tektronix

Phone	1-800-833-9200*
Address	Tektronix, Inc. Department or name (if known) 14200 SW Karl Braun Drive P.O. Box 500 Beaverton, OR 97077 USA
Web site	www.tektronix.com
Sales support	1-800-833-9200, select option 1*
Service support	1-800-833-9200, select option 2*
Technical support	Email: techsupport@tektronix.com 1-800-833-9200, select option 3* 1-503-627-2400 6:00 a.m. - 5:00 p.m. Pacific time

* **This phone number is toll free in North America. After office hours, please leave a voice mail message. Outside North America, contact a Tektronix sales office or distributor; see the Tektronix web site for a list of offices.**

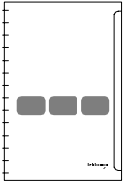

Getting Started

Product Description

The PCMCIA-based YOPM100 and the YOPM200 Optical Power Meters operate with the NetTek Analyzer platform. You can measure all common telecommunication wavelengths from 850 nm to 1625 nm and easily save the measurement data to document networks. YOPM lets you store and view multiple tests in a configurable table. This lets you match your system patch panel configuration for easy recovery and analysis of measurements. You can collect and store your measurements in a table that matches the way your patch panel is laid out. You can combine YOPM stored tests with TARGET1 analysis software to generate complete installation and maintenance reports.

Table 1 contains general information on components and accessories.

Table 1: Components and accessories

	User Manual. Contains information on setup and basic operation.
	Disk. Contains instrument software.

Installing YOPM Application

If you ordered your power meter separately from your NetTek Analyzer, you may need to install the YOPM application onto your NetTek Analyzer.

If your NetTek Analyzer has a floppy-disk drive, install the software directly on the NetTek Analyzer. See *Installing From the NetTek Analyzer Built-in Floppy-disk Drive* below.

If your NetTek Analyzer does not have a built-in floppy-disk drive, download the software using the floppy drive on a PC, and then transfer the file through the serial port to the NetTek Analyzer. See *Installing From a PC Floppy-disk Drive* on page 3.

Installing From the NetTek Analyzer Built-in Floppy-disk Drive

1. Select **Start > Programs > Tektronix Utilities > Module Upgrade**.
2. Insert the floppy. Select **Next**.
3. The dialog box, Continuing Upgrade Process, will appear stating “Found Upgrade File: \FloppyDisk\InstallYOPM.arq.”

(If the correct file is not found, select **Browse** to manually select \FloppyDisk\InstallYOPM.arq and press **OK**.)

4. Select **Next**. It will take a few moments for the files to be extracted and installed.

When installation is complete, the dialog box, Module Upgrade Complete, appears.

5. Remove the floppy disk.
6. Select **Restart Now**.

Installing From a PC Floppy-disk Drive

Use a desktop computer with a floppy-disk drive and Windows 95, 98, NT 4.0, 2000, or ME operating system.

You will need a serial cable and an available COM port. You also need to have active WinCE services or an ActiveSync connection to transfer files. Enable WinCE services using the Windows CE Services > Communications tab.

1. Connect the NetTek Analyzer to the remote PC:
 - a. Connect one end of a 9-pin RS-232 null modem cable (a standard accessory with the NetTek Analyzer) to the serial (COM) port on the PC. See your computer documentation for the port location.
 - b. Connect the other end of the cable to the NetTek Analyzer serial port. See Figure 1 for the port location.

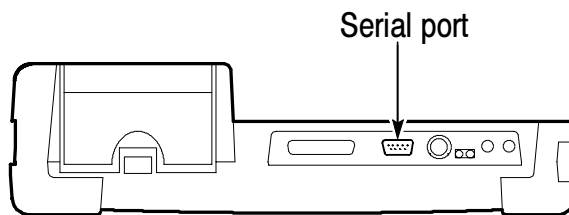


Figure 1: NetTek Analyzer serial port

2. Insert the floppy disk into the floppy drive on the PC.

3. Copy the **InstallYOPM.arq** file from the floppy disk to the directory: \, on the the NetTek Analyzer. (The directory is called My NetTek when viewed on the NetTek Analyzer or My Handheld PC when viewed from the PC. It's one level above \BuiltInDisk on the NetTek Analyzer.)

It will take several minutes for the file to transfer.

4. On the NetTek Analyzer, select:
Start > Programs > Tektronix Utilities > Module Upgrade.
5. Select **Next**. The NetTek Analyzer will not be able to automatically find the module software for installation.
6. Select **Browse**.
7. Manually select \InstallYOPM.arq and press **OK**.
8. Select **Next**. It will take a few moments for the files to be extracted and installed.

When installation is complete, the dialog box, Module Upgrade Complete, appears.

