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**User's  
Manual**

**AQ1100 OLTS  
Multi Field Tester**

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Thank you for purchasing the AQ1100 OLTS (Optical Loss Test Set) Multi Field Tester. This user's manual explains the features, operating procedures, and handling precautions of the AQ1100. To ensure correct use, please read this manual thoroughly before operation. Keep this manual in a safe place for quick reference in the event that a question arises. This manual is one of three AQ1100 manuals. Please read all the manuals.

Manual Title	Manual No.	Description
AQ1100 OLTS Multi Field Tester Operation Guide	IM AQ1100-02EN	This guide focuses on the handling precautions, basic operations, and specifications of the AQ1100.
AQ1100 OLTS Multi Field Tester User's Manual (included in CD)	IM AQ1100-01EN	This manual. Explains all AQ1100 features, except for the communication features, and how to use them.
AQ1100 OLTS Multi Field Tester Communication Interface User's Manual (included in CD)	IM AQ1100-17EN	Explains the features related to using communication commands to control the AQ1100.

## Notes

- The contents of this manual are subject to change without prior notice as a result of continuing improvements to the instrument's performance and functionality. The figures given in this manual may differ from those that actually appear on your screen.
- Every effort has been made in the preparation of this manual to ensure the accuracy of its contents. However, should you have any questions or find any errors, please contact your nearest YOKOGAWA dealer.
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## Revisions

1st Edition: November 2009

# Conventions Used in This Manual

## Notes

The notes and cautions in this manual are categorized using the following symbols.



*Improper handling or use can lead to injury to the user or damage to the instrument.* This symbol appears on the instrument to indicate that the user must refer to the user's manual for special instructions. The same symbol appears in the corresponding place in the user's manual to identify those instructions. In the manual, the symbol is used in conjunction with the word "WARNING" or "CAUTION."

### WARNING

Calls attention to actions or conditions that could cause serious or fatal injury to the user, and precautions that can be taken to prevent such occurrences.

### CAUTION

Calls attention to actions or conditions that could cause light injury to the user or cause damage to the instrument or user's data, and precautions that can be taken to prevent such occurrences.

### Note

Calls attention to information that is important for proper operation of the instrument.

## Symbols and Conventions Used in Procedural Explanations

The contents of the procedural explanations are indicated using the following symbols.

### Procedure

Carry out the procedure according to the step numbers. All procedures are written under the assumption that you are starting operation at the beginning of the procedure, so you may not need to carry out all the steps in a procedure when you are changing the settings.

### Explanation

This section describes the setup items and the limitations regarding the procedures. It may not give a detailed explanation of the feature. For a detailed explanation of the feature, see chapter 2.

## Character Notations

### Hard Key Names and Soft Key Names in Bold Characters

Indicate panel keys that are used in the procedure and soft keys and menu items that appear on the screen.

## Unit

k	Denotes 1000. Example: 12 kg, 100 kHz
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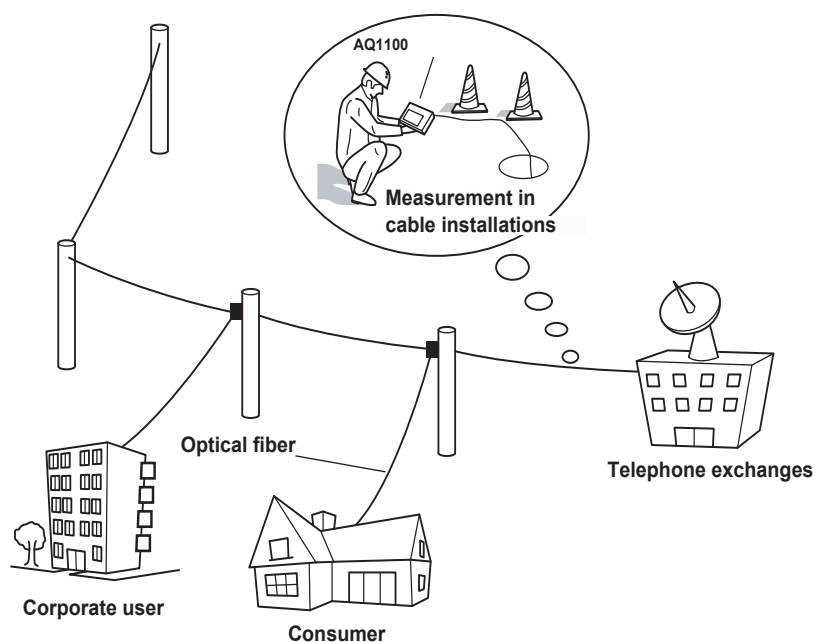
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## 1.1 Overview

This instrument is an OLTS (Optical Loss Test Set) with the features listed below. It is used in the optical fiber and line installation and maintenance servicing of access networks, which link telephone exchanges and service providers with subscribers, and user networks, which enable communication within a corporation or building.

- Optical power meter
- Loss-measurement light source and visible light source
- Loss measurement that makes use of its light source and optical power meter features (loss test).
- Efficient multicore loss testing for measuring loss in multicore fibers
- Simple IP testing through pinging (option)



## 1.2 Optical Power Meter and Light Source

### Optical Power Meter

The three instrument types listed below are available for measuring different types of optical power.

Suffix Code	Optical Power Type
-SPM	Standard
-HPM	High input
-PPM	PON (passive optical network)

If you are using the AQ1100 to measure optical power, the various settings listed below can be configured.

Item	Models with -SPM or -HPM Suffix Codes	Models with -PPM Suffix Codes	
		Normal power meter selected	PON power meter selected
Wavelength	Yes	Fixed <sup>10, 11</sup>	Fixed <sup>10, 11</sup>
Wavelength mode <sup>1</sup>	Yes	—	—
Modulation mode <sup>2</sup>	Yes	—	—
Unit	Yes (dB, dBm, W)	Yes (dB, dBm, W)	Yes (dBm, W)
Reference <sup>3</sup>	Yes	Yes	—
Measured value display hold	Yes	Yes	Yes
Measured value logging	Yes	Yes	—
Zero set <sup>4</sup>	Yes	Yes	Yes
Average count <sup>5</sup>	Yes	Yes	Yes
Maximum and minimum value display <sup>6</sup>	Yes	Yes	—
Interlocking of light source and optical power meter settings <sup>7</sup>	Yes	Yes	—
Offset <sup>8</sup>	Yes	Yes	Yes
Threshold <sup>9</sup>	Yes	Yes	Yes
Measurement of the optical power from ONU to OLT for a particular signal wavelength <sup>10</sup>	—	—	Yes
Measurement of the optical power from OLT to ONU for a particular signal wavelength <sup>11</sup>	—	—	Yes

Yes: Can be set or executed, —: Not available

- 1 Wavelengths can be set with the wavelength mode set to Simple, Detail, or CWDM.
  - Simple: You can select from a list of preset wavelengths.
  - Detail: You can set the wavelength to a value from 800 to 1700 nm in 1 nm steps.
  - CWDM: You can set the wavelength to a value from 1270 to 1610 nm in 20 nm steps along the CWDM wavelength grid.
- 2 You can select the modulation frequency of the incident rays from a list of presets. You can also select CW (continuous).
- 3 You can make the displayed measured value the reference and display subsequent measured values as relative values.
- 4 You can adjust the internal deviation of the optical power measurement section and obtain more accurate absolute optical power values.
- 5 You can display averaged measured values.
- 6 You can display the maximum and minimum measured values.
- 7 You can interlock the light source and optical power meter settings when you connect an optical fiber between the light source port of an AQ1100 and the optical power measurement port of another AQ1100.
- 8 You can add a specified value (the offset value) to measured optical power values.
- 9 You can set upper and lower threshold values and determine whether or not the measured values fall within them.
- 10 You can measure the optical power of an upstream signal from the ONU (optical network unit: the user's optical terminal) to the OLT (optical line termination: the telephone exchange's optical terminal). The optical power of the 1310 nm (data wavelength) signal is measured.
- 11 You can measure the optical power of downstream signals from the OLT to the ONU. The optical power of the 1490 nm (data wavelength) and 1550 nm (video wavelength) signals is measured.

## Loss Measurement Light Source

Three instrument models, with the measurement light wavelengths listed below, are available for different applications.

Model	Measurement Light Wavelength
AQ1100A	SM 1310 nm, SM 1550 nm
AQ1100B	SM 1310 nm, SM 1550 nm, SM 1625 nm
AQ1100D	GI 850 nm, GI 1300 nm, SM 1310 nm, SM 1550 nm

You can produce continuous light or light that has been modulated at the selected frequency (modulation mode).

## Visible Light Source (Optional)

The visible light source is available on models with the /VLS option.

You can produce visible light to visually identify breaks in the optical fiber under test. You can turn the visible light on and off independently of the measurement light source.



## 1.3 Loss Testing

Optical fiber and optical line degradation can be measured easily.  
You can measure optical loss with models with -SPM or -HPM suffix codes.

### Auto Loss Testing (Using one AQ1100 as the light source and another as the optical power meter)

Using the AQ1100 as a light source and optical power meter, you can easily measure optical fiber and line degradation.

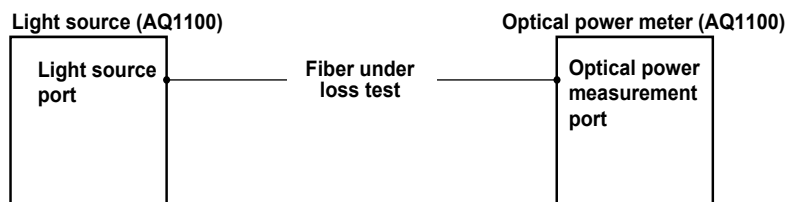
#### Light Source

You can set up to three measurement light wavelengths and produce them in order. You can produce a constant level of light if you use the optical power adjustment feature.

#### Optical Power Meter

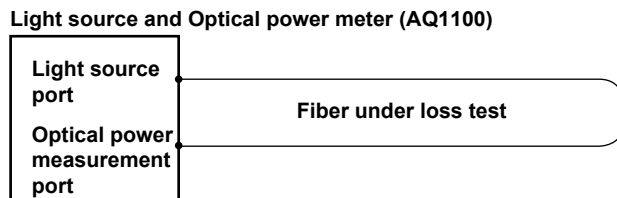
The AQ1100 automatically identifies the measurement light from the AQ1100 on the other side and measures the optical power.

- The following items can be specified or executed. For details about these items, see section 1.2.  
The unit, reference, offset, and threshold values can be specified.  
The zero set and measured value display hold operations can be executed.
- You can attach fiber information to the measured values and save them.\*
  - \* Because the AQ1100 is capable of identifying optical fiber and line cores, it is possible to number cores and tapes.



### Loop-Back Loss Test (Using one AQ1100)

You can use the light source and optical power meter features on a single AQ1100 to perform a loop-back loss test on an optical fiber or line. To perform loss testing, connect one end of the fiber that you need to perform loss testing on to the AQ1100 light source port, and connect the other end to the optical power measurement port of the same AQ1100.



## 1.4 Multicore Loss Testing

Multicore optical fiber and optical line degradation can be measured efficiently. You can measure optical loss with models with -SPM or -HPM suffix codes.

### Master and Slave

To perform multicore testing, use one AQ1100 as an optical power meter master and another as a light source slave.

#### Specifying the Optical Communication Fiber

To transfer, between the master and slave, project setup information and information about the fiber under loss test, you must specify a fiber from the multicore optical fiber to use for communication. Connect one end of the optical communication fiber to the master's light source port (optical port 2), and connect the other end to the slave's optical power measurement port (optical port 1).

#### Information That Is Transferred from Master to Slave

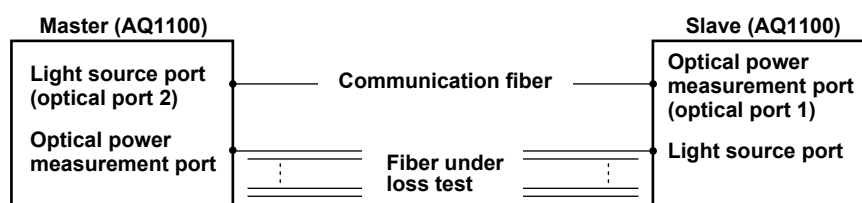
The following information can be transferred through the optical communication fiber from the master to the slave.

- Project information (see below for further details)
- Skipped cores (cores whose loss will not be tested)\*
- Loss test results

\* Because the AQ1100 is capable of identifying optical fiber and line cores, it is possible to number cores and tapes.

#### Connecting the Optical Fiber under Loss Test

All fibers other than the optical communication fiber can be tested. For each optical fiber under loss test, connect one end to the master's optical power measurement port, and connect the other end to the slave's light source port. The core and tape numbers of the fibers under loss test are transferred from the master to the slave.



### Executing a Loss Test

Transmit light from the slave. The master will automatically identify up to three different wavelengths in the light from the slave and measure the optical power. Continue the loss test, switching the cores between the master and the slave in order.

### Projects

You can create projects with the master. You can specify the following project information:

The project name, the number of the core to start loss testing at, the tape number type, the number of cores, and the transmitted or measured measurement light wavelengths (up to 3).

- You can transfer projects from the master to the slave and share information.
- When the master and the slave share a project and use that project to perform loss testing, if testing is stopped, the data up to the stop point is saved and you can begin testing again from the next core.
- You can save and load projects as CSV files.

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## 1.5 IP Testing (Option)

You can check whether or not the network layer of an Ethernet LAN line is established. Before performing an IP test, make sure that the physical layer of the optical fiber or line is connected. IP testing is available on models with the /LAN option.

### Pinging

To ping an address (perform a simple IP test), specify the address and configure the Tx frame settings listed below. The results of pinging the address appear on the screen.

The frame length, Tx mode (continuation, number of frames to send, and transmission time), and measurement interval

## 1.6 Other Features

In addition to the features described so far, the AQ1100 also has the following features.

- **Data saving and loading**
- **Language selection**
- **Beep on/off**
- **Startup menu selection**
- **USB function selection (storage/communication)**
- **Screen color selection**
- **Current date and time configuration (see the operation guide, IM AQ1100-02EN)**
- **Power save settings**
- **Network settings (on models with the /LAN option)**
- **Setup information initialization (to the factory default values)**
- **AQ1100 information display (model, serial no., suffix code, version, etc.)**
- **Self test execution**
- **Firmware version updating**

## 2.1 Key, Rotary Knob, and Arrow Key Operations

To make this manual easier to read, we have omitted or simplified explanations of the kinds of operations listed below.

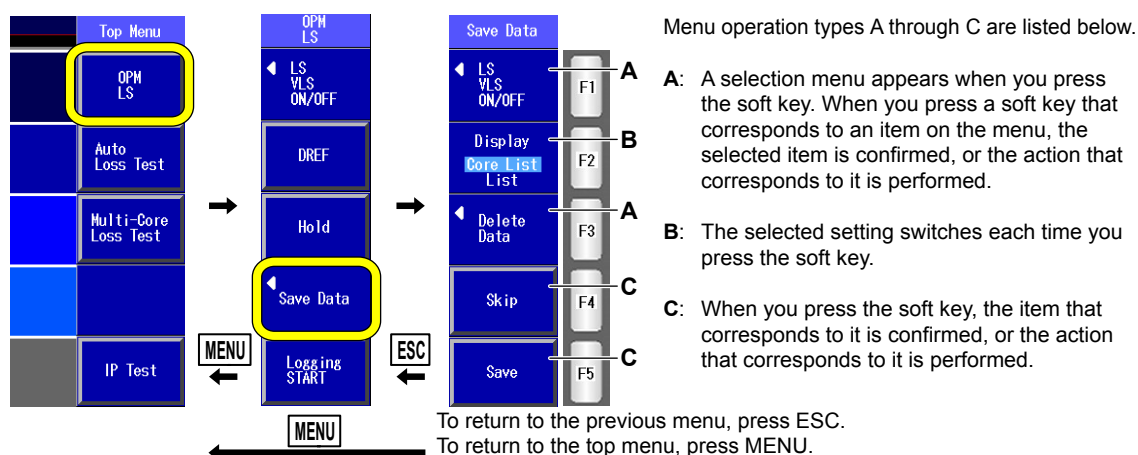
- Repetitive operations
- Detailed operations for proceeding to the desired setup menu or dialog box and information about the accompanying screen changes.
- Setup items that users can configure if they have a general understanding of them.

Below, we will compare examples of detailed setup operation explanations with explanations that have been omitted or simplified.

### Key Operations

The examples below explain the process for turning on the power, waiting for the top menu to appear, and then opening the Save Data menu. The first menu in the figure below is the top menu for models with -SPM or -HPM suffix codes.

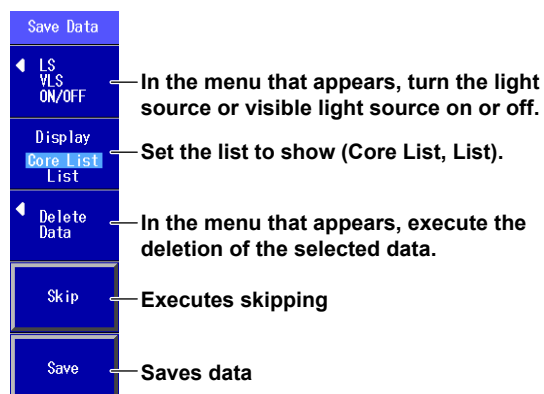
1. Press the **OPM LS** soft key (F1) to display the OPM LS menu.
2. Press the **Save Data** soft key (F4) to display the Save Data menu.



In this manual, steps 1 and 2 listed above and the setup operations in the menu that follows them are written as shown below.

### Setup Operation Example

Press the **OPM LS** soft key and then the **Data Save** soft key to display the following screen.



At this point, the soft key names are omitted, and the settings that the soft keys are used to configure and the actions that pressing them causes are explained. Options and ranges are listed afterwards.

- Step numbers are used when there are many operations and when operations must be performed in different menus.
- The explanation for returning to the previous menu is omitted.

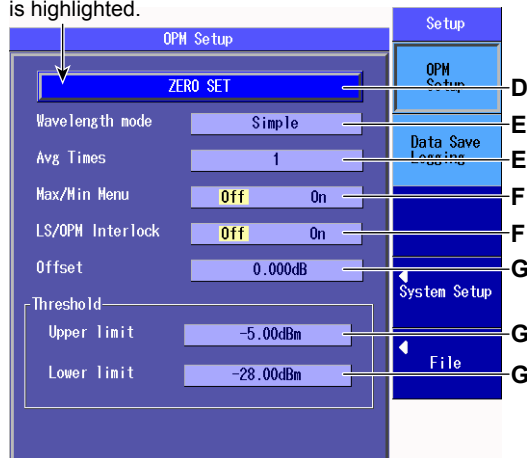
## 2.1 Key, Rotary Knob, and Arrow Key Operations

### Rotary Knob and Arrow Key Operations

This section explains how to operate a menu and the operations to perform when a setup dialog box appears. We will use the dialog box that appears when you press the **OPM Setup** soft key as an example.

1. Press the **OPM Setup** soft key to display the OPM Setup dialog box.
2. Use the **rotary knob** or the **arrow** keys to move the cursor to the item that you need to configure or execute.  
The item at the cursor location is highlighted.
3. Press **ENTER**.
  - Next, follow the instructions in the figure below that correspond to the type of item that you are configuring or executing.
  - In this manual, steps 2 and 3 listed above are indicated using the expression “using the **rotary knob** and **ENTER**.”

The item at the cursor location is highlighted.



Setup operation types D through G are listed below.

**D:** Press **ENTER** to confirm the item or execute its corresponding action.

**E:** Press **ENTER** to display a menu. Turn the **rotary knob** or press the **up** and **down arrow** keys to move the cursor to the item that you want to select. Then press **ENTER** to select the item.

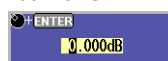
Example of menu for **E**



**F:** The selected setting switches each time you press **ENTER**.

**G:** Press **ENTER** to display a text box. Turn the **rotary knob** or press the **up** and **down arrow** keys to increase or decrease a number. To move between digits, press the **left** and **right arrow** keys. After you have entered a number, press **ENTER** to set the value to that number.

