
**User's
Manual**

CW500Viewer

Thank you for purchasing the CW500 Power Quality Analyzer. This manual explains the operating procedures of CW500Viewer, a software application included with the CW500. To ensure correct use, please read this manual thoroughly before beginning operation. Keep this manual in a safe place for quick reference in the event that a question arises. The following five manuals, including this one, are provided as manuals for the CW500. Please read all manuals.

Manual Title	Manual No.	Description
CW500 Power Quality Analyzer User's Manual	IM CW500-01EN	The supplied CD contains the PDF file of this manual. This manual explains the CW500's standard features and how to use these features.
CW500 Power Quality Analyzer Getting Started Guide	IM CW500-02EN	The guide explains the handling precautions and basic operations of the CW500 and provides a list of specifications.
CW500Viewer User's Manual	IM CW500-61EN	This manual. The supplied CD contains the PDF file of this manual. This manual explains how to use CW500Viewer.
CW500Viewer Installation Manual	IM CW500-62EN	This manual explains how to install CW500Viewer.
CW500 Power Quality Analyzer User's Manual	IM CW500-92Z1	Chinese document

Notes

- The contents of this manual are subject to change without prior notice as a result of continuing improvements to the software'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

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1 Operating Environment

PC System Requirements

- CPU: Pentium 4 1.6 GHz or faster
- Memory: 1 GB or more (Windows 7/8/10)
- Operating system: Windows 7, Windows 8, Windows 10
(32 bit, 64 bit)
- Free hard disk space: 1 GB or more (includes the space needed for installing the .NET Framework redistributable package)
- CD or DVD drive: Required to install the software
- Display: 1,024×768 or higher resolution, 65536 colors or more

Recommended Condition

- Pentium processor 2 GHz or faster

2 Starting CW500Viewer

When Using the Viewer on the PC by Itself

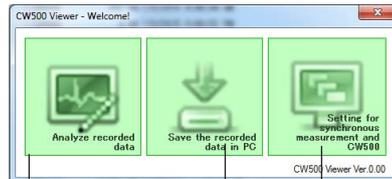
Data can be analyzed.

- 1 Double-click the shortcut icon on the desktop.

Or, click **Start, Programs, Yokogawa, CW500Viewer**, and then **CW500Viewer**.



The CW500Viewer menu appears.



Analyze measured data.

Configure real-time measurement and CW500.
(available when the PC and the CW500 are connected)

Save measured data to the PC.
(available when the PC and the CW500 are connected)

When Using the Viewer by Connecting the CW500 to the PC

1. Turn the CW500 on.
2. Connect the CW500 to the PC through USB.



3. Double-click the shortcut icon on the desktop.

Or, click **Start, Programs, Yokogawa, CW500Viewer**, and then **CW500Viewer**.

The CW500Viewer menu appears.

Note

- To connect the CW500 to the PC using the optional Bluetooth, enable the CW500 Bluetooth function.
- Start CW500Viewer after Bluetooth pairing is complete.
From Devices and Printers on the PC, select the CW500 you want to pair with, and click Add a device.
For details, see the PC or Bluetooth Receiver User's Manual.
- CW500 device name is "CW500-xxxxxxx" (where xxxxxxxx is the serial number).

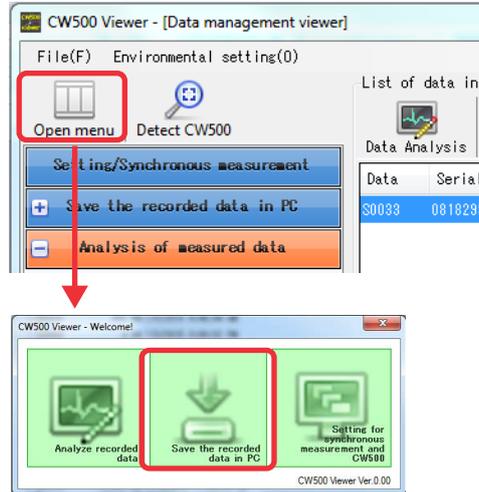
3 Saving Recorded Data to a PC

Saving Recorded Data to the PC by Connecting the CW500 to the PC

- 1 On CW500Viewer, click **Open menu**.

On the menu, click **Save the recorded data in PC**.

A screen for loading data appears.



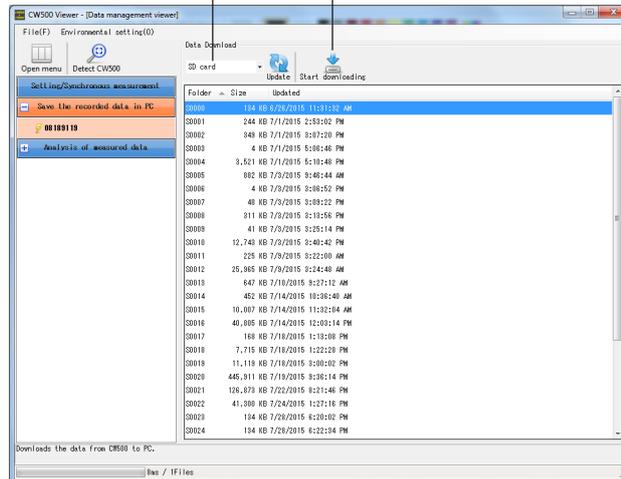
2. Select Internal memory or SD memory card.

A list of recorded data saved in the selected medium appears.

3. From the list, select a recorded data file to save to the PC, and click **Start downloading**. Saving to the PC starts.

Select internal memory or SD memory card.

Save recorded data to the PC.



When saving to the PC is complete, a recorded data analysis window appears.

The data is saved in

C:\Users\xxxxx\Documents\Yokogawa\CW500Viewer\PcData (where xxxxx is the user name).

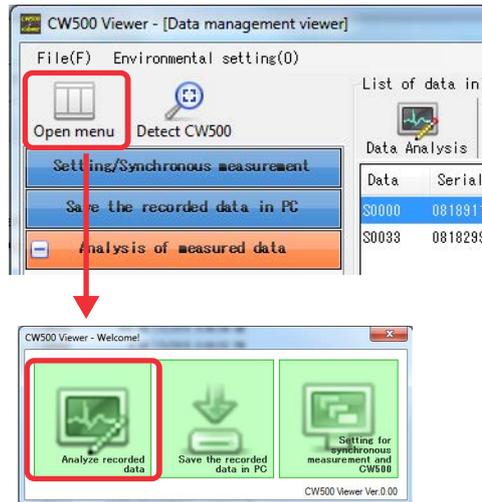
Saving Recorded Data to the PC without Connecting the CW500 to the PC

You can insert an SD memory card containing CW500 recorded data into the PC and save the recorded data to the PC.

- 1 Insert an SD memory card containing CW500 recorded data into the PC.
2. On CW500Viewer, click **Open menu**.

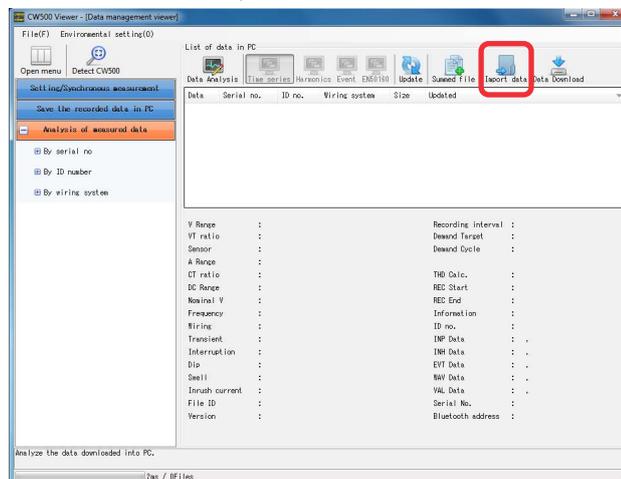
On the menu, click **Analyze recorded data**.

A recorded data analysis window appears.



3. Click **Import data**. A file selection window appears.

Select the SD memory card drive, and select the file to load into the PC.



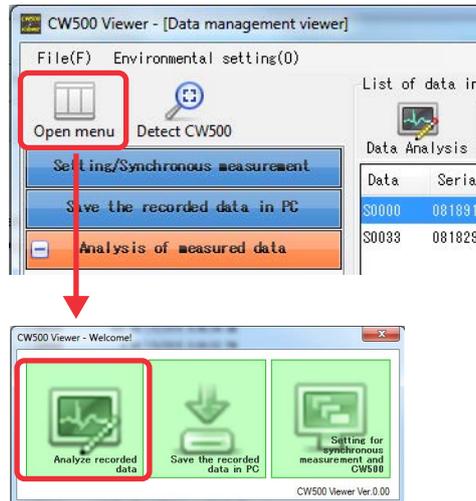
4 Analyzing Data (Power)

Selecting the Recorded Data to Analyze

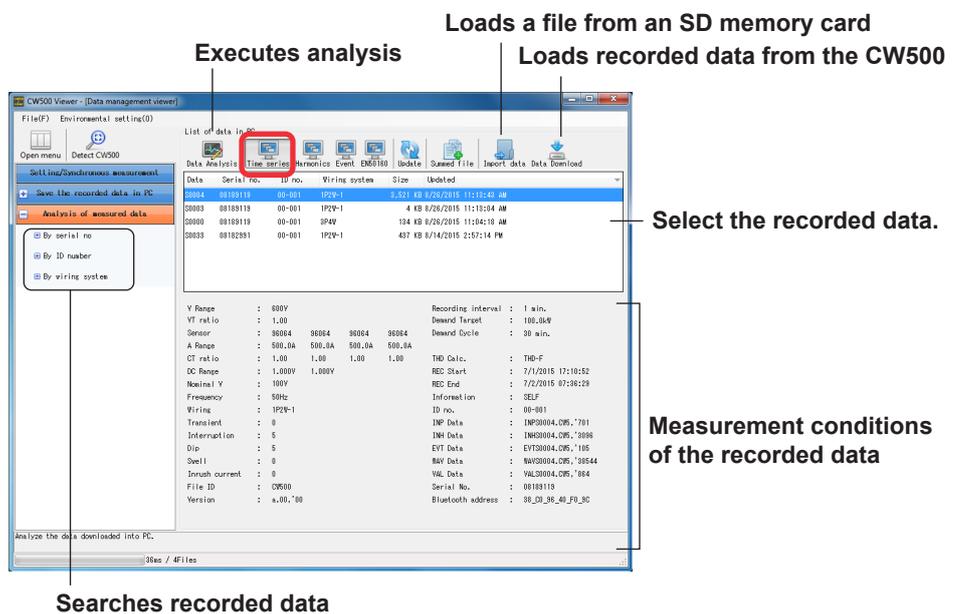
- 1 On CW500Viewer, click **Open menu**.