9. Select **Restart Now**.
10. Remove the floppy disk from the PC.

Installing the YOPM100 & 200 Optical Power Meters

To install the power meter, do the following:



CAUTION. *Suspend or shut down the NetTek Analyzer before installing any PC card. Failure to do so could result in loss of user data due to a system crash.*

1. Open the access door on the right side of the analyzer. See Figure 2.
2. With the PC card label facing the analyzer display, slide the card end of the power meter into the front PCMCIA slot of the NetTek Analyzer platform as shown.

NOTE. *For CE compliance, use the power meter only in the front PCMCIA slot.*

3. Press firmly to seat the card connector.
4. Make sure that all cables are securely connected.
5. Power on the NetTek Analyzer platform. The green LED indicator on the power meter will illuminate.

To release the card, press the button at the top of the card slot.

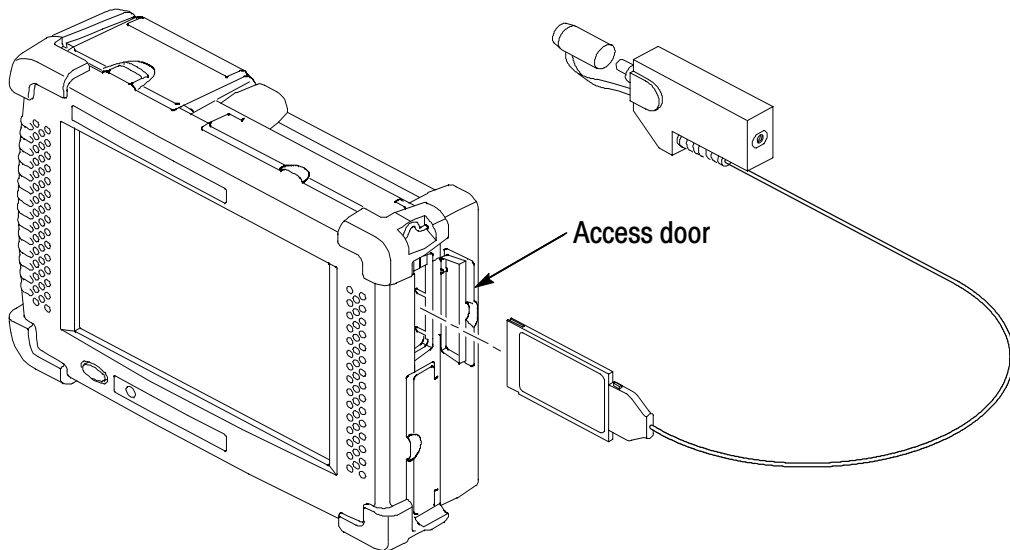
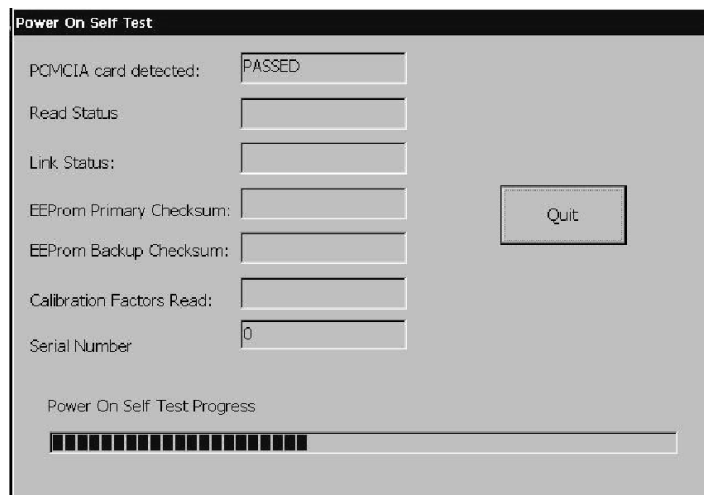


Figure 2: Installing the power meter into the PCMCIA slot

Opening the Application

1. To open the YOPM application, double-tap the program icon or select **Start > Programs > NetTek > YOPM**.

The instrument will initiate the Power On Self Test. The test progress is shown by the bar at the bottom of this window.



The screenshot shows a window titled "Power On Self Test" with the following fields and a progress bar:

- PCMCIA card detected: PASSED
- Read Status: [Empty field]
- Link Status: [Empty field]
- EEProm Primary Checksum: [Empty field]
- EEProm Backup Checksum: [Empty field]
- Calibration Factors Read: [Empty field]
- Serial Number: 0
- Power On Self Test Progress: A progress bar with approximately 15 segments, all of which are filled.
- A "Quit" button is located on the right side of the window.