Example of text box for **G**

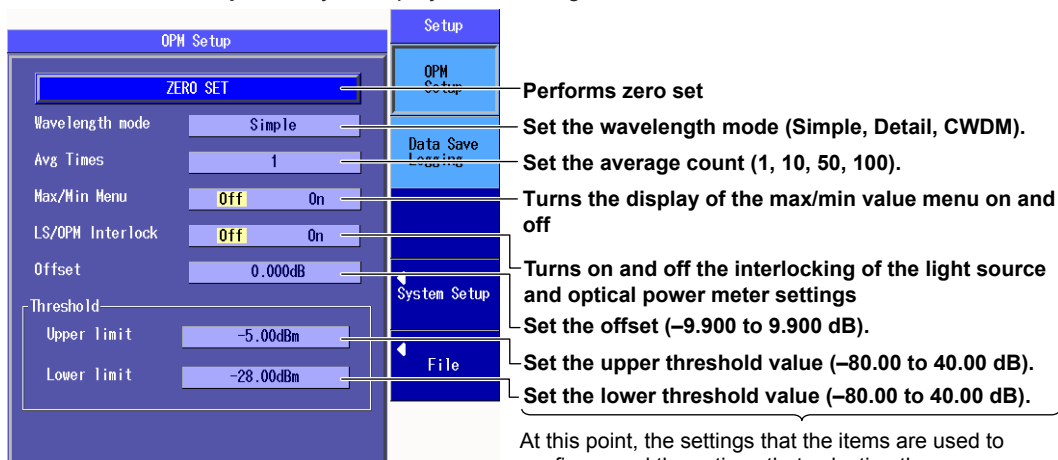


For setup operation types E and G, to reset the selected item to its previous settings, press **ESC**. To return to the top menu, press **MENU**.

In this manual, steps 1 through 3 listed above and the setup operations in the menu that follows them are written as shown below.

### Setup Operation Example

Press the **OPM Setup** soft key to display the following screen.



At this point, the settings that the items are used to configure and the actions that selecting them causes are explained. Options and ranges are listed afterwards.

- The explanations of rotary knob, arrow key, and **ENTER** key operations are omitted.
- The explanation of how to reset the selected item to its previous setting is omitted.
- The explanation for returning to the previous menu is omitted.

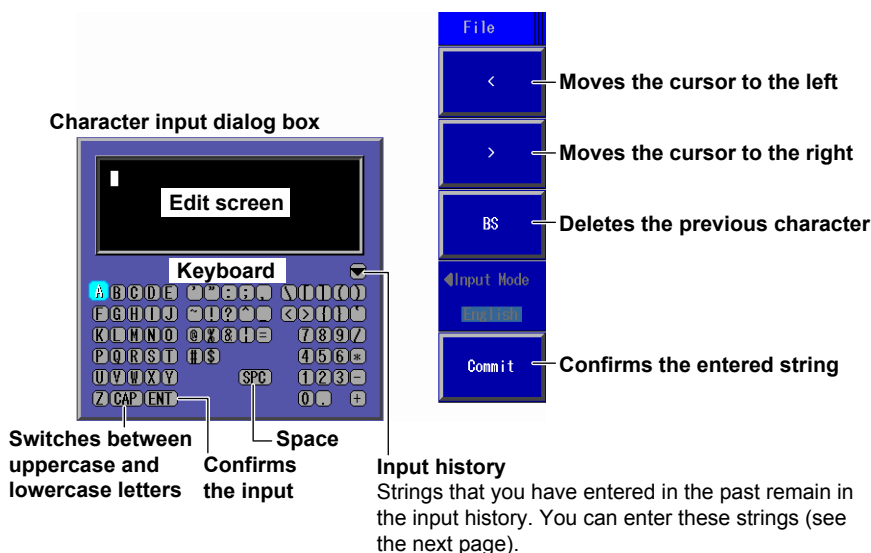
## 2.2 Entering Strings

After you have selected a setup item and pressed ENTER, a character input dialog box will appear if it is necessary. This section explains the operations that you can perform after the dialog box appears.

### Entering Strings

1. Using the **rotary knob** and **ENTER**, enter a string. The string that you entered appears in the edit screen.
2. Press the various soft keys to edit the string as necessary.
3. After you have finished entering and editing the string, press the **OK** soft key to confirm the string that you entered and close the character input dialog box. The string be applied to the relevant item.

You can also confirm the string by moving the cursor to **ENT** on the displayed keyboard and then pressing **ENTER**.



### Note

- If there is a limit to the length of the string, you will not be able to enter characters after the limit is reached.
- You can also enter strings using a USB keyboard.

### Entering Strings from the History

1. Using the **rotary knob** and **ENTER**, select ▼ to display the input history screen.
2. Using the **rotary knob** and **ENTER**, choose the string that you want to enter. The string appears in the edit screen.



#### Note

Entered strings are saved to the input history when you confirm them. Up to 50 strings can be saved. Newer strings appear at the top of the input history.

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# 3.1    Making Preparations for Measurements

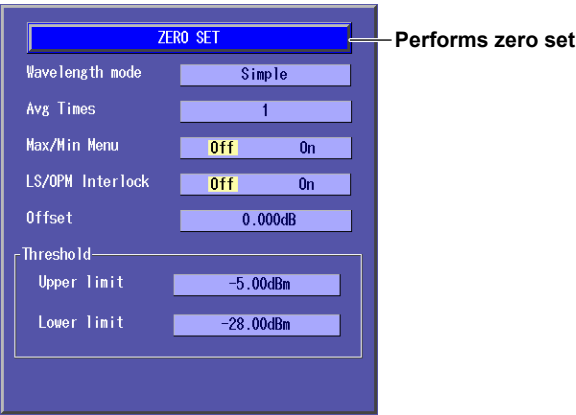
Remove the optical fiber cables from the AQ1100 and close the optical connector covers, or make sure that the power meter is not receiving any light, and then start the optical power meter zero set procedure.

## Procedure

### Performing Zero Set

Press the **OPM LS** soft key, **SETUP**, and then the **OPM Setup** soft key to display the following screen.

The figure below shows the screen that appears on models with -SPM and -HPM suffix codes. On models with the -PPM suffix code, there is no “Wavelength mode” item.



## Explanation

Perform zero set whenever necessary, such as after you have turned on the power or when the ambient temperature changes. Performing zero set adjusts the internal deviation of the optical power measurement section and enables you to obtain more accurate absolute optical power values.

## 3.2 Setting Optical Power Measurement Conditions and Holding the Display

### Procedure

#### Power Meter Screen

Press the **OPM LS** soft key to display the following screen.

The screenshot shows the Power Meter screen with a bar graph display of the measured value. The measured value is -0.20 dB. The screen also displays various settings: Wavelength (1310nm), Modulation (CW), Unit (dB), Reference (9.74dBm), and a bar graph with a lower threshold line at -70.00dBm and an upper threshold line at 10.00dBm. The screen is divided into two main sections: the top section for the measured value and the bottom section for settings. The settings section includes a 'Wavelength' field, a 'Modulation' field, a 'Unit' field, and a 'Reference' field. The 'Unit' field has a dropdown menu with options dB, dBm, and W. The 'Reference' field has a dropdown menu with options 9.74dBm, 0.00dBm, and -70.00dBm. The 'Wavelength' field has a dropdown menu with options 1310nm, 1550nm, and 1625nm. The 'Modulation' field has a dropdown menu with options CW, 270Hz, 1kHz, and 2kHz. The 'Unit' field has a dropdown menu with options dB, dBm, and W. The 'Reference' field has a dropdown menu with options 9.74dBm, 0.00dBm, and -70.00dBm. The bar graph shows the measured value as a bar extending from the lower threshold line to the upper threshold line. The measured value is -0.20 dB. The screen also features a soft key menu on the right side with options: OPM LS, LS VLS ON/OFF, DREF, Hold, Save Data, and Logging Start. The DREF key is used to set the reference to the currently displayed measured value. The Hold key is used to hold the measured value display. The Save Data key is used to save the current settings. The Logging Start key is used to start logging. The screen also includes a 'Zero Set' button at the top left.

**Bar graph display of the measured value**  
Measured value

**Power Meter**  
-0.20 dB

**Wavelength**  
1310nm

**Modulation**  
CW

**Unit**  
dB

**Reference**  
9.74dBm

**Lower threshold line**  
-70.00dBm

**Upper threshold line**  
10.00dBm

**OPM LS**  
LS VLS ON/OFF  
DREF  
Hold  
Save Data  
Logging Start

**Set the reference to the currently displayed measured value**

**Holds the measured value display**

**Set the wavelength.**  
This setting varies depending on the model or the wavelength mode that you set in the detailed setup screen in the next section.

**Set the modulation mode (CW, 270Hz, 1kHz, 2kHz).**  
Can be set on models with -SPM or -HPM suffix codes.

**Set the unit (dB, dBm, W).**

**Set the reference manually (-80 to 40 dBm).**  
The Reference box appears if you press the DREF soft key or set the unit to dB.

**These lines indicate the upper and lower threshold values (see the detailed setup screen in section).**

#### Detailed Setup Screen

Press **SETUP** and then the **OPM SETUP** soft key to display the following screen.

The figure below shows the screen that appears on models with -SPM and -HPM suffix codes. On models with the -PPM suffix code, there is no "Wavelength mode" item.

The screenshot shows the Detailed Setup screen with various configuration options. The screen is divided into two main sections: the top section for general settings and the bottom section for threshold settings. The top section includes a 'ZERO SET' button, a 'Wavelength mode' field (Simple), an 'Avg Times' field (1), a 'Max/Min Menu' field (Off), an 'LS/OPM Interlock' field (Off), and an 'Offset' field (0.000dB). The bottom section includes a 'Threshold' field with 'Upper limit' (-5.00dBm) and 'Lower limit' (-28.00dBm). The screen also features a soft key menu on the right side with options: ZERO SET, Wavelength mode, Avg Times, Max/Min Menu, LS/OPM Interlock, Offset, and Threshold. The 'ZERO SET' key is used to set the zero point. The 'Wavelength mode' key is used to set the wavelength mode. The 'Avg Times' key is used to set the average count. The 'Max/Min Menu' key is used to turn the display of the max/min value menu on and off. The 'LS/OPM Interlock' key is used to turn the interlocking of the light source and optical power meter settings on and off. The 'Offset' key is used to set the offset. The 'Threshold' key is used to set the threshold values. The screen also includes a 'Zero Set' button at the top left.

**ZERO SET**

**Wavelength mode**  
Simple

**Avg Times**  
1

**Max/Min Menu**  
Off On

**LS/OPM Interlock**  
Off On

**Offset**  
0.000dB

**Threshold**  
Upper limit -5.00dBm  
Lower limit -28.00dBm

**Set the wavelength mode (Simple, Detail, CWDM).**  
Can be set on models with -SPM or -HPM suffix codes.

**Set the average count (1, 10, 50, 100).**

**Turns the display of the max/min value menu on and off**

**Turns the interlocking of the light source and optical power meter settings on and off**

**Set the offset (-9.900 to 9.900 dB).**

**Set the threshold values (-80 to 40 dBm).**  
You can set the upper and lower values.

**Explanation****Wavelength**

The light receiving element of the optical power measurement section has a wavelength sensitivity characteristic. The AQ1100 measures optical power more accurately by adjusting the sensitivity according to the specified wavelength. The measurable wavelength range varies depending on the model.

**Models with -SPM or -HPM Suffix Codes**

The wavelength ranges and steps vary depending on the wavelength mode that you set in the detailed setup screen. You can set the wavelength within the following ranges.

Wavelength Mode	Range and Steps
Simple	You can select from 850 nm, 1300 nm, 1310 nm, 1490 nm, 1550 nm, 1625 nm, and 1650 nm.
Detail	You can set the wavelength to a value from 800 to 1700 nm in 1 nm steps.
CWDM	You can set the wavelength to a value from 1270 to 1610 nm in 20 nm steps.

**Models with -PPM Suffix Codes**

You can set the wavelength to one of the following values.  
1310 nm, 1490 nm, 1550 nm

**Modulation Mode**

On models with -SPM or -HPM suffix codes, you can set the modulation mode for optical measurement to one of the following options.

CW (continuous light), 270 Hz, 1 kHz, 2 kHz

**Unit**

You can set the optical power display unit to one of the following options.

dB (relative value), dBm (absolute value), W (absolute value)

- The following prefixes are attached to W: m ( $10^{-3}$ ),  $\mu$  ( $10^{-6}$ ), n ( $10^{-9}$ ), and p ( $10^{-12}$ ).
- The relationship between the absolute values dBm and W is indicated below.

$$P_{\text{dBm}} = 10 \times \log (P_{\text{W}} \times 10^3)$$

Where  $P_{\text{dBm}}$  is the optical power in units of dBm and  $P_{\text{W}}$  is the optical power in units of W.

**Reference**

You can set a reference and display measured values as relative values (display their difference from the reference).

- Press the DREF soft key to make the displayed measured value the reference and display subsequent measured values as relative values. The unit will change to dB.
- Press the DREF soft key or set the unit to dB to display the Reference box in the Power Meter screen.
- You can set the reference manually in the Reference box. The range is  $-80$  to  $40$  dBm.
- If you set the unit to dBm or W, the Reference box disappears and the measured values are displayed as absolute values.

**Wavelength Mode**

On models with the -SPM and -HPM suffixes, you can set the mode to one of the following options.

Simple, Detail, CWDM

When you change the wavelength mode, the wavelength range and steps for the Wavelength item change as explained above.

**Average Count**

Averages of the measured values are displayed. You can set the number of values to average to one of the following options.

1, 10, 50, 100

### 3.2 Setting Optical Power Measurement Conditions and Holding the Display

#### Turning the Maximum and Minimum Value Menu On and Off

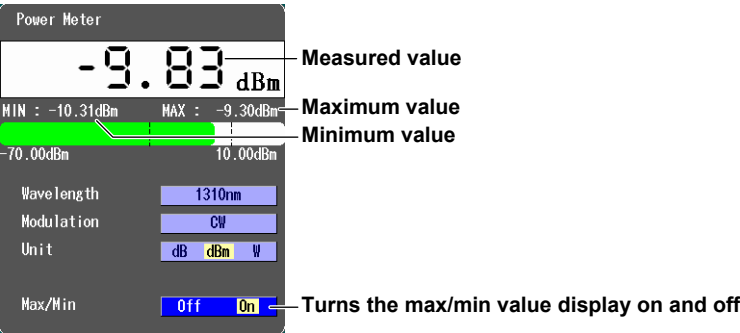
In the Power Meter screen, you can display a menu that shows the maximum (Max) and minimum (Min) measured values.

On	The menu is displayed.
Off	The menu is not displayed.

#### Turning the Maximum and Minimum Value Display On and Off

In the menu that appears in the Power Meter screen, you can start the display of the maximum and minimum measured values. The maximum and minimum value displays are constantly updated while measurement is being performed.

On	The maximum and minimum measured values from the time that you selected On are constantly updated and displayed.
Off	The maximum and minimum values are not displayed. The maximum and minimum values are reset when you select Off.



#### Turning the Interlocking of the Light Source and Optical Power Meter Settings On and Off

You can connect an optical fiber between the light source port of an AQ1100 and the optical power measurement port of another AQ1100 and use this setting so that the power meter settings are synchronized to the light source wavelength and modulation mode settings.

On	After On is selected, the power meter settings are synchronized to the light source settings.
Off	The power meter settings are not synchronized to the light source settings.

#### Offset

The value that you specify (the offset value) is added to the measured optical power values that are displayed.

The range is -9.900 to 9.900 dB.

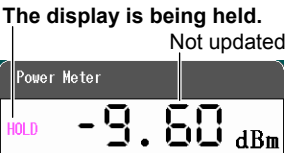
#### Threshold Value

You can set upper and lower threshold values and determine whether or not the measured values fall within them.

- The range for the upper and lower threshold values is -80 to 40 dBm. You must set the values so that the upper threshold value is greater than the lower threshold value.
- When a measured value is within the upper and lower thresholds, its bar graph is green.
- When a measured value exceeds the upper threshold or falls below the lower threshold, its bar graph is red.

#### Holding the Measured Value Display

When you press the HOLD soft key, the following actions are held: the updating of the measured values, bar graph, and maximum and minimum values and the showing or hiding of the maximum and minimum value display. The values at the time that you pressed the HOLD soft key remain displayed. To release the hold on the display, press the HOLD soft key again.

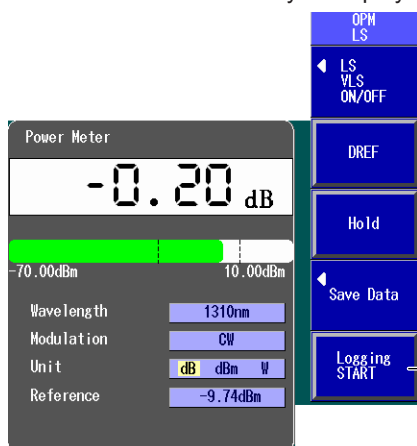


## 3.3 Logging Measured Values and Saving Logged Results

### Procedure

#### Power Meter Screen

Press the **OPM LS** soft key to display the following screen.



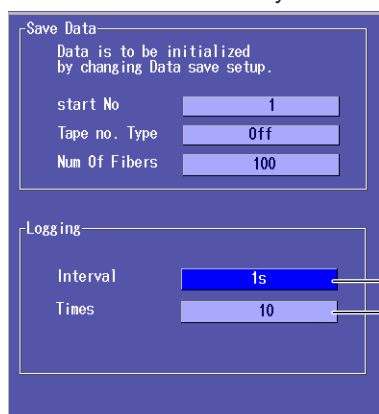
#### Starts logging

Set the measurement interval and the log count in the detailed setup screen in the next section.

After the specified number of logs are recorded, a screen for saving the logged results appears (see the file save screen explained later).

#### Detailed Setup Screen

Press the **SETUP** soft key and then the **Data Save Logging** soft key to display the following screen.



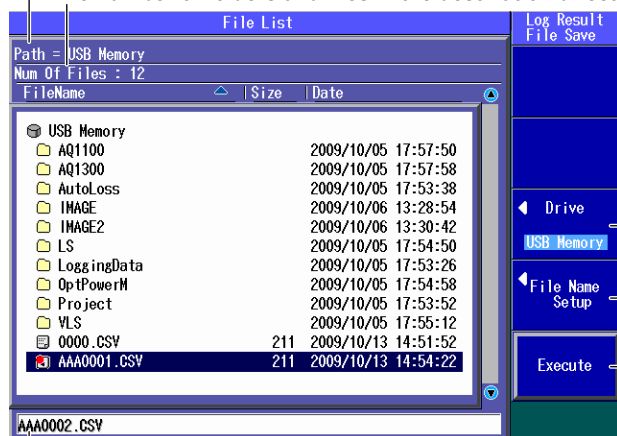
Set the measurement interval (500ms, 1s, 2s, 5s, 10s).

Set the logging count (10 to 1000).

#### File Save Screen

The path of the destination directory

The number of folders and files in the destination directory



Set the destination drive (internal memory, USB memory).

Set the file name (see section 9.2).

Saves the data

The file name candidate for the next save operation

#### Explanation

#### Creating and Saving Logs

The AQ1100 is always measuring power when the Power Meter screen is displayed. To save the measured values, you must log them.

- To start logging, press the Logging START soft key. During logging, on the menu, “Logging START” changes to “Logging STOP.” All soft keys other than the Logging STOP soft key are unavailable.
- Logging stops when the specified number of logs are recorded or when you press the Logging STOP soft key. Then, on the menu, “Logging STOP” changes to “Logging START,” and the file save screen appears.
- You can save logged results in CSV format.

#### Measurement Interval

You can set the interval for logging measured values to one of the following values.

500 ms, 1 s, 2 s, 5 s, 10 s

#### Logging Count

You can set the number of values to log within the following range.

10 to 1000

#### Drive to Save To

You can set the destination drive to one of the following options.

Internal memory, USB memory

You can set the destination drive to the USB memory when, in the Common screen for miscellaneous features (described later in this manual), you have set USB Function to Storage.

#### File Name

You can specify file names by combining comments and numbers. For details, see section 9.2.

For an example of the saved data being displayed using spreadsheet software, see appendix 2.

## 3.4 Selecting and Saving Core and Tape Numbers

### Procedure

#### Data Save Screen

Press the **OPM LS** soft key and then the **Data Save** soft key to display the following screen.

On the detailed setup screen on the next page, you can set the starting core number, tape number type, and number of fibers.

When "Display" is set to "Core List"

Check mark indicating that the data has been saved

Skipped core numbers are dimmed.

The core number that is set as the save destination is highlighted.

Use the rotary knob and the arrow keys to select a core number.

Set the list to show (Core List, List).

Delete data (see the Delete Data screen in the next section).

Specify skipping.

Saves the data

You can save up to three sets of data in the save area of the specified core.

Data (measurement conditions and measured values) The data set in section 3.2 is displayed.