On the menu, click **Analyze recorded data**.

A recorded data analysis window appears.



2. Click the recorded data to analyze, and click **Time series**.

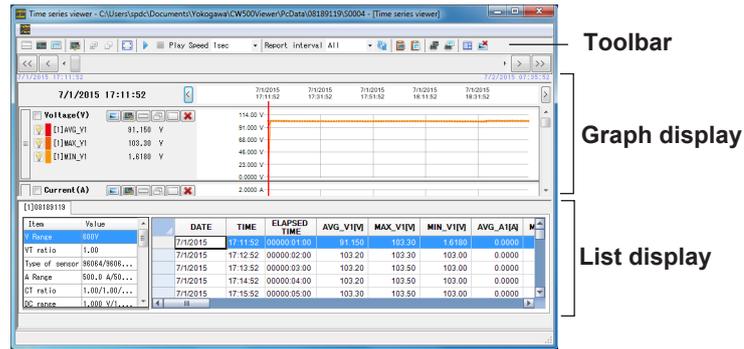


3. Click **Data Analysis**.

Power parameters appear.

By clicking Import data or Data download, you can move to a window for saving data from an SD memory card connected to the PC or from the CW500 to the PC. For the save procedure, see “Saving Recorded Data to a PC.”

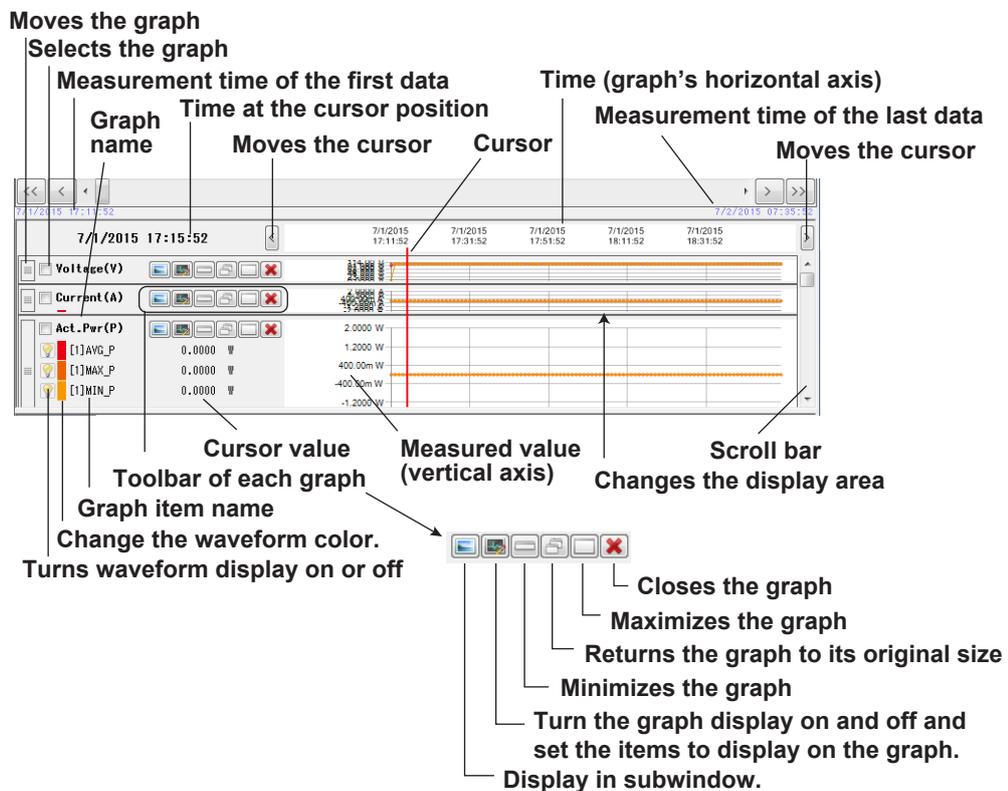
4 Analyzing Data (Power)



Note

By moving the mouse pointer over a window boundary or a table row or column boundary and dragging when the pointer changes to an arrow, you can change the size of the window, row, or column.

Graph Display



Moving the Graph

Drag the bar at the left edge of the graph to change the display position.

Selecting Graphs

Select the check boxes to the right of the graph names. The selected graphs can be controlled using the toolbar of each graph. The display of multiple graphs can be changed collectively.

Changing the Graph Colors

Clicking the color bar to the left of an item name opens a color setting window.

Turning Waveform Display On and Off

Clicking the light bulb icon next to an item name shows or hides the waveform.

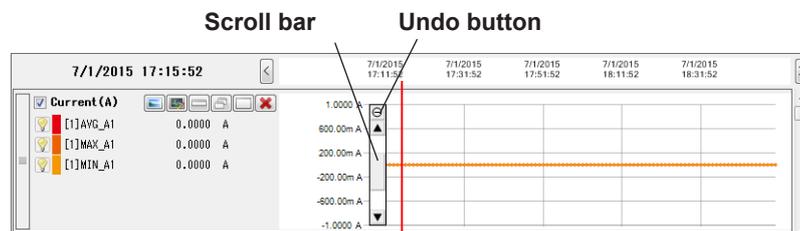
Zooming the Graphs

Zooming Horizontally

The pointer changes into a left and right arrow (◀▶) near the graph's horizontal scale. Drag to the right to zoom in; drag to the left to zoom out.

Zooming Vertically

The pointer changes into an up and down arrow (↕) near the graph's vertical scale. The dragged area is zoomed, and a scroll bar and an undo button appear. You can change the display position using the scroll bar. To return to the original size, click the undo button.



Subwindow Display (Toolbar of each graph)

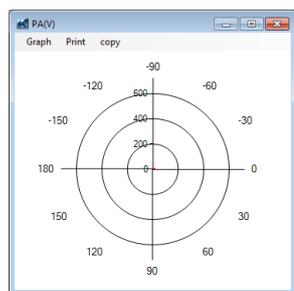
Click the **Sub-graph display** icon on the toolbar displayed for each graph.

The measured values at the cursor position are displayed in a subwindow.

The voltage phase angle and current phase angle are displayed in a vector diagram using rms values and phase angles at the cursor position.

For items other than the voltage phase angle and current phase angle, measured values at the cursor position are displayed numerically.

Vector diagram



Values

[1]AVG_V1	91.150 V
[1]MAX_V1	103.30 V
[1]MIN_V1	1.6180 V

List Display

Serial number of the CW500 that made the measurement

Scroll bar

Data at the graph's cursor position

[1]08189113	
Item	Value
V Range	600V
VT ratio	1.00
Type of sensor	88064/8806...
A Range	500.0 A/50...
CT ratio	1.00/1.00/...
DC range	1.000 V/1....
Nominal V	100V

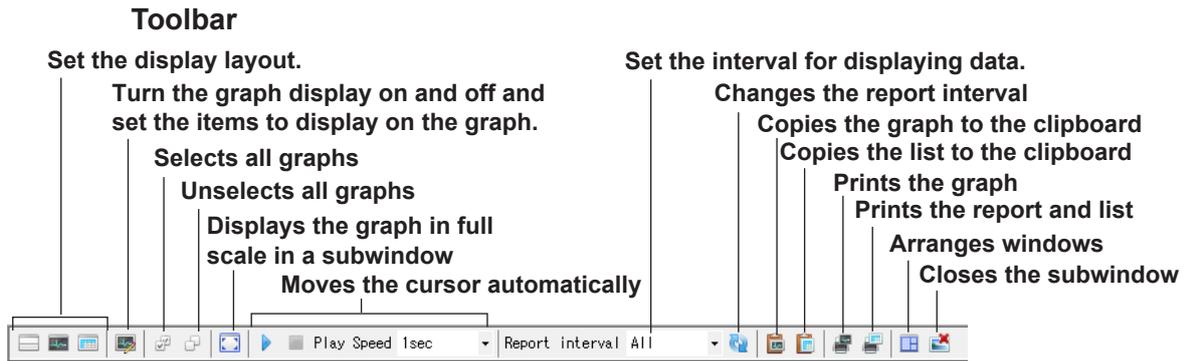
DATE	TIME	ELAPSED TIME	AVG_V1[V]	MAX_V1[V]	MIN_V1[V]	AVG_A1[A]
7/1/2015	17:11:52	00000:01:00	91.150	103.30	1.6180	0.0000
7/1/2015	17:12:52	00000:02:00	103.20	103.30	103.00	0.0000
7/1/2015	17:13:52	00000:03:00	103.20	103.50	103.00	0.0000
7/1/2015	17:14:52	00000:04:00	103.20	103.50	103.00	0.0000
7/1/2015	17:15:52	00000:05:00	103.30	103.50	103.00	0.0000
7/1/2015	17:16:52	00000:06:00	103.20	103.40	103.00	0.0000

Measurement conditions

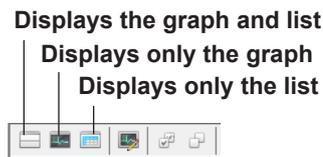
List display

Scroll bar

4 Analyzing Data (Power)



Setting the Display Layout



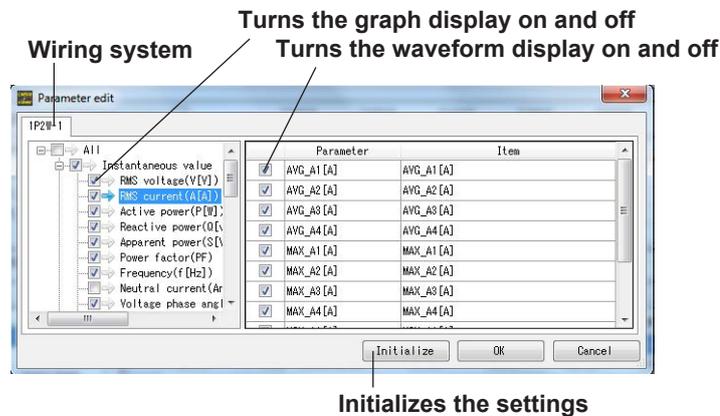
Turning the Graph Display On and Off and Setting the Items to Display on the Graph

On the toolbar, click the **Parameter edit** icon.

