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HIOKI

INSTRUCTION MANUAL

9624-10

PQA-HiVIEW PRO

HIOKI E. E. CORPORATION

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Introduction

Thank you for purchasing the HIOKI "9624-10 PQA-HiVIEW PRO".
To obtain maximum performance from the product, please read this manual first, and keep it handy for future reference.

Trademarks
- Pentium is a registered trademark of Intel Corporation.
- Windows is a registered trademark of Microsoft Corporation.

Confirming package contents

When you receive the product, inspect it carefully to ensure that no damage occurred during shipping. If damage is evident, or if it fails to operate according to the specifications, contact your dealer or Hioki representative.

- Instruction Manual
- License key: 1
  (For USB or parallel port - to be specified when placing an order.)
- Tag: 1 (For USB port license key)

NOTE

Attach the tag to the license key to indicate that the key is for the 9624-10 PQA-HiVIEW PRO.

Symbols

The following symbols in this manual indicate the relative importance of cautions and warnings.

⚠CAUTION	Indicates that incorrect operation presents a possibility of injury to the user or damage to the product.
NOTE	Advisory items related to performance or correct operation of the product.

❖	Indicates references.
(ex) **File** - **Open**	Indicates a screen display sequence.

Conventions

This manual uses the following conventions:

Click	Move the mouse pointer to the desired icon, button, folder, or other item. Press and release the left mouse button once.
Double-click	Quickly press and release the left mouse button twice.
Right-click	Press and release the right mouse button.
Active	When you select an item by clicking on the left mouse button in it, that item becomes “active”.

Notes on Use

In order to ensure safe operation and to obtain maximum performance from the unit, observe the cautions listed below.

⚠CAUTION

- Always hold the disc by the edges, so as not to make fingerprints on the disc or scratch the printing.
- Never touch the recorded side of the disc. Do not place the disc directly on anything hard.
- Do not wet the disc with volatile alcohol or water, as there is a possibility of the label printing disappearing.
- To write on the disc label surface, use a spirit-based felt pen. Do not use a ball-point pen or hard-tipped pen, because there is a danger of scratching the surface and corrupting the data. Do not use adhesive labels.
- Do not expose the disc directly to the sun's rays, or keep it in conditions of high temperature or humidity, as there is a danger of warping, with consequent loss of data.
- To remove dirt, dust, or fingerprints from the disc, wipe with a dry cloth, or use a CD cleaner. Always wipe radially from the inside to the outside, and do no wipe with circular movements. Never use abrasives or solvent cleaners.
- Hioki shall not be held liable for any problems with a computer system that arises from the use of this CD-R, or for any problem related to the purchase of a Hioki product.

NOTE

In the interests of ongoing product developments, there may be minor discrepancies between screen displays and the operating instructions, and in the data conversion process.

Chapter 1 Overview

1.1 Product Overview

The Model 9624 PQA-HiVIEW PRO computer software application is a program for analyzing binary codes stored on a PC Card by the Model 3196 POWER QUALITY ANALYZER.
The program provides the following features.
Functions (1) to (5) below are the same as those of the 9624 PQA-HiVIEW.

(1) Viewer Function
The software duplicates the various display screens of the 3196, including the TIME PLOT screens (RMS fluctuation, voltage fluctuation, harmonics fluctuation, and interharmonics fluctuation); the Delta V10 flicker screen, the IEC flicker screen; the Event voltage fluctuation screen; the Event list screen; the Event data screens (waveforms, vector, DMM, harmonics and event details); and the Settings screen.
❖ 3.3, "Windows" (Page 28)

(2) Demand and Integrated Power Calculation Functions
Demand and integrated power calculations can be performed from the active power TIME PLOT data.
❖ Chapter 11, "Integrated and Demand Power Analysis" (Page 75)

(3) Within-Interval Calculation Function
On the TIME PLOT, Flicker, Event voltage fluctuation, Integrated power, and Event waveform windows, calculations can be performed within the interval specified by the A and B cursors.
❖ 4.5, "Cursor Measurements" (Page 42)
❖ 8.10, "Cursor Measurements" (Page 67)

(4) Binary-to-CSV Format Conversion Function
The binary data for a specified period on the TIME PLOT window, Flicker window, Event voltage fluctuation window, Demand window, Integrated power window can be converted to CSV format.
The event waveform data and calculation data for a selected event on the Event waveform window and Demand window can be converted to CSV format.
The resulting CSV format file can be used with spreadsheet programs on the computer.
❖ Chapter 13, "CSV Format Conversion Function" (Page 89)

(5) Printing Function

Any window can be printed as a report on the computer's printer.

❖ Chapter 14, "Print Function" (Page 93)

(6) EN50160 Data Viewer Function

The 9624-10 displays data measured in EN50160 mode of the 3196.

❖ Chapter 12, "EN50160 Data Analysis" (Page 79)

(7) ITIC (CBEMA) Curve Display Function

The 9624-10 conducts analysis of abnormal voltage RMS (e.g., voltage swell, voltage dip, interruption) using the ITIC curve.
The ITIC curve used for evaluation is based on a tolerance range of abnormal voltages commonly used in the U.S.
You can evaluate by the user defined curve which can be set arbitrary.

❖ Chapter 5, "ITIC Window" (Page 47)

(8) Report Output Function

The 9624-10 creates a report on measurement data according to TIME PLOT window, worst case, max/min list, EN50160 windows, and all-event detail list or setting list. Reports can be also printed or saved as a Rich Text format file.
Rich Text format files can be opened and edited in word processing software on a PC.

❖ Chapter 15, "Report Wizard" (Page 97)

(9) Download via LAN

The 9624-10 can download a data file from internal memory of the 3196 POWER QUALITY ANALYZER or from the PC card inserted in the 3196 via LAN connection with the 3196.

❖ Chapter 16, "Download via LAN" (Page 107)

NOTE

- The 9624-10 software can only read binary data recorded with the 3196.
- Text and CSV data cannot be read.

1.2 Specifications

General Specifications

Supported Model	3196 POWER QUALITY ANALYZER
Supplied Media	One CD-R disc
Accessories	• Instruction Manual • License key: 1 (For USB or parallel port - to be specified when placing an order.) • Tag: 1 (For USB port license key)

Functional Specifications

(1) Data Reading Functions

Reading Data	Binary data recorded by the 3196 • SET files ..... Setting data • ITV files ..... TIME PLOT data • EVT files ..... Event data (lists, voltage/current waveforms, transient waveforms, numerical values) • FLC files ..... Flicker data (Delta V10, IEC) • TRN files..... Transient over voltage waveform data • WDU files ..... Event voltage fluctuation data • EN50160.EN files ..... EN50160 data • EVENT.EN files ..... EN50160 event data
Reading Method	Reads the above file types in folder units
Maximum Data Capacity	528 MB

(2) Data Display Functions

SYSTEM Display Function

Screen Display	SYSTEM (Settings) content display

TIME PLOT Display Function

Screen Display	RMS fluctuation, Voltage fluctuation, Harmonics fluctuation, Interharmonics fluctuation
Number of Display Screens	Up to four
Cursor Function	A and B cursors (specify an interval for calculations)
Event Marker Function	Uses the marker to indicate where an event has occurred (selectable using the cursor key).

EVENT List Display Function

Screen Display	EVENT list content display
Display Method Selection	Chronological or priority order
WDU Display Function	Displays "WDU" for a selected event with event voltage fluctuation data.

EVENT Data Display Function

Display Function	Displays the event data selected on the Event list display screen (Synchronized switch-over) Displays the event marker data selected on the TIME PLOT display screen (Synchronized switch-over)
Screen Displays	One of the following six screen displays 1. Event details displays Detailed event data is displayed. 2. Waveform displays Voltage/current waveforms, 4-channel voltage waveforms, 4-channel current waveforms, Voltage/transient waveforms 3. Vector displays RMS or Harmonic Phase Angle display 4. DMM displays Power, Voltage or Current display 5. HARMONICS BAR GRAPH displays RMS or Phase Angle display 6. HARMONICS LIST display RMS or Phase Angle display
Cursor Function	A and B cursors on the waveform display window (specify an interval for calculations)
Zero/Positive/Negative Phase Calculation Function	Simultaneously displays the voltage and current of zero/positive/negative phase sequence components in the vector window when analyzing 3P4W line data.

Flicker Graph Display Function

Display Function	Displays the Delta V10 flicker graph or IEC flicker graph (The graph to be displayed depends on the data saved.)
Cursor Function	A and B cursors (specify an interval for calculations)

Event Voltage Fluctuation Graph Display Function

Display Function	Displays the WDU event data selected on the Event list window. Displays the WDU event marker data selected on the TIME PLOT window.
Cursor Function	A and B cursors (specify an interval for calculations)
Event Marker Function	Uses the marker to indicate where an event has occurred

(3) Integrated Power Calculation Function

Settings

Analysis Start Time	Year, month, day, hour, minute and second settings
Analysis Period	1 to 31 days

Display Method and Calculation Items

Display Function	Integrated Power Value (consumed value + returned value) [Wh]
Numerical display	Displays the following values within the analysis period Maximum integrated power value (the last integrated power value within an analysis period)
Cursor Function	Normal cursor (displays integrated power value at cursor position) A, B cursors (specify an interval for calculations)

(4) Demand Calculation Function

Setting Items

Analysis Start Time	Year, month, day, hour, minute and second settings
Demand Period	5, 10, 15 or 30 minutes, or 1, 2, 3, 6 or 12 hours (can be set to the measurement interval of the 3196, or longer)
Analysis Period	1 to 31 days

Display Method and Calculation Items

Display Function	Demand graph (consumption values only)
Numerical Display	Displays the following values within the analysis period • AVE Demand value (average demand within the analysis period) • MAX Demand value (peak demand within the analysis period) • Load factor (average demand / maximum demand x 100[%])
Cursor Function	Normal cursor (displays demand value at cursor position)

(5) ITIC Curve Display Function

Display Function	Plots points for the events below on the limit curve. 1. Points to indicate the duration of swell and maximum swell voltage 2. Points to indicate the duration of dip and residual voltage 3. Points to indicate the duration of interruption and residual voltage
Percent of Nominal Voltage	Calculates the proportion of maximum swell voltage or residual voltage to nominal voltage in percentage. [Percent of nominal voltage] = [Peak value]/[UReference] x 100 [UReference]: Nominal voltage [Peak value]: Maximum swell voltage in case of swell or residual voltage in case of dip/interruption
Violation Count Display	Number of upper-limit violations, number of lower-limit violations, and total number of events
Limit Curve Selection	ITIC curve, user-defined curve (e.g., arbitrary curve) ITIC curve values

Upper Limit Curve		Lower Limit Curve	
Horizontal axis [s]	Vertical axis [%]	Horizontal axis [s]	Vertical axis [%]
1m	200	20m	0
3m	140	20m	70
3m	120	500m	70
500m	120	500m	80
500m	110	10	80
1000	110	10	90
		1000	90

(6) EN50160 Data Viewer Function

Screen Displays	EN50160 windows 1 to 4 below are displayed simultaneously. 1. Overview window Corresponds to the EVENT-EN50160-Over View window of the 3196. 2. Harmonic window Corresponds to the EVENT-EN50160-Harmonics window of the 3196. 3. Measurement result classification window Corresponds to the EVENT-EN50160-Events window of the 3196. 4. Signaling details window Corresponds to the EVENT-EN50160-Signaling window of the 3196.
Screen switching	Note that you must switch the normal display mode into the EN50160 display mode by pressing the EN button once.

(7) Copy Function

Copy contents	Save various windows as BMP files

(8) Print Function

Printing Format	Screen Image printing
Printing paper sizes	A4 and Letter
Print Preview	Provided
Simultaneous printing	Logo/Model, time (with selectable text to print)
Marker simultaneous printing	MAX/MIN/AVE, channel, order (with printing turned ON/OFF)

(9) CSV Format Conversion Function

Convertible Screens	TIME PLOT window, Event waveform window, Flicker graph window, Event voltage fluctuation window, Demand window, Integrated power value window
Specifiable Conversions	1. Range specified with A and B cursors (TIME PLOT window, Flicker graph window, Event voltage fluctuation window, Integrated power value window) 2. Full range (Event waveform window, Demand window)
Conversion Items	The conversion items and channels can be selected.

(10)Select Text Function

Text Selectable Windows	DMM window, Harmonics list window
Copying	Saves data in the selected range as tab-delimited text.

(11)Download via LAN

Communications Method	HTTP
Connection Method	LAN connection using Ethernet

(12)Report Creation Function

Output Format	Prints out a report containing information set with the report wizard or saves it in a Rich Text format file.
Output Items	TIME PLOT window, worst case, transient waveform, max/min list, EN50160 data, all-event detail list, and setting list
Report Creation Method	1. Output of Fixed Items (RMS Voltage Fluctuation Graph in TIME PLOT window, worst case, max/min list, total harmonic voltage distortion graph in TIME PLOT window, EN50160 Overview data, EN50160 Signaling data, and all-event detail list) 2. Output of Arbitrary Items (Current waveform of RMS fluctuation in TIME PLOT window, transient waveform, total harmonic current distortion graph in TIME PLOT window, EN50160 Harmonic data, EN50160 measurement result classification data, and setting data, in addition to items in 1. above) 3. Output of Detail Items (Voltage fluctuation, RMS fluctuation, harmonics fluctuation, and interharmonics fluctuation in TIME PLOT window)

(13)Setting Save Function

Files to Save	User-defined curve file, setting file for sorting measurement results, setting file for report wizard, and integrated file (combining the three files above)

1.3 Calculation Formulas

Integrated Power WH [Wh]

$$WH = \frac{\sum_{n=1}^{N} (Psum)}{k}$$

N: integrated sample count
n: sample count

- k = constant for per-hour conversion
  for intervals of 1, 3, 15 and 30 seconds; 1, 5, 10, 15 and 30 minutes; and 1 or 2 hours, k is 3600, 1200, 240, 120, 60, 12, 6, 4, 2, 1 and 0.5, respectively
- Psum = the average value during each interval
- This integrated power value includes both consumed power (+ values) and returned power (- values).