When "Display" is set to "List"

Use the rotary knob and the arrow keys to select a core number.

You can save up to three sets of data in the save area of the specified core.

#### Delete Data Screen

Core no. No. 1, 2, and 3

Use the rotary knob and the arrow keys to select a core number.

Deletes the data at no. 1

Deletes the data at no. 2

Deletes the data at no. 3

Deletes the data at no. 1, 2, and 3 of the selected core

Deletes all the core data

Detailed Setup Screen

Press the **SETUP** soft key and then the **Data Save Logging** soft key to display the following screen.

Save Data

Data is to be initialized  
by changing Data save setup.

start No1

Tape no. TypeOff

Num Of Fibers100

Logging

Interval1s

Times10

Set the starting core number (1 to 9900).

Set the tape number type (Off, a-b(2), a-c(3), a-d(4), a-e(5), a-f(6), a-g(7), a-h(8)).

Set the number of fibers or tapes (up to 100 fibers when Tape no. Type is set to Off, up to 50 tapes when Tape no. Type is set to a-b(2), ..., up to 12 tapes when Tape no. Type is set to a-h(8)).

Saving Data to a File

Press **SETUP** and then the **File** soft key to display the file save screen. Follow the procedure in section 9.2 to save the data.

Explanation

You can specify core numbers and tape number types and save data (measurement conditions and measured values) to the AQ1100 internal memory. You can also save the data to a file.

Displayed List

You can set the list to show to one of the following options. The list display format changes depending on the starting core number, tape number type, and number of fibers (or tapes) that you set in the detailed setup screen.

Core List	A list of core numbers and the saved data of the highlighted core number are displayed.
List	The core numbers and saved data are displayed.

Example When the Starting Core Number Is Set to “5,” the Tape Number Type Is Set to “a-h(8),” and the Number of Tapes Is Set to “10”

Core List

The list begins with the starting core number 5. Each core number is divided into eight tape numbers from a to h.

5a	5b	5c	5d	5e	5f	5g	5h
6a	6b	6c	6d	6e	6f	6g	6h
7a	7b	7c	7d	7e	7f	7g	7h
8a	8b	8c	8d	8e	8f	8g	8h
9a	9b	9c	9d	9e	9f	9g	9h
10a	10b	10c	10d	10e	10f	10g	10h
11a	11b	11c	11d	11e	11f	11g	11h
12a	12b	12c	12d	12e	12f	12g	12h
13a	13b	13c	13d	13e	13f	13g	13h
14a	14b	14c	14d	14e	14f	14g	14h

Core	No	nm	Data	Mod.	Ref	Offset	Date
5a	1						
5a	2						
5a	3						

The data of the highlighted core and tape number pair (5a here) is displayed. There are 10 tapes, so the cores are numbered 5a through 14h.

List

The list begins with the starting core number 5. Each core number is divided into eight tape numbers from a to h. The data for the core and tape number pairs through 14h is displayed.

Core	No	nm	Data	Mod.	Ref	Offset	Date
5a	1						
5a	2						
5a	3						
5b	1						
5b	2						
5b	3						
5c	1						
5c	2						
5c	3						
5d	1						
5d	2						
5d	3						

Use the rotary knob and the arrow keys to scroll through the list.



## Skipping

If you specify Skip for a core number that you don't need to measure, its data will not be saved. By setting which cores to skip beforehand, you can avoid accidentally saving unnecessary data.

## Saving Data

You can save up to three sets of data in the save area of the specified core.

For details about saving the data to a file, see section 9.2.

## Deleting Data

You can delete the data for individual core numbers in a save area or delete all the data at once.

## Starting Core Number

You can set the starting core number to a value within the following range.

1 to 9900

## Tape Number Type

You can set the tape number type to one of the following options.

Off, a-b(2), a-c(3), a-d(4), a-e(5), a-f(6), a-g(7), a-h(8)

## Number of Fibers or Tapes

You can set the number of fibers or tapes to a value within one of the following ranges.

Tape Number Type	Number of Fibers or Tapes
Off	10 to 100 fibers
a-b(2)	10 to 50 tapes
a-c(3)	10 to 33 tapes
a-d(4)	10 to 25 tapes
a-e(5)	10 to 20 tapes
a-f(6)	10 to 16 tapes
a-g(7)	10 to 14 tapes
a-h(8)	10 to 12 tapes

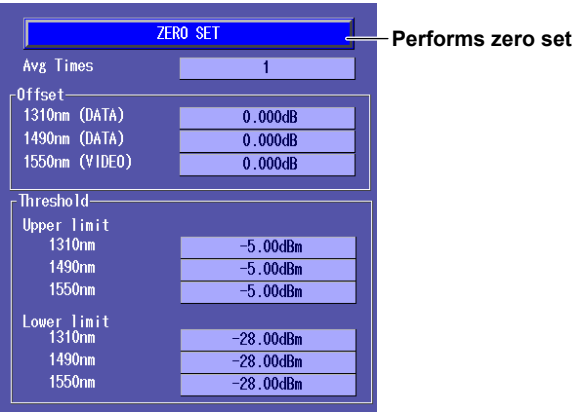
# 4.1    Making Preparations for Measurements

Remove the optical fiber cables from the AQ1100 and close the optical connector covers, or make sure that the power meter is not receiving any light, and then start the PON power meter zero set procedure.

## Procedure

### Performing Zero Set

Press the **PON Power Meter** soft key, **SETUP**, and then the **OPM Setup** soft key to display the following screen.



## Explanation

Perform zero set whenever necessary, such as after you have turned on the power or when the ambient temperature changes. Performing zero set adjusts the internal deviation of the optical power measurement section and enables you to obtain more accurate absolute optical power values.

## 4.2 Setting PON System Optical Power Measurement Conditions and Holding the Display

### Procedure

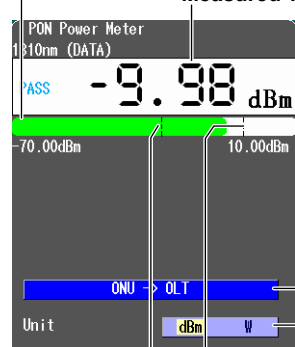
#### Power Meter Screen

Press the **PON Power Meter** soft key to display the following screen.

When the Signal Direction Is ONU -> OLT

Bar graph display of the measured value

Measured value



PON Power Meter

VLS ON

Hold

Save Data

Holds the measured value display

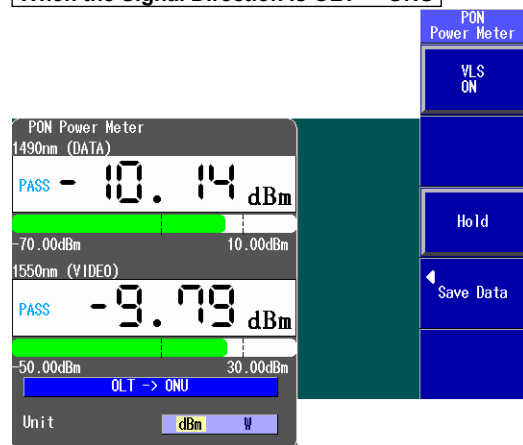
Set the signal direction (ONU -> OLT, OLT -> ONU).

Set the unit (dBm, W).

Lower threshold line Upper threshold line

These lines indicate the upper and lower threshold values (see the detailed setup screen in section).

When the Signal Direction Is OLT -> ONU



PON Power Meter

VLS ON

Hold

Save Data

## Detailed Setup Screen

Press **SETUP** and then the **OPM SETUP** soft key to display the following screen.

The screenshot shows the 'ZERO SET' screen with the following settings:

- Avg Times:** 1 (Set the average count (1, 10, 50, 100).)
- Offset:**
  - 1310nm (DATA): 0.000dB
  - 1490nm (DATA): 0.000dB
  - 1550nm (VIDEO): 0.000dB
 (Set the offset (–9.900 to 9.900 dB). Set it for each PON system wavelength.)
- Threshold:**
  - Upper limit:**
    - 1310nm: –5.00dBm
    - 1490nm: –5.00dBm
    - 1550nm: –5.00dBm
  - Lower limit:**
    - 1310nm: –28.00dBm
    - 1490nm: –28.00dBm
    - 1550nm: –28.00dBm
 (Set the threshold values (–80 to 40 dBm). Set the upper and lower limits for each PON system wavelength.)

### Explanation

The PON power meter is only available on models with -PPM suffix codes.

### Wavelength

The wavelengths that you can specify when measuring the optical power of a PON system are listed below. The wavelengths vary depending on the signal direction.

Signal Direction	Wavelength
ONU -> OLT <sup>1</sup>	1310 nm
OLT -> ONU <sup>2</sup>	1490 nm and 1550 nm

- 1 You can measure the optical power of the upstream signal wavelength from the ONU (optical network unit: the user's optical terminal) to the OLT (optical line termination: the telephone exchange's optical terminal). The optical power of the 1310 nm (data wavelength) signal is measured.
- 2 You can measure the optical power of the downstream signal wavelengths from the OLT to the ONU. The optical power of the 1490 nm (data wavelength) and 1550 nm (video wavelength) signals is measured.

### Unit

You can set the optical power display unit to one of the following options.

dBm (absolute value), W (absolute value)

- The following prefixes are attached to W: m ( $10^{-3}$ ),  $\mu$  ( $10^{-6}$ ), n ( $10^{-9}$ ), and p ( $10^{-12}$ ).
- The relationship between the absolute values dBm and W is indicated below.

$$P_{\text{dBm}} = 10 \times \log (P_w \times 10^3)$$

Where  $P_{\text{dBm}}$  is the optical power in units of dBm and  $P_w$  is the optical power in units of W.

### Average Count

Averages of the measured values are displayed. You can set the number of values to average to one of the following options.

1, 10, 50, 100

### Offset

For each wavelength, the value that you specify (the offset value) is added to the measured optical power values that are displayed.

The range is –9.900 to 9.900 dB.

### Threshold Value

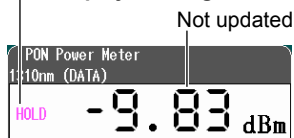
For each wavelength, you can set upper and lower threshold values and determine whether or not the measured values fall within them.

- The range for the upper and lower threshold values is –80 to 40 dBm. You must set the values so that the upper threshold value is greater than the lower threshold value.
- When a measured value is within the upper and lower thresholds, its bar graph is green. “PASS” appears in the measured value area.
- When a measured value exceeds the upper threshold or falls below the lower threshold, its bar graph is red. “FAIL” appears in the measured value area.

### Holding the Measured Value Display

When you press the HOLD soft key, the updating of the measured values and bar graph is held. The values at the time that you pressed the HOLD soft key remain displayed. To release the hold on the display, press the HOLD soft key again.

The display is being held.



## 4.3 Selecting and Saving Core and Tape Numbers

### Procedure

#### Data Save Screen

Press the **PON Power Meter** soft key and then the **Data Save** soft key to display the following screen.

On the detailed setup screen on the next page, you can set the starting core number, the tape number type, and the number of fibers.

When "Display" is set to "Core List"

Check mark indicating that the data has been saved

Skipped core numbers are dimmed.

The core number that is set as the save destination is highlighted.

**Core no.**

11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

**Save area**

Core	No	nm	Data	Mod.	Ref	Offset	Date
4	1						
4	2						
4	3						

**Power Meter**

Wavelength	Modulation	Reference	Offset	Data
1310 nm	CW	-30.00 dBm	0.00 dB	-9.87 dBm

**Save Data**

Use the rotary knob and the arrow keys to select a core number.

**Display** Core List List

Set the list to show (Core List, List).

**Delete Data**

Delete data (see the Delete Data screen in the next section).

**Skip**

Specify skipping.

**Save**

Saves the data

You can save up to three sets of data in the save area of the specified core.

Example of the data (measurement conditions and measured values) when the signal direction is ONU → OLT  
The data set in section 4.2 is displayed.

**Core no.**

Core	No	nm	Data	Mod.	Ref	Offset	Date
4	1						
4	2						
4	3						
5	1						
5	2						
5	3						
6	1						
6	2						
6	3						
7	1						
7	2						
7	3						

**Save area**

Wavelength	Modulation	Reference	Offset	Data
1310 nm	CW	-30.00 dBm	0.00 dB	-9.84 dBm

**Save Data**

Use the rotary knob and the arrow keys to select a core number.

**Display** Core List List

**Delete Data**

**Skip**

**Save**

You can save up to three sets of data in the save area of the specified core.

#### Delete Data Screen

Core no. No. 1, 2, and 3

**Core no.**

Core	No	nm	Data	Mod.	Ref	Offset	Date
1	1	1310	-9.54 dBm	CW	-30.00 dBm	0.00 dB	10/14 09:55
1	2						14 09:55
1	3						14 09:55
1	4						14 09:56
1	5						14 09:57
1	6						14 09:57
1	7						14 10:14
1	8						14 10:14
1	9						14 10:14
1	10						14 10:14

**Save area**

Wavelength	Modulation	Reference	Offset	Data
1310 nm	CW	-30.00 dBm	0.00 dB	-9.84 dBm

**Save Data**

Use the rotary knob and the arrow keys to select a core number.

**Display** Core List List

**Delete Data**

**Skip**

**Save**

**Delete Data**

Select Core no. Data

Deletes the data of all the selected cores

All Core Data

Deletes all the core data

### 4.3 Selecting and Saving Core and Tape Numbers

#### Detailed Setup Screen

Press the **SETUP** soft key and then the **Save Data** soft key to display the following screen.

Save Data

Data is to be initialized  
by changing Data save setup.

start No1

Tape no. TypeOff

Num Of Fibers100

Set the starting core number (1 to 9900).

Set the tape number type (Off, a-b(2), a-c(3), a-d(4), a-e(5), a-f(6), a-g(7), a-h(8)).

Set the number of fibers or tapes (up to 100 fibers when Tape no. Type is set to Off, up to 50 tapes when Tape no. Type is set to a-b(2), ..., up to 12 tapes when Tape no. Type is set to a-h(8)).

#### Saving Data to a File

Press **SETUP** and then the **File** soft key to display the file save screen. Follow the procedure in section 9.2 to save the data.

#### Explanation

The PON power meter is only available on models with -PPM suffix codes.

You can specify core numbers and tape number types and save data (measurement conditions and measured values) to the AQ1100 internal memory. You can also save the data to a file.

#### Displayed List

You can set the list to show to one of the following options. The list display format changes depending on the starting core number, tape number type, and number of fibers (or tapes) that you set in the detailed setup screen.

Core List	A list of core numbers and the saved data of the highlighted core number are displayed.
List	The core numbers and saved data are displayed.

#### Example When the Starting Core Number Is Set to “5,” the Tape Number Type Is Set to “a-h(8),” and the Number of Tapes Is Set to “10”

##### Core List

The list begins with the starting core number 5. Each core number is divided into eight tape numbers from a to h.

5a	5b	5c	5d	5e	5f	5g	5h
6a	6b	6c	6d	6e	6f	6g	6h
7a	7b	7c	7d	7e	7f	7g	7h
8a	8b	8c	8d	8e	8f	8g	8h
9a	9b	9c	9d	9e	9f	9g	9h
10a	10b	10c	10d	10e	10f	10g	10h
11a	11b	11c	11d	11e	11f	11g	11h
12a	12b	12c	12d	12e	12f	12g	12h
13a	13b	13c	13d	13e	13f	13g	13h
14a	14b	14c	14d	14e	14f	14g	14h
Core	No	nm	Data	Mod.	Ref	Offset	Date
5a	1	---	---	---	---	---	---
5a	2	---	---	---	---	---	---
5a	3	---	---	---	---	---	---

The data of the highlighted core and tape number pair (5a here) is displayed.  
There are 10 tapes, so the cores are numbered 5a through 14h.

##### List

The list begins with the starting core number 5. Each core number is divided into eight tape numbers from a to h. The data for the core and tape number pairs through 14h is displayed.

Core	No	nm	Data	Mod.	Ref	Offset	Date
5a	1	---	---	---	---	---	---
5a	2	---	---	---	---	---	---
5a	3	---	---	---	---	---	---
5b	1	---	---	---	---	---	---
5b	2	---	---	---	---	---	---
5b	3	---	---	---	---	---	---
5c	1	---	---	---	---	---	---
5c	2	---	---	---	---	---	---
5c	3	---	---	---	---	---	---
5d	1	---	---	---	---	---	---
5d	2	---	---	---	---	---	---
5d	3	---	---	---	---	---	---

Use the rotary knob and the arrow keys to scroll through the list.

## Skiping

If you specify Skip for a core number that you don't need to measure, its data will not be saved. By setting which cores to skip beforehand, you can avoid accidentally saving unnecessary data.

## Saving Data

You can save up to three sets of data in the save area of the specified core. When the signal direction is from the OLT to the ONU, you can save the data for two wavelengths at the same time. For details about saving the data to a file, see section 9.2.

## Deleting Data

You can delete the data for individual core numbers in a save area or delete all the data at once.

## Starting Core Number

You can set the starting core number to a value within the following range.  
1 to 9900

## Tape Number Type

You can set the tape number type to one of the following options.  
Off, a-b(2), a-c(3), a-d(4), a-e(5), a-f(6), a-g(7), a-h(8)

## Number of Fibers or Tapes

You can set the number of fibers or tapes to a value within one of the following ranges.

Tape Number Type	Number of Fibers or Tapes
Off	10 to 100 fibers
a-b(2)	10 to 50 tapes
a-c(3)	10 to 33 tapes
a-d(4)	10 to 25 tapes
a-e(5)	10 to 20 tapes
a-f(6)	10 to 16 tapes
a-g(7)	10 to 14 tapes
a-h(8)	10 to 12 tapes



# 5.1 Producing Measurement Light



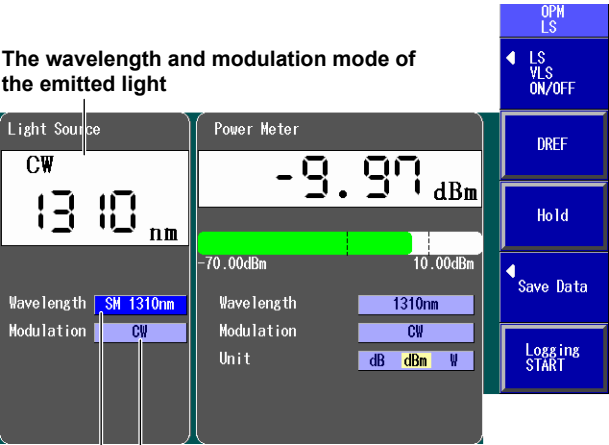
## WARNING

- While the AQ1100 is producing light, do not remove the optical fiber cable, because light is emitted from the light source port. Visual impairment may occur if the light enters the eye.
- Close the covers of any light source ports that do not have optical fiber cables connected to them. On models with two or more light source ports, visual impairment may occur if light that is mistakenly emitted from the wrong port enters the eye.

## Procedure

### Light Source Screen

Press the **OPM LS** soft key to display the following screen.



**Set the modulation mode (CW, 270Hz, 1kHz, 2kHz).**  
The available settings vary depending on the model. For details, see the explanation later in this section.

**Set the wavelength.**  
The available settings vary depending on the model. For details, see the explanation later in this section.

### Turning the Light Source On and Off

Turn the light source on after you set the wavelength and the modulation mode.

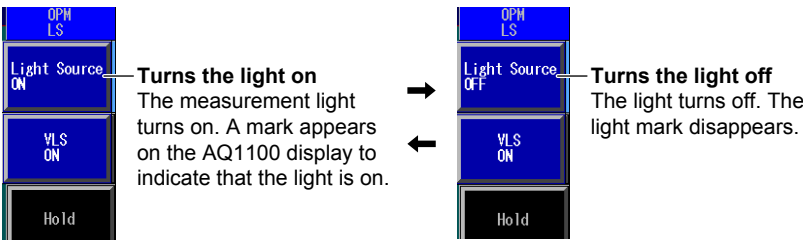
#### Pressing the LS Key

Press **LS** to turn on the measurement light. A mark appears on the AQ1100 display to indicate that the light is on.

Press **LS** while the light is on. The light turns off. The light mark disappears.

#### Pressing the Soft Key

Press the **LS VLS ON/OFF** soft key to display the following menu.



While the above menu is displayed, you can also turn the light on and off by pressing **LS**.

### Explanation

#### Measurement Light Wavelength

There are three instrument types, with the measurement light wavelengths listed below. Select a wavelength from the available settings on the AQ1100 that you are using.