You can turn the entire graph display on and off and the waveform display of each graph on and off.

Items whose check boxes are selected are displayed.

The entire graph can be turned on and off for instantaneous value, integrated value (harmonics), demand, and flicker separately.



Selecting or Unselecting All Graphs

On the toolbar, click the **Select all** or **Deselect** icon.

Graphs are selected or unselected collectively. The selected graph names' check boxes become selected (see "Graph Display").

The selected graphs can be controlled using the toolbar of each graph.

Full Scale Display

On the toolbar, click the **Full scale display** icon.

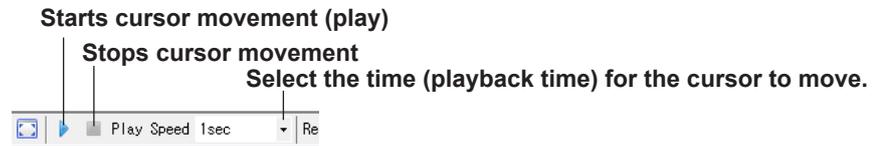
The graph is displayed in full scale in a subwindow.

Auto Cursor Movement (Autoplay)

The cursor on the graph can be moved automatically.

The cursor position in the list moves in sync with this cursor.

You can also set the time (playback time) for the cursor to move to the next data value.



Setting the Data Display Interval (Report interval)

On the toolbar, select the interval from the **Report interval** list.

Set the time interval for the data displayed on the graph and list.

Clicking the report interval change icon displays data using the specified time interval on the graph and list.

Copying the Graph and List to the Clipboard

On the toolbar, click the **Copy graph** or **Copy list** icon.

For the graph, the entire graph is copied as image data to the clipboard. For the list, tab delimited text data with item names added in the header is copied to the clipboard.

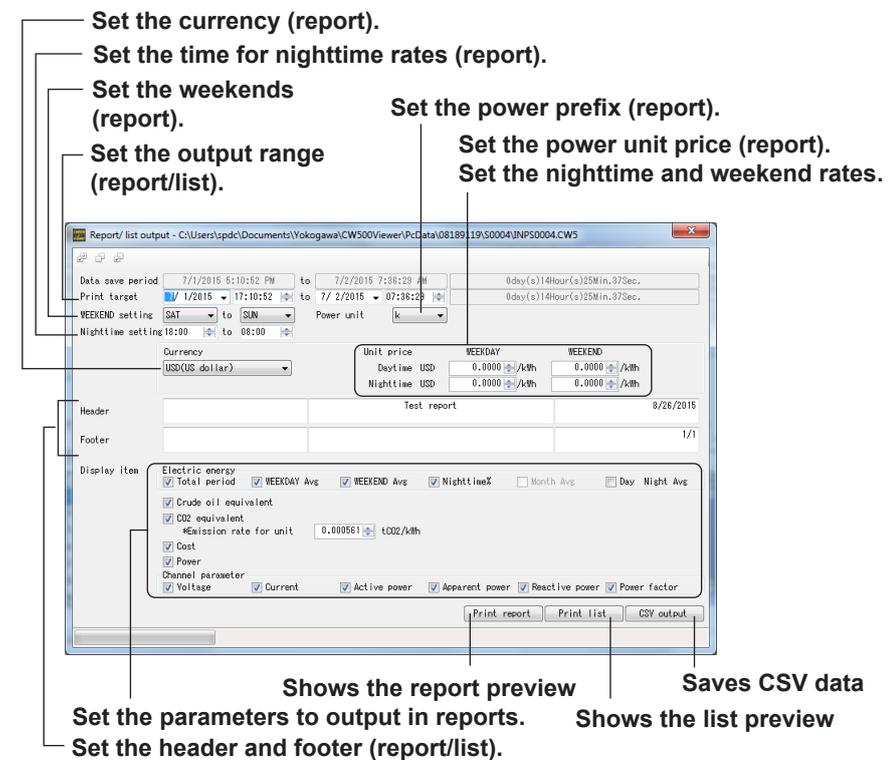
You can paste the data in documents, such as Word and Excel.

Printing Graphs

On the toolbar, click the **Print graph** icon. All the displayed graphs are printed.

Report and List Output

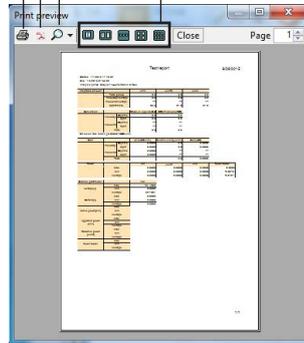
On the toolbar, click the **Report/list output** icon.



4 Analyzing Data (Power)

Clicking **Print report** or **Print list** displays a preview window.

Shows the print window
 Saves as PDF data
 Zooms the preview
 Changes the preview format



Report output

Prints a report of the power consumption.

The power and power charge for the specified time period are printed in a report or saved as PDF data.

List output

The data of the listed items for the specified time period are printed or saved as PDF or CSV data.

Test report						02/20/2015
Lab data						02/20/2015 11:54:45 AM
Printed: 11/15/2015 11:54:45 AM						Page: 1/22
Item No.	Item Name	Unit	Value	Unit	Value	Unit
1	Power	W	1000	W	1000	W
2	Power	W	1000	W	1000	W
3	Power	W	1000	W	1000	W
4	Power	W	1000	W	1000	W
5	Power	W	1000	W	1000	W
6	Power	W	1000	W	1000	W
7	Power	W	1000	W	1000	W
8	Power	W	1000	W	1000	W
9	Power	W	1000	W	1000	W
10	Power	W	1000	W	1000	W
11	Power	W	1000	W	1000	W
12	Power	W	1000	W	1000	W
13	Power	W	1000	W	1000	W
14	Power	W	1000	W	1000	W
15	Power	W	1000	W	1000	W
16	Power	W	1000	W	1000	W
17	Power	W	1000	W	1000	W
18	Power	W	1000	W	1000	W
19	Power	W	1000	W	1000	W
20	Power	W	1000	W	1000	W
21	Power	W	1000	W	1000	W
22	Power	W	1000	W	1000	W
23	Power	W	1000	W	1000	W
24	Power	W	1000	W	1000	W
25	Power	W	1000	W	1000	W
26	Power	W	1000	W	1000	W
27	Power	W	1000	W	1000	W
28	Power	W	1000	W	1000	W
29	Power	W	1000	W	1000	W
30	Power	W	1000	W	1000	W
31	Power	W	1000	W	1000	W
32	Power	W	1000	W	1000	W
33	Power	W	1000	W	1000	W
34	Power	W	1000	W	1000	W
35	Power	W	1000	W	1000	W
36	Power	W	1000	W	1000	W
37	Power	W	1000	W	1000	W
38	Power	W	1000	W	1000	W
39	Power	W	1000	W	1000	W
40	Power	W	1000	W	1000	W
41	Power	W	1000	W	1000	W
42	Power	W	1000	W	1000	W
43	Power	W	1000	W	1000	W
44	Power	W	1000	W	1000	W
45	Power	W	1000	W	1000	W
46	Power	W	1000	W	1000	W
47	Power	W	1000	W	1000	W
48	Power	W	1000	W	1000	W
49	Power	W	1000	W	1000	W
50	Power	W	1000	W	1000	W
51	Power	W	1000	W	1000	W
52	Power	W	1000	W	1000	W
53	Power	W	1000	W	1000	W
54	Power	W	1000	W	1000	W
55	Power	W	1000	W	1000	W
56	Power	W	1000	W	1000	W
57	Power	W	1000	W	1000	W
58	Power	W	1000	W	1000	W
59	Power	W	1000	W	1000	W
60	Power	W	1000	W	1000	W
61	Power	W	1000	W	1000	W
62	Power	W	1000	W	1000	W
63	Power	W	1000	W	1000	W
64	Power	W	1000	W	1000	W
65	Power	W	1000	W	1000	W
66	Power	W	1000	W	1000	W
67	Power	W	1000	W	1000	W
68	Power	W	1000	W	1000	W
69	Power	W	1000	W	1000	W
70	Power	W	1000	W	1000	W
71	Power	W	1000	W	1000	W
72	Power	W	1000	W	1000	W
73	Power	W	1000	W	1000	W
74	Power	W	1000	W	1000	W
75	Power	W	1000	W	1000	W
76	Power	W	1000	W	1000	W
77	Power	W	1000	W	1000	W
78	Power	W	1000	W	1000	W
79	Power	W	1000	W	1000	W
80	Power	W	1000	W	1000	W
81	Power	W	1000	W	1000	W
82	Power	W	1000	W	1000	W
83	Power	W	1000	W	1000	W
84	Power	W	1000	W	1000	W
85	Power	W	1000	W	1000	W
86	Power	W	1000	W	1000	W
87	Power	W	1000	W	1000	W
88	Power	W	1000	W	1000	W
89	Power	W	1000	W	1000	W
90	Power	W	1000	W	1000	W
91	Power	W	1000	W	1000	W
92	Power	W	1000	W	1000	W
93	Power	W	1000	W	1000	W
94	Power	W	1000	W	1000	W
95	Power	W	1000	W	1000	W
96	Power	W	1000	W	1000	W
97	Power	W	1000	W	1000	W
98	Power	W	1000	W	1000	W
99	Power	W	1000	W	1000	W
100	Power	W	1000	W	1000	W

Note

To print page numbers in the header or footer, enter "1/1."