Demand Power [W]

$$Dem = \frac{\sum_{d=1}^{D} (Psum+)}{D}$$

D: count of average values of each interval within the demand period
d: count of samples

- Psum+ = the average value of each interval calculated by adding consumed power (+ values) as is, and 0 for returned power (- values).

Positive, Negative, and Zero Phase Calculation

$$\text{Component} = \frac{1}{3}\sqrt{\begin{matrix}(V1\cdot\cos(\alpha)+V2\cdot\cos(\beta+seq2)+V3\cdot\cos(\gamma+seq3))^2 \\ +(V1\cdot\sin(\alpha)+V2\cdot\sin(\beta+seq2)+V3\cdot\sin(\gamma+seq3))^2\end{matrix}}$$

Zero phase: seq2 = 0°, seq3 = 0°
Positive phase: seq2 = 120°, seq3 = 240°
Negative phase: seq2 = 240°, seq3 = 120°

Voltage component:
V1 = U1, V2 = U2, V3 = U3,
α = Phase angle of U1, β = Phase angle of U2, γ = Phase angle of U3

Current component:
V1 = I1, V2 = I2, V3 = I3,
α = Phase angle of I1, β = Phase angle of I2, γ = Phase angle of I3

Depth of Event [%] in ITIC Window or Measurement result classification Window

The depth is calculated as the proportion of peak voltage to nominal voltage.
Percent of nominal voltage = Peak value / UReference x 100
Peak value: Peak voltage of the event
UReference: Nominal voltage

Setup Chapter 2

2.1 System Requirements

The computer running the 9624-10 program must satisfy the following requirements.

Operating Environment

Computer Type	PC/AT compatible
Operating System	English version of any of the following operating systems: • Microsoft Windows 98 • Microsoft Windows Me • Microsoft Windows NT 4.0 • Microsoft Windows 2000 • Microsoft Windows XP Internet Explorer 4.0 or later must be installed on one of the operating systems above.
Memory	At least 128 MB
Hard Disk	At least 128 MB free space
Display	XGA (1024 x 768) or higher
Disk System	CD-ROM drive (Used only for installation.)
Printer	Required for report printing on the computer. Either color or monochrome can be used, but the fastest possible printing is recommended.

NOTE

For some models, proper operation cannot be guaranteed even when the above requirements are satisfied.

2.2 Installing and Uninstalling the Software

Important	**The license key is required when using the application. Do not connect the license key (especially the USB port type) to the PC before or during installing this software. Otherwise, you cannot be use Model 9624-10 and have to install it again in the worst case.**

Installation

Follow the procedure below to install the application software.
Installing the application software also installs the driver software of the license key.
Windows XP, Windows 2000, or Windows NT should be installed by your Systems Administrator.

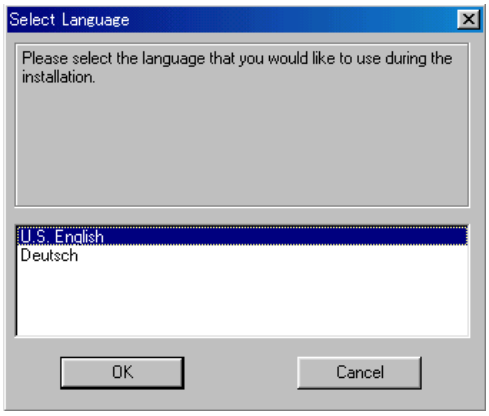
1. Start up the computer.
   Shut down all currently active applications.
2. Insert the 9624-10 CD-R into the CD-ROM drive.
3. Double-click the set up file (setup.exe) on the CD-R.

   Supposing the drive letter for the CD-ROM drive is R (if another letter, substitute before the colon) then in the Windows **Start** menu, select **Run**, and enter **R:\english\setup.exe**, then click OK.
4. The 9624-10 installer start: follow the directions on the screen to complete the installation.

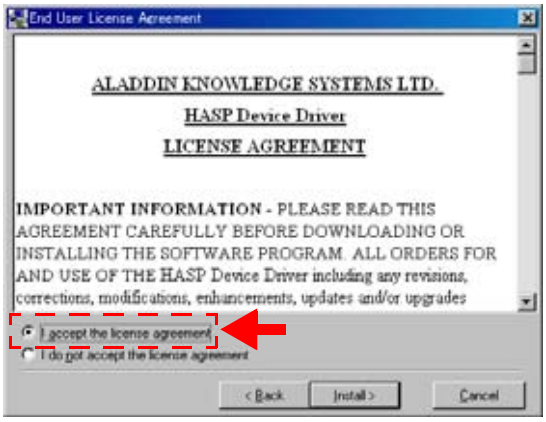
   1. Welcome to the InstallShield Wizard for 9624-10 PQA-HiVIEW PRO
   2. Choose Destination Location (Welcome)
   3. Ready to Install the Program
   4. Set up for the HASP (License Key)
      (1) Select Language [*1]
      (2) HASP Device Driver Installation
      (3) End User License Agreement[*2]
      (4) HASP Device Driver Installation (Finished)
   5. Select Program Folder
   6. InstallShield Wizard Complete
5. The instllation is finished.

NOTE

When installing, if other application are running it may not be possible to complete the installation. As far as possible, close all other applications before beginning the installation. In particular, if any anti-virus software is running, it may prevent the installation, even though it is not a virus. In this case, make the appropriate settings in the anti-virus software to allow the installation to proceed.



*1: In the “Select Language” screen, select the display language for the HASP (License Key) setup screen.
Regardless of selected language (“U.S. English” and “Deutsch”) for the set-up process, Model 9624-10 is always installed in English.



*2: In the [End User License Agreement] window, please select "I Accept the License Agreement" in order to allow the use of the HASP (License Key) Device Driver.

Driver for USB port license key after installation

After the software has been installed, the USB port license key driver will automatically be installed only after the initial connection of the USB license key to a PC. The software and USB license key are ready for use when a red light on the license key is lit.

Uninstallation

Follow the procedure below to uninstall the application software.
Uninstalling the application software also uninstalls the driver software of the license key.

1. In the Windows **Start** menu, select **Settings**, and **Control Panel**.
2. Click the **Add/Remove** Programs icon, to display the Add/Remove Programs Properties dialog box.
3. In the **Install/Uninstall** tab of the dialog box, click on 9624-10 **PQA-HiVIEW** in the list of applications, and click **Add/Remove**.

This runs the uninstaller, which removes the 9624-10 software.

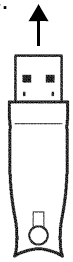
2.3 Launching and Exiting the 9624-10 Program

Launching

1. Connect the license key to the PC.

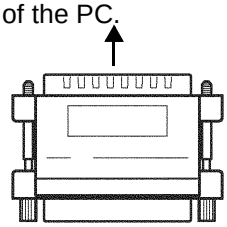
For connecting the license key to the **USB port**

Connect to the USB port of the PC.



For connecting the license key to the **parallel port**

Connect to the parallel port of the PC.

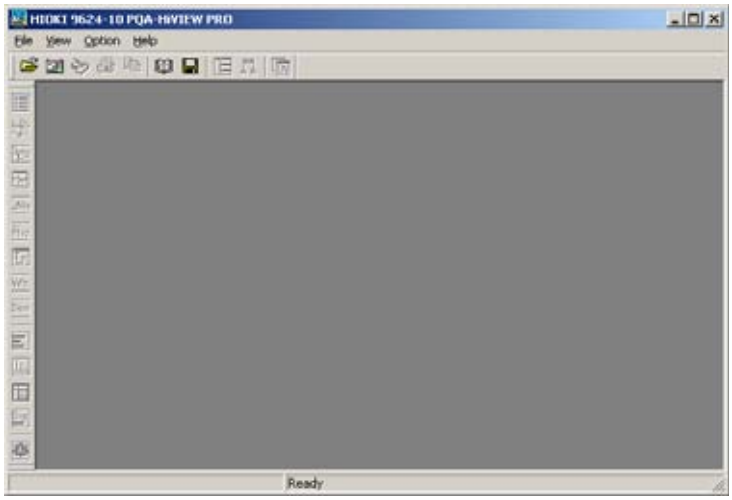


After connection, use the screws to secure the connector.

Be careful of the key direction while connecting it to the port.

2. In Windows, select **Start** - **Programs** - **HIOKI** - **HIOKI** 9624-10 - 9624-10 **PQA-HiVIEW**.

3. The main screen, entitled **HIOKI** 9624-10 **PQA-HiVIEW**, appears.



Exiting

1. Select **File** - **Exit** from the main screen.
2. The program closes.
3. Disconnect the license key from the PC.

2.4 Reading Data

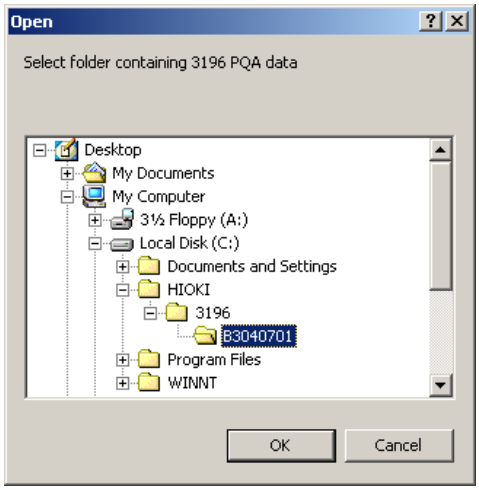
Various windows are displayed on the main screen for reading data recorded on a PC Card with the 3196.

The data to be read is specified by folder.
The following data files within folder can be read:

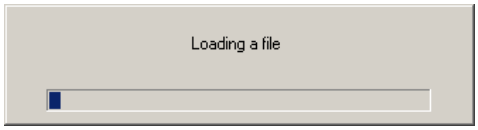
- SET files .....Setting data
- ITV files .....TIME PLOT data
- EVT files .....EVENT data (lists, voltage/current waveforms, transient waveforms and numerical values)
- FLC files .....Flicker data (Delta V10, IEC)
- TRN files.....Transient waveform data
- WDU files .....Event voltage fluctuation data
- EN data files ...EN50160 data
- EN event files .EN50160 event data

1. Click the (Open button), or select **File** - **Open** on the menu bar.
The Open dialog box appears.

2. Select the folder containing the 3196 measurement data to be read.



3. Select **OK** button to read the specified data.



The data selected appears on the screen.
❖ 3.1, "Screens" (Page 21)

For details on operation, see the relevant chapters.

Estimated Reading Time

Reading time: About 1 minute
(reading directly from the flash ATA card to the computer):
The reading time is estimated based on the system configuration below.
(Example)
Computer System Configuration

Computer	400-MHz Pentium II
OS	Microsoft Windows 2000 Professional
Memory	128 MB

3196 Data

Capacity	256 MB
ITV files	TIME PLOT (ALL DATA, MAX/MIN/AVE)
EVT files	1000 items (all transients)

NOTE

- New data can be read after having read data previously, in which case only the new data is displayed.
- Reading a folder containing a large amount of data may take some time. The time required to read the data depends on the computer system.

2.5 Setting Files for 9624-10

Setting Files

The 9624-10 handles four types of files: user-defined curve file, report wizard setting file, measurement result classification setting file, and integrated file (combining the three types of files above).

You can use the setting data stored in a setting file to repeatedly view or create a report of the data.

For reading or saving the setting files, see the relevant chapters.

User-Defined Curve File

Saves the setting data for upper-limit curve and lower-limit curve edited in the curve editor window.

❖ 5.2, "Curve Editor" (Page 50)

Setting File for Sorting Measurement Results

Saves the setting of period/depth divisions of the table edited in the EN50160 measurement result classification window.

❖ Measurement Result Classification Editor(page86)

Report Wizard Setting File

Saves the output items set in the report wizard window.

❖ 15.1, "Report Creation Method" (Page 97)

Integrated File

Saves the data of a user-defined curve file, measurement result classification setting file, and report wizard setting file all in one file.

❖ Integrated File(page19)

The setting files are saved in the folders specified with the extensions below.

Setting File	Extension
User-defined curve file	.UCV
Report wizard setting file	.RTF
measurement result classification setting file	.ESP
Integrated file	.QAP

Saving Destination of Setting Files

Data set on the 9624-10 (e.g., user-defined curve file, report wizard setting file, measurement result classification setting file) and integrated files are saved in a folder specified by selecting **Option - Change of Setting Data Storage Folder** on the menu bar.
The saving destination is set to My Document Folder by default.

Changing the Saving Location

1. Select **Option - Change of Setting Data Storage Folder** on the menu bar.
   The Open dialog box opens.
2. Select the folders in which to save setting files in the dialog box, then click the **OK** button.

Integrated File

Saving Integrated File

Saves all information of the user-defined curve file, measurement result classification setting file, and report wizard setting file together.

1. Press the (Save integrated file) button or select **File - Save Integrated Files** on the menu bar.
   The Save dialog box opens.
2. Enter the file name in the dialog box and save the file.
   The current user-defined curve setting, measurement result classification setting, and report wizard setting of the 9624-10 are saved in the file.