Model	Measurement Light Wavelength
AQ1100A	SM 1310 nm, SM 1550 nm
AQ1100B	SM 1310 nm, SM 1550 nm, SM 1625 nm
AQ1100D	GI 850 nm, GI 1300 nm, SM 1310 nm, SM 1550 nm

The light for single mode (SM) optical fiber is emitted from optical port 2. The light for graded-index (GI) multi-mode optical fiber is emitted from optical port 3. Firmly connect the optical fiber to the port from which the light with the selected wavelength will be transmitted.

#### Modulation Mode

You can set the frequency of the light to one of the following options.

CW (continuous light), 270 Hz, 1 kHz, 2 kHz

On the AQ1100D, when the wavelength is GI 850 nm or GI 1300 nm, you can set the modulation mode to CW or 270 Hz.

## 5.2 Turning On the Visible Light (Option)



### WARNING

- While the AQ1100 is producing light, light is emitted from the light source port. Do not look directly at this light. Visual impairment may occur if the light enters the eye.
- Close the covers of any light source ports that do not have optical fiber cables connected to them. On models with two or more light source ports, visual impairment may occur if light that is mistakenly emitted from the wrong port enters the eye.

### Procedure

#### Light Source Screen

Press the **OPM LS** soft key to display the following screen.



#### Turning the Light Source On and Off

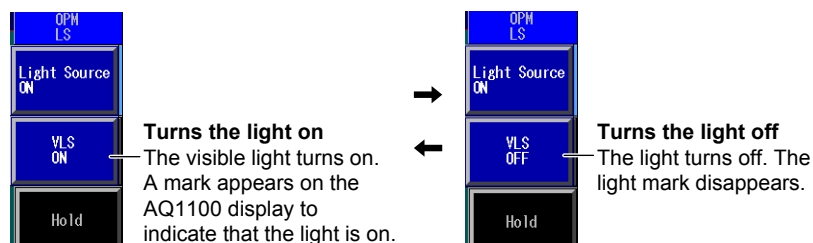
##### Pressing the VLS Key

Press **VLS** to turn on the visible light. A mark appears on the AQ1100 display to indicate that the light is on.

Press **VLS** while the light is on. The light turns off. The light mark disappears.

##### Pressing the Soft Key

Press the **LS VLS ON/OFF** soft key to display the following menu.



While the above menu is displayed, you can also turn the light on and off by pressing **VLS**.

### Explanation

The visible light source is available on models with the /VLS option.

Visible light is emitted from the visible light source port (optical port 4).

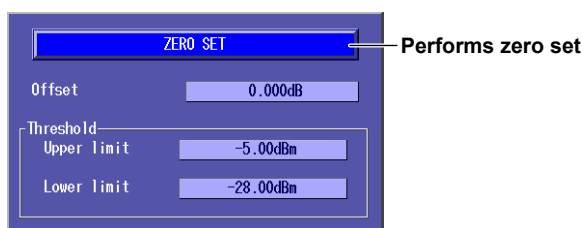
## 6.1 Making Preparations and Adjustments for Loss Testing

### Procedure

#### Performing Zero Set

Remove the optical fiber cables from the AQ1100 and close the optical connector covers, or make sure that the power meter is not receiving any light, and then start the optical power meter zero set procedure.

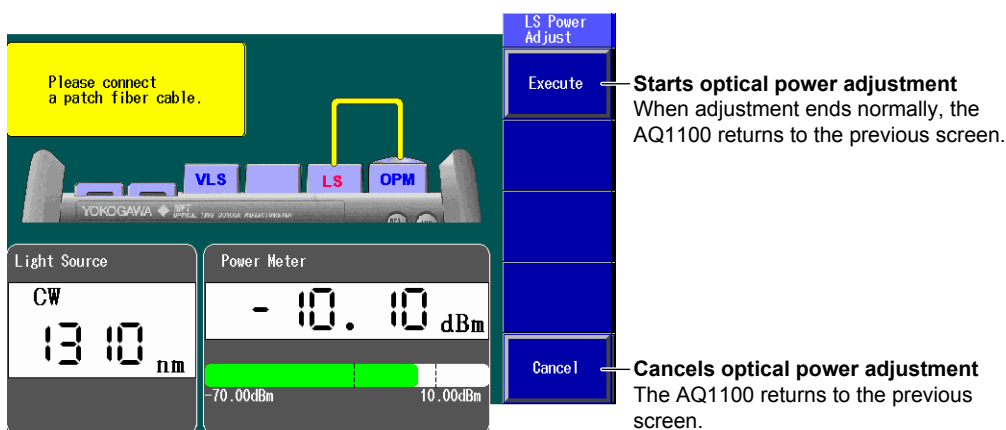
Press the **Auto Loss Test** soft key, **SETUP**, and then the **OPM Setup** soft key to display the following screen.



#### Adjusting the Optical Power

Use a short optical fiber to connect an AQ1100 light source port to an AQ1100 optical power measurement port, and then perform optical power adjustment.

1. Press the **Auto Loss Test** soft key, the **Function Select** soft key, and then the **Light Source** or **Loop Back** soft key.
2. Using the **rotary knob** and **ENTER**, select the **Wavelength** at which you need to perform loss testing.
3. Using the **rotary knob** and **ENTER**, select **LS Power Adjust** to display the following screen.



### Explanation

#### Zero Set

Perform zero set whenever necessary, such as after you have turned on the power or when the ambient temperature changes. Performing zero set adjusts the internal deviation of the optical power measurement section and enables you to obtain more accurate absolute optical power values. Perform zero set on both the optical power meter and the light source.

#### Optical Power Adjustment

Adjust the optical power of the light source as necessary.

When you execute optical power adjustment, the AQ1100 automatically identifies the optical power level and adjusts itself accordingly. Perform optical power adjustment on the light source.

- Optical power adjustment begins when you press the Execute soft key. When it ends normally, the AQ1100 returns to the previous screen. During adjustment, “Execute” changes to “Abort.” All soft keys other than the Abort soft key are unavailable.
- Press the Abort soft key to stop optical power adjustment. “Abort” will change to “Execute.” The adjustment value will return to the value that it was at before adjustment was executed.
- Connect a short optical fiber of a few meters or less in length. Make sure that the fiber is free from dirt, scratches, bends, and other potential causes of optical degradation.
- The initial adjustment value is the factory default setting.

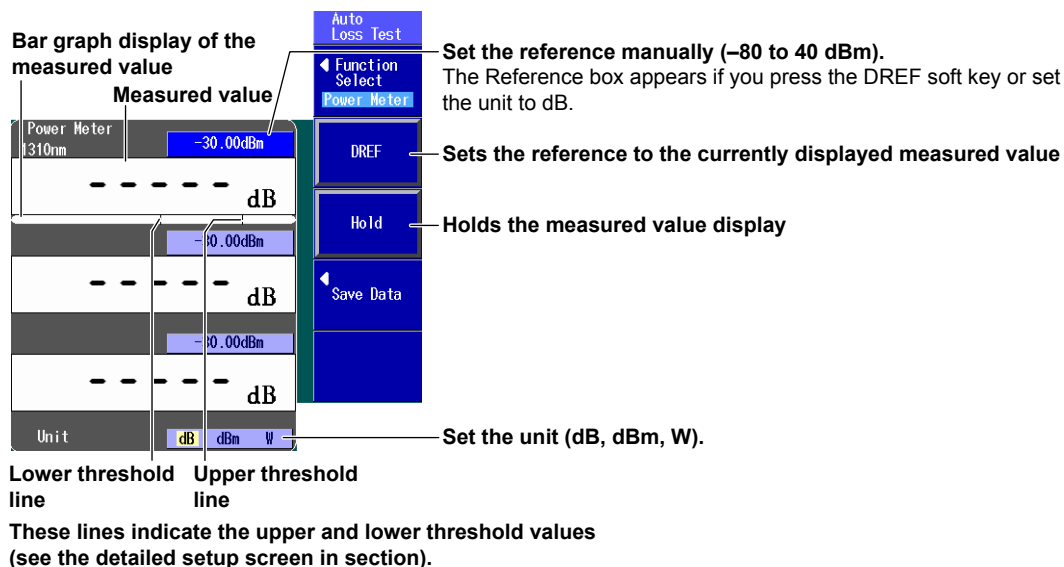
## 6.2 Performing an Auto Loss Test

### Procedure

### Configuring the Optical Power Meter

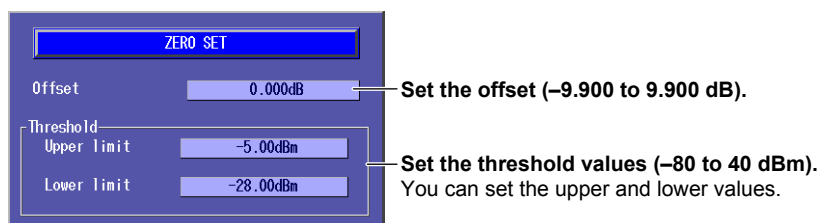
#### Power Meter Screen

Press the **Auto Loss Test** soft key, the **Function Select** soft key, and then the **Power Meter** soft key to display the following screen.



#### Detailed Setup Screen

Press **SETUP** and then the **OPM SETUP** soft key to display the following screen.

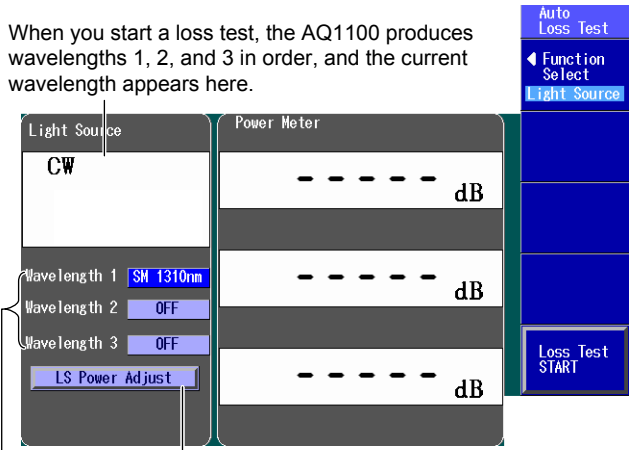


# Configuring the Light Source

## Light Source Screen

Press the **Auto Loss Test** soft key, the **Function Select** soft key, and then the **Light Source** soft key to display the following screen.

When you start a loss test, the AQ1100 produces wavelengths 1, 2, and 3 in order, and the current wavelength appears here.



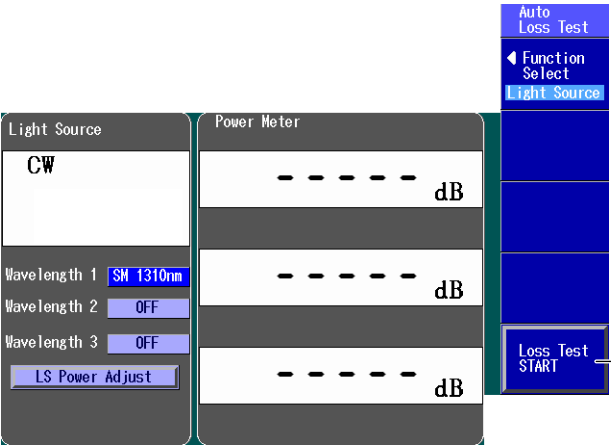
**Set the wavelength.**

The available settings vary depending on the model.  
For details, see the explanation later in this section.

Optical power adjustment (see section 6.1)

# Executing an Auto Loss Test

Connect one end of the optical fiber or line that you need to perform loss testing on to the optical power measurement port of the power meter, and connect the other end to the light source port of the light source.



**Executes an auto loss test**

The light source produces, in order, the wavelengths that you specified for 1, 2, and 3. The optical power meter measures the optical power of the light that it receives.

## Saving Data

### Data Save Screen

In the Power Meter screen of the optical power meter, press the **Save Data** soft key to display the following screen. Follow the procedure in section 4.3 to save the data.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Core	No	nm	Data	Mod.	Ref	Offset	Date
1	1	---	---	---	---	---	--/--:--
1	2	---	---	---	---	---	--/--:--
1	3	---	---	---	---	---	--/--:--

Power Meter				
Wavelength	Modulation	Reference	Offset	Data
1310 nm	AUTO	-30.00 dBm	0.00 dB	20.25 dB
0 nm	AUTO	-30.00 dBm	0.00 dB	
0 nm	AUTO	-30.00 dBm	0.00 dB	

Save Data

◀ LS VLS ON/OFF

Display Core List List

◀ Delete Data

Skip

Save

### Saving Data to a File

Press **SETUP** and then the **File** soft key to display the file save screen. Follow the procedure in section 9.2 to save the data.

### Explanation

You can use the AQ1100 as a light source and as an optical power meter to perform loss testing for up to three wavelengths on an optical fiber or line. You can measure optical loss with models with -SPM or -HPM suffix codes.

## Optical Power Meter

### Holding the Display of the Unit, Reference, Offset, Threshold Values, and Measured Values

For information about holding the display of the unit, reference, offset, threshold values, and measured values, see "Explanation" in section 3.2.

## Light Source

### Measurement Light Wavelength

There are three instrument types, with the measurement light wavelengths listed below. Select a wavelength from the available settings on the AQ1100 that you are using.

Model	Measurement Light Wavelength
AQ1100A	SM 1310 nm, SM 1550 nm
AQ1100B	SM 1310 nm, SM 1550 nm, SM 1625 nm
AQ1100D	GI 850 nm, GI 1300 nm, SM 1310 nm, SM 1550 nm

- The light for single mode (SM) optical fiber is emitted from optical port 2. The light for graded-index (GI) multi-mode optical fiber is emitted from optical port 3. Firmly connect the optical fiber to the port from which the light with the selected wavelength will be transmitted.
- You can specify up to three wavelengths in the AQ1100 setup screen.
- The AQ1100 cannot produce SM and GI wavelengths at the same time.



### Executing an Auto Loss Test

To perform loss testing, configure the settings for the optical power meter and the light source, connect one end of the optical fiber or line that you need to perform loss testing on to the optical power measurement port of the power meter, and connect the other end to the light source port of the light source.

The optical power meter measures the power of the light that passes through the optical fiber or line under loss test.

### Saving Data

You can save up to three sets of data in the save area of the specified core. For details about saving the data to a file, see section 9.2.

## 6.3 Performing a Loop-Back Loss Test

### Procedure

### Configuring the Optical Power Meter and Light Source

#### Power Meter and Light Source Screens

Press the **Auto Loss Test** soft key, the **Function Select** soft key, and then the **Loop Back** soft key to display the following screen.

When you start a loss test, the AQ1100 produces wavelengths 1, 2, and 3 in order, and the current wavelength appears here.

The screenshot shows the 'Power Meter' screen with the following elements and annotations:

- Light Source:** CW
- Wavelength 1:** SM 1310nm
- Wavelength 2:** OFF
- Wavelength 3:** OFF
- LS Power Adjust:** (button)
- Power Meter:** 1310nm, -30.00dBm
- Measured value:** -30.00dBm
- Unit:** dB, dBm, W (dropdown menu)
- Bar graph display of the measured value:** (graph area)
- Lower threshold line:** (line at -28.00dBm)
- Upper threshold line:** (line at -5.00dBm)
- Annotations:**
  - Auto Loss Test:** Set the reference manually (-80 to 40 dBm). The Reference box appears if you press the DREF soft key or set the unit to dB.
  - Function Select:** Sets the reference to the currently displayed measured value
  - Loop Back:** Holds the measured value display
  - DREF:** (button)
  - Hold:** (button)
  - Save Data:** (button)
  - Loss Test START:** (button)
  - Set the wavelength:** The available settings vary depending on the model. For details, see the explanation later in this section.
  - Optical power adjustment:** (see section 6.1)

#### Detailed Setup Screen

Press **SETUP** and then the **OPM SETUP** soft key to display the following screen.

The screenshot shows the 'ZERO SET' screen with the following elements and annotations:

- ZERO SET:** (title)
- Offset:** 0.000dB
- Threshold:**
  - Upper limit:** -5.00dBm
  - Lower limit:** -28.00dBm
- Annotations:**
  - Set the offset (-9.900 to 9.900 dB):** (points to Offset field)
  - Set the threshold values (-80 to 40 dBm). You can set the upper and lower values.** (points to Threshold fields)

Executing a Loop-Back Loss Test

Connect one end of the optical fiber or line that you need to perform loss testing on to the AQ1100 optical power measurement port, and connect the other end to the light source port of the same AQ1100.

Light Source

CW

Wavelength 1 SM 1310nm

Wavelength 2 OFF

Wavelength 3 OFF

LS Power Adjust

Power Meter

1310nm

-30.00dBm

dB

-30.00dBm

dB

-30.00dBm

dB

Unit dB dBm W

Auto Loss Test

Function Select

Loop Back

DREF

Hold

Save Data

Loss Test START

**Executes a loop-back loss test**

The light source produces, in order, the wavelengths that you specified for 1, 2, and 3. The optical power meter measures the optical power of the light that it receives.

Saving Data

Data Save Screen

In the Power Meter screen of the optical power meter, press the **Save Data** soft key to display the following screen. Follow the procedure in section 4.3 to save the data.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Core	No	nm	Data	Mod.	Ref	Offset	Date
1	1						
1	2						
1	3						

Power Meter				
Wavelength	Modulation	Reference	Offset	Data
0 nm	AUTO	-30.00 dBm	0.00 dB	-99.99 dB
0 nm	AUTO	-30.00 dBm	0.00 dB	
0 nm	AUTO	-30.00 dBm	0.00 dB	

Save Data

LS VLS ON/OFF

Display

Core List List

Delete Data

Skip

Save

Saving Data to a File

Press **SETUP** and then the **File** soft key to display the file save screen. Follow the procedure in section 9.2 to save the data.

**Explanation**

You can use the light source and optical power meter features on a single AQ1100 to perform a loop-back loss test on an optical fiber or line. You can measure optical loss with models with -SPM or -HPM suffix codes.

**Optical Power Meter****Holding the Display of the Unit, Reference, Offset, Threshold Values, and Measured Values**

For information about holding the display of the unit, reference, offset, threshold values, and measured values, see “Explanation” in section 3.2.

**Light Source**

Light is emitted at the measurement light wavelength. For details, see “Explanation” in section 6.2.

**Executing a Loop-Back Loss Test**

To perform loop-back loss testing, configure the optical power meter and light source settings, connect one end of the optical fiber or line that you need to perform loss testing on to the AQ1100 optical power measurement port, and connect the other end to the light source port of the same AQ1100.

The optical power meter measures the power of the light that passes through the optical fiber or line under loss test.

**Saving Data**

You can save up to three sets of data in the save area of the specified core. For details about saving the data to a file, see section 9.2.

## 7.1 Creating New Projects

### Procedure

#### New Project Screen

1. Press the **Multi-Core Loss Test** soft key.
2. Press the **Master/Slave** soft key to select **Master**.
3. Press the **New Project** soft key to display the following screen.

**Complete**  
Press this soft key after you have configured the project, wavelength, and offset settings. The loss test screen shown in the next section appears.  
If you enter a project name and specify at least one wavelength, this key becomes available.

**Project Name**  
To set the project name, follow the procedure in section 2.2.

**Set the starting core number (1 to 9900).**

**Set the tape number type (Off, a-b(2), a-c(3), a-d(4), a-e(5), a-f(6), a-g(7), a-h(8)).**

**Set the number of fibers or tapes (up to 100 fibers when Tape no. Type is set to Off, up to 50 tapes when Tape no. Type is set to a-b(2), ..., up to 12 tapes when Tape no. Type is set to a-h(8)).**

**Set the wavelength.**  
The available settings vary depending on the model. For details, see the explanation later in this section.

**Cancel**  
**Cancels the project settings.**  
The AQ1100 returns to the previous screen.

**Set the offset (-9.900 to 9.900 dB).**

**Project Setup**

Project Name: P100

start No: 1

Tape no. Type: Off

Num Of Fibers: 100

Wavelength

Wavelength 1: SM 1310nm

Wavelength 2: OFF

Wavelength 3: OFF

Offset: 0.000dB

#### Loss Test Screen

Press the **Complete** soft key to display the following screen.

The selected core number is highlighted.  
Skipped core numbers are dimmed.

**Multi-Core Loss Test**

**Display**  
**Core List**  
**List**  
Set the list to show (Core List, List).  
For list examples, see section 3.4.

**Loss Test START**  
Starts loss testing (see section 7.3)

**Skip**  
Specify skipping.

**Project Transmission START**  
Starts the transmission of project information (see section 7.2)

Project Name : P100

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Core	No	nm	Data	Mod.	Ref	Offset	Date
1	1	---	---	---	---	---	---
1	2	---	---	---	---	---	---
1	3	---	---	---	---	---	---

#### Saving Project Information

Press **SETUP** and then the **File** soft key to display the file save screen. Follow the procedure in section 9.2 to save the project information that you configured.