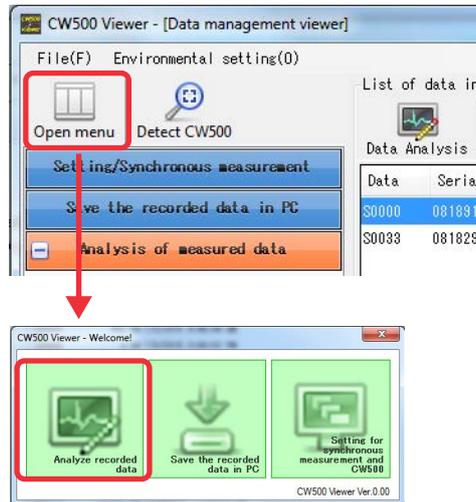
5 Analyzing Data (Harmonics)

Selecting the Recorded Data to Analyze

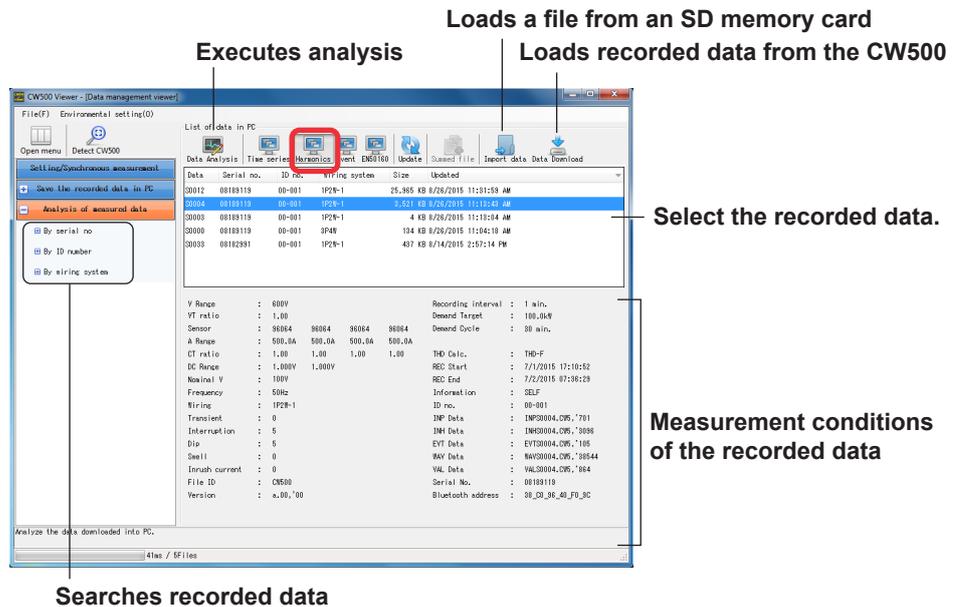
- 1 On CW500Viewer, click **Open menu**.

On the menu, click **Analyze recorded data**.

A recorded data analysis window appears.



2. Click the recorded data to analyze, and click **Harmonics**.



Searches recorded data

3. Click **Data Analysis**.

A graph and list of each measurement item are displayed.

By clicking Import data or Data download, you can move to a window for saving data from an SD memory card connected to the PC or from the CW500 to the PC. For the save procedure, see “Saving Recorded Data to a PC.”

5 Analyzing Data (Harmonics)

Toolbar

Graph display

List display

Select the channels to display in the list.
Select the items to list.

Item	Value	DATE	TIME	ELAPSED TIME	AVG 01 V VM	AVG 02 V VM	AVG 03 V VM
IT ratio	1.00	7/1/2015	17:11:52	000000:01:00	80.664	228.77m	494.84m
Type of sensor	36084/8688...	7/1/2015	17:12:52	000000:02:00	102.97	0.0000	436.78m
A Range	500.0 A/50...	7/1/2015	17:13:52	000000:03:00	103.06	0.0000	429.97m
CT ratio	1.00/1.00/...	7/1/2015	17:14:52	000000:04:00	103.05	5.6009m	431.50m
DC range	1.000 V/1.000...	7/1/2015	17:15:52	000000:05:00	103.08	42.969u	441.12m

The operating procedures for the toolbar, graph display, and list display not explained here are the same as those for time series analysis. See chapter 4, “Analyzing Data (Power).”

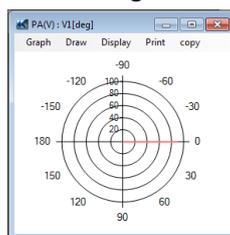
Note

By moving the mouse pointer over a window boundary or a table row or column boundary and dragging when the pointer changes to an arrow, you can change the size of the window, row, or column.

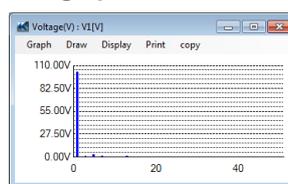
Subwindow Display (Toolbar of each graph)

Click the **Sub-graph display** icon on the toolbar displayed for each graph. The measured values at the cursor position are displayed in a subwindow. The voltage phase angle and current phase angle are displayed in a vector diagram for each harmonic using rms values and phase angles at the cursor position. Rms voltage, rms current, and harmonic power are displayed in a bar graph for each harmonic using the rms values at the cursor position. Voltage-current phase difference is displayed in a bar graph of each harmonic using the voltage-current phase difference at the cursor position.

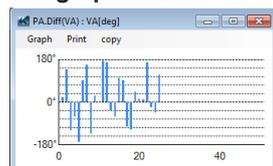
Vector diagram



Bar graph of each harmonic (rms value)



Bar graph of each harmonic (voltage-current phase difference)



List output

On the toolbar, click the **List output** icon.

Set the output range

The screenshot shows a window titled 'Report/ list output' with the following fields and controls:

- DATA** section:
 - RMS voltage_Y1[V]** (parameter name)
 - Data save period:** 7/9/2015 3:24:52 AM to 7/9/2015 7:43:00 AM (Interval: 1day(s)4hour(s)10min.46S)
 - Print target:** 7/ 9/2015 08:24:52 to 7/ 9/2015 07:43:00 (Interval: 1day(s)4hour(s)10min.46S)
- Header:** Test report, 8/26/2015
- Footer:** 1/1
- Buttons: **Print list** and **CSV output**
- Text: *The orders selected on Parameter edit window will be printed and exported as CSV.

Set the header and footer.

Saves CSV data

Shows the list preview

Clicking **Print list** displays a preview window.

Shows the print window

Saves as PDF data

Zooms the preview

Changes the preview format

The screenshot shows a 'Print preview' window with a toolbar containing icons for zooming and a 'Close' button. The main area displays a table of data with multiple columns and rows.

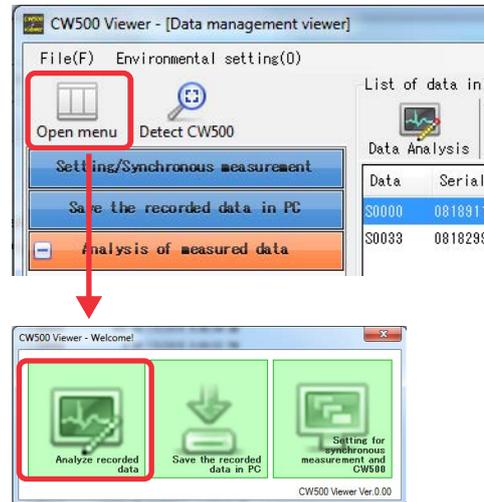
6 Analyzing Data (Event)

Selecting the Recorded Data to Analyze

- 1 On CW500Viewer, click **Open** menu.

On the menu, click **Analyze recorded data**.

A recorded data analysis window appears.



2. Click the recorded data to analyze, and click **Event**.

Executes analysis **Loads a file from an SD memory card**
Loads recorded data from the CW500

Select the recorded data.

Measurement conditions of the recorded data

Searches recorded data

Data	Serial no.	ID no.	Wiring system	Size	Updated
00012	08188115	00-001	1P2W-1	25,465 KB	8/26/2015 11:31:59 AM
00004	08188119	00-001	1P2W-1	3,521 KB	8/26/2015 11:15:40 AM
00003	08188119	00-001	1P2W-1	4 KB	8/26/2015 11:12:04 AM
00000	08188119	00-001	3P4W	134 KB	8/26/2015 11:04:18 AM
00020	08182991	00-001	1P2W-1	437 KB	8/14/2015 2:57:14 PM

Y Range : 000V Recording interval : 1 sec.
 VT ratio : 1.00 Demand Target : 100,0kV
 Sensor : 90001 90001 90001 90000 Demand Cycle : 20 min.
 A Range : 50.00A 50.00A 50.00A 2000mA
 CT ratio : 1.00 1.00 1.00 1.00 THD Calc. : THD-F
 DC Range : 1.000V 1.000V REC Start : 7/9/2015 00:24:52
 Maximal Y : 100V REC End : 7/9/2015 07:42:00
 Frequency : 50Hz Information : SELF
 Wiring : 1P2W-1 ID no. : 00-001
 Transient : 0 IWP Data : IMP0012.CWF,401
 Interruption : 4 IWH Data : IWH0012.CWF,1298
 Dip : 0 EWT Data : EWT0012.CWF,1105
 Swell : 0 MW Data : MW0012.CWF,10544
 Inrush current : 0 WAL Data : WAL0012.CWF,864
 File ID : CW500 Serial No. : 08188119
 Version : a.00,700 Bluetooth address : 98_03_98_40_F0_3C

3. Click **Data Analysis**.

The voltage and current waveforms and event identification graph are displayed.

By clicking Import data or Data download, you can move to a window for saving data from an SD memory card connected to the PC or from the CW500 to the PC. For the save procedure, see “Saving Recorded Data to a PC.”



The operating procedures for the toolbar and graph display not explained here are the same as those for time series analysis. See chapter 4, “Analyzing Data (Power).”

Note

By moving the mouse pointer over a window boundary or a table row or column boundary and dragging when the pointer changes to an arrow, you can change the size of the window, row, or column.

Graph Display

Rms voltage, rms current, and event type are displayed on a time series graph

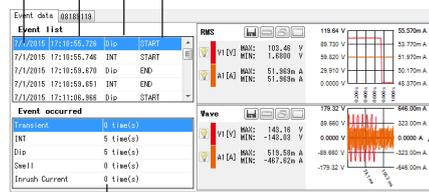
Detailed Event Data

The number of event occurrences and list of occurred events are displayed. Use the tabs to switch between event list and measured data list. For details on the measured data list display, see chapter 4, “Analyzing Data (Power).”