Opening Integrated File

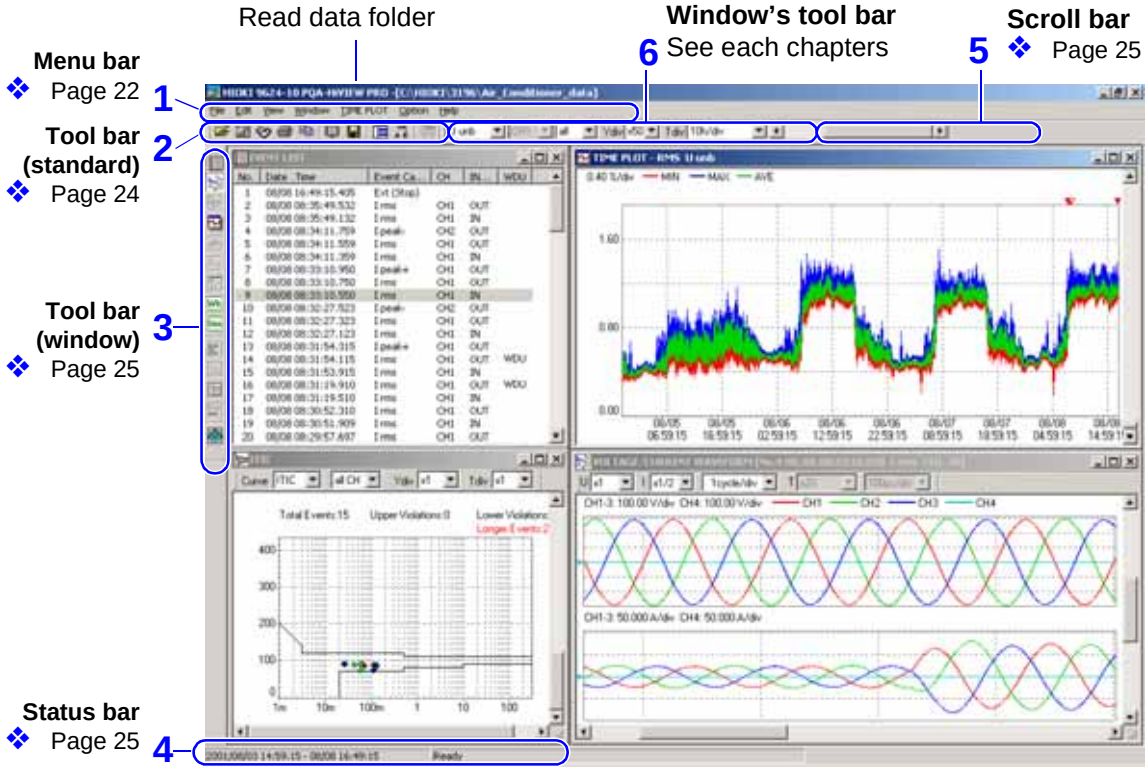
1. Press the (Open integrated file) button or select **File - Open Integrated Files** on the menu bar.
   The Open dialog box opens.
2. Enter the file name in the dialog box and read in the file data.
   The data items read from the file are reflected in the user-defined curve setting, measurement result classification setting, and report wizard setting.

Screen Structures and Common Operations Chapter 3

3.1 Screens

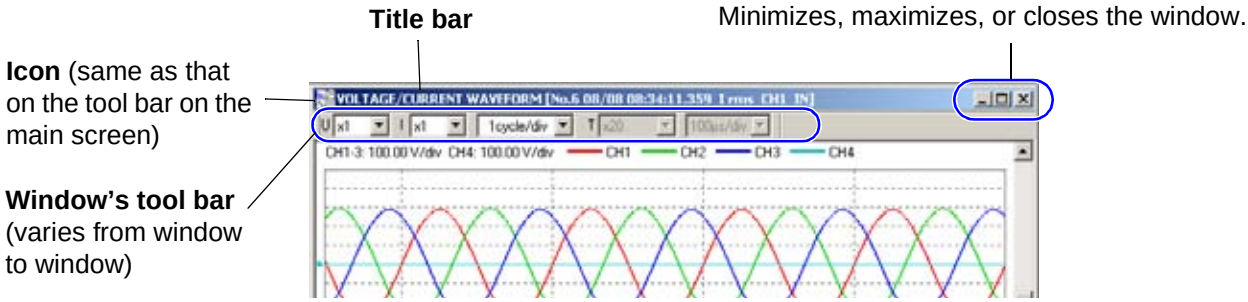
Main Screen

When the 9624-10 starts up, the main screen appears.
Measurement data windows are displayed on the main screen.

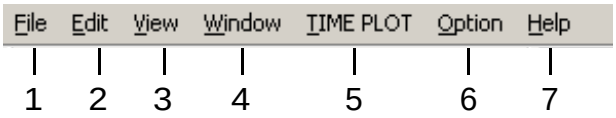


Windows

When measurement data is read, the measurement data windows appear.
You can use the menu bar or tool bar to change the windows.

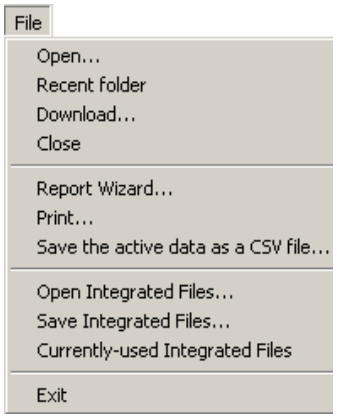


(1) Menu bar



Clicking a menu option displays the pull-down menu as shown below. Options not available for the currently selected window are shaded.

1. File menu



Open *1	
Recent folder	
Download *1	Downloads data from internal memory of the 3196 or PC card via LAN. ❖ Chapter 16, Download via LAN (page 107)
Close	
Report Wizard *1	Sets the conditions for creating a report. ❖ Chapter 15, Report Wizard (page 97)
Print *1	❖ Chapter 14, Print Function (page 93)
Save the active data as a CSV file	❖ Chapter 13, CSV Format Conversion Function (page 89)
Open Integrated Files *1	Opens a setting file for the 9624-10. ❖ Saving Integrated File (page 19)
Save Integrated Files *1	Saves a setting file for the 9624-10. ❖ Saving Integrated File (page 19)
Currently-used Integrated Files	
Exit	

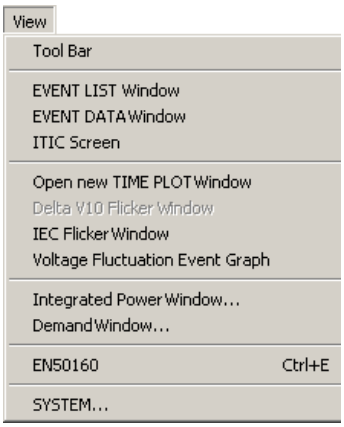
*1: The standard tool bar (2. Tool bar (standard) (page 24)) has icons for the same operations.

2. Edit menu

Copy *1	Displays can be copied to the clipboard ❖ 3.5, Copying to the Clipboard (page 34)

*1: The standard tool bar (2. Tool bar (standard) (page 24)) has icons for the same operations.

3. View menu



Checking a menu option below displays the selected window. Deselecting the option closes the window.

Tool Bar	Shows or hides the standard tool bar (top) and window tool bar (left).
EVENT LIST Window *2	❖ Chapter 7, Event List Window (page 55)
EVENT DATA Window *2	Opens the event details window and displays waveforms. ❖ Chapter 8, Event Data Window (page 57)
ITIC Window *2	❖ Chapter 5, ITIC Window (page 47)
Open new TIME PLOT Window *2	Opens up to four new TIME PLOT windows.
Delta V10 Flicker Window *2	❖ 6.1, Delta V10 Flicker Window (page 53)
IEC Flicker Window *2	❖ 6.2, IEC Flicker Window (page 54)
Voltage Fluctuation Event Graph *2	❖ Chapter 9, Event Voltage Fluctuation Window (page 71)
Integrated Power Window *2	Opens the Integrated Power window which was set in the Start Integration dialog box. ❖ 11.1, Integrated Power Value Analysis (page 75)
Demand Window *1	Opens the Demand window which was set in the Start Demand Calculation dialog box. ❖ 11.2, Demand Analysis (page 77)
EN50160 *	Switches between EN50160 display mode and normal display mode. ❖ Switching Modes (page 27)
SYSTEM	The 3196 measurement conditions are displayed.

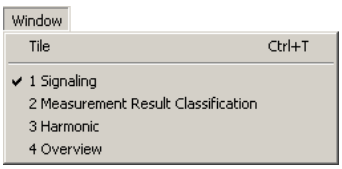
*1: The standard tool bar (2. Tool bar (standard) (page 24)) has icons for the same operations.
*2: The standard tool bar (3. Tool bar (window) (page 25)) has icons for the same operations.

4. Window menu

(Normal display mode)

Tile	❖ 3.4, Tile Windows (page 33)
A and B cursor	❖ 4.5, Cursor Measurements (page 42) ❖ 8.10, Cursor Measurements (page 67)

(EN50160 display mode)



The standard tool bar (2. Tool bar (standard) (page 24)) has icons for the same operations.

The names of currently open windows appear on this menu.

5. EVENT LIST/ EVENT DATA/ TIME PLOT/ ITIC menu

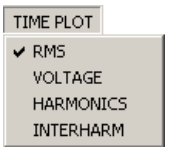
This menu changes with the active window. Select a window on the pull-down menu to make it active.

EVENT LIST

Time order	(Page 55)
Priority order	(Page 55)

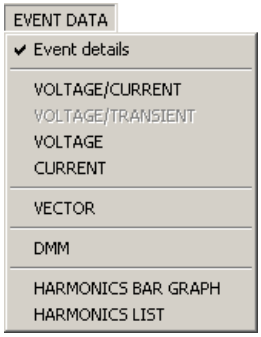
ITIC

Limit Value Curve	(Page 50)



TIME PLOT

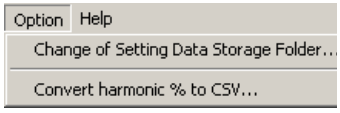
RMS	(Page 38)
VOLTAGE	(Page 39)
HARMONICS	(Page 40)
INTERHARM	(Page 41)



EVENT DATA

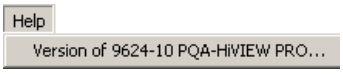
Event details	(Page 58)
VOLTAGE/CURRENT	(Page 59)
VOLTAGE/TRANSIENT	(Page 60)
VOLTAGE	(Page 61)
CURRENT	(Page 62)
VECTOR	(Page 63)
DMM	(Page 64)
HARMONICS BAR GRAPH	(Page 65)
HARMONICS LIST	(Page 66)

6. Option menu



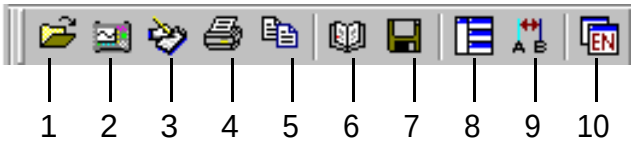
Change of Setting Data Storage Folder	❖ Saving Destination of Setting Files (page 19)
CSV Conversion of Relative Harmonic Content	❖ CSV Conversion of Relative Harmonic Content (page 92)

7. Help menu



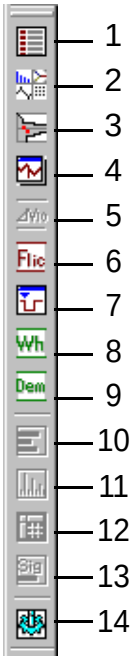
Version of 9624-10 PQA-HiVIEW PRO

(2) Tool bar (standard)



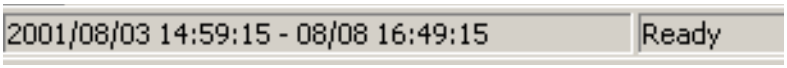
1		Open	6		Open Integrated file
2		Download	7		Save Integrated file
3		Report Wizard	8		Tile
4		Print	9		A and B cursors
5		Copy	10		Switch to EN50160 Window

(3) Tool bar (window)



1		Show/hide EVENT LIST Window
2		Show/hide EVENT DATA Window
3		Show/hide ITIC Window
4		Open new TIME PLOT Window
5		Open Delta V10 Flicker Window
6		Open IEC Flicker Window
7		Open Voltage Fluctuation Event Graph
8		Open Integrated Power Window
9		Open Demand Window
10		Open EN50160 Overview Window
11		Open EN50160 Harmonic Window
12		Open EN50160 Measurement Result Classification Window
13		Open EN50160 Signaling Window
14		View system settings

(4) Status bar



Displays the current status or display information of the 9624-10 and information in each window.
Displays an explanation of a tool bar when the mouse pointer is moved to the tool bar.

(5) Scroll bars

Moving a scroll bar vertically or horizontally scrolls the waveform in the active window.

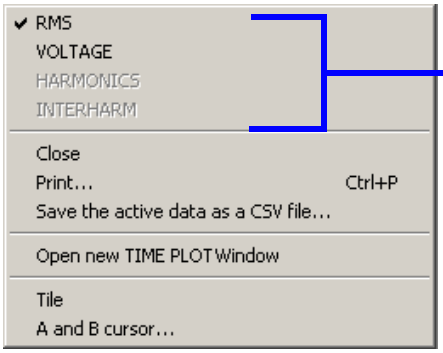
(6) Window's tool bars

You can use the pull-down menus ( )on the tool bar to change the content to be analyzed and displayed.

Popup Menu

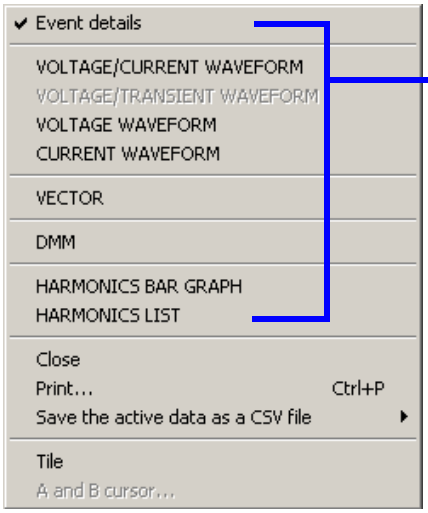
Right-click on a window, and a popup menu appears.
Operate the menu in the same way as the menu bar.
Menu options are grayed out if those options are not available for the currently selected measurement data.