### Explanation

You can create a new project. You can measure optical loss with models with -SPM or -HPM suffix codes.

### Creating a New Project

Only the master can create a new project. You can specify the following project information.

#### Project Name

You can set the name using up to 30 characters.

#### Starting Core Number

You can set the starting core number to a value within the following range.

1 to 9900

#### Tape Number Type

Off, a-b(2), a-c(3), a-d(4), a-e(5), a-f(6), a-g(7), a-h(8)

#### Number of Fibers or Tapes

You can set the number of fibers or tapes to a value within one of the following ranges.

Tape Number Type	Number of Fibers or Tapes
Off	10 to 100 fibers
a-b(2)	10 to 50 tapes
a-c(3)	10 to 33 tapes
a-d(4)	10 to 25 tapes
a-e(5)	10 to 20 tapes
a-f(6)	10 to 16 tapes
a-g(7)	10 to 14 tapes
a-h(8)	10 to 12 tapes

#### Measurement Light Wavelength

There are three instrument types, with the measurement light wavelengths listed below. Select a wavelength from the available settings on the AQ1100 that you are using.

Model	Measurement Light Wavelength
AQ1100A	SM 1310 nm, SM 1550 nm
AQ1100B	SM 1310 nm, SM 1550 nm, SM 1625 nm
AQ1100D	GI 850 nm, GI 1300 nm, SM 1310 nm, SM 1550 nm

- The light for single mode (SM) optical fiber is emitted from optical port 2. The light for graded-index (GI) multi-mode optical fiber is emitted from optical port 3. Firmly connect the optical fiber to the port from which the light with the selected wavelength will be transmitted.
- You can specify up to three wavelengths in the AQ1100 setup screen.
- The AQ1100 cannot produce SM and GI wavelengths at the same time.

#### Offset

See "Explanation" in section 3.2.

### Skipping

If you specify Skip for a core number that you don't need to measure, its data will not be saved. By setting which cores to skip beforehand, you can avoid accidentally saving unnecessary data.

### Saving Project Information

You can save project information to a file. For the procedure for saving project information to a file, see section 9.2. You can load saved files to both the master and the slave (see section 7.2).

## 7.2 Sharing Projects

The three different methods for sharing project information are listed below.

### Procedure

#### Sending a Project

Connect one end of the communication fiber that you specified to the master's light source port, and connect the other end to the slave's optical power measurement port. Then transfer the project information.

##### Slave

1. Press the **Multi-Core Loss Test** soft key.
2. Press the **Master/Slave** soft key to select **Slave**. The following menu appears.



3. Press the **Receive Project from Master** soft key.

On the menu, "Receive Project from Master" changes to "Abort."  
After reception finishes, "Abort" changes back to "Receive Project from Master" and the following screen appears.

##### Loss Test Screen

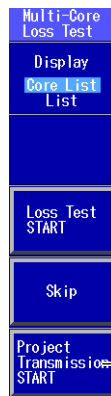
Project Name : P100									
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Core	No	nm	Data	Mod.	Ref	Offset	Date
1	1	---	---	---	---	---	---/---:---
1	2	---	---	---	---	---	---/---:---
1	3	---	---	---	---	---	---/---:---

##### Master

1. Press the **Multi-Core Loss Test** soft key.
2. Press the **Master/Slave** soft key to select **Master**.
3. Create a new project (see section 7.1), or load a project file (see the next page). The following menu appears.



4. Press the **Project Transmission START** soft key.

On the menu, "Project Transmission START" changes to "Project Transmission STOP."  
After transmission finishes, "Project Transmission STOP" changes back to "Project Transmission START" and the following screen appears.

##### Loss Test Screen

Project Name : P100									
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Core	No	nm	Data	Mod.	Ref	Offset	Date
1	1	---	---	---	---	---	---/---:---
1	2	---	---	---	---	---	---/---:---
1	3	---	---	---	---	---	---/---:---

Now the master and slave share the same project information.

Loading a Project File

Load the same project file onto the master and the slave.

Press the **Multi-Core Loss Test** soft key and then the **File** soft key to display the following screen.

File List

Path = Internal Memory/AQ\_data  
Num Of Files : 6

FileName	Size	Date
Internal Memory		
AQ_data		
0000.CSV	211	2009/10/13 16:58:09
AAA0001.CSV	4K	2009/10/13 16:58:37
AAA0002.CSV	211	2009/10/13 16:59:06
AAA0003.CSV	211	2009/10/13 16:59:31
BBB0004.CSV	211	2009/10/13 17:00:11
P100F0005.CSV	4K	2009/10/13 17:00:39

Use the **rotary knob** and **ENTER** to select a project information file.

File

Drive

Int. Memory

Load

Set the drive to load from (internal memory, USB memory)

Loads the file  
The project information is loaded from the selected file, and the loss test screen appears.

Restarting an Interrupted Loss Test

When the loss test for a shared project is interrupted, you can restart it where it left off, retaining the results of the test so far.

The operation for restarting the test is the same for both the master and the slave.

Press the **Multi-Core Loss Test** soft key and then the **Previous Project** soft key to display the following screen.

Display Example: Master

YOKOGAWA

LS

Press [F1] key to select "Master" or "Slave".  
Connect optical fiber to LS for communication.  
Select F3, F4 or F5.  
[F3] Create New Project  
[F4] Load Previous Project  
[F5] Select and Load Project File

Multi-Core Loss Test

Master

Slave

New Project

Previous Project

File

Loads the previous project  
The lost test screen appears with the previous lost test data retained.



**Explanation**

The master and slave must share the same project information. The methods for sharing project information are listed below. Models with -SPM or -HPM suffix codes can share project information.

**Sending a Project**

You can send project information from the master to the slave.

First, you must specify a fiber for communicating the project information from the master to the slave. Before you transfer the project information, connect one end of the communication fiber that you specified to the master's light source port, and connect the other end to the slave's optical power measurement port.

- Prepare the slave to receive the project information.
- After you have confirmed that the slave is ready to receive the information, send it from the master.

**Loading a Project File**

Load the same project file onto the master and the slave. Use a project file that you have saved to internal or USB memory.

**Restarting an Interrupted Loss Test**

A multicore fiber loss test may be stopped before all the cores have been tested. When the test for a shared project is interrupted, you can restart it where it left off, retaining the results of the test so far.

- You must be performing the loss test with the same project.
- If you reload a project file, the loss test data up to that point is deleted and cannot be recovered.

## 7.3 Performing a Multicore Loss Test

Connect one end of the communication fiber that you specified to the master's light source port (optical port 2), and connect the other end to the slave's optical power measurement port (optical port 1). Then perform the multicore loss test.

### Procedure

After the settings in sections 7.1 to 7.2 have been completed, open the loss test screen, and perform the multicore loss test procedure.

### Executing a Multicore Loss Test

#### Slave

4. Connect to the light source port the optical fiber that corresponds to the core number transmitted from the master.

It may take time to receive the core number from the master.



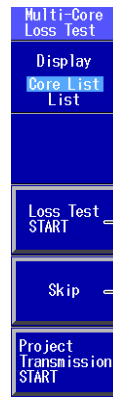
5. Press the **Loss Test START** soft key. The light turns on.  
On the menu, "Loss Test START" changes to "Loss Test STOP."  
After loss testing stops, "Loss Test STOP" changes back to "Loss Test START."

#### Optical Power Adjustment

Adjust as necessary (see section 7.4).

#### Master

1. Connect the optical fiber under loss test to the optical power measurement port.
2. Use the **rotary knob** and the **arrow keys** to select the core number of the connected fiber.



3. Press the **Loss Test START** soft key. The core number is transmitted to the slave.  
On the menu, "Loss Test START" changes to "Loss Test STOP."  
After loss testing stops, "Loss Test STOP" changes back to "Loss Test START."
- Specify skipping as necessary.

Follow steps 1 to 5 to perform a multicore loss test.

Check marks appear over core numbers whose loss tests have been completed.

#### Displayed List

Check mark indicating that the core's loss test has been completed

Skipped core numbers are dimmed.

The core number that is undergoing loss testing is highlighted.

Core no.

Project Name : P100									
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100
Core	No	nm	Data	Mod.	Ref	Offset	Date		
4	1	1310	19.86 dB	CW	-30.00 dBm	0.00 dB	10/13	17:11	
4	2	---	---	---	---	---	---	---	---
4	3	---	---	---	---	---	---	---	---

#### Loss Test Results

Use the **rotary knob** and the **arrow keys** to select a core number. The loss test results of the selected core number are displayed.

### Saving Multicore Loss Test Results

Press **SETUP** and then the **File** soft key to display the file save screen. Follow the procedure in section 9.2 to save the data.

**Explanation**

Multicore loss testing is performed while information such as project, core number, loss test result, and device information is transferred between the master and slave. Execute a multicore loss test in the loss test screen after the settings in sections 7.1 to 7.2 have been completed.

You can measure optical loss with models with -SPM or -HPM suffix codes.

**Displayed List**

For list examples, see section 3.4.

**Saving Multicore Loss Test Results**

You can save multicore loss test results to a file. For the procedure for saving project information to a file, see section 9.2.

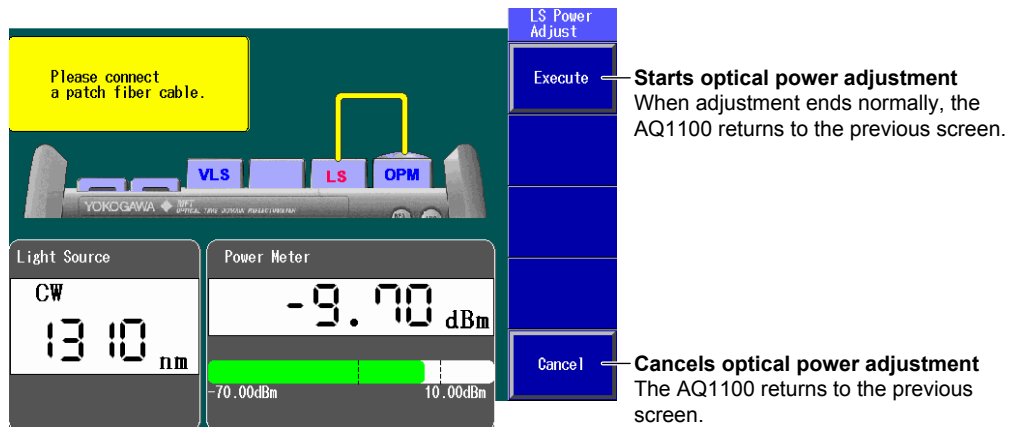
## 7.4 Optical Power Adjustment

### Procedure

#### Optical Power Adjustment

Use a short optical fiber to connect an AQ1100 light source port to an AQ1100 optical power measurement port, and then perform optical power adjustment.

In the loss test screen (see section 7.3) of the slave, press the **LS Power Adjust** soft key to display the following screen.



### Explanation

#### Optical Power Adjustment

Adjust the optical power of the light source as necessary.

When you execute optical power adjustment, the AQ1100 automatically identifies the optical power level and adjusts itself accordingly. Perform optical power adjustment on the light source.

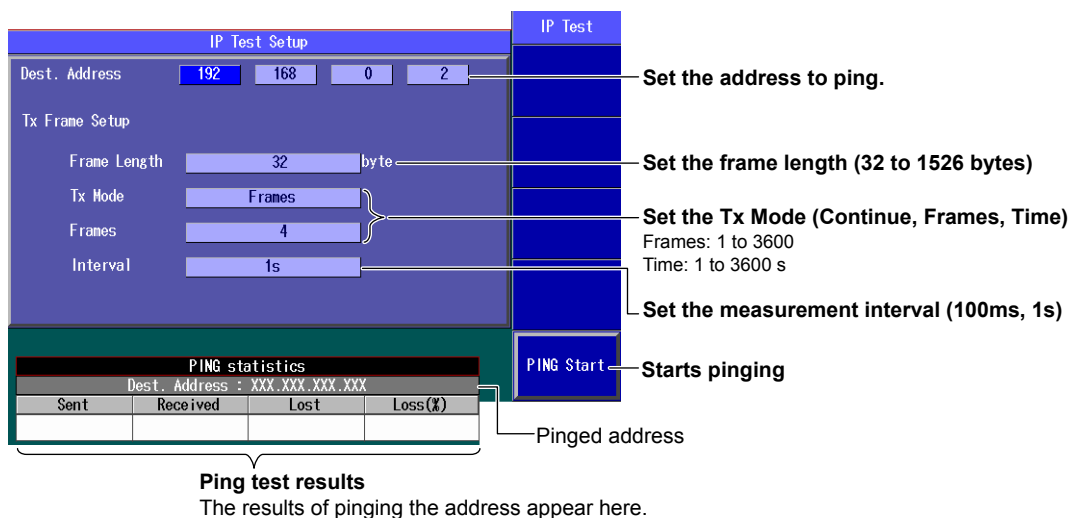
- Optical power adjustment begins when you press the Execute soft key. When it ends normally, the AQ1100 returns to the previous screen. During adjustment, "Execute" changes to "Abort." All soft keys other than the Abort soft key are unavailable.
- Press the Abort soft key to stop optical power adjustment. "Abort" will change to "Execute." The adjustment value will return to the value that it was at before adjustment was executed.
- Connect a short optical fiber of a few meters or less in length. Make sure that the fiber is free from dirt, scratches, bends, and other potential causes of optical degradation.
- The initial adjustment value is the factory default setting.

## 8.1 Performing an IP Test

### Procedure

#### Ping Test Setup Screen

Press the **IP Test** soft key to display the following screen.



### Explanation

IP testing is available on models with the /LAN option.

#### Pinging

##### Target Address

Specify the address that you want to ping.

##### Tx Frame

Set the conditions of the frame you will use for pinging.

- **Frame Length**

You can set the length of the frame that will be sent in a single ping to a value within the following range.

32 to 1526 bytes

- **Tx Mode**

You can set the Tx mode to one of the following options. Depending on the Tx mode that you set, you may set the number of frames and the time in the next menu.

Continue	Frames are sent continuously, regardless of the set number of frames and time.
Frames	1 to 3600
Time	1 to 3600 s

##### Measurement Interval

Set the interval at which to measure the ping test items (see the next page) to one of the following values.

100 ms, 1 s

## 8.1 Performing an IP Test

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### Pinging

Pinging is executed according to the Tx mode that you set.

- When it ends normally, the AQ1100 returns to the previous screen. During pinging, “PING Start” changes to “PING Stop.” All soft keys other than the PING Stop soft key are unavailable.
- To stop pinging, press the PING Stop soft key. “PING Stop” will change to “PING Start.”

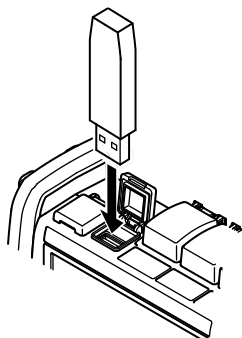
### Ping Test Results

The ping test results are listed below. The pinged IP address and the ping test results are indicated in the PING statistics table.

Sent frames, received frames, lost frames (reception failed), loss rate

## 9.1 Connecting a USB Storage Medium to the USB Port

Use a portable USB storage medium. Connect it directly to the USB Type A port on the AQ1100. Hot-plugging is supported: you can connect or disconnect the USB device at any time, regardless of whether the AQ1100 is on or off. When the power is on, the AQ1100 automatically detects the USB storage medium after it is connected.



### Note

- Connect USB storage devices to the AQ1100 directly, not through a USB hub.
- Use a portable USB storage medium. Do not connect an incompatible USB storage medium.
- Do not connect and disconnect a USB device repetitively. Provide a 10-second interval between removal and connection.
- Do not connect or disconnect a USB device during the time from when the AQ1100 is turned on until key operation becomes available.
- You can use USB storage devices that comply with USB 1.1.

## 9.2 Saving and Loading Data

### Procedure

#### File Operation Screen

##### Models with -SPM or -HPM Suffix Codes

Press the **OPM LS** or **Auto Loss Test** soft key, **SETUP**, and then the **File** soft key to display the following screen (which is the same as the one for models with -PPM suffix codes).

##### Models with -PPM Suffix Codes

Press the **OPM LS** or **PON Power Meter** soft key, **SETUP**, and then the **File** soft key to display the following screen.

##### Directory path

The number of folders and files in the selected directory

File List

Path = USB Memory  
Num Of Files : 12

File Name	Size	Date
USB Memory		
AQ1100		2009/10/05 17:57:50
AQ1300		2009/10/05 17:57:58
AutoLoss		2009/10/05 17:53:38
IMAGE		2009/10/06 13:28:54
IMAGE2		2009/10/06 13:30:42
LS		2009/10/05 17:54:50
LoggingData		2009/10/05 17:53:26
OptPowerM		2009/10/05 17:54:58
Project		2009/10/05 17:53:52

Use the rotary knob and ENTER to select the save destination or the file that you want to load.

0001.CSV

File

Action  
Save

File Type  
CSV

Drive  
USB Memory

File Name Setup

Save

Set the action (Save, Load).

Set the file type.  
Set the extension of the file type you want to save or load. For details, see the explanation later in this section.

Set the destination drive (internal memory, USB memory).

Set the file name (see the File Name Setup screen in the next section).

Saves or loads the file  
Whether "Save" or "Load" is displayed depends on which option you choose for the Action setting.

##### The file name candidate for the next save operation

This indication appears when you set the action to "Save."

##### When Multicore Loss Testing Is Selected on Models with -SPM or -HPM Suffix Codes

Press the **Multi-Core Loss Test** soft key, **SETUP**, and then the **File** soft key to display the following screen.

##### Directory path

The number of folders and files in the selected directory

File List

Path = USB Memory  
Num Of Files : 12

File Name	Size	Date
USB Memory		
AQ1100		2009/10/05 17:57:50
AQ1300		2009/10/05 17:57:58
AutoLoss		2009/10/05 17:53:38
IMAGE		2009/10/06 13:28:54
IMAGE2		2009/10/06 13:30:42
LS		2009/10/05 17:54:50
LoggingData		2009/10/05 17:53:26
OptPowerM		2009/10/05 17:54:58
Project		2009/10/05 17:53:52

Use the rotary knob and ENTER to select the file save destination.

0001.CSV

File

Drive  
USB Memory

File Name Setup

Save

Set the destination drive (internal memory, USB memory).

Set the file name (see the File Name Setup screen in the next section).

Saves the file  
For the procedure to load files, see section 7.2.

##### The file name candidate for the next save operation



File Name Setup Screen

File Name Setup

Name Type

Comment + No.

ID No.

2

Comment

ABC

File Name

ABCO002.CSV

Set the file name format (No., Comment, Comment + No., No. + Comment).

Set the ID number (0 to 9999).

Specify a comment (up to 30 characters).  
To enter a comment, follow the procedure in section 2.2.

**File Name**  
The file name that is produced by the above settings is displayed.

Explanation

Action

Select “Save” or “Load.”  
The types of files that you can save are listed below.

File Type

Set the extension depending on the type of file that you want to save or load.

Saving

The types of files that you can save are listed below.

.CSV	A CSV format measurement data file <sup>1</sup> The measurement data (including measurement conditions such as the wavelength and offset) for the specified core and tape numbers is saved. <ul style="list-style-type: none"><li>• Optical power meter measurement data (see section 3.4)</li><li>• PON power meter measurement data (see section 4.3)</li><li>• Loss test results (see section 6.2)</li><li>• Loop-back loss test results (see section 6.3)</li><li>• Multicore loss test results (see section 7.3), project information (see section 7.1)</li></ul>
.LTS	File containing optical power meter measurement conditions, PON power meter measurement conditions, and optical output conditions
.CFG	System setup data file
.BMP	BMP screen image data file
.PNG	PNG screen image data file
.JPG	JPG screen image data file

- 1

Logging results are also saved to CSV files. Logging results are saved in the file save screen that appears after logging stops (see section 3.3).
- 2

“Screen Image Save” may appear on the menu. Press this soft key to save the image displayed by “Screen Image Save” to the root directory of the internal memory with the file name SystemInfo.BMP.

Loading

The types of files that you can load are listed below.

.CSV	
.LTS	For details, see “Saving.”
.CFG	

Drive to Save To

You can set the destination drive to one of the following options.