Date of event occurrence

Time of event occurrence

Type of occurred events
Start and end of events



Rms value display after the occurrence of the selected event

Waveform display after the occurrence of the selected event

Number of occurred events

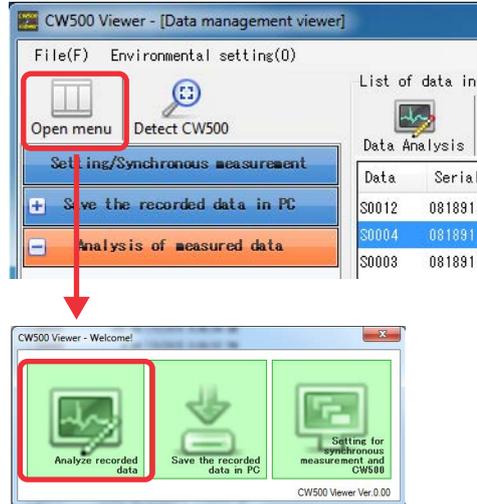
If you select an event from the event list, the rms values and waveform from the selected event are displayed.

7 Outputting Voltage Quality Reports

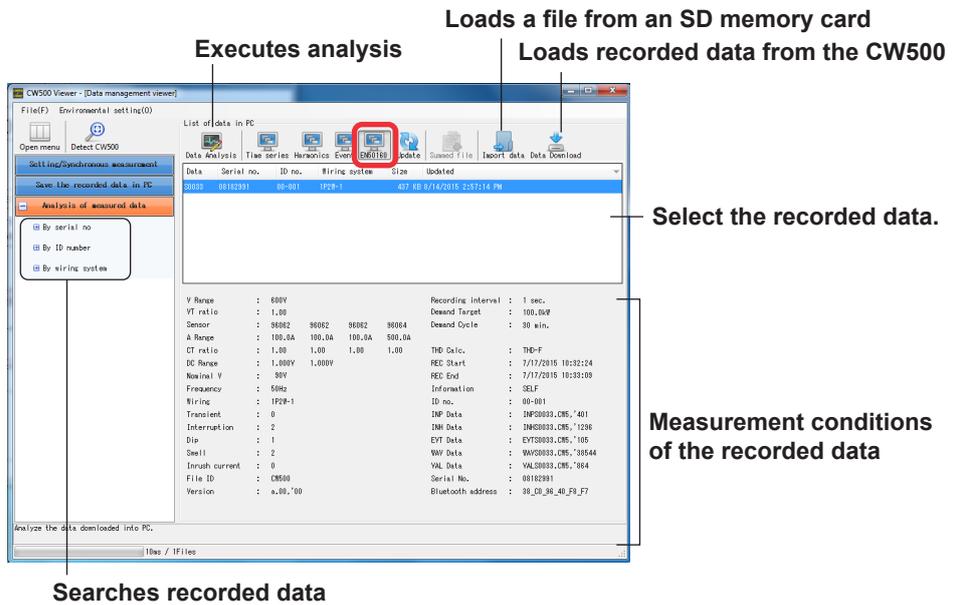
Selecting the Recorded Data to Output

1 On CW500Viewer, click **Open menu**.

On the menu, click **Analyze recorded data**.
A recorded data analysis window appears.



2. Click the recorded data to output in a report, and click **EN50160**.



3. Click **Data Analysis**.

The first time you select the recorded data to output in a voltage quality report, a Report parameter setting window appears.

If you selected recorded data that was output in a voltage quality report in the past, proceed to step 6.

Select all

Includes measured values during event occurrence

Unselect all

The screenshot shows the 'Report parameter' dialog box with the following details:

- Buttons:** Select all, Deselect, Switches the settings, Import, Export, Initial value, OK, Cancel.
- Test site:** YOKOGAWA Technical Center
- Operator:** Yokogawa
- Note:** Test 1
- Testing duration:** 7/3/2015 3:14:00 ~ 7/3/2015 3:17:06 (0day(s)0Hour(s)3Min.6Sec.)
- Test Categories and Parameters:**

Category	Criteria	Required period (%)	Required range (variation %)
1. Frequency test	Criteria of judgement1	95 %	-1 % ~ 1 %
	Criteria of judgement2	100 %	-6 % ~ 4 %
2. Supply voltage variation test	Criteria of judgement1	95 %	-10 % ~ 10 %
	Criteria of judgement2	100 %	-15 % ~ 10 %
3. Flicker test	Criteria of judgement	95 %	0.00 ~ 1.00 (P1)
4. Voltage unbalance test	Criteria of judgement	95 %	0 % ~ 2 % (imbalance ratio %)
5. Harmonics test	Criteria of judgement1	95 %	0 % ~ 8 % (distortion %)
	Criteria of judgement2	95 %	0 % ~ 8 % (distortion %)

Switches the settings

Initializes parameter settings

Exports parameter settings

Imports parameter settings

Select the parameters that you want to output in reports

4. Set the report parameters.

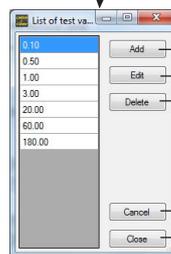
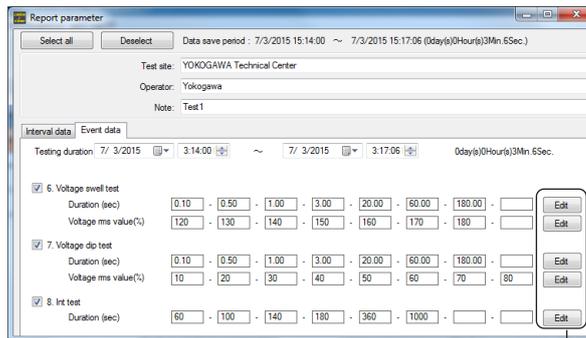
Check the test site, operator, note, and output items, and set the parameters.

During the period in which swell, dip, or interruption events are occurring, the reliability of other measured values (e.g., frequency) may be lost. Clearing the including the event duration period check box excludes measured values during the period in which events are occurring, which enables highly reliable statistical results to be obtained.

7 Outputting Voltage Quality Reports

Setting Event Data

To set event data, click the **Event data** tab, and click **Edit** of the item to set.



— Adds an event (when there is blank space)

— Edit the selected event.

— Deletes the selected event

— Discards the settings and closes the window

— Applies the settings and closes the window

5. Click **OK**. An EN50160 Report window appears.

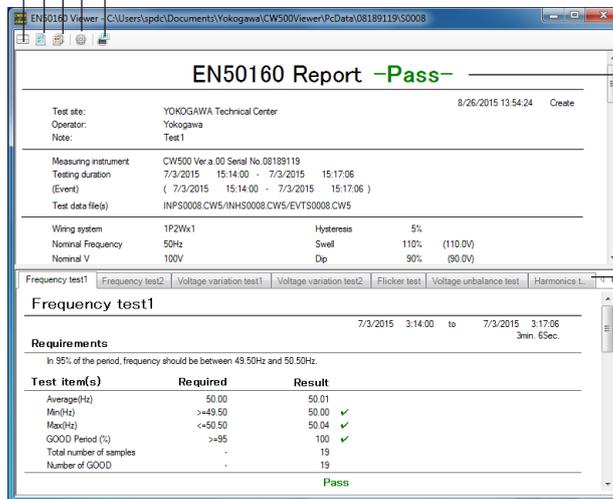
Displays the summary and details of the test results

Displays only the summary of the test results

Displays only the details of the test results

Change the report parameters.

Report output



— Test results

Pass

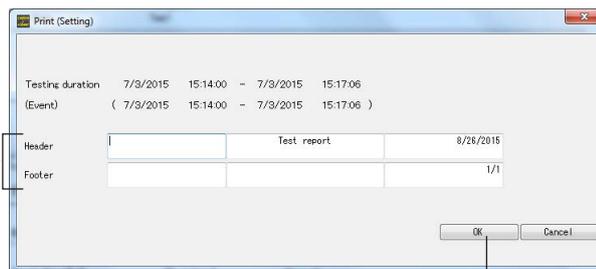
Fail

— Test result summary

— Switches the displayed test item

— Test result details

6. To print the report or save it as PDF data, click the **Report output** icon. A print window appears.



— Set the header and footer.

— Displays a print preview

- Set the header or footer, and click **OK**.

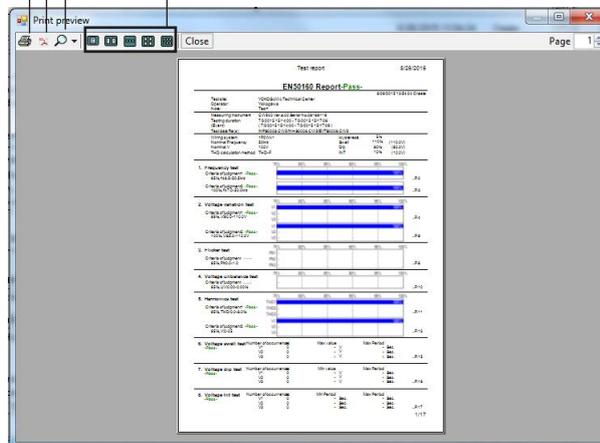
A print preview appears.

Shows the print window

Saves as PDF data

Zooms the preview

Changes the preview format



- Click the print icon or PDF output icon. A window for setting print conditions or PDF output conditions appears.
- Set the conditions, and click **Print** or **PDF output**. The report is printed or output to a PDF file.