Example 1 For a TIME PLOT window:



Selecting an option you wish to view changes the data shown in the TIME PLOT window to the data selected.

Example 2 For an EVENT DATA window:



Selecting an option you wish to view switches from the current window to the selected window.

3.2 Switching Modes

Switching Modes

There are two display modes: normal display mode and EN50160 display mode.
Since the screen configuration is similar to that of the 3196 POWER QUALITY ANALYZER, analysis is easy.
When data is read, the 9624-10 enters normal display mode.

To enter EN50160 display mode, press the (Swich to EN50160 Screen) button or select **View - EN50160** on the menu bar. The button is shown depressed and the 9624-10 enters EN50160 display mode.

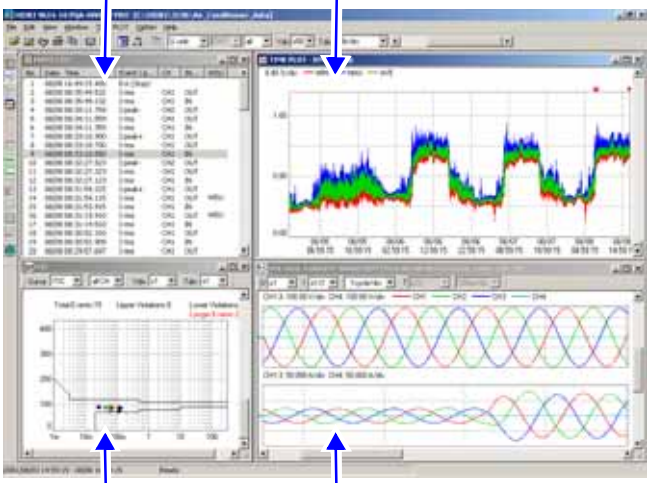
To return to normal display mode, press the button again.

Normal Display Mode

Windows:
TIME PLOT, Event List, Event Data, ITIC, Delta V10 Flicker, IEC Flicker, Event Voltage Fluctuation, Integrated Power Value, and Demand

Event List window
❖ Page 55

TIME PLOT window
❖ Page 37



ITIC window
❖ Page 47

Event data window
❖ Page 57

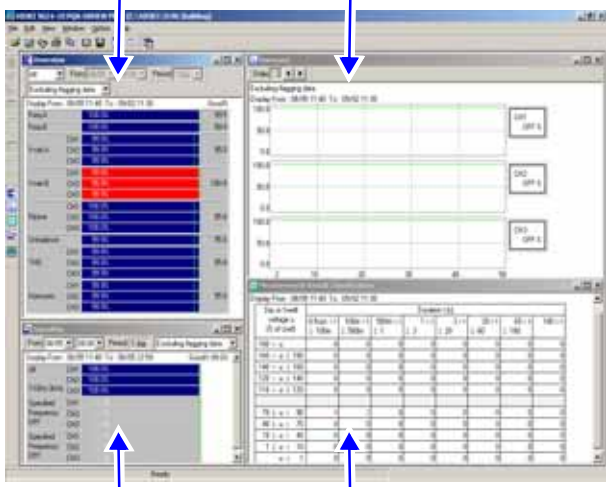
You can switch to a waveform window from the Event Details window.
(Right-click in the window to display the popup menu, then select a window to view from that menu.)

EN50160 Display Mode

Windows:
EN50160 data (Overview, Harmonic, Signaling, and Measurement result classification)

Overview window
❖ Page 80

Harmonic window
❖ Page 82



Signaling window
❖ Page 83

Measurement Result Classification window
❖ Page 84

NOTE

The EN50160 windows will not appear unless the read data contains an EN50160 file.

3.3 Windows

The measurement data windows of the 9624-10 correspond to those of the 3196.
Use the menu bar or tool bar to show or hide each window.

To switch between windows in normal display mode, right-click in the window you want to switch from and select the window you wish to view from the popup menu.

You can also select (activate) the window you wish to switch from or select it from the **Window** menu on the menu bar, then select the analysis window to view from the Event List/Event Data/TIME PLOT/ITIC menu (which changes with the active window).

For details on operation, see the relevant chapters.

Normal Display Mode

Event List Window

❖ (Page 55)

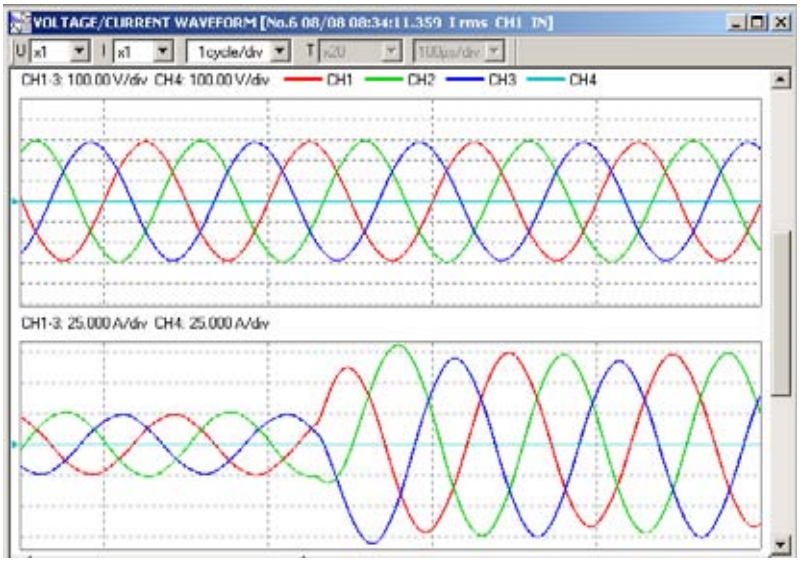
Click the button or select **View - EVENT LIST Window** on the menu bar.

You can select "Time Order" or "Priority Order."

Event Data Window

❖ (Page 57)

Click the button or select **View - EVENT DATA Window** on the menu bar.

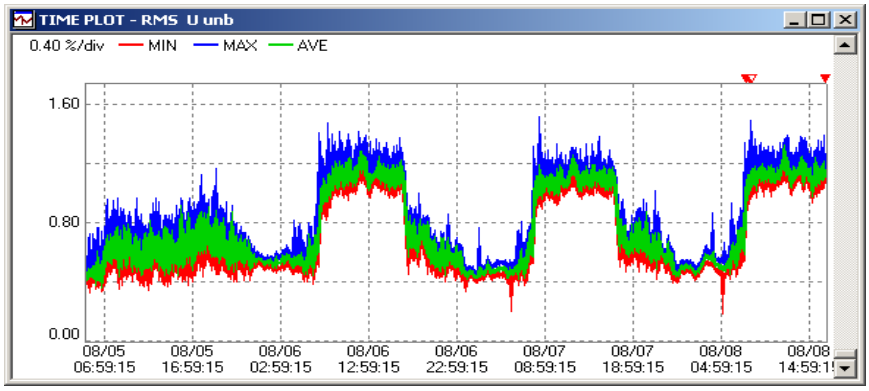


You can select the Event Details, Voltage/Current Waveform, Voltage/Transient Waveform, 4-ch Voltage Waveform, 4-ch Current Waveform, Vector, DMM, Harmonic Bar Graph, or Harmonic List windows.

TIME PLOT Window

❖ (Page 37)

Click the button or select **View - Open new TIME PLOT Window** on the menu bar.

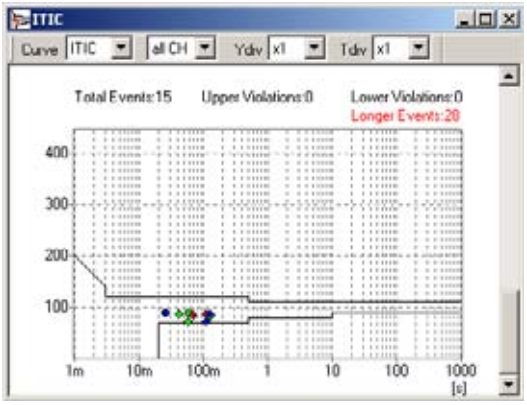


You can select the RMS Fluctuation, Voltage Fluctuation, Harmonics Fluctuation, or Interharmonics Fluctuation windows.
Press the button repeatedly or select **View - Open new TIME PLOT Window** on the menu bar to open up to four TIME PLOT windows.

ITIC Window

❖ (Page 47)

Click the button or select **View - ITIC Window** on the menu bar.

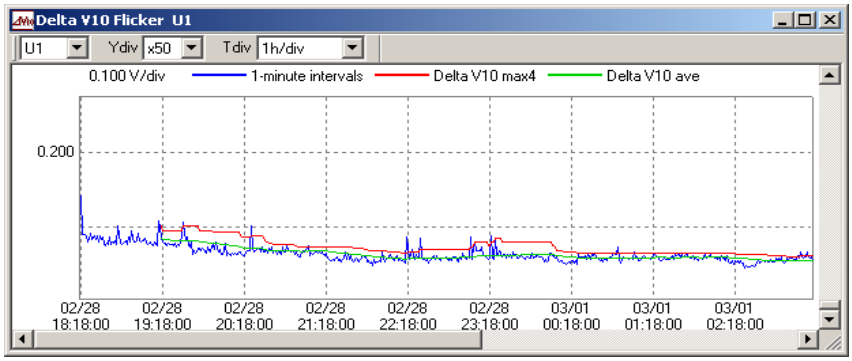


This window is not displayed unless the read data contains a voltage swell, voltage dip, or interruption EVT file.

Delta V10 Flicker Window

❖ (Page 53)

Click the button or select **View - Delta V10 Flicker Window** on the menu bar.

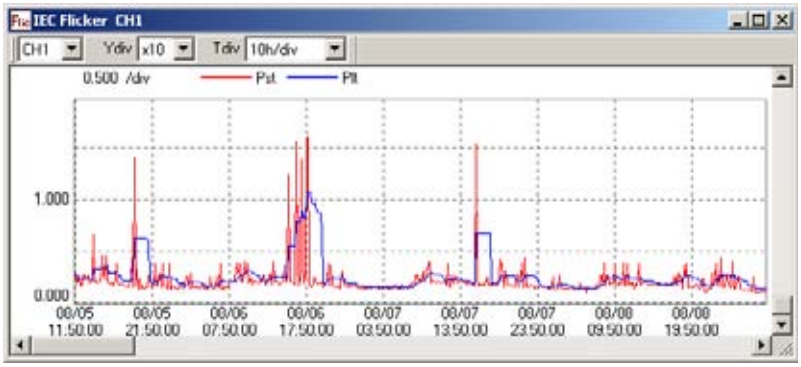


This window is not displayed unless the read data contains a Delta V10 Flicker (FLC) file.

IEC Flicker Window

❖ (Page 54)

Click the Flic button or select **View - IEC Flicker Window** on the menu bar.

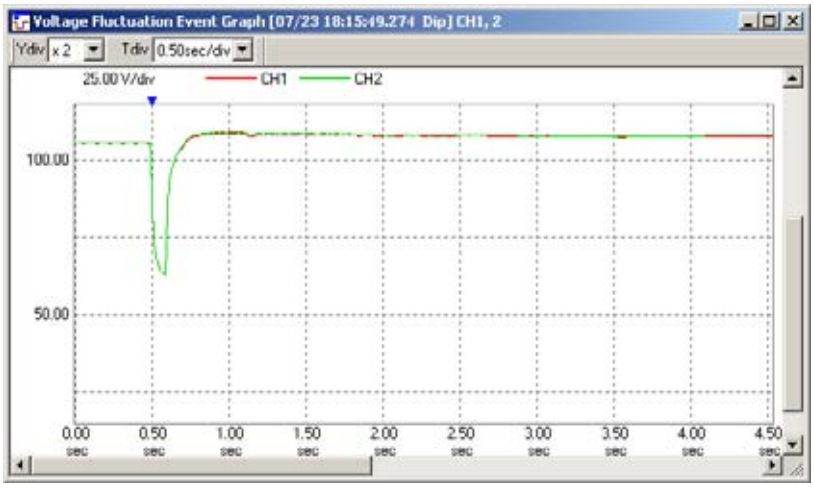


This window is not displayed unless the read data contains an IEC Flicker (FLC) file.

Event Voltage Fluctuation Window

❖ (Page 71)

Click the button or select **View - Voltage Fluctuation Event Graph** on the menu bar.

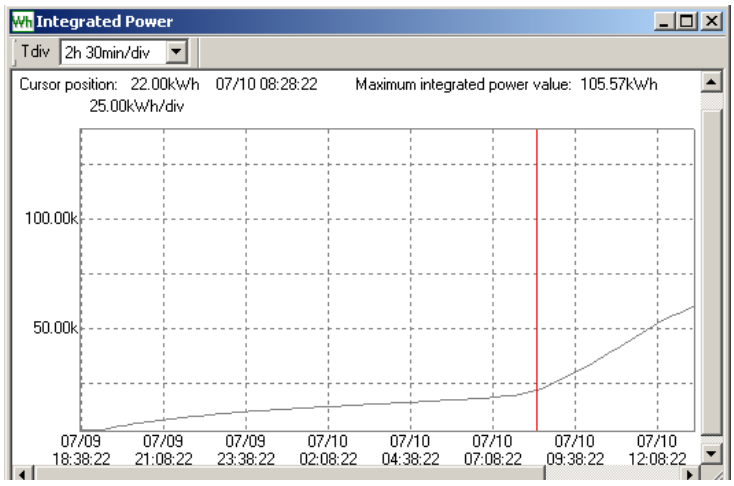


The graph is displayed only when the selected event has an event voltage fluctuation graph file (WDU file).