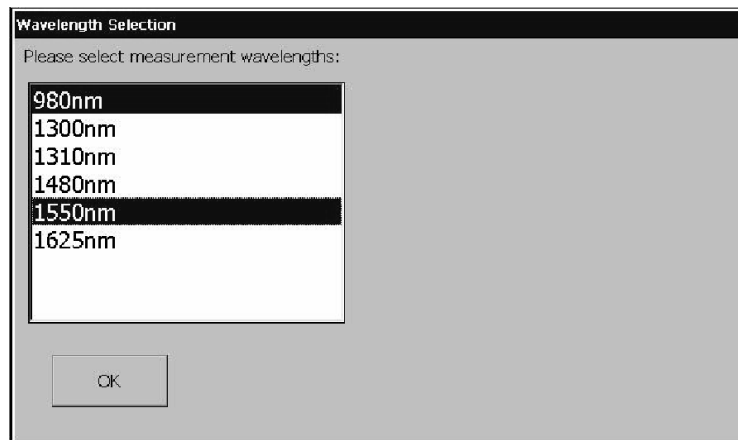
2. After the **Power On Self Test** has completed successfully, the Wavelength Selection screen appears. See *Selecting Wavelengths* on page 9.

If a problem occurs during the Power On Self Test, follow these steps:

1. Check that all instrument connections are secure. Be sure the card is firmly seated in the PCMCIA slot.
2. Power the NetTek Analyzer off and then on again.
3. Restart the YOPM application.

Selecting Wavelengths

After the Power On Self Test has completed successfully or when you create a new file (File > New), the Wavelength Selection window appears:



Tap on a wavelength to select it. (Tap again to deselect a wavelength.) When finished, tap **OK**.

NOTE. *The 850nm measurement wavelength is not available for the YOPM200 high-power module.*

The wavelengths used for the last saved test will automatically be highlighted.

Operating Basics

After you have selected the measurement wavelengths, the main screen will be displayed, as shown below.



- Buttons and Menus. See page 15.
- Tabs. Tap on a tab to perform measurements at the wavelength shown. (The tabs here appear according to the wavelengths you selected from the Wavelength Selection window; see *Selecting Wavelengths* on page 9.)
- Measurement readout. The measurement readout area displays measurements and status information in real time.
- Measurement table. The Measurement Table displays measurement information that was acquired using the wavelength that appears in the active tab.

Collecting Measurements

1. Select the wavelengths with which to test. (For information about the Wavelength Selection window, see *Selecting Wavelengths* on page 9.)
2. Select the units:
 - **Watt** button for absolute linear Watt units
 - **dBm** button for absolute logarithmic dBm units
 - **dB** button for relative logarithmic dB units. (See *Setting the Reference Level* on page 13.)
3. Select the tab of the wavelength with which to test.
4. Connect to the fiber to test.



CAUTION. *To maintain the performance of fiber optic connectors, clean them every time you use them. Refer to Cleaning beginning on page 27.*

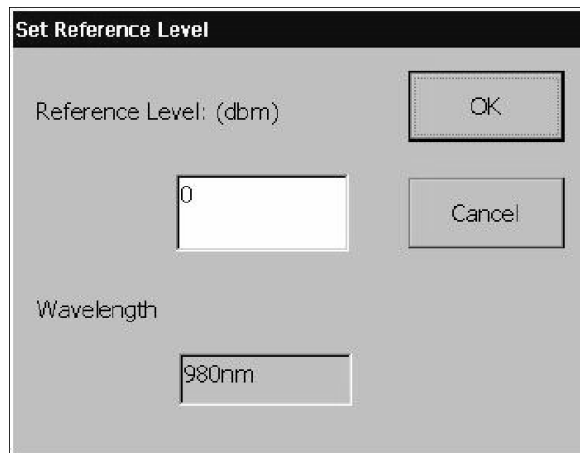
5. Tap the cell in the table to highlight where you want the measurement data to be stored.
6. Tap the **Save to Table** button.
7. Tap the **Save to Table** button again to save data to the next cell or tap a cell in the table to highlight where you want the measurement data to be stored.

Collect as many measurements as you want for the given wavelength. If desired, tap another tab for a different wavelength and collect more measurements.

Setting the Reference Level

When performing measurements using relative logarithmic dB units, you must set a reference power level. The default at power-on is 0.00 dBm. To set the reference power level, do the following:

1. Make sure that all connectors, adapters, and the detector window of the optical power meter have been cleaned thoroughly. See page 27 for cleaning instructions.
2. Connect an appropriate reference cable between the light source in use and the power meter.
3. Tap on the wavelength tab you want to reference.
4. Tap the **Set Ref...** button. This will display the Set Reference Level window, shown below. The measured power will be shown in the Reference Level field. The measurement wavelength in use is shown in the Wavelength field.



The screenshot shows a dialog box titled "Set Reference Level". It has a light gray background and a black border. At the top left, the text "Reference Level: (dbm)" is displayed. Below it is a white text input field containing the number "0". To the right of this field are two buttons: "OK" and "Cancel". Below the "Reference Level" field, the text "Wavelength" is displayed. Below it is another white text input field containing the value "980nm".