EN50160 Report Output Conditions

Setting	Value
Record items	Power + harmonics + events
Record method	Manual or continuous measurement

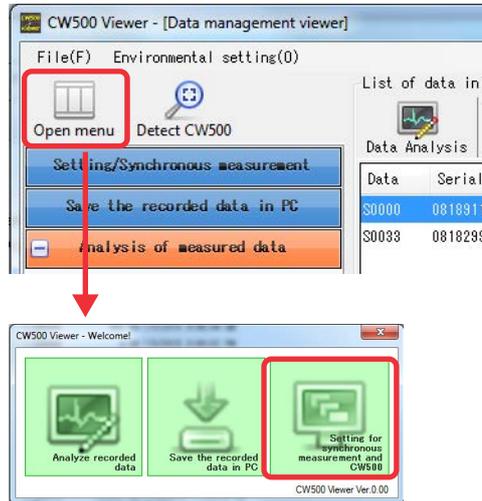
Recording Interval and Test Items That Can Be Output

Test item	Recording interval	
	10 s or less	15 s or more
Frequency test	Yes	No
Voltage variation test	Yes	No
Flicker test	Yes	No
Voltage unbalance test	Yes	No
Harmonics test	Yes	Yes
Voltage swell test	Yes	Yes
Voltage dip test	Yes	Yes
Voltage interruption text	Yes	Yes

8 Configuring the CW500 from a PC

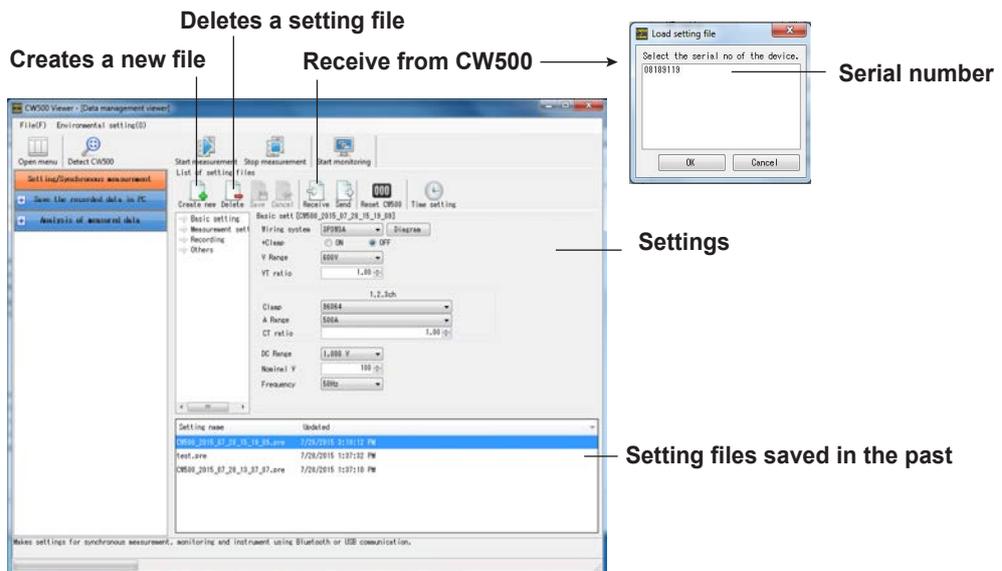
Displaying the Setting Window

- 1 On CW500Viewer, click **Open menu**.
On the menu, click **Setting for synchronous measurement and CW500**.
The CW500 setting data creation window appears.



Creating Setting Data

2. To create new setting data, click the **Create new** icon.
To load setting data from the CW500 that the PC is connected to, click the **Receive** icon. A window for selecting the target CW500 will appear. Select the appropriate CW500 serial number, and click **OK**.
To change or use setting data that you created in the past, click a file shown in the setting data list.



3. Specify the settings.

Select the Basic setting, Measurement setting, Recording, and Others categories, and specify the settings in each category.

For details on the settings, see the CW500 manual in the accompanying CD.

Once you start changing the settings, only the Save and Cancel icons will be available.



Select the setting category.

4. When you finish specifying the settings, click the **Save icon.**

A file name setup window appears.



5. Set the file name.

The default file name is CW500_year_month_day_hour_minute_second.pre.

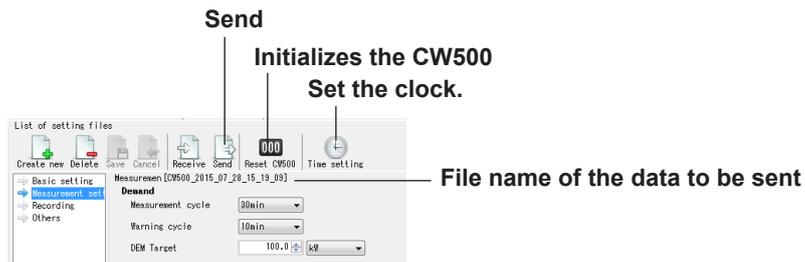
Click **OK** to save the file.

Deleting Files

6. From the setup file list, select the file you want to delete, and click the **Delete icon.**

The selected file is deleted.

Configuring the CW500



7. Click **Send**.

A CW500 selection window appears.



8. Select the appropriate CW500 serial number, and click **OK**.

The setting data is sent to the CW500 and applied.

9. Click the **Time setting** icon.

A CW500 selection window appears. Like step 8, select the target CW500. The PC time settings are applied to the CW500.

Initializing the CW500

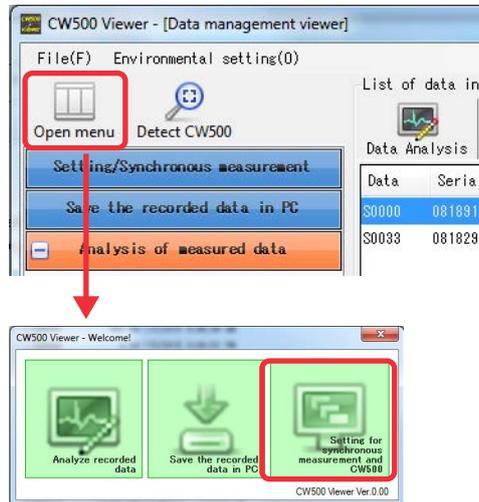
10. Click the **Reset CW500** icon.

A CW500 selection window appears. Like step 8, select the target CW500. The CW500 settings are initialized.

9 Starting and Stopping CW500 Measurement from the PC

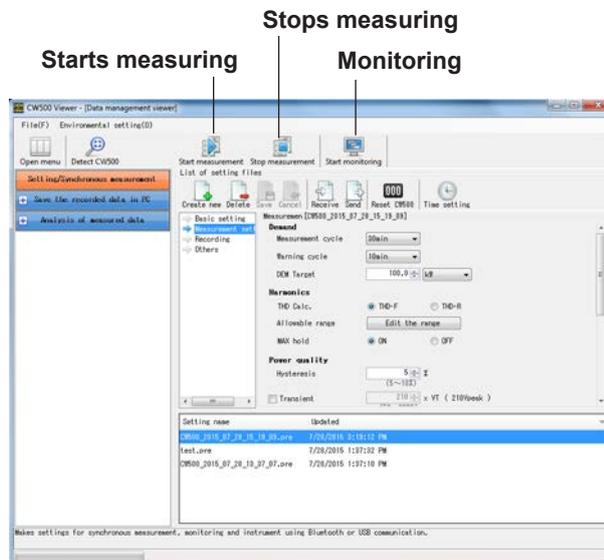
Displaying the Setting Window

- 1 On CW500Viewer, click **Open menu**.
On the menu, click **Setting for synchronous measurement and CW500**.
The screen for controlling the CW500 appears.



Starting to Record

2. Click the **Start measurement** icon.
A CW500 selection window appears.



9 Starting and Stopping CW500 Measurement from the PC

3. Select the serial number of the CW500 that you want to start measurement on, and click **OK**.



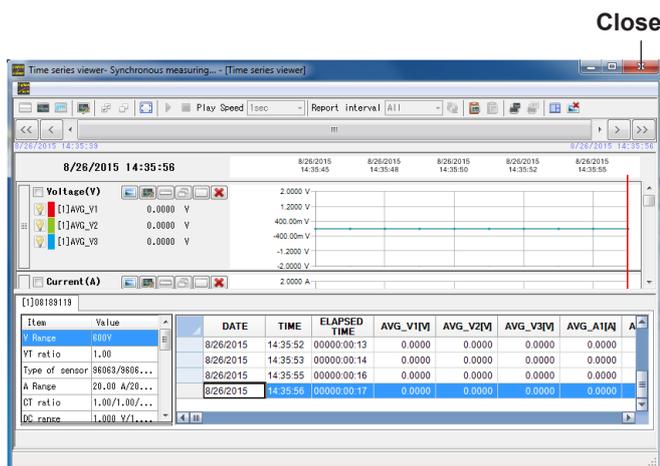
The Time series viewer appears, and data is displayed in real time. Depending on the PC performance or usage conditions, updating of graphs and lists may be delayed.

The contents shown in the window are the same as those for analysis (power). See chapter 4, “Analyzing Recorded Data (Power).”

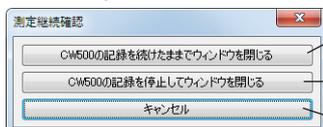
Synchronized Operation

If several CW500 are connected to the PC, you can select two CW500s and start measurement simultaneously.

4. To close the window, click the close button in the upper right of the window. A window for selecting how to close will appear.



5. Click Continue recording on CW500 and close the window or Stop recording on CW500 and close the window. The window closes. Clicking Cancel will return you to the original measurement window.



Closes the window while continuing to record

Stops recording and closes the window

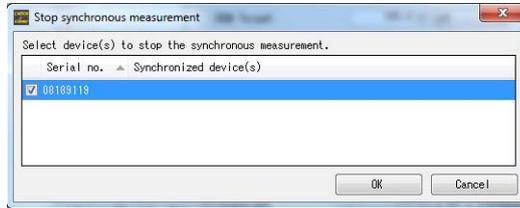
Returns to the measurement window

Stopping the Recording

This is possible when the CW500 that the PC is connected to is recording.

6. Click the **Stop measurement** icon.

A CW500 selection window appears.



7. Select the serial number of the CW500 that you want to stop measurement on, and click **OK**.

If synchronous operation is in progress, the serial number of the other CW500 will also appear. If you also want to stop measurement on the other CW500, select its serial number check box.

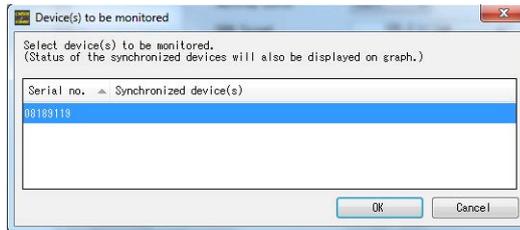
Monitoring

This is possible when the CW500 that the PC is connected to is recording.

8. Click the **Start monitoring** icon.

A window for selecting the CW500 to be monitored appears.

Select the appropriate CW500 serial number, and click **OK**.



If synchronous operation is in progress, the serial number of the other CW500 will also appear.

The Time series viewer appears, and data is displayed in real time. Depending on the PC performance or usage conditions, updating of graphs and lists may be delayed.

To close the window, follow the instructions of steps 4 and 5.