Integrated Power Value Window

❖ (Page 75)

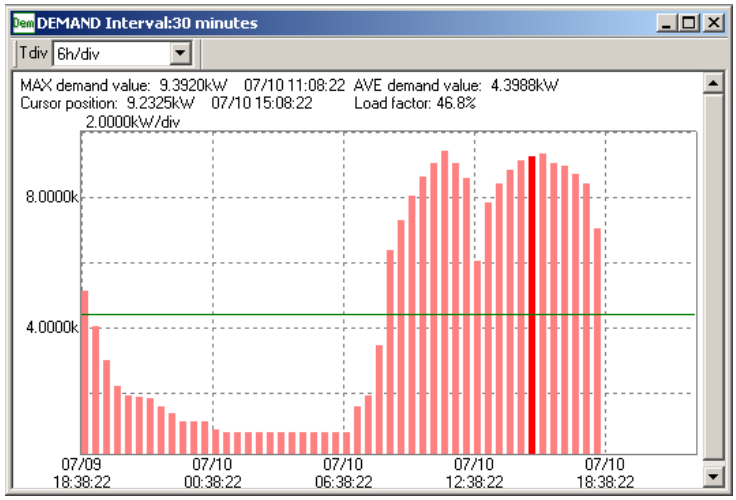
Click the Wh button or select **View - Open Integrated Power Window** on the menu bar, then set parameters in the Start integration dialog box.



Demand Window

❖ (Page 77)

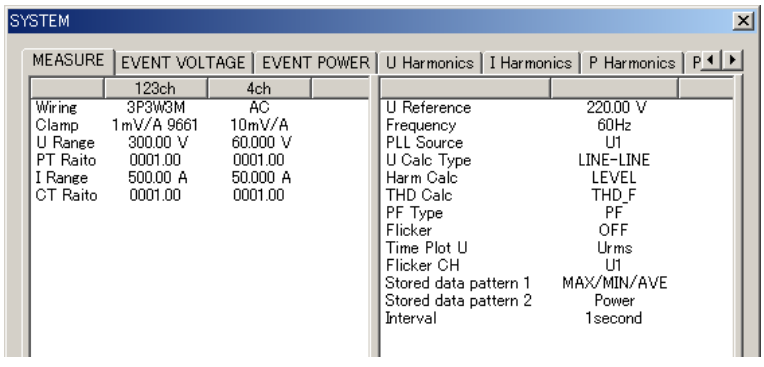
Click the Dem button or select **View - Demand Window** on the menu bar, then set parameters in the Start demand calculation dialog box.



Settings Window

❖ (Page 73)

Click the button or select **View - SYSTEM** on the menu bar.



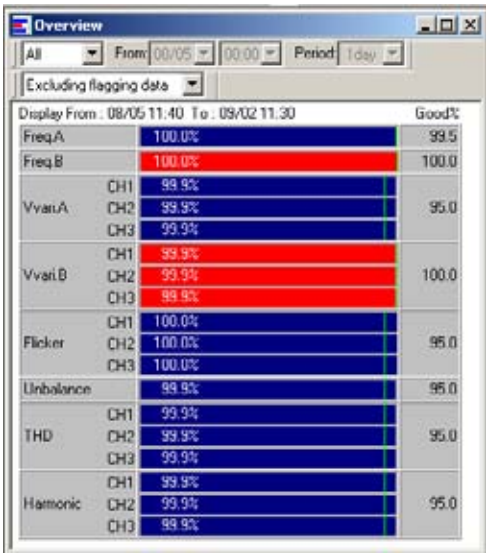
EN50160 Display Mode

These windows appear when measurement is conducted with the EN50160 function of the 3196 enabled.

Overview Window

❖ (Page 80)

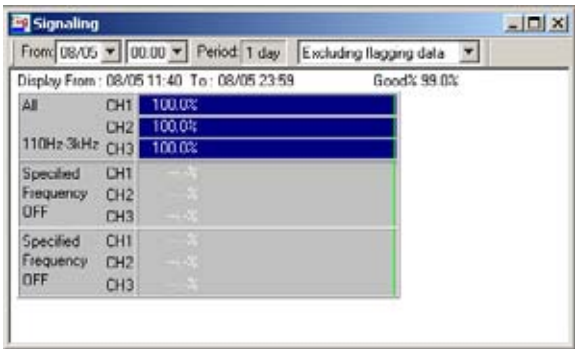
Click the button or select **View - Overview Window** on the menu bar.



Signaling Window

❖ (Page 83)

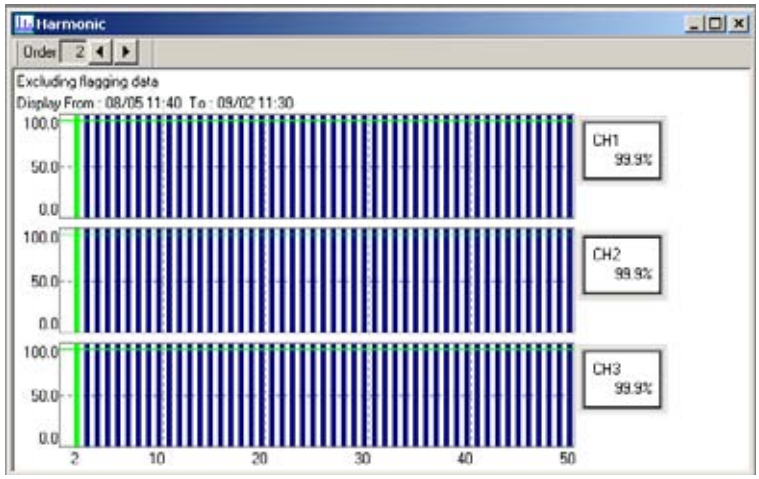
Click the button or select **View - Signaling Window** on the menu bar.



Harmonic Window

❖ (Page 82)

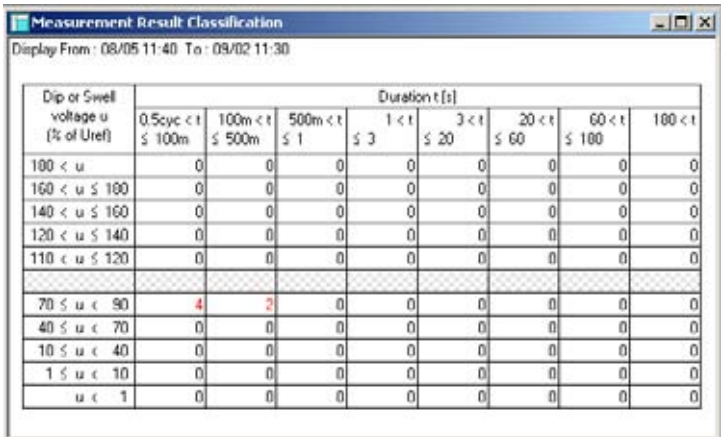
Click the button or select **View - Harmonic Window** on the menu bar.



Measurement Result Classification Window

❖ (Page 84)

Click the button or select **View - Measurement Result Classification Window** on the menu bar.



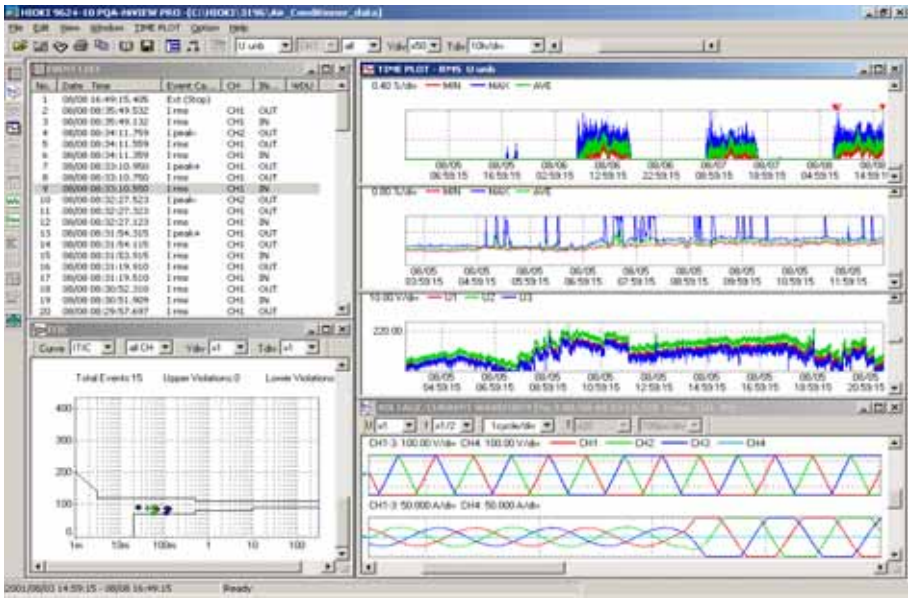
Dip or Swell voltage u (% of Uref)	Duration t [s] 0.5cyc < t ≤ 100m	100m < t ≤ 500m	500m < t ≤ 1	1 < t ≤ 3	3 < t ≤ 20	20 < t ≤ 60	60 < t ≤ 180	180 < t
180 < u	0	0	0	0	0	0	0	0
160 < u ≤ 180	0	0	0	0	0	0	0	0
140 < u ≤ 160	0	0	0	0	0	0	0	0
120 < u ≤ 140	0	0	0	0	0	0	0	0
110 < u ≤ 120	0	0	0	0	0	0	0	0
70 ≤ u < 90	4	2	0	0	0	0	0	0
40 ≤ u < 70	0	0	0	0	0	0	0	0
10 ≤ u < 40	0	0	0	0	0	0	0	0
1 ≤ u < 10	0	0	0	0	0	0	0	0
u < 1	0	0	0	0	0	0	0	0

You can use the measurement result classification editor to edit divisions of the period and depth of the table.

3.4 Tile Windows

Click the (Tile) button or select **Window** - **Tile** on the menu bar.

The appearance of all currently open windows can be tiled within the application window.



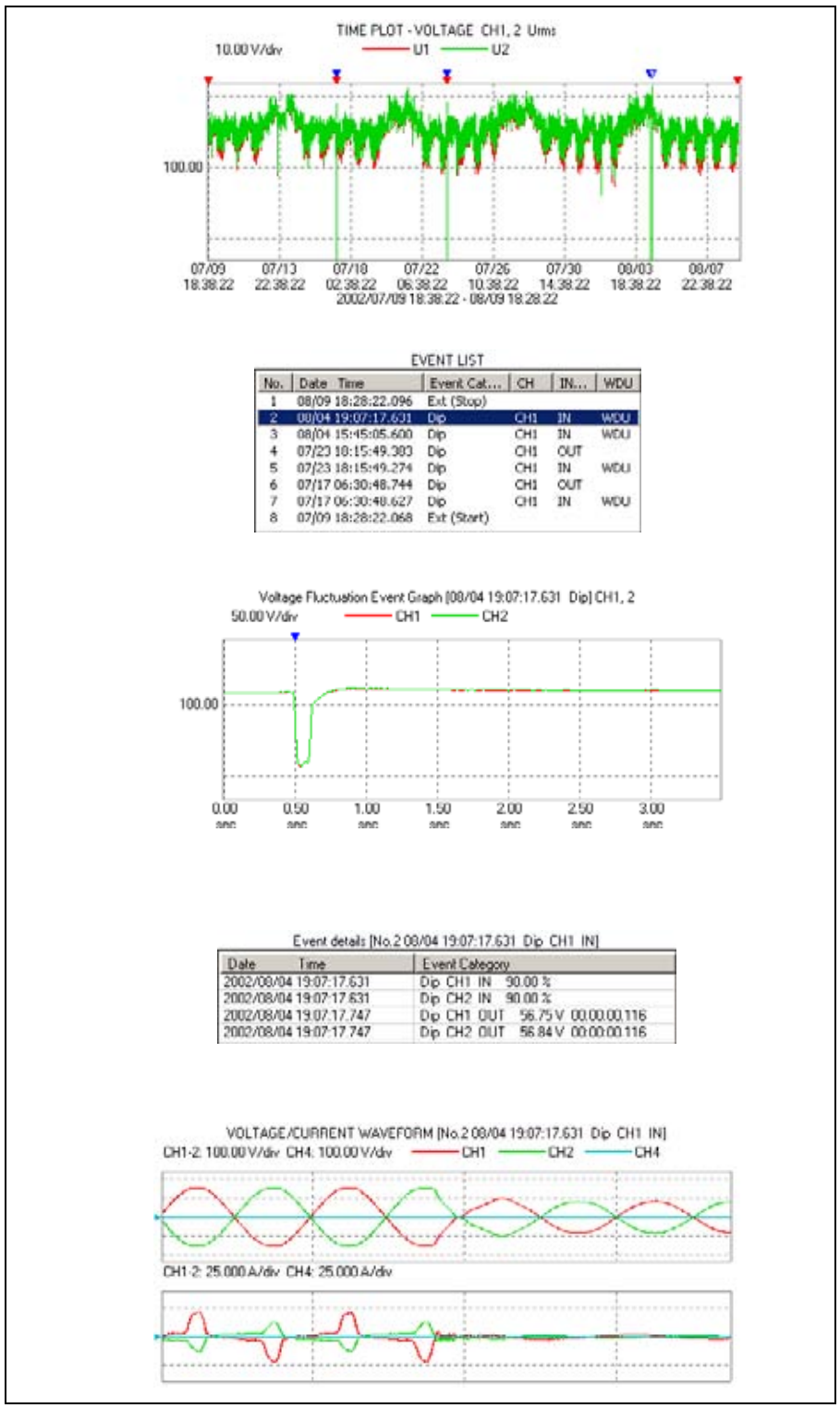
3.5 Copying to the Clipboard

You can copy image data in an active window to the clipboard and paste it to a file in a word processing or other similar program.

Click the (Copy) button or select **Edit** - **Copy** on the menu bar.

Example

(When the five windows are copied and pasted.)