5. Verify that the information in the fields is correct, then tap **OK**. (Tapping **Cancel** will close the Set Reference Level window without saving a reference.)

NOTE. *You may want to manually enter values in the Reference Level field if the power source is at the other end of the fiber.*

The reference level is saved for the current wavelength. Repeat this procedure (with appropriate changes to the light source) for each wavelength you need to measure.

Buttons and Menus

The following tables describe the main screen buttons and menus.

Table 2: Main screen buttons




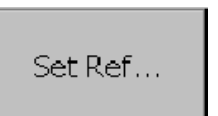
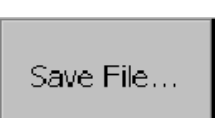
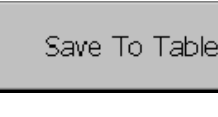


	Sets measurement units to absolute linear Watt units. The display will automatically change scales between mW, μ W, and nW when Watt units are used.
	Sets measurements units to absolute logarithmic dBm units.
	Sets measurement units to relative logarithmic dB units. (See <i>Setting the Reference Level</i> on page 13.)
	Sets the reference level for subsequent measurements using relative dB units. See <i>Setting the Reference Level</i> on page 13.
	Permits you to save all measurement results as an *.OPM file. See page 21 for instructions on where to save files.
	Records the measurement value shown in the readout to the highlighted cell in the Measurement Table. When the table is full, the Save To Table button will be disabled. See page 20 for instructions on configuring the Measurement Table size.
	Clears all data in the current tab of the Measurement Table. You will be prompted to verify this action before data are cleared.
	Opens and closes the soft keypad Input Panel, allowing you to enter alphanumeric characters with the touch screen. (This button is located in the lower right corner of the touch screen.)

Table 3: File Menu

New	Displays the Wavelength Selection window and initiates a new test session.
Open	Opens a previously saved *.OPM file. See page 21 for instructions on opening *.OPM files.
Save	Saves measurement data in *.OPM format. See page 21 for instructions on saving *.OPM files.
Save As	Saves measurement data using a new file name.
Export	Exports data for use in another software application. See page 23 for instructions on exporting measurement files.
<Name of a recent file>.OPM	Quickly opens a previously saved *.OPM file. Select the name of the desired file to open it.
Exit	Quits the YOPM application.

Table 4: Settings Menu

Measurement Table	Sets up the number of columns and rows in the Measurement Table for all the tabs. See page 20 for instructions on configuring the Measurement Table.
dBm	Takes measurements using absolute logarithmic dBm units. This item will be marked with a check when dBm units are in use.
Watt	Take measurements using absolute linear Watt units. This item will be marked with a check when Watt units are in use.
dB	Takes measurements using relative logarithmic dB units. This item will be marked with a check when dB units are in use. (See <i>Setting the Reference Level</i> on page 13.)
0.1 Resolution	Sets the measurement resolution to one-tenth of a unit (one place to the right of the decimal). This item will be marked with a check when it is active.
0.01 Resolution	Sets the measurement resolution to one-hundredth of a unit (two places to the right of the decimal). This item will be marked with a check when it is active.
Averaging	Toggles the averaging mode on and off. When the averaging mode is active, optical power readings will be more stable. This item will be marked with a check when the averaging mode is active. The averaging status is also shown in the lower left of the readout. (Ten readings are used to calculate the displayed value when the averaging mode is active.)
Zero OPM	Sets the photodetector baseline noise level. See <i>Zeroing the Optical Power Meter</i> on page 29 for instructions.

Table 5: Help Menu


Help Topics	Displays the online help contents. Tap on a topic to display more information. See <i>Using the Online Help</i> on page 18.
About YOPM	Displays information about the YOPM application, such as the version and the copyright date.

Using the Online Help

Refer to the online help for information on operating the NetTek Analyzer and the power meter.

There are several ways to access online help:

- For platform information, select Windows CE **Start > Help**.
- For power meter help, select Windows CE **Start > Help > YOPM**.
- For power meter help when the YOPM application is open, you can also select **Help** from the top of the screen.

To read a long help topic without having to scroll, select the  button to increase the size of the help window to full screen size.

To access related help topics, tap blue, underlined text.












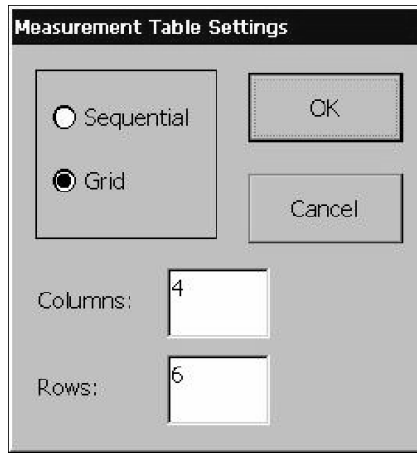
If the Input Panel covers the help window, tap the  button at the bottom of the screen to close the Input Panel. Tap the button again to open the Input Panel.