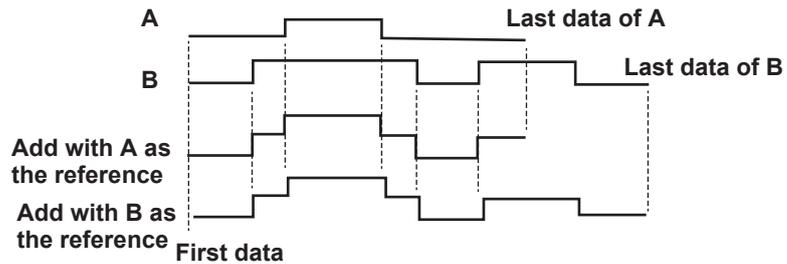
10 Other Features

Adding Recorded Data Together

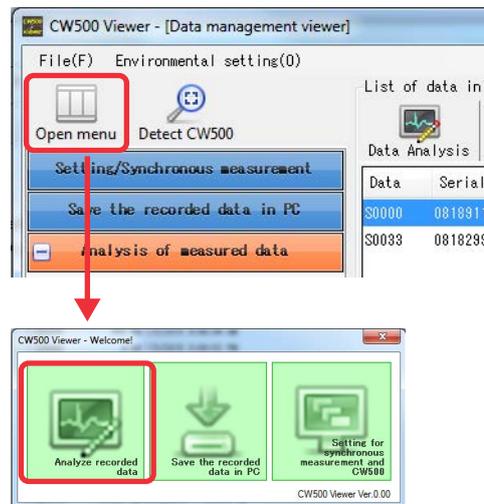
Two sets of recorded data can be added together. Recorded data whose recording interval is different cannot be added together.

The time axis of the data displayed as “1” when you select the recorded data to be added together becomes the reference, and the two data sets are added together from the first data point.

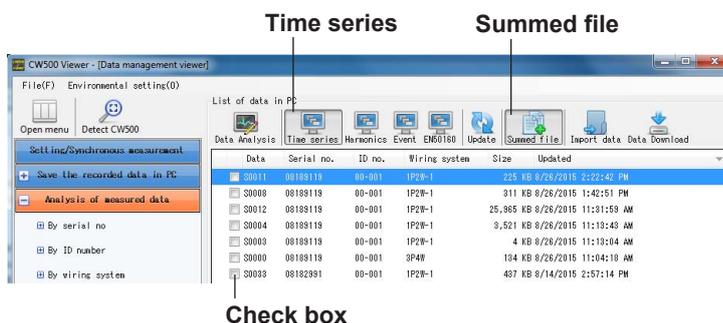
If the number of data points is different between the two sets of recorded data, data is added for the number of data points in the reference recorded data.



- 1 On CW500Viewer, click **Open menu**.
On the menu, click **Analyze recorded data**.
The CW500 setting data creation window appears.

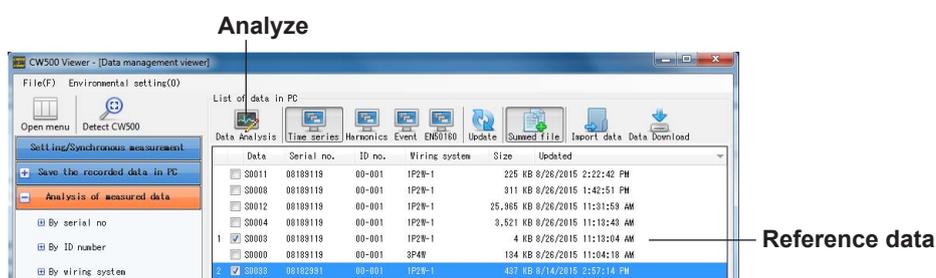


- Click the **Time series** icon and then the **Summed file** icon.
Check boxes appear in the recorded data list.



Check box

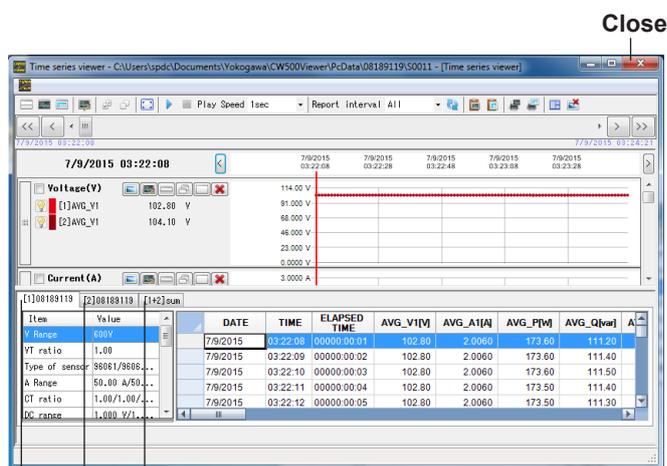
- Select the check box of the recorded data to be used as the reference. The number "1" appears next to the check box.
- Select the check box of the recorded data to be added. The number "2" appears next to the check box.



Reference data

- Click **Data Analysis**.

A data list of the summed data appears together with the time series analysis graph.



Close

Summed data tab
Original data to sum (2) tab
Reference data (1) tab

6. Click the close button in the upper right of the window.
A confirmation window for selecting whether to save the summed data appears.
7. To save it, click **Yes**.
A window for setting the file name appears. The default file name is year (4 digits)_month (2 digits)_day (2 digits)_hour (2 digits)_minute (2 digits)_second (2 digits).
8. Enter the file name, and click **OK**.
Two sets of summed data using each of the original sets of data as references are saved. The file name is “the specified file name+the reference data file name.”
The summed data is used for time series analysis.

Data	Serial no.	ID no.	Wiring system	Size	Updated
8_26_2015_2_46_07 PH-S0011	08189119	00-001	1P2W-1	54 KB	8/26/2015 2:46:19 PM
8_26_2015_2_46_07 PH-S0009	08189119	00-001	1P2W-1	74 KB	8/26/2015 2:46:19 PM
S0011	08189119	00-001	1P2W-1	225 KB	8/26/2015 2:22:42 PM
S0008	08189119	00-001	1P2W-1	311 KB	8/26/2015 1:42:51 PM
S0012	08189119	00-001	1P2W-1	25,985 KB	8/26/2015 11:31:5...
S0004	08189119	00-001	1P2W-1	3,521 KB	8/26/2015 11:19:4...
S0003	08189119	00-001	1P2W-1	4 KB	8/26/2015 11:19:4...

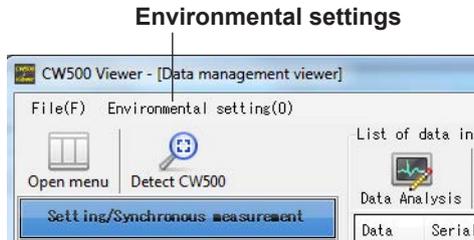
Summed data of S0003 and S0011

11 Environmental Settings

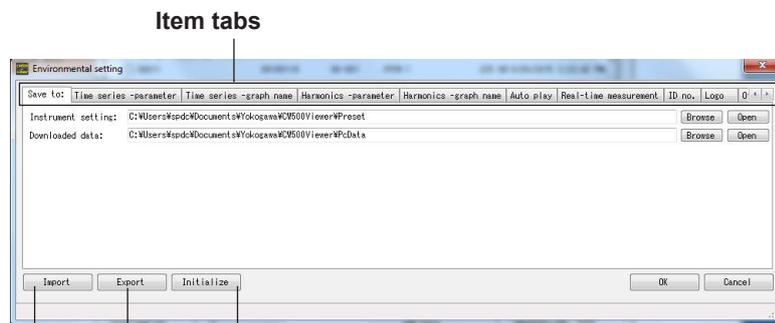
Displaying the Environmental Setting Window

You can change the environmental settings of CW500Viewer.

1. On the menu bar, click **Environmental setting**.



The Environmental setting window appears.

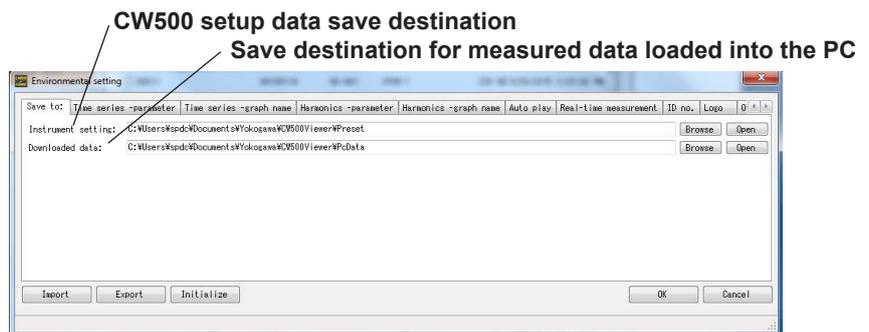


- Initializes settings
- Saves environmental settings
- Loads previously created environmental settings

If all the tabs are not displayed, click the left and right arrows in the upper right to display the tab you want to use.

Setting the Save Destination

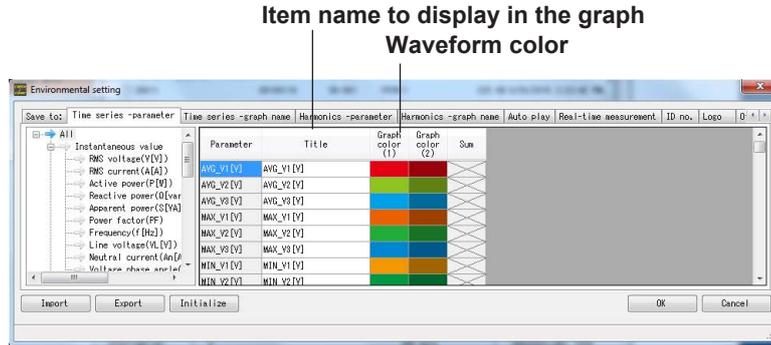
2. Click the **Save to** tab.