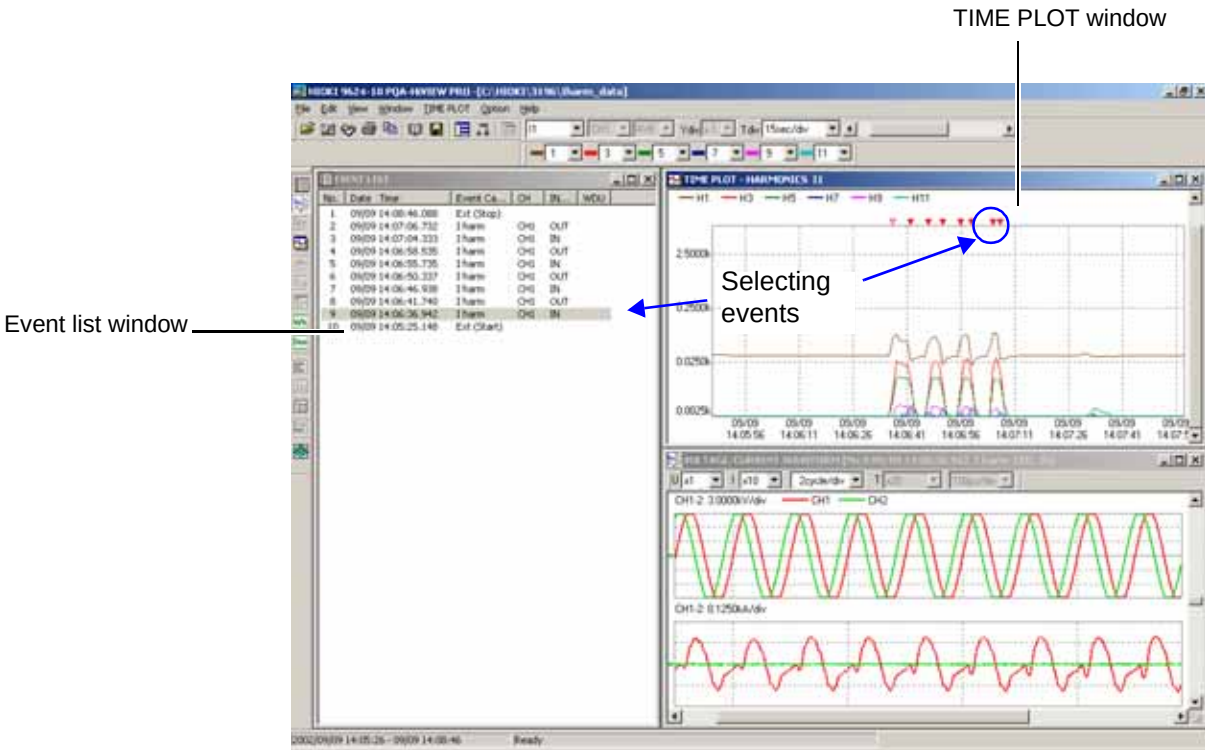


3.6 Synchronized Event Operation

The windows below can be operated in synchronization using a selected event.
Event list window, TIME PLOT window, Event voltage fluctuation window, Event data window

Normal Event

Normal event refers to any event not marked "WDU" in the Event List window or a point marked with red triangle event mark " ▼ " in the TIME PLOT window.



Selecting an Event

You can select an event in the windows below.

EVENT LIST window	Activate the window and use the mouse to click a normal event or use the up/down cursor key on the keyboard to select the event.
TIME PLOT window	Activate the window and use the right/left cursor key on the keyboard to select a normal event "▼". You can also select a normal event by clicking "▼" directly.

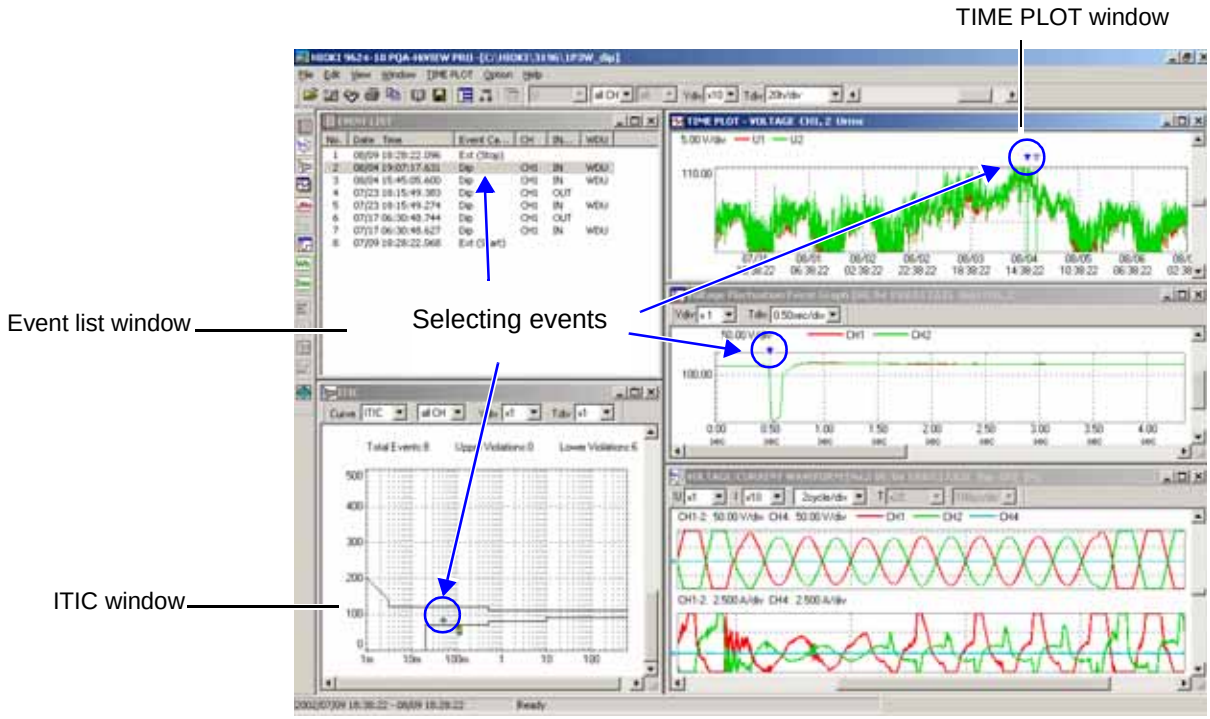
Synchronized Display

Selecting an event displays the following in each window:

Event List window	A normal event is selected.
TIME PLOT window	A triangle event mark " ▽ " outlined in red is displayed.
Event Voltage Fluctuation window	"The WDU data file is not available." message appears.
Event Data window	The data of the selected event is displayed.

WDU Event

WDU event refers to an event with event voltage fluctuation graph data. A WDU event exists when an event is marked "WDU" in the Event List window or marked with a blue triangle event mark " ▼ " in the TIME PLOT window.



Selecting an Event

You can select an event in the windows below.

EVENT LIST window	Activate the window and use the mouse to click a WDU event or use the up/down cursor key on the keyboard to select the event.
TIME PLOT window	Activate the window and use the right/left cursor key on the keyboard to select a WDU event "▼". You can also select a WDU event by clicking "▼" directly.
ITIC window	Activate the window and click an event marker [◆] (red:CH1), [◆] (yellow-green:CH2), or [◆] (blue:CH3).

Synchronized Display

Selecting an event displays the following in each window:

Event List window	A WDU event is selected.
TIME PLOT window	A triangle event mark " ▽ " outlined in blue is displayed.
Event Voltage Fluctuation window	The event voltage fluctuation graph of the selected WDU event is displayed.
Event Data window	The data of the selected WDU event is displayed.
ITIC window	The marker of the selected event starts blinking.

TIME PLOT Window

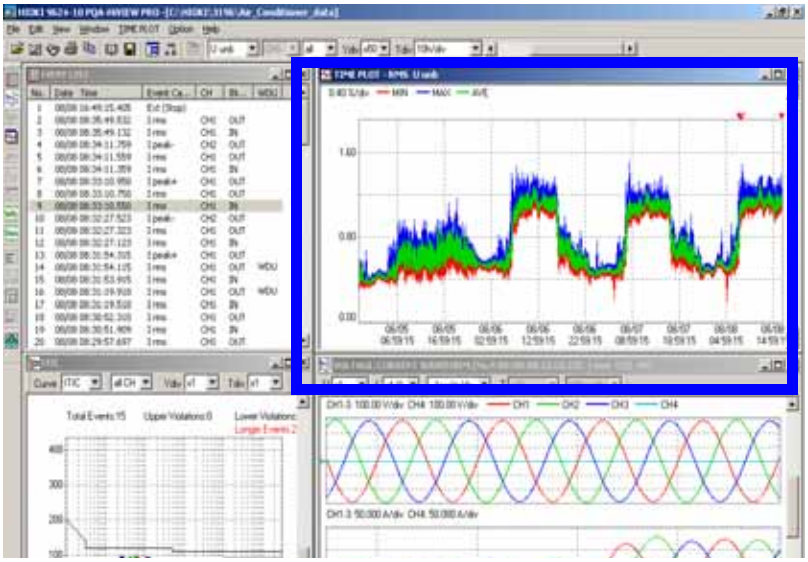
Chapter 4

The TIME PLOT window in the 9624-10 program is equivalent to the same screen on the 3196 POWER QUALITY ANALYZER.
When a high-capacity PC Card is used with the 3196, long-period recordings that cannot be displayed on the screen of the 3196 (SYSTEM - RECORDING - When Memory Full: LOOP) can be displayed on the computer.
The 9624-10 is capable of analyzing this long-period TIME PLOT file data.

Window Display

Click the (Open new TIME PLOT window) button or select **View** - **Open new TIME PLOT window** on the menu bar.

Up to four windows can be open at the same time by pressing the button or selecting from the menu bar repeatedly.



- 4.5, "Cursor Measurements"(page 42)
- 4.6, "Scrolling a Graph"(page 43)
- 4.7, "Selecting Events"(page 44)

Window Display

The four types of TIME PLOT window show RMS, voltage, harmonic and interharmonic variations.
Activate a TIME PLOT window, then select a TIME PLOT window you wish to view from the **TIME PLOT** menu on the menu bar or right-click and select the window on the popup menu.

NOTE

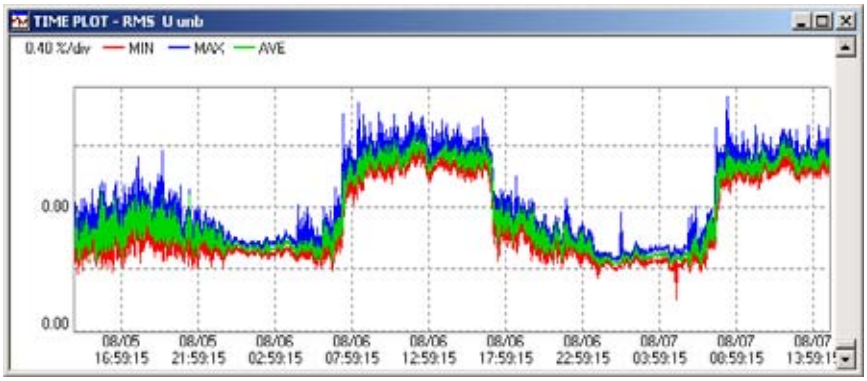
The TIME PLOT window cannot be displayed unless the read data includes an ITV file.
Also, the windows that can be selected depend on the contents of the type setting of the data to be recorded on the SYSTEM - MAIN - RECORDING screen of the 3196.

4.1 RMS

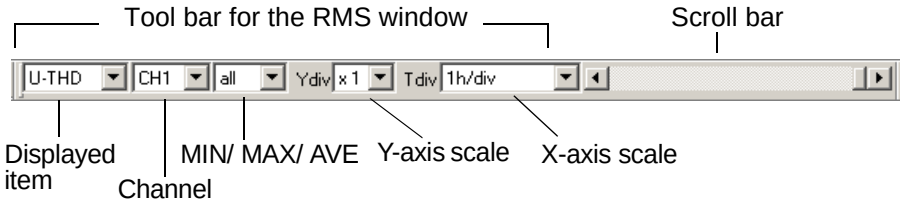
Window Display

Activate a TIME PLOT window. Select **TIME PLOT - RMS** on the menu bar or right-click and select **RMS** on the popup menu.
The TIME PLOT window switches to the RMS window.

MAX values ... blue
AVE values .... yellow-green
MIN values .... red



(Main screen)



Display Content Switching

Activating the RMS window displays the tool bar for that window on the main screen.
You can use the pull-down menus on the tool bar to change the content to be analyzed and displayed.

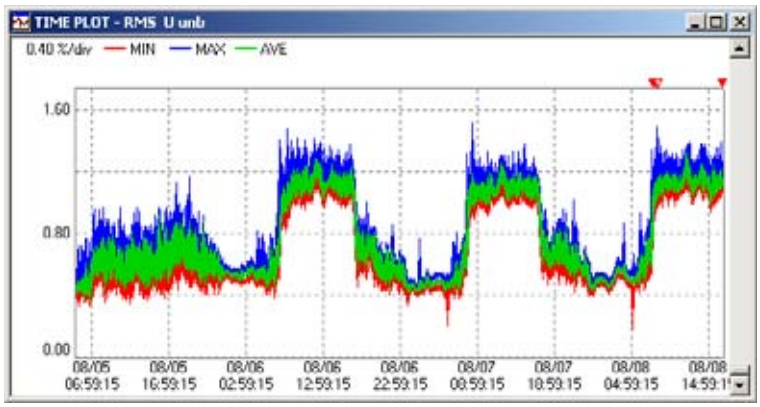
Display Scrolling

The scroll bars are used to scroll the window vertically and horizontally.