Table 6: Help window buttons



Tap this button	To
 All Topics	Display the NetTek Analyzer main table of contents.
 Back	Return to the previous help screen.
 Contents	Display the current program or local table of contents.
	Display full-screen help text.
	Display the help text in its own window. Tap and drag the Help window title bar to move the window.
	Minimize the Help window. To maximize the window, tap the Help icon in the taskbar.
	Close the Help window and quit help.
	Scroll the text towards the bottom of the screen.
	Scroll the text towards the top of the screen.
	Open and close the soft keypad Input Panel. The button is located in the lower right hand corner of the touch screen. (Tap this button to uncover the Help.)

Configuring the Measurement Table

To configure the number of columns and rows in the measurement table, select **Settings > Measurement Table**.



You can specify up to 48 rows by 24 columns. You can make your table larger without affecting data. However, if you make your table smaller, you will lose any data that does not fit in the new table size.

1. Select **Settings > Measurement Table**.
2. Select **Sequential** (to generate one column) or **Grid** (to generate several columns).
3. If you want to change the number of columns or rows, highlight the value in the field you want to change.
4. Tap the  button to open the Input Panel. You can drag the keyboard or the Table Settings dialog box to more easily view the dialog box fields. Enter the new value. Tap the  button to close the Input Panel.
5. Tap the **OK** button in the Table Settings dialog box.

Saving Measurement Files



You can save the data you collected in the Measurement Table in *.OPM format:

Tap the **Save File** button or select **File > Save**. If the file already has a name, it is saved immediately.

1. To save a new file or rename a file, select **File > Save As**. The Save As dialog box will appear.
2. Specify a destination directory or drive. Measurement files must have an *.OPM extension.

NOTE. Save files in *\BuiltInDisk*, on a floppy, or on a PC card. Files saved anywhere else will be lost when you power off the NetTek Analyzer.

The YOPM application will prompt you for verification before overwriting a previously saved file.

3. Specify a file name by tapping the Name field and tapping the  button to open the Input Panel. You can drag the keyboard to more easily view the dialog box fields. Enter the file name. Tap the  button to close the Input Panel.
4. Tap **OK** to save the file.

Opening a Measurement File

To open a previously saved *.OPM measurement file, select **File > Open**. The Open dialog box appears, permitting you to browse drives and directories for *.OPM files. After selecting the file, double-tap the file name, or tap **OK** to load the file.

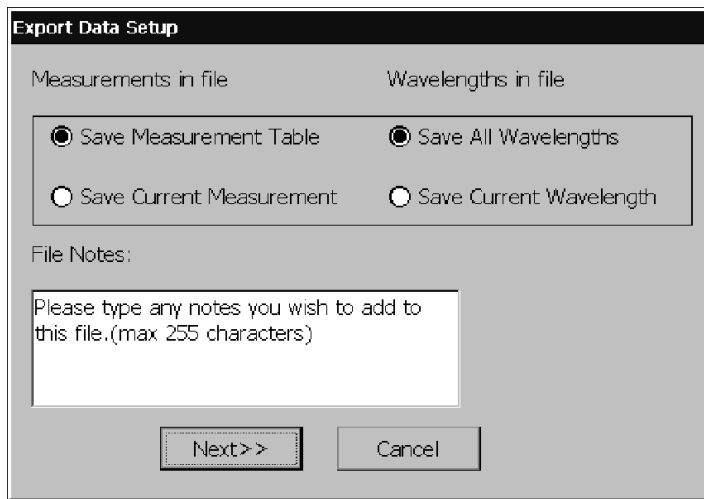
Reference



This section covers how to export files to other programs, how to remove the SOC adapter, how to clean various parts, and how to zero the power meter.

Exporting Measurement Files

The YOPM application can export saved measurement data in text (*.TXT) format for printing, analysis, and charting using various applications, like MS Pocket Word and MS Excel.

1. Select **File > Export**. This will display the Export Data Setup dialog box





2. Specify which measurements to save:
 - Select **Save Measurement Table** to save all the cells in a measurement table.
 - Select **Save Current Measurement** to save only the last cell in the table.
 - Select **Save All Wavelengths** to save data from all the wavelength tabs.
 - Select **Save Current Wavelength** to save data from only the active wavelength tab.
3. Record any notes:
 - a. Highlight the text in the File Notes field.
 - b. Tap the  button to open the Input Panel. You can drag the keyboard or the Export Data Setup dialog box to more easily view the dialog box fields. Enter up to 255 characters of notes. Tap the  button to close the Input Panel.
 - c. Tap **Next**.