Internal memory	The AQ1100 internal memory
USB memory	The USB storage medium connected to the USB Type A port on the AQ1100.

### File Name

#### File Name Format

You can set the file name format to one of the following options. For all formats, the maximum number of characters is 36.

No., Comment, Comment + No., No. + Comment

Comment	Up to 30 characters
ID No.	Four characters The range is 0 to 9999. Four characters are used in the file name. For example, if you set the number to "1," "0001" will be used in the file name.
Extension	Four characters, including the period.

If the total length of the file name exceeds 36 characters, the last characters in the comment are removed until the file name is 36 characters long.

#### String and Character Types That Can Be Used in File and Folder Names

There are limitations on the types of strings and characters that you can use in file and folder names.

- The following character strings cannot be used as file or folder names due to MS-DOS limitations.  
AUX, CON, PRN, NUL, CLOCK, CLOCK\$, LPT0, LPT1, LPT2, LPT3, LPT4, LPT5, LPT6, LPT7, LPT8, LPT9, COM0, COM1, COM2, COM3, COM4, COM5, COM6, COM7, COM8, COM9
- The following types of characters can be used: 0 to 9, A to Z, a to z, \_, -, =, (, ), {, }, [, ], #, \$, %, &, ~, !, `, and @.  
@ cannot be entered consecutively.
- Make sure that the full file path (absolute path from the root folder) is less than or equal to 200 characters in length. If it exceeds 200 characters, an error occurs when you perform a file operation (such as saving, copying, renaming, or creating a folder).  
Full file path: When an operation is being performed on a folder, the full path is up to the name of the folder.  
When an operation is being performed on a file, the full path is up to the name of the file.

### About the File Operation Screen

Depending on the model and the selected feature, the operations for opening the file operation screen and the screens that appear vary.

- When multicore loss testing is selected on models with -SPM or -HPM suffix codes, a screen for saving the project information and core loss test results in CSV format appears.
- For information about loading files when multicore loss testing is selected on models with -SPM or -HPM suffix codes, see section 7.2. Select a file that contains project information and multicore loss test results and load it.

## 9.3 Deleting and Copying Files

### Procedure

#### File Operation Screen

##### Models with -SPM or -HPM Suffix Codes

Press the **OPM LS** or **Auto Loss Test** soft key, **SETUP**, and then the **File** soft key to display the following screen (which is the same as the one for models with -PPM suffix codes).

##### Models with -PPM Suffix Codes

Press the **OPM LS** or **PON Power Meter** soft key, **SETUP**, and then the **File** soft key to display the following screen.

##### Directory path

The number of folders and files in the selected directory

Path = USB Memory  
Num Of Files : 12

FileName	Size	Date
USB Memory		
AQ1100		2009/10/05 17:57:50
AQ1300		2009/10/05 17:57:58
AutoLoss		2009/10/05 17:53:38
IMAGE		2009/10/06 13:28:54
IMAGE2		2009/10/06 13:30:42
LS		2009/10/05 17:54:50
LoggingData		2009/10/05 17:53:26
OptPowerH		2009/10/05 17:54:58
Project		2009/10/05 17:53:52
VLS		2009/10/05 17:55:12
0000.CSV	211	2009/10/13 14:51:52
AAA0001.CSV	211	2009/10/13 14:54:22

Use the **rotary knob** and **ENTER** to select the files you want to delete or copy. Selected files are indicated with this mark: . To deselect a file, press **ENTER** again.

Set the action (Delete, Copy).

Set the file type.

Set the extension of the file type you want to delete or copy.

Set the destination drive (internal memory, USB memory).

Selecting All Files

Deletes the selected files or displays a screen for selecting the copy destination.

Whether "Delete" or "Dest. Folder" is displayed depends on which option you choose for the Action setting.

When you press the **Dest. Folder** soft key, a screen for selecting the copy destination folder appears.

In that screen, select the destination folder and press the **Execute** soft key to copy the files.

### Explanation

#### Action

Select “Delete” or “Copy.”

#### File Type

The files of the type that you selected appear in the File List screen.

- For details about file types, see “Explanation” in section 9.2.
- To display all the files in the current directory, set the file type to “\*.\*”.

#### Drive to Save To

See “Explanation” in section 9.2.

#### Selecting All Files

All the files in the current directory will be deleted or copied.

- When you press the All Select soft key, “All Select” changes to “All Deselect.”
- When you press the All Deselect soft key, “All Deselect” changes to “All Select.” All the files in the current directory are deselected.

#### Deleting

The selected files are deleted.

#### Setting the Copy Destination and Copying

After selecting the files to copy, set the destination folder and copy the files.

#### About the File Operation Screen

Depending on the model and the selected feature, the operations for opening the file operation screen and the screens that appear vary.

On models with -SPM or -HPM suffix codes, you cannot delete or copy files when multicore loss testing is selected.

#### Note

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Using the mini B USB port on the AQ1100, you can send the files and folders in the AQ1100 internal memory to a PC. To do this, set the AQ1100 mini B USB port function to Storage (see section 10.1). When the PC accesses the AQ1100 and downloads the files, the download speed depends on the performance of the PC.

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## 9.4 Changing File Names

### Procedure

#### File Operation Screen

##### Models with -SPM or -HPM Suffix Codes

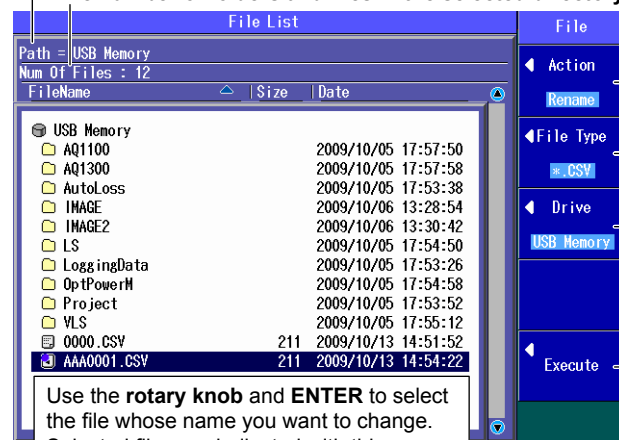
Press the **OPM LS** or **Auto Loss Test** soft key, **SETUP**, and then the **File** soft key to display the following screen (which is the same as the one for models with -PPM suffix codes).

##### Models with -PPM Suffix Codes

Press the **OPM LS** or **PON Power Meter** soft key, **SETUP**, and then the **File** soft key to display the following screen.

##### Directory path

The number of folders and files in the selected directory



Use the **rotary knob** and **ENTER** to select the file whose name you want to change. Selected files are indicated with this mark: . To deselect a file, press **ENTER** again.

Set the action (**Rename**).

Set the file type.

Set the extension of the file type of the file whose name you want to change.

Set the destination drive (internal memory, USB memory).

Enter a new file name.

The character input dialog box appears. To set the file name, follow the procedure in section 2.2. Enter the extension as well.

After you have entered the file name, press the **Commit** soft key in the character input dialog box to change the file name to the name that you entered.

### Explanation

#### Action

Select “Rename.”

#### File Type

The files of the type that you selected appear in the File List screen.

- For details about file types, see “Explanation” in section 9.2.
- To display all the files in the current directory, set the file type to “\*.\*”.

#### Drive to Save To

See “Explanation” in section 9.2.

#### Entering a File Name

Enter a file name into the character input dialog box that appears. Follow the procedure in section 2.2.

- Use the character input dialog box to enter the extension as well.
- When you press the Commit soft key in the character input dialog box, the file name changes to the name that you entered.

#### About the File Operation Screen

Depending on the model and the selected feature, the operations for opening the file operation screen and the screens that appear vary.

On models with -SPM or -HPM suffix codes, you cannot change file names when multicore loss testing is selected.

## 9.5 Creating Folders

### Procedure

#### File Operation Screen

##### Models with -SPM or -HPM Suffix Codes

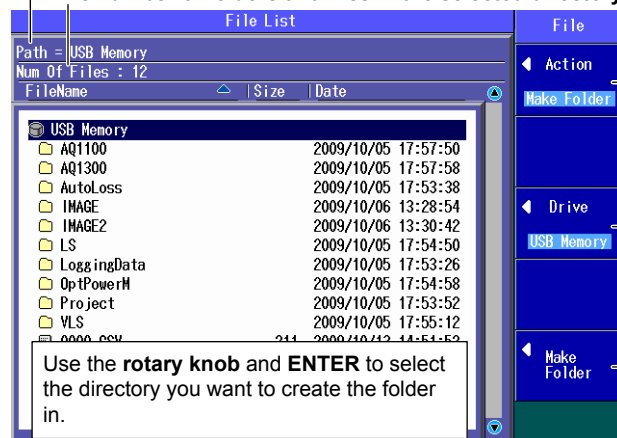
Press the **OPM LS** or **Auto Loss Test** soft key, **SETUP**, and then the **File** soft key to display the following screen (which is the same as the one for models with -PPM suffix codes).

##### Models with -PPM Suffix Codes

Press the **OPM LS** or **PON Power Meter** soft key, **SETUP**, and then the **File** soft key to display the following screen.

##### Directory path

The number of folders and files in the selected directory



Set the action (Make Folder).

Set the destination drive (internal memory, USB memory).

Create a folder.

The character input dialog box appears. To set the folder name, follow the procedure in section 2.2.

After you have entered the folder name, press the **Commit** soft key in the character input dialog box to create the folder.

### Explanation

#### Action

Select "Make Folder."

#### Drive to Save To

See "Explanation" in section 9.2.

#### Entering a Folder Name

Enter a folder name into the character input dialog box that appears. You can use up to 20 characters. Follow the procedure in section 2.2. When you press the **Commit** soft key in the character input dialog box, a folder with the name that you specified is created.

#### About the File Operation Screen

Depending on the model and the selected feature, the operations for opening the file operation screen and the screens that appear vary.

On models with -SPM or -HPM suffix codes, you cannot create folders when multicore loss testing is selected.

## 9.6 Deleting and Copying Folders

### Procedure

#### File Operation Screen

##### Models with -SPM or -HPM Suffix Codes

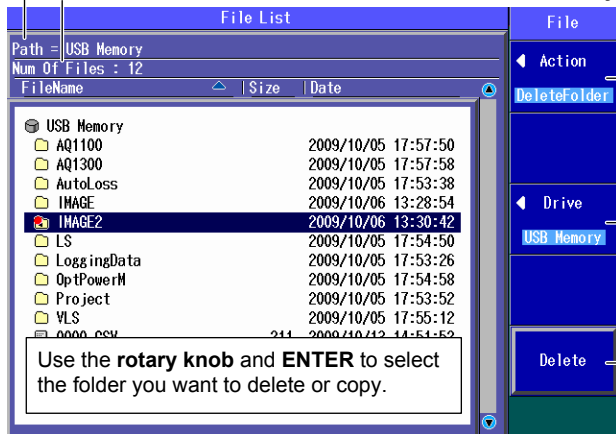
Press the **OPM LS** or **Auto Loss Test** soft key, **SETUP**, and then the **File** soft key to display the following screen (which is the same as the one for models with -PPM suffix codes).

##### Models with -PPM Suffix Codes

Press the **OPM LS** or **PON Power Meter** soft key, **SETUP**, and then the **File** soft key to display the following screen.

##### Directory path

The number of folders and files in the selected directory



File List

Path = USB Memory  
Num Of Files : 12

FileName	Size	Date
USB Memory		
AQ1100		2009/10/05 17:57:50
AQ1300		2009/10/05 17:57:58
AutoLoss		2009/10/05 17:53:38
IMAGE		2009/10/06 13:28:54
<b>IMAGE2</b>		2009/10/06 13:30:42
LS		2009/10/05 17:54:50
LoggingData		2009/10/05 17:53:26
OptPowerM		2009/10/05 17:54:58
Project		2009/10/05 17:53:52
VLS		2009/10/05 17:55:12
0000.csv	211	2009/10/12 14:51:52

File

Action

DeleteFolder

Drive

USB Memory

Delete

Use the rotary knob and ENTER to select the folder you want to delete or copy.

Set the action (DeleteFolder, Copy Folder).

Set the destination drive (internal memory, USB memory).

Deletes the selected files or displays a screen for selecting the copy destination. Whether "Delete" or "Dest. Folder" is displayed depends on which option you choose for the Action setting.

When you press the **Dest. Folder** soft key, a screen for selecting the copy destination folder appears.

Make sure that the copy destination and source drives are different (see the explanation later in this section).

In the screen that appears, select the destination folder and press the **Execute** soft key to copy the files.



**Explanation****Action**

Select “DeleteFolder” or “Copy Folder.”

**Drive to Save To**

See “Explanation” in section 9.2.

**Deleting**

The selected folders are deleted.

**Setting the Copy Destination and Copying**

After selecting the folders to copy, set the destination folder and copy the selected folders to it.

You cannot copy from the internal memory to the internal memory or from the USB memory to the USB memory. Copy folders from the internal memory to the USB memory or from the USB memory to the internal memory.

**About the File Operation Screen**

Depending on the model and the selected feature, the operations for opening the file operation screen and the screens that appear vary.

On models with -SPM or -HPM suffix codes, you cannot delete or copy folders when multicore loss testing is selected.

**Note**

- You may not be able to copy or delete the selected folder if it contains many levels of folders.
- Using the mini B USB port on the AQ1100, you can send the files and folders in the AQ1100 internal memory to a PC. To do this, set the AQ1100 mini B USB port function to Storage (see section 10.1). When the PC accesses the AQ1100 and downloads the files, the download speed depends on the performance of the PC.

## 9.7 Initializing the Internal Memory

### Procedure

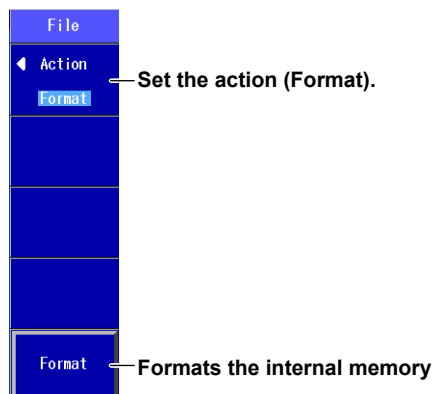
#### File Operation Screen

##### Models with -SPM or -HPM Suffix Codes

Press the **OPM LS** or **Auto Loss Test** soft key, **SETUP**, and then the **File** soft key to display the following screen (which is the same as the one for models with -PPM suffix codes).

##### Models with -PPM Suffix Codes

Press the **OPM LS** or **PON Power Meter** soft key, **SETUP**, and then the **File** soft key to display the following screen.



### Explanation

#### Action

Select "Format."

#### Formatting

The internal memory is initialized. All the data in the internal memory is deleted. Before you initialize the internal memory, backup the data as necessary.

#### Note

Using the mini B USB port on the AQ1100, you can send the files and folders in the AQ1100 internal memory to a PC. To do this, set the AQ1100 mini B USB port function to Storage (see section 10.1). When the PC accesses the AQ1100 and downloads the files, the download speed depends on the performance of the PC.

## 9.8 Printing

### Procedure

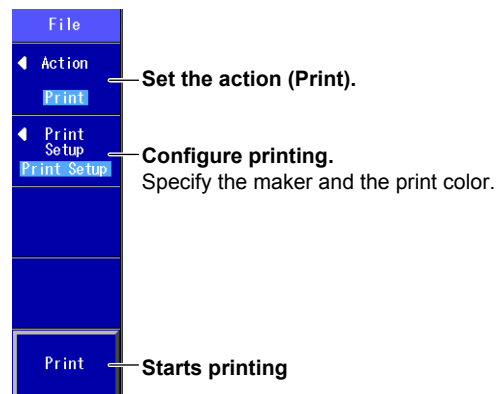
#### File Operation Screen

##### Models with -SPM or -HPM Suffix Codes

Press the **OPM LS** or **Auto Loss Test** soft key, **SETUP**, and then the **File** soft key to display the following screen (which is the same as the one for models with -PPM suffix codes).

##### Models with -PPM Suffix Codes

Press the **OPM LS** or **PON Power Meter** soft key, **SETUP**, and then the **File** soft key to display the following screen.



### Explanation

#### Action

Select "Print."

#### Print Setup

Specify the maker of the printer connected to the AQ1100 and the print color.

- Connect the printer to the USB Type A port on the AQ1100.
- You can use printers that comply with USB Printer Class Ver 1.1.

#### Printing

An image of the screen is printed.

#### About the File Operation Screen

Depending on the model and the selected feature, the operations for opening the file operation screen and the screens that appear vary.

On models with -SPM or -HPM suffix codes, you cannot print when multicore loss testing is selected.

#### Note

- Do not connect incompatible printers.
- For USB printers that have been tested for compatibility, contact your nearest YOKOGAWA dealer.

# 10.1 Configuring the Language, Beep, Start Menu, USB Function, and Screen Color

## Procedure

### System Setup Screen

Press **SETUP** to display the following menu.

Common

Language

English

Beep

Off

On

Start Menu

Top Menu

USB Function

Storage

Screen Color

Color

◀

Date & Time Set

◀

Power Save

◀

Network Setup

◀

Default

Set the display language.  
The options that appear vary depending on the language specification.

Turns the beep on and off

Set the start menu (Top Menu, Last Function).

Set the USB function (Storage, Control I/O)

Set the screen colors (Color, B&W)

## Explanation

### Display Language

Set the language to display on the AQ1100 screen. The options that appear vary depending on the product's language specification.

### Turning the Beep On and Off

You can make the AQ1100 beep whenever an operation error occurs or an error message is displayed.

On	The AQ1100 beeps.
Off	The AQ1100 does not beep.

### Start Menu

You can choose which screen will appear first when you turn on the AQ1100.

Top Menu	The menu that appears when you press the MENU key on the front panel.
Last Function	The menu of the last function that you were using before the AQ1100 was turned off appears. The first menu that appears is one of the menus that appears after you press a soft key in the Top Menu.

### USB Function

You can set the function of the mini B USB port on the AQ1100.

Storage	You can access the AQ1100 internal memory from a PC and load and save data.
Control I/O	You can use communication commands to control the AQ1100 from a PC.

### Screen Color

Set the screen display colors.

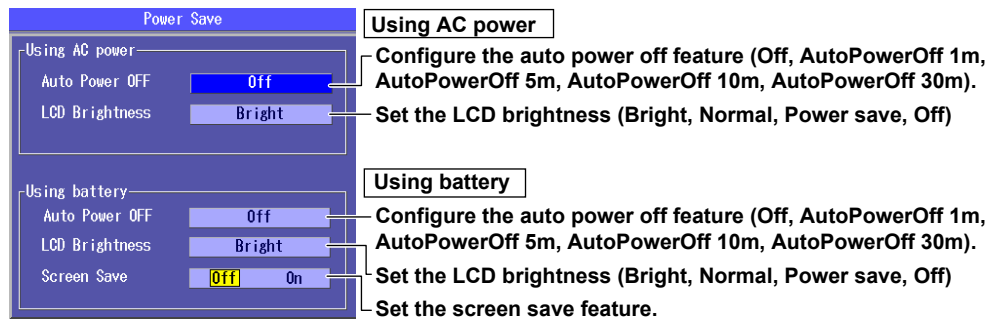
Color, B&W

## 10.2 Configuring Power Save Settings

### Procedure

#### Power Save Screen

1. Press **SETUP**.
2. Using the **rotary knob** and **ENTER**, select **Power Save** to display the following screen.



### Explanation

To reduce power consumption, you can set separate power save settings for when the AQ1100 is using an AC adapter and for when it is using a battery.

#### Auto Power Off

When the AQ1100 is on, it can turn itself off automatically after it has not been used for awhile.

Off	The power does not turn off automatically.
AutoPowerOff 1m	The power turns off automatically after one minute.
AutoPowerOff 5m	The power turns off automatically after 5 minutes.
AutoPowerOff 10m	The power turns off automatically after 10 minutes.
AutoPowerOff 30m	The power turns off automatically after 30 minutes.

#### LCD Brightness

You can set the LCD brightness.

Bright	The screen is bright. Choose this setting when you are in a bright area. Because this setting uses a great deal of power, pay close attention to the remaining battery power when you are using a battery.
Normal	Normal brightness.
Power save	The screen is less bright than it is when you select Normal. You can view the screen at this brightness when you are in a dark area. You can use the battery longer than you can when you select Bright.
Off	The LCD backlight is turned off. When you are viewing the screen beneath the sun or in another bright area, the screen will be difficult to view even if you select Bright. In this kind of situation, you can make the screen easier to view by selecting Off. You can use the battery even longer than you can when you select Power save.