4.2 Voltage

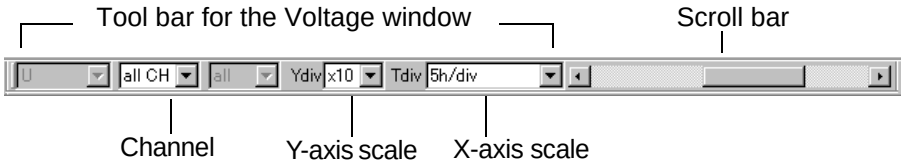
Window Display

Activate a TIME PLOT window. Select **TIME PLOT - VOLTAGE** on the menu bar or right-click and select **VOLTAGE** on the popup menu.
The TIME PLOT window switches to the Voltage window.



CH1 ..... red
CH2 ..... yellow-green
CH3 ..... blue

(Main screen)



Display Content Switching

Activating the Voltage window displays the tool bar for that window on the main screen.
You can use the pull-down menus on the tool bar to change the content to be analyzed and displayed.

Display Scrolling

The scroll bars are used to scroll the window vertically and horizontally.

NOTE

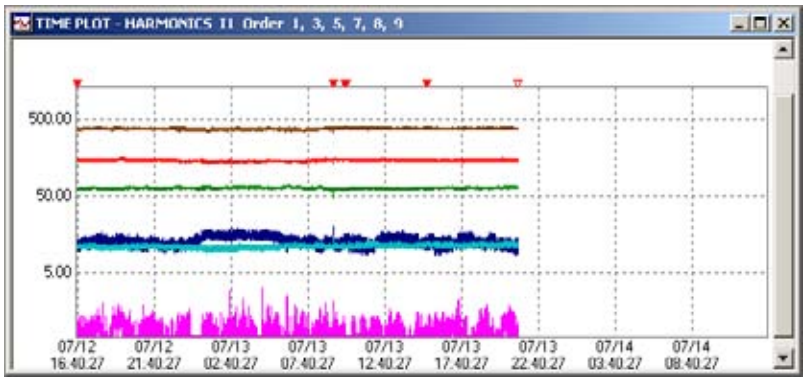
Each voltage data element consists of the MAX and MIN values acquired during a measurement interval. Therefore, when the horizontal axis is magnified, the data for each element is displayed as a vertical line connecting these MAX and MIN values, but note that the elements themselves are not interconnected.

4.3 Harmonics

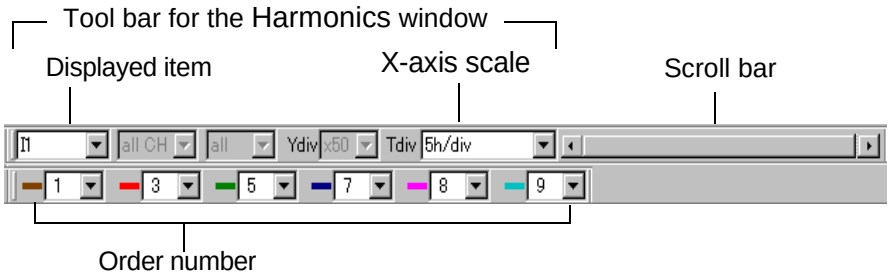
Window Display

Activate a TIME PLOT window. Select **TIME PLOT - HARMONICS** on the menu bar or right-click and select **HARMONICS** on the popup menu.
The TIME PLOT window switches to the Harmonic window.

Set the colors and ordinal numbers on the tool bar.



(Main screen)



Display Content Switching

Activating the Harmonics window displays the tool bar for that window on the main screen.
You can use the pull-down menus on the tool bar to change the content to be analyzed and displayed.
Up to six harmonic orders can be selected, from the 1st to the 50th. The (logarithmic) vertical axis is fixed.

Display Scrolling

The scroll bars are used to scroll the window vertically and horizontally.

NOTE

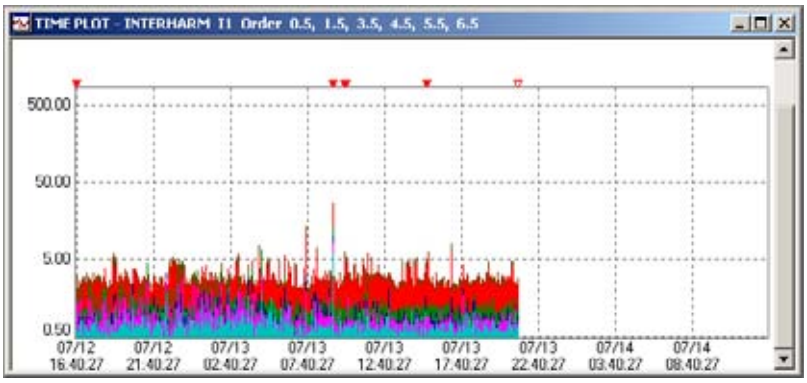
- Each harmonic data element consists of MAX, AVE and MIN values acquired during a measurement interval when the recording type has been set to MAX/MIN/AVE. Therefore, when the horizontal axis is magnified, the data for each element is displayed as a vertical line connecting the MAX and MIN values, but note that the elements themselves are not interconnected.
- When measuring 400 Hz, harmonics up to the 10th are analyzed.

4.4 Interharmonics

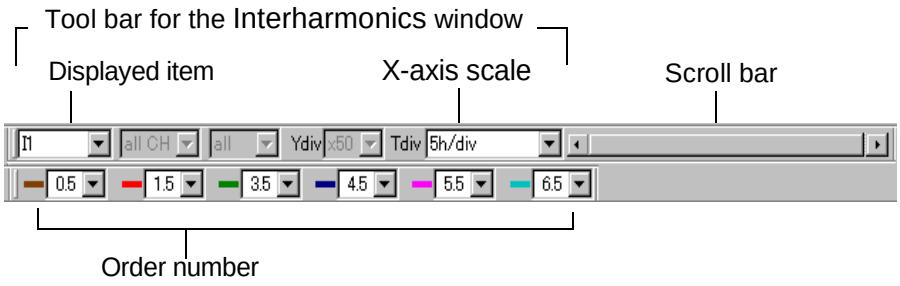
Window Display

Activate a TIME PLOT window. Select **TIME PLOT - INTERHARM** on the menu bar or right-click and select **INTERHARM** on the popup menu.
The TIME PLOT window switches to the Interharmonics window.

Set the colors and ordinal numbers on the tool bar.



(Main screen)



Display Content Switching

Activating the Interharmonics window displays the tool bar for that window on the main screen.
You can use the pull-down menus on the tool bar to change the content to be analyzed and displayed.
Up to six interharmonic orders can be selected, from 0.1 to 49.5. The (logarithmic) vertical axis is fixed.

Display Scrolling

The scroll bars are used to scroll the window vertically and horizontally.

NOTE

Each interharmonic data element consists of MAX, AVE and MIN values acquired during a measurement interval when the recording type has been set to MAX/MIN/AVE. Therefore, when the horizontal axis is magnified, the data for each element is displayed as a vertical line connecting the MAX and MIN values, but note that the elements themselves are not interconnected.

4.5 Cursor Measurements

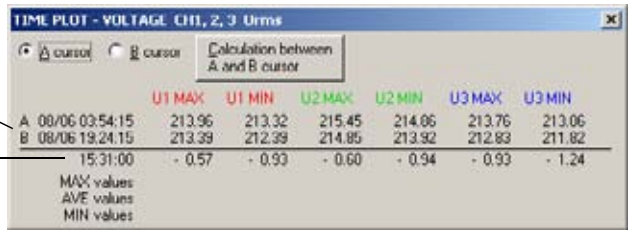
When the A and B cursors are displayed on the TIME PLOT window, the values at the cursor positions on the graph can be displayed.

About A and B Cursor Values

Click the (A and B cursor) button or select **A and B cursor** from the **Window** menu bar or the right-clicked pop-up menu.
A dialog box shows the values at the A and B cursor positions when they are displayed on the TIME PLOT window.

Clock time and numeric data at A and B cursor positions

Data obtained by subtracting A from B



The contents displayed in the dialog box depend on the active TIME PLOT window (RMS fluctuation, Voltage fluctuation, Harmonics fluctuation or Interharmonics fluctuation), and change when another TIME PLOT window is activated.

NOTE

A pre-determined value of less than one second is used for calculating the time difference between A and B cursors, so the accuracy of the last digit may err by one second.

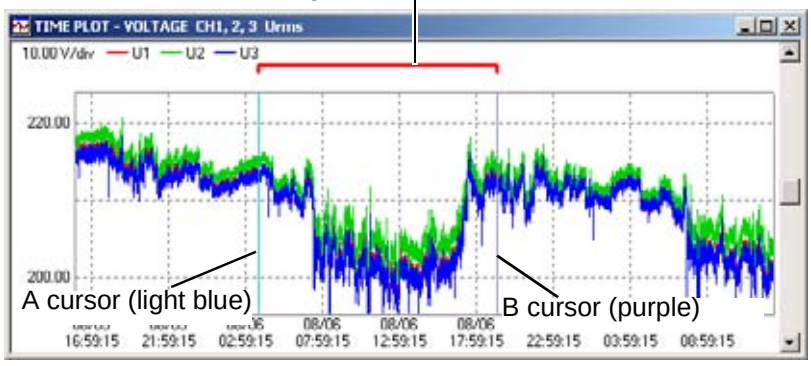
Moving A and B Cursors

1. Click the check box of the A or B cursor in the dialog box to select the cursor you wish to move.

2. Activate the TIIME PLOT window. Move the cursor by clicking where you wish to move it to or press the right/left cursor keys on the keyboard.

Range between A and B cursors

A cursor .light blue
B cursor .purple



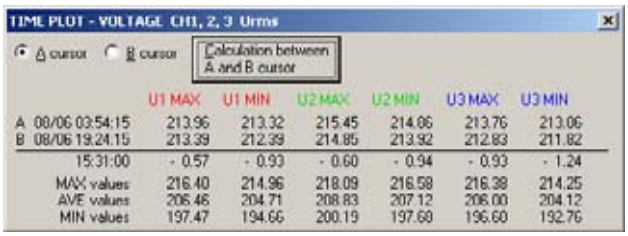
NOTE

On the TIME PLOT window, the cursors cannot be moved to a position at which there is no data.

Interval Calculations

The A and B cursors can be used to apply a calculation over a specific interval.

Click the **Calculation between A and B cursor** button to calculate the maximum, average and minimum values within the interval specified by the positions of the A and B cursors.



4.6 Scrolling a Graph

Any position on a graph can be displayed using the scroll bars in the TIME PLOT window display area.

To scroll vertically, move the scroll box in the scroll bar, or click the up and down arrows in the scroll box to scroll the displayed graph vertically.

To scroll horizontally, move the scroll box in the scroll bar, or click the left and right arrows in the scroll box to scroll the displayed graph along the time axis.
Horizontal scrolling can be used to synchronize all open TIME PLOT windows.
A and B cursors in the TIME PLOT windows can also be scrolled synchronously.

4.7 Selecting Events

An arbitrary point in the TIME PLOT window can be selected as an event.

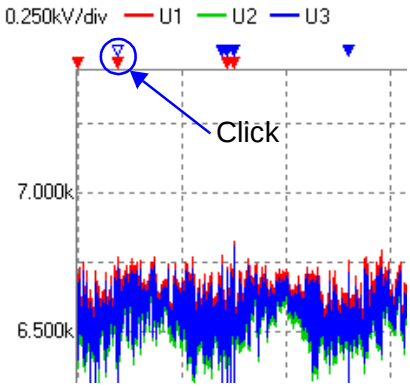
" ▼ " Red triangle event mark:
Indicates time position of normal event.

" ▼ " Blue triangle event mark:
Indicates time position of WDU event (event voltage fluctuation graph).

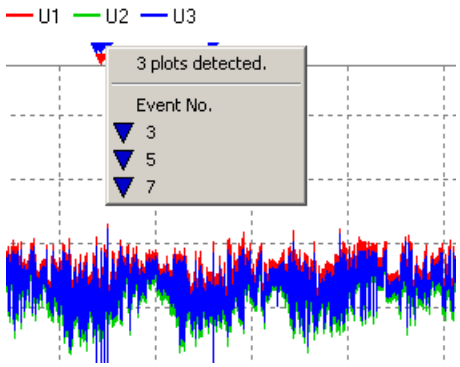
Selecting Events

Selection by direct mouse click:

1. Click directly on the event mark.



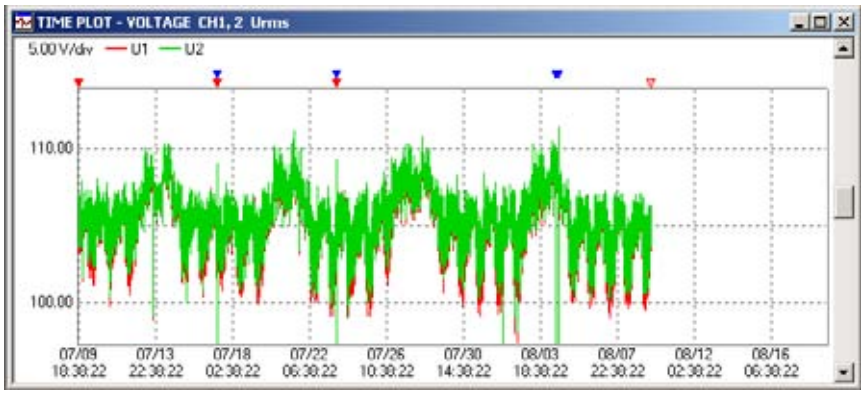
2. If you click on a stack of multiple event marks, a menu appears on the graph.



3. Select an event mark from the menu.
If a stack contains more than 30 event marks, a submenu appears for every 30 marks.

Selection by cursor keys:
Make the window active, then press the right/left cursor keys to select an event. When selected, a solid triangle event mark is changed to an outlined triangle event mark.