4. The Save As dialog box will appear.

NOTE. Save files in *\BuiltInDisk*, on a floppy, or on a PC card. Files saved anywhere else will be lost when you power off the NetTek Analyzer.

The YOPM application will prompt you for verification before overwriting a previously saved file.

- a. Specify a destination directory or drive.
- b. Select *.txt for the file type.
- c. Specify a file name by tapping the Name field and tapping the  button to open the Input Panel. You can drag the keyboard to more easily view the dialog box fields. Enter the file name. Tap the  button to close the Input Panel.
- d. Tap **OK** to save the file.

You can open the file for formatting and printing on the NetTek Analyzer using Microsoft Pocket Word. You can transfer the *.txt file to a PC and open it in Microsoft Excel or other programs.

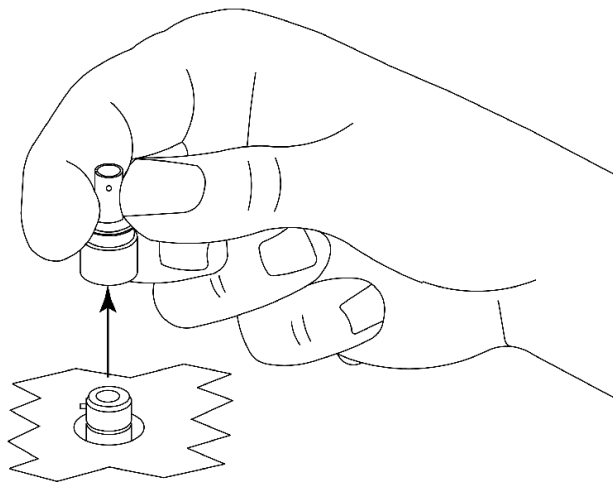
Transferring Files to a PC

Refer to the NetTek Analyzer user manual for information about communicating with a PC. See *Exporting Measurement Files* on page 23 for procedures for preparing files for transfer to other programs.

SOC Adapter Removal and Installation

YOPM optical power meters are fitted with Snap-On Connector (SOC) interfaces. You can quickly remove the SOC adapters from the power meter input to permit cleaning of the detector window. See page 27 for cleaning instructions.

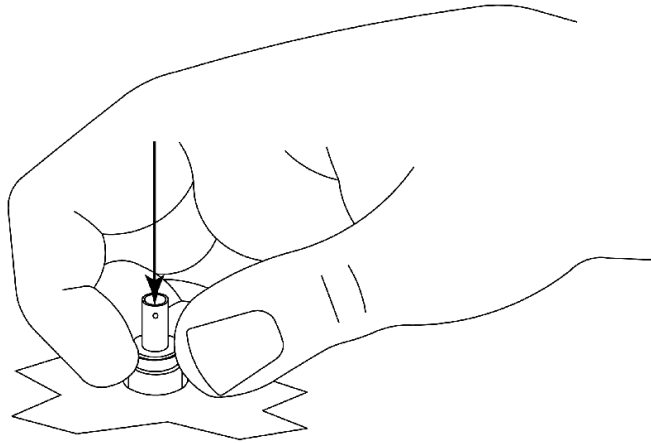
Removing an SOC Adapter



1. Grasp the sides of the SOC adapter and pull it off the interface, as shown above. SOC adapters require considerable force to remove. Do not attempt to pry the adapter off the interface or damage will result.
2. Put the adapter in a clean place.

Installing an SOC Adapter

1. Locate the anti-rotation key on the interface.



2. With the keyway properly aligned, push the adapter over the interface until it snaps in place, as shown above.

Cleaning

To ensure absolute measurement integrity, it is essential that all instrument interfaces be cleaned before each use.

Cleaning the Detector Window

Use a lint-free swab and reagent-grade isopropyl alcohol to clean the detector window of the power meter before each use.



CAUTION. *To maintain the performance of fiber optic connectors and interfaces, clean them every time you use them.*

To clean the detector window, do the following:

1. Remove the SOC adapter in accordance with the preceding instructions.
2. Moisten the lint-free swab with reagent-grade alcohol and wipe once across the interface.
3. Wipe once across the interface with a dry, clean, lint-free swab to wipe away residual alcohol. Take care not to press too firmly to avoid breaking the detector window.
4. Re-install the SOC adapter in accordance with the preceding instructions.

Cleaning the Test Fiber Connector

Clean the test fiber connector before each use.

Dampen a lint-free swab or paper wipe with reagent-grade alcohol. Gently wipe across the end of the fiber connector a couple of times. Wipe across the end of the fiber connector with a dry, clean, lint-free swab or paper wipe to remove residual alcohol.