#### Screen Save

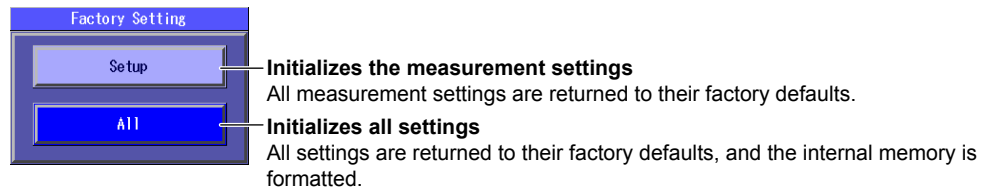
When the AQ1100 is on, it can turn its display off automatically after it has not been used for 15 seconds.

## 10.3 Resetting the AQ1100 to Its Factory Default Settings

### Procedure

#### Initialization Screen

1. Press **SETUP**.
2. Using the **rotary knob** and **ENTER**, select **Default** to display the following screen.



### Explanation

You can reset the AQ1100 to its factory default settings.

#### Initializing the Measurement Settings

All the settings are reset to their factory defaults, but the internal memory is not initialized.

#### Initializing All Settings

All the settings are reset to their factory defaults, and the internal memory is initialized. All the data in the internal memory is deleted. Before you initialize the internal memory, backup the data as necessary.

#### Note

Using the mini B USB port on the AQ1100, you can send the files and folders in the AQ1100 internal memory to a PC. To do this, set the AQ1100 mini B USB port function to Storage (see section 10.1). When the PC accesses the AQ1100 and downloads the files, the download speed depends on the performance of the PC.

## 10.4 Configuring Network Settings (Option)

### Procedure

#### Network Setup Screen

1. Press **SETUP**.
2. Using the **rotary knob** and **ENTER**, select **Network Setup** to display the following screen.

The screenshot shows the 'Network Setup' screen with the following fields and annotations:

- Valid / Invalid:** A toggle switch set to 'Valid'. Annotation: 'Enables or disables the network setup'.
- User Name:** A text field containing 'anonymous'. Annotation: 'Set the user name and password. To set the user name and password, follow the procedure in section 2.2.'
- Password:** A text field (empty).
- Time Out(sec):** A text field containing 'Infinite'. Annotation: 'Set the timeout value.'
- DHCP:** A toggle switch set to 'Off'. Annotation: 'Configure the TCP/IP settings.'
- IP Address:** A numeric field with segments for 192, 168, 0, and 2.
- Subnet Mask:** A numeric field with segments for 255, 255, 255, and 0.
- Gateway:** A numeric field with segments for 192, 168, 0, and 1.
- Footer:** 'To apply the changes, power-cycle the AQ1100.'

#### Note

You must restart the AQ1100 after you have changed the network settings. Before you restart the AQ1100, the settings from before you changed the settings are used.

### Explanation

IP testing is available on models with the /LAN option.

For details about the network that you intend to connect the AQ1100 to, contact your network administrator.

#### Enabling or Disabling the Network Setup

After you have set the user name, password, timeout value, and TCP/IP parameters, select Valid and restart the AQ1100 to use the network connection.

Valid	The AQ1100 can communicate over the network.
Invalid	The AQ1100 cannot communicate over the network.

If Valid is selected and the AQ1100 is not connected to a network, it will require more time to start.

#### User Name and Password

Set the user name and password to use for user authentication when the AQ1100 is accessed by a PC.

##### User Name

You can use up to 15 characters. The default setting is "anonymous."

##### Password

You can use up to 15 characters.

#### Note

- The AQ1100 terminates the connection if there is an error in the user authentication process.
- You do not need to enter a password when the user name is set to "anonymous."

## Timeout Value

The connection to the network is automatically disconnected if there is no access to the AQ1100 for the specified time.

Range: 1 to 3600 s or Infinite

The AQ1100 will not time out if you set the timeout value to Infinite. If the AQ1100 is connected to a network and the connection between the AQ1100 and another device is broken abnormally due to an external cause, the AQ1100 will remain connected to the network until the power is turned off. To avoid this kind of situation, we recommend that you set a finite timeout value.

## TCP/IP

### DHCP

If you are connecting the AQ1100 to a network with a DHCP server and you want to use the server, set DHCP to "On."

On	The IP address, subnet mask, and gateway information is assigned automatically.
Off	You must enter the IP address, netmask, and gateway information.

- Ask your network administrator whether or not DHCP is available.
- When DHCP is set to On, the information can change whenever you restart the AQ1100 or enable or disable the network setup as described in the previous section. Check the information when you access the AQ1100 from a PC.

### IP Address

You can set the IP address assigned to the AQ1100. The IP address is an ID that is assigned to each device on a network such as the Internet or an intranet. Obtain an IP address from your network administrator. In a network that supports DHCP, this parameter is set automatically when DHCP is set to On.

### Subnet Mask

You can set the mask value used to determine the subnet network address from the IP address. Networks such as the Internet are often divided up into smaller networks called subnetworks. The subnet mask is a value that specifies the number of bits of the IP address that are used to identify the network address. Consult your network administrator for the subnet mask value. In a network that supports DHCP, this parameter is set automatically when DHCP is set to On.

### Gateway

You can set the IP address of the default gateway (which is a gateway used to communicate with other networks). The default gateway handles data exchange between multiple networks so that data transmission proceeds smoothly. Consult your network administrator for the default gateway value. In a network that supports DHCP, this parameter is set automatically when DHCP is set to On.



## 11.1 If a Problem Occurs

### Dealing with Unusual Circumstances

- If a message appears on the screen, see the following pages for reference.
- If servicing is necessary or the AQ1100 does not operate properly even after you have attempted to deal with the problem according to the instructions in this section, contact your nearest YOKOGAWA dealer.

Symptom	Solution	Reference
Even when the power is on, nothing appears on the screen.	If you are using an AC adapter, make sure that the plug is connected firmly to the outlet, the power cord is connected firmly to the AC adapter, and the AC adapter's DC plug is connected firmly to the AQ1100.	— <sup>1</sup>
	If you are using a battery pack, make sure that it is attached firmly.	— <sup>1</sup>
	Charge the battery pack, and make sure that the ON lamp is illuminated.	11.7
	The LCD turns black at high temperatures. At low temperatures, its display speed becomes slower. Make sure that the temperature of the area where you are using the AQ1100 is within the operating temperature range.	— <sup>1</sup>
The display disappears after time passes.	The AQ1100 turns off automatically when its battery is low. Check the remaining battery power.	11.7
	If you have specified a time for the Power Save setting, the AQ1100 will turn off automatically if no operations have been performed for the specified time. Check the settings.	10.2
The screen is dark.	The screen is dark when the LCD Brightness setting is set to "Power save." Check the settings.	10.2
	The LCD may be worn out. Servicing is required.	11.11
	When the temperature of the AQ1100 or its battery pack is high, the AQ1100 lowers the LCD brightness automatically to prevent damage. Make sure that the temperature of the area where you are using the AQ1100 is within the operating temperature range.	— <sup>1</sup>
The power turns off automatically while the AQ1100 is being used.	The AQ1100 turns off automatically when it detects an error. A warning message will appear when this happens. Read the message. Fix the problem indicated in the message, and then turn on the AQ1100.	11.2 <sup>2</sup>
The battery pack cannot be charged.	The battery pack temperature may be too low or too high. Make sure that the temperature of the area where you are using the AQ1100 is within the operating temperature range. Remove the battery pack from the AQ1100 and let it sit for awhile in a room temperature environment.	— <sup>1</sup>
	The battery pack may be reaching the end of its life expectancy. Replace it with a new one.	11.11
The power turns off automatically while the AQ1100 is starting.	You may have accidentally pressed the power switch twice.	—

<sup>1</sup> See the operation guide, IM AQ1100-02EN.

<sup>2</sup> When it is likely that the usage limitations of the AQ1100 will be exceeded, the AQ1100 will display a warning message and turn off automatically to prevent damage. For the conditions under which messages appear, see section 11.2.

## 11.2 Error Messages

### Error Messages

Messages may appear on the screen while you are using the AQ1100. This section explains the meanings of the error messages and how to respond to them. You can display the error messages in English or Japanese (see section 10.1). If servicing is necessary to solve the problem indicated by a message, contact your nearest YOKOGAWA dealer.

Other communication-related error messages may also appear. These error messages are described in the *Communication Interface User's Manual*, IM AQ1100-17EN.

### Error in Execution

Code	Message
20	Network Option is not installed.
24	One or more conditions in this file are not supported by this product.
29	In remote control mode, all keys are locked except F1 key. Please hit F1 key to exit the remote control mode.
33	File operation is cancelled.
64	Failed to adjust LS power. Please check whether the patch fiber cable is properly connected between LS port and OPM port.
65	Project Information doesn't match between Master and Slave.
66	The project sent from master includes an unsuitable wavelength.
503	The measurement cannot be started during the file operation. Please either interrupt the file operation or wait until the end of the file operation.
505	Hardware failed, and needs to be repaired. Please contact Yokogawa's representatives.
506	Hardware failed, and needs to be repaired. Please contact Yokogawa's representatives.
507	Hardware failed, and needs to be repaired. Please contact Yokogawa's representatives.
508	Hardware failed, and needs to be repaired. Please contact Yokogawa's representatives.
509	Hardware failed, and needs to be repaired. Please contact Yokogawa's representatives.
512	ZERO SET ERROR
513	ZERO SET ERROR
514	Exceeding limit. It may cause damage of the instrument. Please disconnect the plug.
515	ZERO SET ERROR
601	Cannot save onto the media. This media is for read-only.
602, 603	Can not recognize file system. - Internal memory:Contact Yokogawa's representatives. - USB memory:Try the other media or format again with FAT.
604	Storage media has been disconnected while the media is being accessed.
605	Same file name or folder name exists.
606, 607	Can not recognize file system. - Internal memory:Contact Yokogawa's representatives. - USB memory:Try the other media or format again with FAT.
608	Invalid file name or folder name
609	Invalid file format
610, 611	Can not recognize file system. - Internal memory:Contact Yokogawa's representatives. - USB memory:Try the other media or format again with FAT.
612	Invalid path name
613	Can not recognize file system. - Internal memory:Contact Yokogawa's representatives. - USB memory:Try the other media or format again with FAT.
614	Unknown file or folder
615	Can not recognize file system. - Internal memory:Contact Yokogawa's representatives. - USB memory:Try the other media or format again with FAT.
616	Cannot save onto the media. This media is for read-only.
617 to 619	Can not recognize file system. - Internal memory:Contact Yokogawa's representatives. - USB memory:Try the other media or format again with FAT.
620	Free space is not enough
621	Can not recognize file system. - Internal memory:Contact Yokogawa's representatives. - USB memory:Try the other media or format again with FAT.
622	Unknown folder
623	Folder is not empty.
624 to 628	Can not recognize file system. - Internal memory:Contact Yokogawa's representatives. - USB memory:Try the other media or format again with FAT.

Code	Message
629	Writing to USB memory is not allowed.
630 to 633	Can not recognize file system. - Internal memory:Contact Yokogawa's representatives. - USB memory:Try the other media or format again with FAT.
634	Folder cannot be deleted. Please confirm the following. - Media is correctly installed. - Media is formatted. - Media is not read-only.
635	Folder cannot be deleted. The path name or the file name is too long.
636	Folder cannot be deleted. The hierarchy below the specified folder is too deep.
637	Folder cannot be deleted. The path name is invalid.
638	Folder cannot be deleted. It failed in the deletion of the file. Please confirm the following. - Media is correctly installed. - Media is formatted. - Media is not read-only.
639	Folder cannot be copied. Please confirm the following. - Media is correctly installed. - Media is formatted. - Media is not read-only.
640	Folder cannot be copied. The path name or the file name is too long.
641	Folder cannot be copied. The hierarchy below the specified folder is too deep.
642	Failed to copy the folder. The path name is invalid.
643	Folder cannot be copied. It failed in the creation of the destination folder. Please confirm the following. - Media is correctly installed. - Media is formatted. - Media is not read-only.
644	Folder cannot be copied. It failed in the creation of the destination file. Please confirm the following. - Media is correctly installed. - Media is formatted. - Media is not read-only.
645	The path name is too long.
646	USB memory can not be recognized
647	Can not make file or folder in this folder.
690	Cannot save the measurement data. Please confirm the following. - Media is correctly installed. - Media is formatted. - Media is not read-only.
691	There is **** files in the destination folder. Please use other folder.
692	Media is full. Please install new media.
693	Cannot make a folder. Please change the folder name.
694	Cannot open the file. Please confirm the following. - Media is correctly inserted.- Media is not changed.
695	One or more conditions in this file cannot be restored. The instrument automatically determines those conditions.
696	Folder cannot be deleted. Please confirm the following. -There is no file or folder in this folder.
697	Folder can't be copied. The destination folder is a subfolder of the source folder.
698	Folder can not be copied. Please confirm the following. -There is no file or folder in this folder. - Media is correctly inserted. - Media is formatted. - Media is not read-only.
700	Failed to open the file.
701	Failed to close the file.
702	Failed to read the file.
703	Irregular file format.
704	Failed to write the file.
707	One or more measurement conditions are not specified. Please confirm the measurement conditions.
708	Cannot be saved. This data is not taken with this instrument.
710	File cannot be retrieved. Invalid wavelength.
717	Duplicate file name.
718	File is damaged. Check the file.
719	File name too long. Maximum length is 36 letters.
720	File is now being accessed. Execute after access is released.

## 11.2 Error Messages

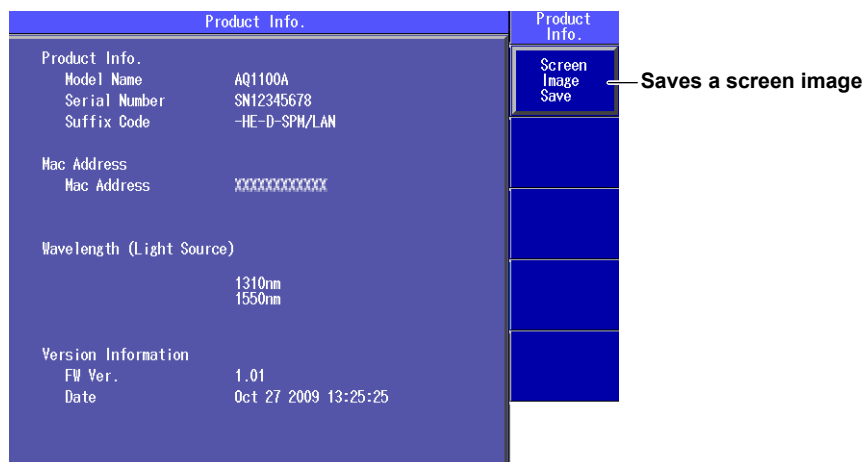
Code	Message
721	Cannot load this file. Invalid file format or this firmware version is old.
752	Print Error. Printer cannot be found.
754	USB printer error Perform the power cycle.
755	USB printer is offline.
756	No paper (USB printer)
757	USB printer cannot be found. Perform the power cycle.
758	The printer is out of order, and needs to be repaired. Please contact Yokogawa's representatives.
760	Cannot execute it while printing.
761	This operation is not excuted while light is emitting. Stop emitting the light then excute the operation.
800	This function is not supported.
814	Failed network initialize. Please confirm network connection and setting.
817	Test Error occurred.
818	Test succeeded.
854	In USB Storage mode, all keys are locked. Please disconnect the USB Cable.
900	Backup data is damaged. this instrument starts up with the factory setting.
902	Battery is low Please power it off, and charge the battery or replace the battery. Or, please use the AC power supply.
903	Backup battery failed, and needs to be repaired. Please contact Yokogawa's representatives.
904	Hardware failed, and needs to be repaired. Please contact Yokogawa's representatives.
906	Battery is low. The instrument will be powered off in 10 sec.
909	The temperature inside the instrument is too high. The instrument may be damaged if it is kept using in this condition. The instrument will be powered off in 10 sec. Please do not power it on till the battery is cooled down.
910	The temperature inside the instrument is too low. The instrument may be damaged if it is kept using in this condition. The instrument will be powered off in 10 sec. Please do not power it on till the battery is cooled down.
913	Battery is low. The instrument may be damaged if it is kept using in this condition. The instrument will be powered off in 10 sec. Please use AC adapter.
914	Errors in the battery or in the charging circuit. The instrument may be damaged if it is kept using in this condition. The instrument will be powered off in 10 sec. Please remove the battery and use AC adapter.
917	The temperature inside the instrument is increasing. Please stop measuring, and wait for a while.
918	The temperature inside the instrument is too high. The measurement was aborted. Please power it off.
921	There is incoming light. Or, optical module may be damaged.
922	Incorrect date and time setting. Set the correct date and time.
925	Please use AC adapter.

## 11.3 Viewing the Product Information

### Procedure

#### Product Information Screen

Press **SETUP** and then the **Product Info.** soft key to display the following screen.



### Explanation

The following information about the AQ1100 is displayed.

Model Name, Serial Number, Suffix Code, Mac Address, Version Information, etc.

#### Executing Screen Image Save

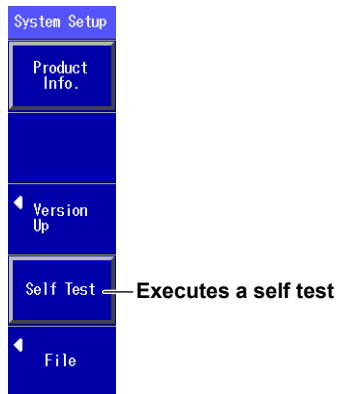
When you execute Screen Image Save, an image of the screen is saved to SystemInfo.BMP in the root directory of the internal memory.

## 11.4 Performing a Self Test

### Procedure

#### System Setup Menu

Press **SETUP** to display the following menu.



### Explanation

The AQ1100 checks the operation of the:

- Internal memory.
- RTC (real time clock) battery.

If the results of the self test are normal, "Success" appears. If an error occurs, "Fail" appears.

#### When an Error Occurs during a Self Test

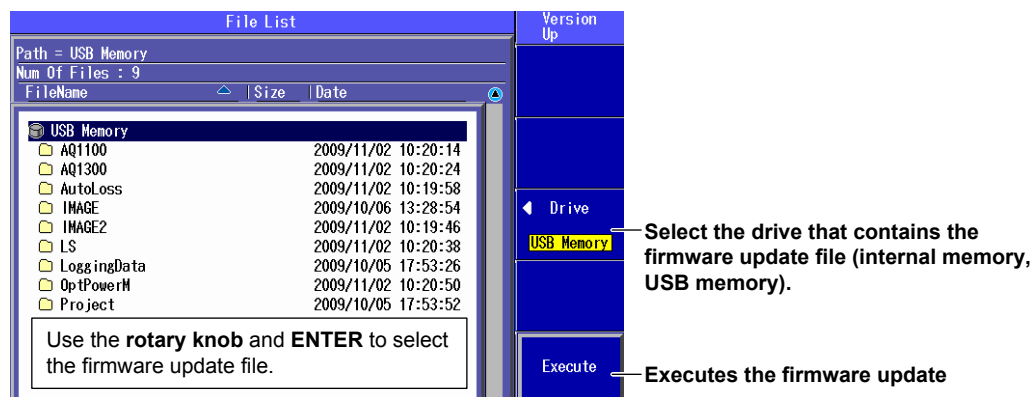
If an error occurs, contact your nearest YOKOGAWA dealer.

## 11.5 Updating the Firmware

### Procedure

#### Version Up Screen

Press **SETUP** and then the **Version Up** soft key to display the following screen.



### Explanation

To update the firmware, select a firmware update file (.YMC extension).

- You can change file names, except for the extension, as necessary. For instructions on how to change the file name, see section 9.4.
- When the firmware update ends successfully, "Updating of the main program completed" appears, and the AQ1100 restarts automatically.
- When the firmware update fails, "Updating of the main program failed" appears. Make sure that there are no problems with the firmware update file.

## 11.6 Performing a Mechanical Inspection and Checking Operations

### Mechanical Inspection

#### WARNING

Make sure that the power is off while you are inspecting the AQ1100.

#### CAUTION

- If foreign objects are stuck in the connectors, malfunction and damage may occur.
- The AQ1100 may not operate properly if its connectors are loose.

Make sure that:

- There is no external damage or deformation on the outside of the AQ1100.
- There are no switches, connectors, or other components that are loose.
- All switches and moving parts can be operated smoothly.

If there are any problems, contact your nearest YOKOGAWA dealer.