3. Click **Browse**, and set the data save destination.

Configuring the Graph Display

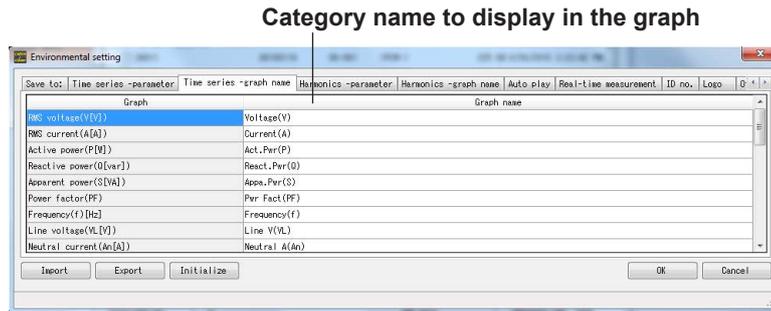
2. Click the **Time series -parameter** tab.



3. Double-click the **Title** column. The pointer changes into a text pointer, and you can enter text.
4. Double-click the **Graph color** column. A color setting window appears. Set the graph color.

Setting the Measurement Category Name

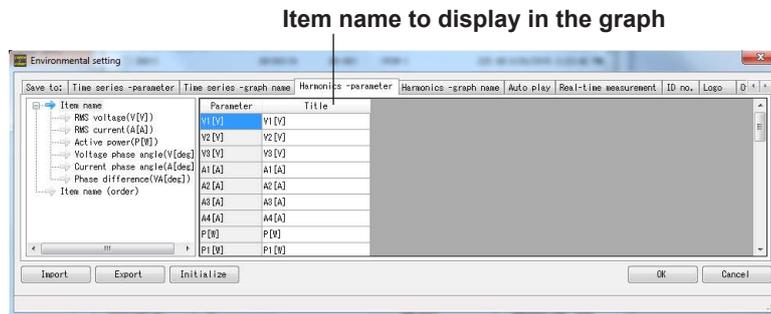
2. Click the **Time series -graph name** tab.



3. Double-click the **Graph name** column. The pointer changes into a text pointer, and you can enter text.

Setting the Harmonic Analysis Parameter Names

2. Click the **Harmonics -parameter** tab.

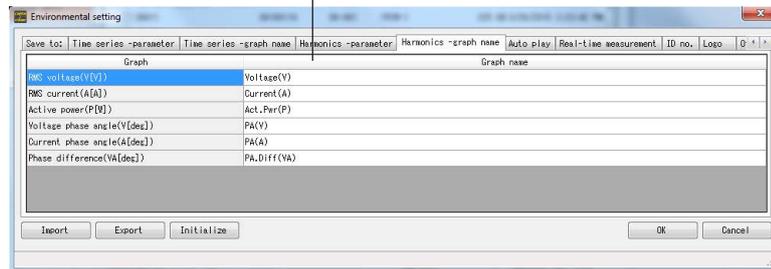


3. Double-click the **Title** column. The pointer changes into a text pointer, and you can enter text.

Setting the Harmonic Analysis Category Names

- Click the **Harmonics -graph name** tab.

Category name to display in the graph



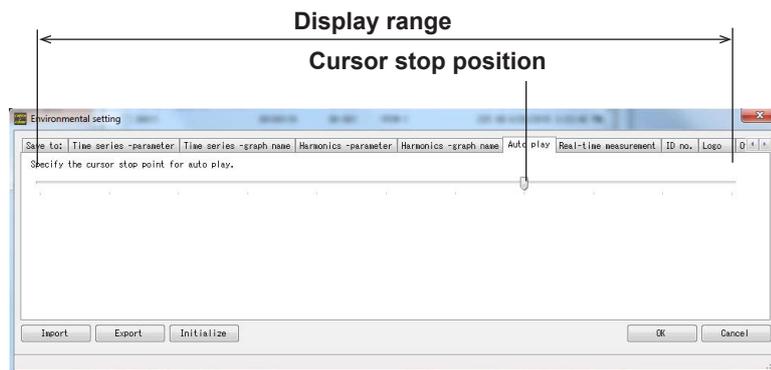
- Double-click the **Graph name** column. The pointer changes into a text pointer, and you can enter text.

Setting the Cursor Stop Positions

If a set of data that does not fit in the time axis of the displayed graph is displayed and the cursor is automatically moved (auto play), the cursor stops at the specified position, and the graph is scrolled one data point at a time so that you can read all the data with the cursor.

Here, specify the approximate position where the cursor will be stopped.

- Click the **Auto play** tab.

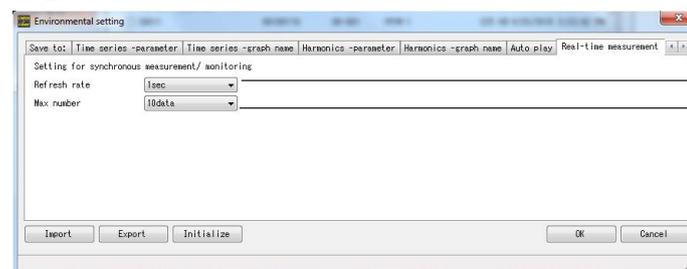


- Click the left or right side of the knob indicating the stop position. The knob moves between the 10 equally divided positions in the display range.

Setting the Display Refresh Rate and Number of Data Points

Set the display refresh rate and the maximum number of displayed data points to use when displaying or monitoring measured data in real time.

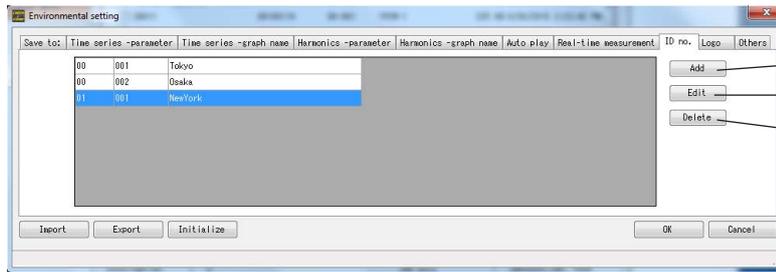
- Click the **Real-time measurement** tab.



Data update interval
Maximum number of data points to display in a single graph

Setting ID Numbers

2. Click the ID no. tab.



Adds an ID number
 Edit an ID number.
 Deletes an ID number

3. Click **Add or edit**. An ID number registration window appears.

Enter an ID number and its description. When editing, you cannot change the ID number.



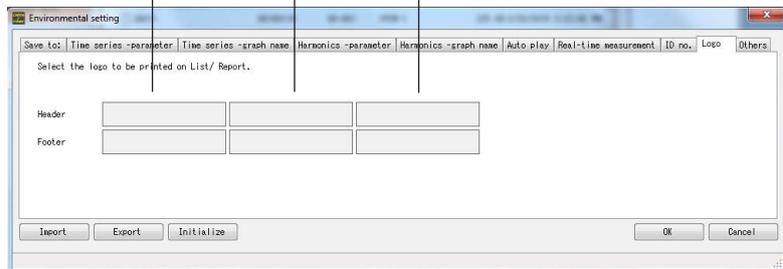
Note

If data with the same ID number exists in the recorded data list, an explanation of the ID number will be displayed next to the ID number of the recorded data search in the window's left frame.

Setting the Image Data to Be Displayed in the Header and Footer

2. Click the Logo tab.

Center of the header and footer
 Left side of the header and footer
 Right side of the header and footer

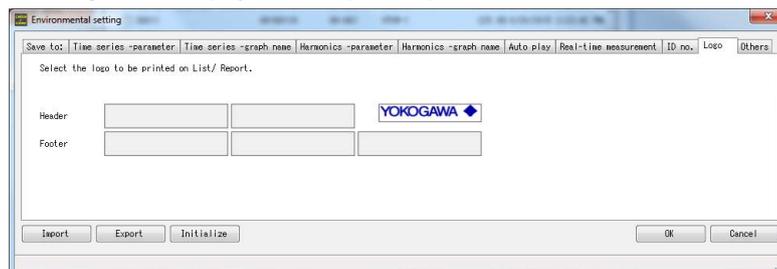


3. Click the area you want the image data to be displayed. A file selection window appears.

4. Select the image data.

Image data that can be added to the header and footer is bitmap data (.bmp extension).

The image will be displayed in the specified position.

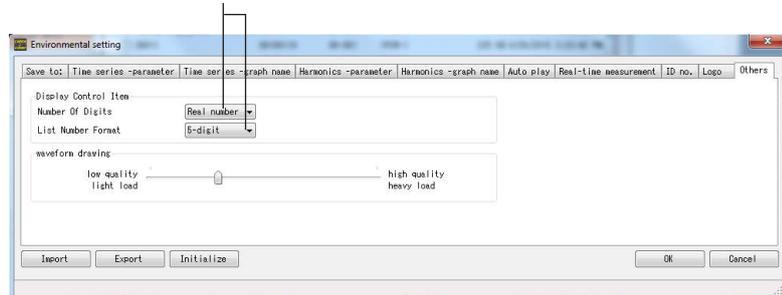


Other Settings

Set the number display format and the number of digits in the list display and the graph display resolution.

2. Click the Others tab.

List of options



3. Click the **Number Of Digits** list, and select real number or exponential number.
4. If you selected real number in step 3, click the **List Number Format** list, and set the number of digits excluding the sign and decimal to 4, 5, or 6.
5. Use the waveform drawing nob to set the waveform display resolution of detailed event data.

12 Troubleshooting

*** Unable to communicate with the CW500 using CW500Viewer over a USB connection**

If communication such as synchronous measurement, downloading, and CW500 configuration cannot be performed over a USB connection, click Detect CW500. Then, remove the USB cable from the PC once, and reconnect it.

Next, click Detect CW500.

Check that the serial number of the connected CW500 appears below Save the recorded data in PC.

*** File Download Time**

The larger the file size, the longer the download time.

If the file size is large, use an SD memory card reader or the like to load data into the PC.

USB data rate: Approx. 27 s to transfer 3 MB internal memory

Bluetooth data rate: Approx. 10.5 min to transfer 3 MB internal memory

*** In synchronous or monitoring measurement, the graph and list data updating cannot keep up.**

Depending on your PC, updating may not occur at the specified refresh rate.

If the list display shows "----," display updating may be falling behind.

Increase the data updating interval of real-time recording in the environmental settings.

*** Unable to connect to the PC using Bluetooth**

- Enable the CW500 Bluetooth function.
- From Devices and Printers on the PC, select the CW500 you want to pair with.
- Start CW500Viewer after Bluetooth pairing is complete.