Cleaning the Exterior of the Power Meter Test Head



CAUTION. *To prevent damage to external surfaces, avoid using chemicals that contain acetone, benzene, toluene, xylene, or similar solvents. Do not use bleach or ammonia solutions for cleaning.*

As regular maintenance, remove accumulated dirt or oily residue from the exterior of the power meter test head with a mild detergent and water solution. Do not immerse the power meter or use abrasive cleaners. Use a soft cloth dampened with a solution of water and mild detergent to clean the instrument.

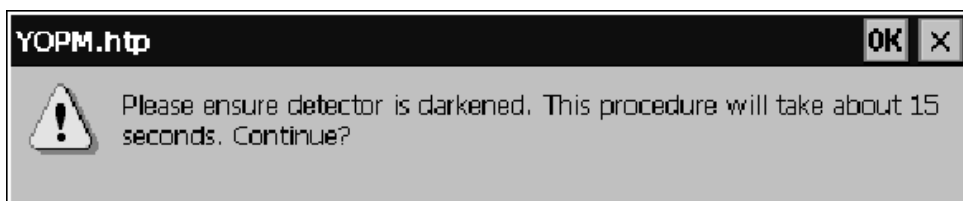
Zeroing the Optical Power Meter

To obtain accurate results, you must set the noise level baseline.

1. Cover the input with a black, opaque cap, or mate it to a dark fiber optic connector.

NOTE. *The input must be completely dark or an error message will appear during zeroing. If this happens, ensure that the input is properly covered and try again.*

2. Select **Settings > Zero OPM.**



3. The dialog box shown above will appear. Tap **OK** to continue; zeroing will start immediately.

NOTE. *When operating at the most sensitive resolution and at the minimum resolvable power level, changes in the ambient temperature may induce a change in the baseline noise level, or “zero drift.” If there are substantial changes in the ambient temperature, stabilize and re-zero the power meter to ensure accurate measurements.*

Specifications

This section lists the electrical, environmental, and physical specifications of the YOPM100 and 200 Optical Power Meters. All specifications are guaranteed unless labeled “typical”. Typical specifications are provided for your convenience and are not guaranteed.

The specifications in this section apply to the YOPM modules, unless otherwise specified. For NetTek Analyzer Platform specifications, refer to the NetTek Analyzer Platform User Manual.

Table 7: NetTek Analyzer YOPM module characteristics

Module	Range	Wavelengths	Power range
YOPM100	Standard	850, 980, 1300, 1310, 1480, 1550, 1625nm	+3 dBm to -65 dBm
YOPM200	Extended	980, 1300, 1310, 1480, 1550, 1625nm	+27 dBm to -43 dBm ¹

1 Limit exposure to high power (greater than +23 dBm) to less than 2 minutes. Follow high-power exposure by a cool-off time at least 15 times the exposure time.

Table 8: Physical characteristics

Module	Power range
Dimensions of the test head	Height: 135 mm (4.4 in) Width: 61 mm (2.4 in) Depth: 26 mm (1.0 in)
Weight	<0.18 kg (<0.4 lbs.)

Table 9: General characteristics

Characteristic	Description
Accuracy ¹	
980, 1300, 1310, 1480, & 1550 nm	±0.25 dB at calibration conditions, NIST Traceable
850, 1625 nm	±0.32 dB at calibration conditions, typical
Resolution of real-time display	0.01 or 0.1 (selectable)
Platform	
Hardware	Tektronix NetTek Y350 platform
Software	Windows CE version 2.13 and above
Number of stored tests	1152 tests (48 x 24 table)

¹ **Within specified ambient environment of 23° C.**

Table 10: Environmental characteristics

Characteristic	Description
Temperature Range	
Operating	-10° C to +50° C
Nonoperating	-40° C to +60° C
Humidity, operating	5% to 95% RH
Altitude	
Operating	Up to 4.6 km (15,000 ft.)
Nonoperating	Up to 15.24 km (50,000 ft.)