### Checking Operations

Turn on the AQ1100, perform the typical operations, and make sure that the AQ1100 performs normally.



## 11.7 Replacing the Battery Pack

### Handling Precautions

Failure to comply with the precautions below could lead to damage to the instrument, injury, or death.

#### WARNING

##### Prohibitions against Actions That Cause Leaking, Heating, Ignition, and Explosion

- Do not charge the battery pack or leave it in a location that is exposed to direct sunlight, such as on a car dashboard or by a window, or in a location that is subject to high temperatures, such as in a car parked under the scorching sun.
- Do not throw the battery pack into fire or heat it.
- Do not expose the battery pack to strong mechanical shock.
- Do not allow the battery pack to be covered in water or other liquids.
- Do not disassemble or modify the battery pack.
- Do not short the positive and negative battery pack terminals. Also, do not move the battery or store it with metal items such as necklaces, hair pins, coins, or keys.
- Do not place combustible material on top of the battery pack or cover it with anything other than its case while it is providing electricity or being charged.
- Leakage from the battery pack can cause blindness if it comes into contact with your eyes. If you get leakage from the battery in your eyes, do not rub them; clean them thoroughly with clean water and then see a doctor immediately.
- Do not use or charge battery packs with the AQ1100 that are not made by YOKOGAWA.
- When you attach the battery pack to the AQ1100, attach it properly.

##### Prohibitions against Careless Use

- Keep the battery pack away from infants so that they do not lick it, put it in their mouths, bite it, or do other dangerous things with it.
- Leakage from the battery pack may cause damage to clothing and skin.

##### Prohibition against Use under Abnormal Conditions

If you notice that the battery pack is leaking, smells strange, is becoming hot, has changed color or shape, or exhibits some other abnormality, stop charging or using it, and turn off the power. If the battery pack is leaking, move it away from sources of fire.

##### Changing the Battery Pack

- To prevent electric shock, turn the AQ1100 off, and disconnect the AC adapter power supply from it.
- When you remove the battery pack cover, do not do so with the back of the AQ1100 facing down. Also, after you attach the battery pack, be sure to close the battery cover completely. Otherwise, the battery pack may fall out and cause injury or be damaged.

#### CAUTION

##### Replacement Procedure

- Do not touch the battery pack electrodes. Doing so may damage the battery pack.
- When you put the battery pack in the battery case, make sure that the battery pack is facing the right direction.
- When you place the AQ1100 so that its LCD is facing down, be careful not to damage the LCD.

## 11.7 Replacing the Battery Pack

### Storage Precautions

- If you will not be using the battery pack for an extended period of time, remove it from the AQ1100 and store it in a dry place.
- Avoid storing the battery pack for an extended period of time when it is fully charged (after it has just been charged) or when it has no power left (when the AQ1100 will not turn on). Storing the battery pack under these conditions will degrade its performance and reduce its longevity. It is better to store the battery pack when it is 40 to 50% charged. This is equivalent to the state the battery is in after you turn off the AQ1100 and charge an empty battery for an hour at room temperature.

### Disposal

- When disposing of the batteries, follow the proper disposal regulations as specified by the relevant ordinance in your area.
- When disposing of the batteries in the EU, follow the Waste Electrical and Electronic Equipment (WEEE) Directive.

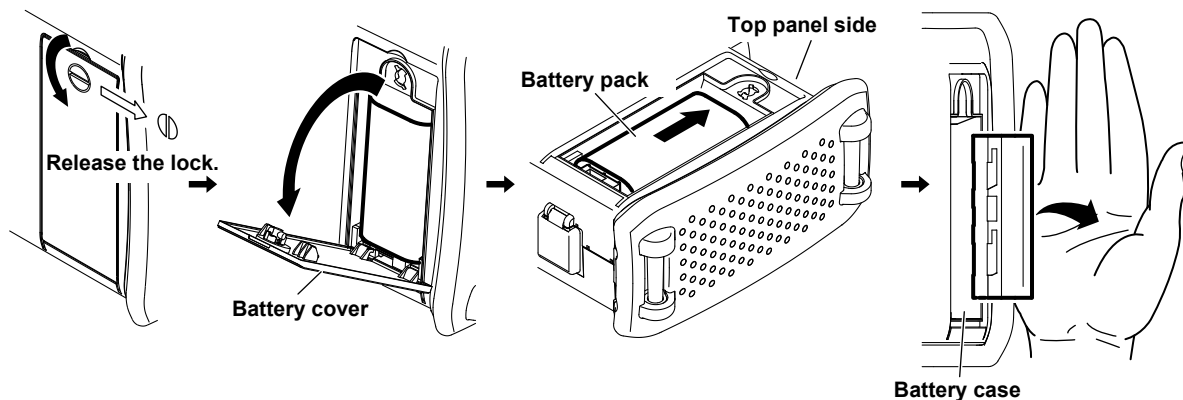
Contact your nearest YOKOGAWA dealer under the following circumstances.

- When the battery pack is broken or behaves strangely.
- When the battery run time becomes short and the battery pack needs to be replaced (the battery pack is a consumable item).

## Removing the Battery Pack

Before you remove the battery, turn off the power and unplug the AC adapter from the AQ1100.

1. Release the battery cover lock.  
Insert a coin or screwdriver with a thickness that will not damage the lock slot into the lock slot, and release the lock.
2. Remove the battery cover.
3. Slide the battery pack towards the top panel.
4. Turn the AQ1100 so that it is facing you, and remove the battery pack from the case.  
Put your hand next to the battery case so that the battery pack does not fall out.



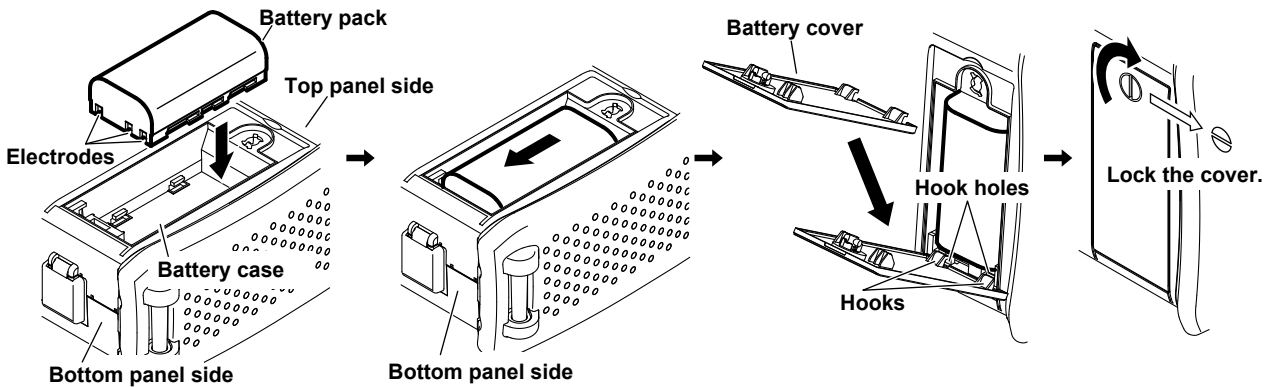
### Attaching a Battery Pack

Before you attach the battery, turn off the power, and unplug the AC adapter from the AQ1100.

1. Remove the battery cover by following the first two steps in the previous section.
2. Insert the battery pack into the battery case, towards the top panel.
  - Insert the battery pack so that its electrodes are near the bottom panel facing down.
  - Make sure that the entire battery pack is inserted into the case securely.
3. Pushing the battery pack towards the back of the case, pull it towards the bottom panel.
4. Close the battery cover.
 

Attach the battery cover from the bottom panel side, making sure that the hooks on the cover enter into their holes on the case.
5. Lock the battery cover.
 

Insert a coin or screwdriver with a thickness that will not damage the lock slot into the lock slot, and lock the battery cover.



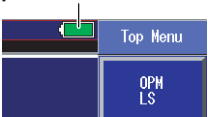
### Charging a Battery Pack

When the battery is low, a warning message will appear. When this happens, charge the battery.

1. Connect the power cord to the AC adapter.
2. Connect the AC adapter plug to the AQ1100.
3. Connect the power plug to an outlet.

The remaining battery pack power appears at the top of the screen.

#### Remaining battery power indicator



**Green:** Sufficiently full



**Yellow:** Half full



**Red:** Almost empty

When the ON LED lights in red, a warning message appears on the screen.



#### CHARGE LED

**Red:** Charging  
**Green:** Finished charging

#### ON LED

**Green:** Running  
**Red:** Battery low

#### Note

- The AQ1100 will turn off automatically a few minutes after the warning message about the remaining battery power appears.
- If the battery pack is hot, wait for it to return to room temperature before you charge it.
- The battery run time depends on how you use the AQ1100: whether or not you make the screen bright, use the printer, etc.

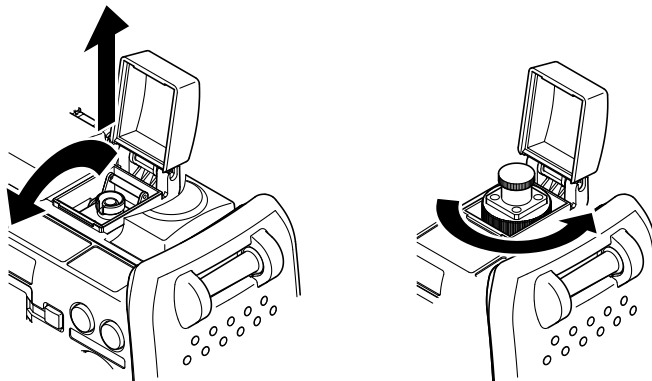
## 11.8 Replacing an Optical Adapter

### WARNING

When you replace an optical adapter, turn the AQ1100 power off so that you do not accidentally emit light from the light source port. If you replace an optical adapter (universal or connector adapter) while the power is on, you may accidentally get light in your eyes, damage them, and impair your vision.

### Removal

1. Make sure that the AQ1100 power is off.
2. Open the optical port cover.
3. Pull the optical adapter lock lever down and inwards to release it. If the adapter is screwed in, turn the knob to the left to loosen it.
4. Pull out the optical adapter.



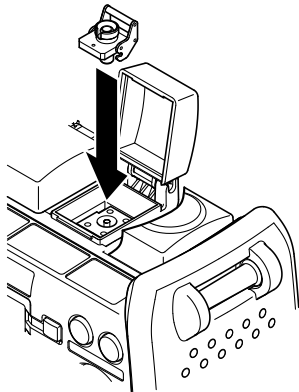
### Note

If the optical port cover comes off, bend the cover axle with your finger, and reattach it.

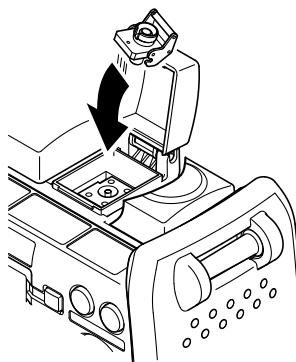
## Attachment

1. Make sure that the AQ1100 power is off.
2. Open the optical port cover.
3. Insert the optical adapter directly into the rear shell.
4. Pull the optical adapter lock lever down and outwards to lock it. If the adapter is screwed in, turn the knob to the right to tighten it.

Good example



Bad example



### Note

Insert the optical adapter carefully and straight. If the adapter shakes to the left and right or is forced in or out, it may be damaged, and the optical port ferrule may also be damaged.

## 11.9 Routine Maintenance

### Cleaning the Outside of the AQ1100

To clean the LCD and the outside of the AQ1100, turn off the power; remove the power cord from the outlet; use a damp, well-wrung cloth to wipe the LCD and the outside of the AQ1100; and then wipe them off with a dry cloth.

#### Note

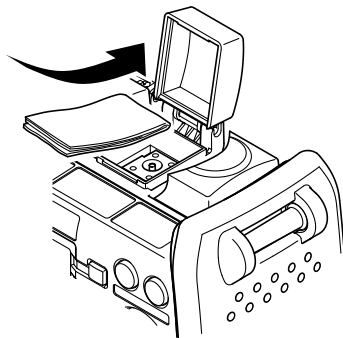
- Turn the power off when you clean the AQ1100.
- Do not use chemicals such as thinner, benzene, or alcohol. Doing so may cause deformation and discoloring.
- Use a well-wrung cloth. Otherwise, water may get inside the AQ1100.

### Cleaning an Optical Adapter

#### WARNING

When you clean the optical components of the AQ1100, turn the AQ1100 power off so that you do not accidentally emit light from the light source port. If you clean the optical components while the power is on, you may accidentally get light in your eyes, damage them, and impair your vision.

1. Make sure that the AQ1100 power is off.
2. Open the optical port cover.
3. If the optical adapter is connected, follow the steps in section 11.8 to remove it.
4. Use a lens cleaner to clean the optical components.



#### When the End of the Optical Fiber Is Slanted

If the end of the optical fiber is slanted, as with /ASC option models, while being careful not to tear the cleaner on the top edge of the fiber or get lint on the fiber, clean from the bottom of the fiber end to the top.



#### Note

- Clean the optical components using a smooth lens cleaner that will not leave lint or dust on the lenses.
- You can clean the light source ports without removing the optical adapters by using a stick-shaped cleaning tool, but we recommend that you remove the optical adapters when you clean.

## 11.10 Storage Precautions

### Before You Store the AQ1100

Clean the AQ1100 before you store it. For information about cleaning, see section 11.9.

### Storage Conditions

Store the AQ1100 in a place that meets the following conditions.

- Within the storage temperature and humidity ranges
- Subject to very little change in temperature and humidity within a single day
- Not subject to direct sunlight
- Not dusty
- Free from activated gas

#### Note

- To prevent against over discharge, if you will not be using the AQ1100 for a week or more, charge the battery pack, remove it from the AQ1100, and place it in a location where it will not be exposed to direct sunlight and where the temperature is 10 to 30°C.
- When you store the battery pack for six months or longer, to replace the power that has been lost through self discharge, recharge the battery using the AQ1100 once every six months. For instructions on how to remove the battery pack, see section 11.7.
- Avoid storing the battery pack for an extended period of time when it is fully charged (after it has just been charged) or when it has no power left (when the instrument will not turn on). Storing the battery pack under these conditions will degrade its performance and reduce its longevity. It is best to store the battery pack when it is 40 to 50% charged. This is equivalent to the state the battery is in after you turn off the AQ1100 and charge an empty battery for an hour at room temperature.

### Reuse

When you use the AQ1100 after storing it for a long period of time, make sure that it is functioning properly.

### Packaging

To package the AQ1100, follow the steps listed below.

1. Wrap the AQ1100 in thick plastic so that it does not get dust inside of it.
2. Use cushioning to protect the LCD.
3. Prepare a box that is 10 to 15 cm larger than the AQ1100 on all sides.
4. Insert cushioning in the bottom of the box.
5. Insert cushioning between the AQ1100 and the box.
6. Close the box securely using adhesive tape or some other method.

### Shipping

- When you ship the AQ1100, avoid exposing it to vibrations.
- Ship the AQ1100 in an environment that meets the storage conditions.
- When you ship multiple battery packs by plane, follow all relevant regulations, such as the airline regulations and UN transportation regulations. For details about the regulations, contact your airline in advance.

## 11.11 Recommended Replacement Parts

YOKOGAWA guarantees the AQ1100 for the period and under the conditions of the product warranty. Under the conditions of the three-year warranty, the following consumable parts and parts with limited service lives are excluded. For part replacement, contact your nearest YOKOGAWA dealer.

### Parts with Limited Service Lives

Part Name	Service Life	Notes
Battery pack	Approx. 300 charges	The service life varies depending on the environment in which the battery pack is used.

### Consumables

We recommend that you replace the following parts at the intervals listed below.

Part Name	Recommended Replacement Interval*	Notes
Backup battery (lithium battery)	5 years	Send to factory to replace
LCD backlight	Approx. 50,000 hours	Send to factory to replace
Measurement connector ferrule	One year	Send to factory to replace
Universal and connector adapters	One year	Purchase and replace
DC power supply connector	5000 times	Send to factory to replace
USB connector	1500 times	Send to factory to replace
RJ-45 connector	200 times	Send to factory to replace

\* The recommended replacement interval can vary greatly depending on the operating environment and the frequency of use. The above intervals are estimates.



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## 11.12 Calibration

Periodic calibration is an effective means of keeping the instrument performing correctly for a long time and of detecting malfunctions at an early stage. We recommend that you have the AQ1100 calibrated once a year.

# Appendix 1 Data File Formats

## CSV File Formats

The following examples show the saved data being displayed in a spreadsheet program.

### Logged Results

	A	B	C	D	E
1	Company	Yokogawa	Electric Corporation		
2	Model	AQ1100A			
3	Function	Logging			
4	Start Date	Tue Oct 27 15:23:14 2009			
5					
6	Wavelength	1310			
7	Modulation	CW			
8	Offset	0			
9	Unit	dBm			
10	Interval(ms)	1000			
11	Measurement Number	10			
12	Logging Count	11			
13					
14					
15		-9752			
16		-10112			
17		-9718			
18		-9868			
19		-9841			
20		-9727			
21		-10338			
22		-9913			
23		-9660			
24		-9875			
25		-9705			
26					

### Measured Data from the Optical Power Meter

	A	B	C	D	E	F	G	H	I	J	K
1	Company	Yokogawa	Electric Corporation								
2	Model	AQ1100A									
3	Function	PowerMeter									
4	Start No	1									
5	Tape No. Type	off									
6	Number Of Fibers	100									
7											
8	Data	Ver1.00									
9	Core	No	nm	Data	Unit	Modulation	Reference(dBm)	Offset(dB)	Date	SKIP	
10		1	1310	-9.629	dBm	CW	-3	0	2009/10/27 15:42		
11		1	2	1310	-9.474	dBm	CW	-3	0	2009/10/27 15:42	
12		1	3								
13		2	1							SKIP	
14		2	2							SKIP	
15		2	3							SKIP	
16		3	1	1550	-10.06	dBm	CW	-3	0	2009/10/27 15:42	
17		3	2	1550	-9.695	dBm	CW	-3	0	2009/10/27 15:42	
18		3	3								
19		4	1	1550	-10.07	dBm	CW	-3	0	2009/10/27 15:43	
20		4	2	1310	-9.829	dBm	CW	-3	0	2009/10/27 15:43	
21		4	3	1310	-9.601	dBm	CW	-3	0	2009/10/27 15:43	
22		5	1								
23		5	2								

## Loss Test Results

	A	B	C	D	E	F	G	H	I	J	K
1	Company	Yokogawa Electric Corporation									
2	Model	AQ1100A									
3	Function	PowerMeter									
4	Start No	1									
5	Tape No Type	a-d									
6	Number Of Fibers	25									
7											
8	Data	Ver1.00									
9	Core	No	nm	Data	Unit	Modulation	Reference(dBm)	Offset(dB)	Date	SKIP	
10	1a	1	1310	-9.608	dBm	CW	-3	0	2009/10/27 16:19		
11	1a	2	1550	-9.831	dBm	CW	-3	0	2009/10/27 16:19		
12	1a	3									
13	1b	1								SKIP	
14	1b	2								SKIP	
15	1b	3								SKIP	
16	1c	1	1310	-10.14	dBm	CW	-3	0	2009/10/27 16:21		
17	1c	2	1550	-9.924	dBm	CW	-3	0	2009/10/27 16:21		
18	1c	3									
19	1d	1	1310	-9.738	dBm	CW	-3	0	2009/10/27 16:22		
20	1d	2	1550	-9.75	dBm	CW	-3	0	2009/10/27 16:22		
21	1d	3									
22	2a	1									
23	2a	2									

## Project Information

	A	B	C	D	E	F	G	H	I	J	K
1	Company	Yokogawa Electric Corporation									
2	Model	AQ1100A									
3	Function	Multi Fiber LossTest									
4	Project Name	P100									
5	Wavelength1	850									
6	Wavelength2	1300									
7	Wavelength3	0									
8	Offset	0									
9	Start No	10									
10	Tape No Type	a-e									
11	Number Of Fibers	20									
12											
13	Data	Ver1.00									
14	Core	No	nm	Data	Unit	Modulation	Reference(dBm)	Offset(dB)	Date	SKIP	
15	10a	1									
16	10a	2									
17	10a	3									
18	10b	1								SKIP	
19	10b	2								SKIP	
20	10b	3								SKIP	
21	10c	1									
22	10c	2									
23	10c	3									
24	10d	1								SKIP	
25	10d	2								SKIP	
26	10d	3								SKIP	
27	10e	1									
28	10e	2									
29	10e	3									
30	11a	1									
31	11a	2									

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