Table 11: Certifications and compliances

Category	Standards or description																
EC Declaration of Conformity - EMC	<p>Meets intent of Directive 89/336/EEC for Electromagnetic Compatibility. Compliance was demonstrated to the following specifications as listed in the Official Journal of the European Communities:</p> <table border="0"> <tr> <td data-bbox="617 619 893 766">EN 61326</td> <td data-bbox="893 619 1393 766">EMC requirements for Class A electrical equipment for measurement, control and laboratory use.</td> </tr> <tr> <td data-bbox="617 787 893 871">IEC 61000-4-2</td> <td data-bbox="893 787 1393 871">Electrostatic discharge immunity (Performance criterion B)</td> </tr> <tr> <td data-bbox="617 892 893 976">IEC 61000-4-3</td> <td data-bbox="893 892 1393 976">RF electromagnetic field immunity (Performance criterion A)</td> </tr> <tr> <td data-bbox="617 997 893 1081">IEC 61000-4-4</td> <td data-bbox="893 997 1393 1081">Electrical fast transient / burst immunity (Performance criterion B)</td> </tr> <tr> <td data-bbox="617 1102 893 1186">IEC 61000-4-5</td> <td data-bbox="893 1102 1393 1186">Power line surge immunity (Performance criterion B)</td> </tr> <tr> <td data-bbox="617 1207 893 1291">IEC 61000-4-6</td> <td data-bbox="893 1207 1393 1291">Conducted RF immunity (Performance criterion A)</td> </tr> <tr> <td data-bbox="617 1312 893 1396">IEC 61000-4-11</td> <td data-bbox="893 1312 1393 1396">Voltage dips and interruptions immunity (Performance criterion B)</td> </tr> <tr> <td data-bbox="617 1417 893 1428">EN 61000-3-2</td> <td data-bbox="893 1417 1393 1428">AC power line harmonic emissions</td> </tr> </table>	EN 61326	EMC requirements for Class A electrical equipment for measurement, control and laboratory use.	IEC 61000-4-2	Electrostatic discharge immunity (Performance criterion B)	IEC 61000-4-3	RF electromagnetic field immunity (Performance criterion A)	IEC 61000-4-4	Electrical fast transient / burst immunity (Performance criterion B)	IEC 61000-4-5	Power line surge immunity (Performance criterion B)	IEC 61000-4-6	Conducted RF immunity (Performance criterion A)	IEC 61000-4-11	Voltage dips and interruptions immunity (Performance criterion B)	EN 61000-3-2	AC power line harmonic emissions
EN 61326	EMC requirements for Class A electrical equipment for measurement, control and laboratory use.																
IEC 61000-4-2	Electrostatic discharge immunity (Performance criterion B)																
IEC 61000-4-3	RF electromagnetic field immunity (Performance criterion A)																
IEC 61000-4-4	Electrical fast transient / burst immunity (Performance criterion B)																
IEC 61000-4-5	Power line surge immunity (Performance criterion B)																
IEC 61000-4-6	Conducted RF immunity (Performance criterion A)																
IEC 61000-4-11	Voltage dips and interruptions immunity (Performance criterion B)																
EN 61000-3-2	AC power line harmonic emissions																
Australia / New Zealand Declaration of Conformity - EMC	<p>Complies with EMC provision of Radiocommunications Act per the following standard(s):</p> <table border="0"> <tr> <td data-bbox="617 1533 893 1606">AS/NZS 2064.1/2</td> <td data-bbox="893 1533 1393 1606">Industrial, Scientific, and Medical Equipment: 1992</td> </tr> </table>	AS/NZS 2064.1/2	Industrial, Scientific, and Medical Equipment: 1992														
AS/NZS 2064.1/2	Industrial, Scientific, and Medical Equipment: 1992																
FCC	Emissions comply with FCC Code of Federal Regulations 47, Part 15, Subpart B, Class A Limits.																

Options, Accessories, and Replaceable Parts

The tables below list part numbers of options and accessories that you can order for your power meter. Contact your Tektronix representative or distributor for ordering information. See page vii for information on contacting Tektronix.

Table 12: SOC connector part numbers

Description	Part number
FC	119-5146-00
E2000	119-5165-00
ST	119-5144-00
Diamond 3.5	119-5172-00
SC	119-5145-00

Table 13: Standard accessories

Quantity	Part number	Description
1 ea	020-2357-00	Cleaning kit
1 ea	020-2414-00	English user manual and CD

Table 14: Replaceable Part

Part number	Description
116-1002-00	YOPM PCMCIA card



Transporting or Shipping

The safest way to transport your power meter module is inside a factory designed carrying case.

Soft Case (standard accessory with the NetTek Analyzer)

1. Put the analyzer and module in the plastic bag to protect it from abrasion during shipping.
2. Place the analyzer and module in the foam cutout.
3. Restrain the analyzer and module with the built-in strap.
4. Close the case and secure the latch.

Hard Cases (optional accessories with the NetTek Analyzer)

1. Put the analyzer and module in the plastic bag to protect it from abrasion during shipping.
2. Place the analyzer and module in the foam cutout.
3. Close the case and secure the latch.

Repackaging for Shipment

To ship the power meter for repair, use the original packing container if possible. If the container is unfit for use or not available, use the metal carrying case or repackage the instrument as follows:

- 1.** Use a carton with a test strength of no less than 80 kg (175 lbs).
- 2.** Surround the instrument with protective polyethylene sheeting.
- 3.** Cushion the instrument on all sides with at least two inches of tightly packed urethane foam or other packing material.
- 4.** Seal the carton with shipping tape or an industrial stapler.

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