- For a normal event : ▽ Red-outlined triangle event mark
- For a WDU event : ▽ Blue-outlined triangle event mark



Selecting an event allows analysis to be conducted in synchronization with events in other windows.
❖ 3.6, "Synchronized Event Operation"(page 35)

NOTE

When the A/B cursor dialog box is opened, the A and B cursors are moved instead of the cursor used for selecting an event.

ITIC Window Chapter 5

5.1 Displaying the ITIC Window

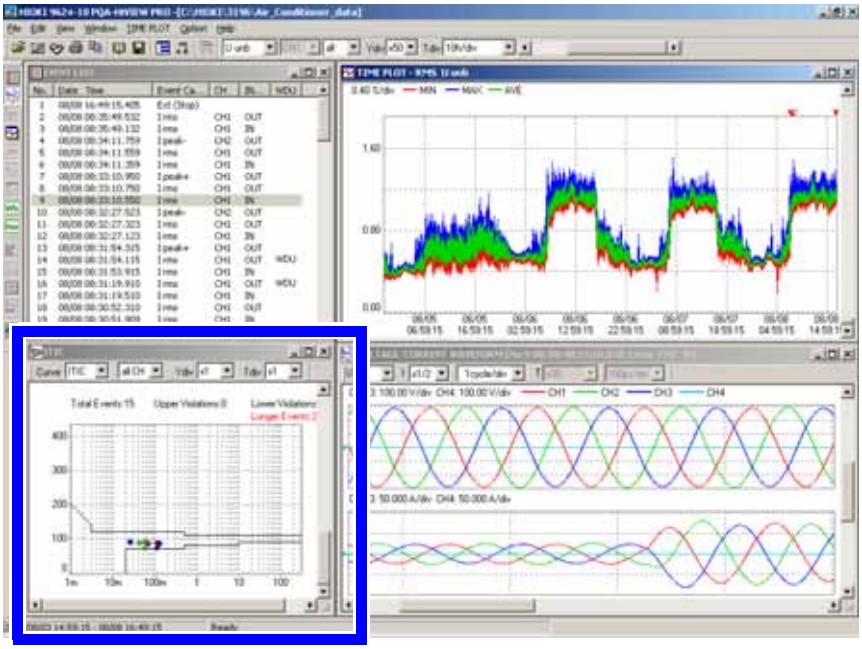
The ITIC window displays voltage swell, voltage dip, and interruption events on a graph with duration [s] on the horizontal axis and % value of nominal voltage [%] on the vertical axis.

Event	Duration [s]	% value of nominal voltage [%]
Voltage swell	Duration of swell	Maximum swell voltage
Voltage dip	Duration of dip	Residual voltage (minimum dip voltage)
Interruption	Duration of interruption	Residual voltage (minimum interruption voltage)

Events can be evaluated using upper and lower-limit curves.
Two types of limit curve can be selected: ITIC curve (widely used in the US), and a user-defined curve.

Window Display

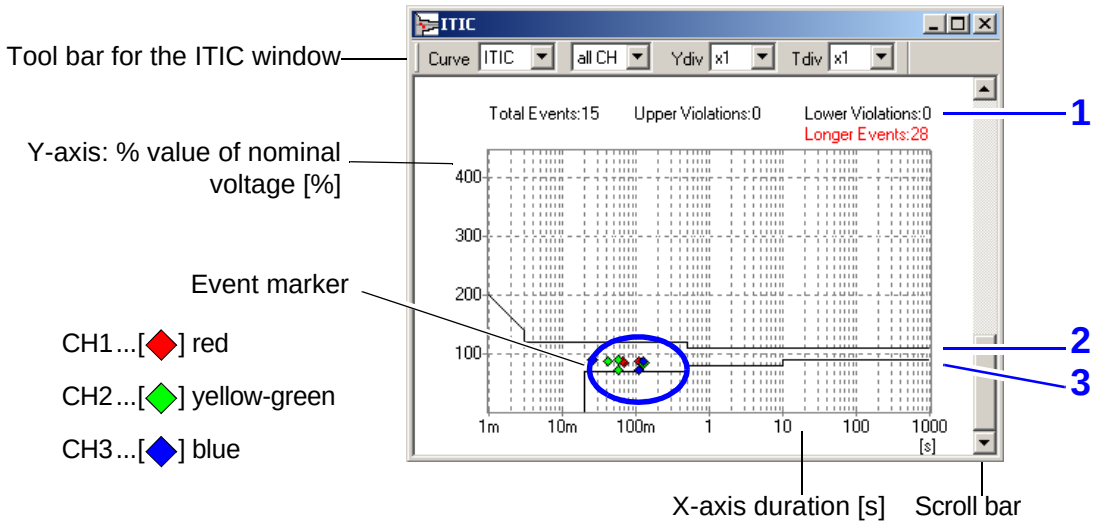
Click the (Open ITIC window) button or select **View - ITIC Window** on the menu bar.



Items of read event data are shown with color markers: red [◆] for CH1, yellow-green [◆] for CH2, and blue [◆] for CH3.

NOTE

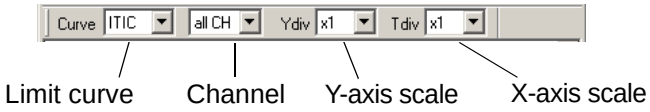
The ITIC window does not appear unless the read data contains a voltage swell, voltage dip, or interruption event file (EVT).



1	Total Events	Shows the total number of events of the currently selected channel.
	Upper Violations	Shows the total number of events on or above the upper-limit curve (up to 2000% on the vertical axis).
	Lower Violations	Shows the total number of events on or below the lower-limit curve.
	Longer Events	Shows the total number of events with a duration longer than 1000 seconds (only when such events occur). Any event exceeding 1000 seconds is not shown.
2	Upper-limit curve	Shows the upper-limit curve of the selected limit curve.
3	Lower-limit curve	Shows the lower-limit curve of the selected limit curve.

Display Content Switching

Activating the ITIC window displays the tool bar for that window. You can use the pull-down menus on the tool bar to change the content to be analyzed and displayed.



The limit curve menu lets you select the limit curve you wish to display on the graph.

ITIC	Displays the ITIC curve (ITIC Curve Chart(page 52))
User	Displays the user-defined curve set up with the Curve Editor (page 50)

If a user-defined curve is not set up with the Curve Editor, the curve will not appear, even when **User** is selected on the menu.

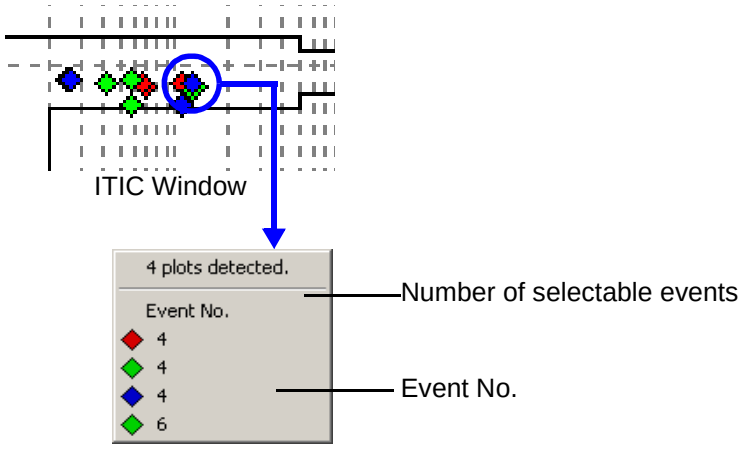
❖ To edit curve:5.2,"Curve Editor" (page 50)

Display Scrolling

The scroll bars are used to scroll the window vertically and horizontally.

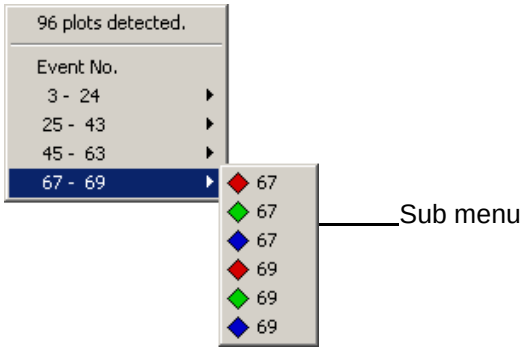
Selecting Event

Click an event marker output to the graph in the ITIC window to synchronize this window with other event data.
The selected event marker flashes in the ITIC window.
Clicking multiple event markers lying on one top of another displays a menu on the graph.



Choose an event marker from the list above.

Note that 30 or more event markers one on top of another are divided into sub menus. Each sub menu shows up to 30 events.



NOTE

CBEMA Curve and ITIC Curve

Both are mainly used in the U.S.A. and used to judge the allowance range for the voltage RMS value fluctuation. The judgement is made on the basis of voltage swell, voltage dip and interruption events.
The CBEMA curve is made by CBEMA (Computer Business Equipment Manufacturers Assosiation).
After that, a WG (Working Group) of CBEMA made the ITIC curve under the name of ITIC (Information Technology Industry Council).
The CBEMA curve is used previously, but the ITIC curve is used now.

5.2 Curve Editor

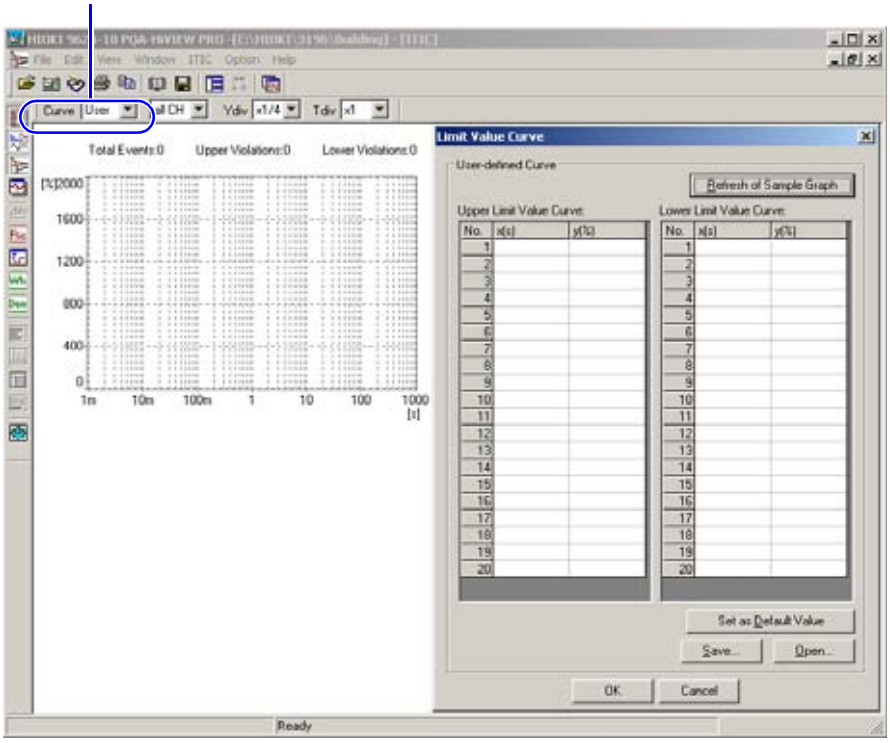
The Curve Editor lets you set up a user-defined curve to display when user-defined curve is selected from the ITIC window tool bar.
The user defined curve can be used to make judgment by the SEMI curve.
❖ SEMI Curve Chart(page 52)

Window Display

Select user-defined curve on the tool bar for the ITIC window (Curve: User). Right-click in the ITIC window and select **Limit Value Curve** on the popup menu or select **ITIC - Limit Value Curve** on the menu bar. The Curve Editor then appears.

The Curve Editor displays the limit curve dialog box and maximized ITIC window behind the dialog box. A graph of the ITIC window is displayed with the smallest x-axis scale and y-axis scale.

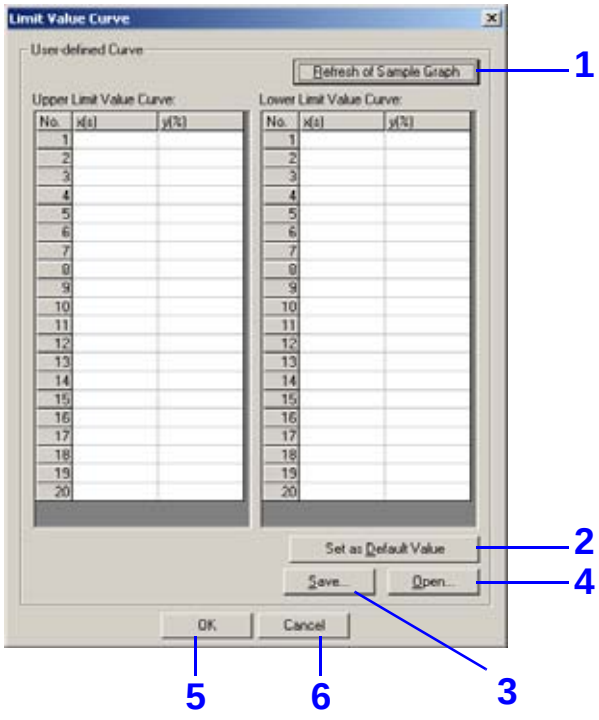
"User" User-defined curve is selected.



NOTE

User-defined curve must be selected on the tool bar for the ITIC window in order to display the Curve Editor.
While the Curve Editor is open on the screen, you cannot operate other windows.

Setting Limit Curve



You can enter up to 20 numbers with or without a decimal point in the x (s) list and y (%) list for both the upper-limit curve and lower-limit curve. In the x (s) list, you can also enter a supplementary unit for an engineering quantity (m).
Range of a user-defined curve
x (s): 1m to 1000
y (%): 0 to 2000

NOTE

Make sure that the user-defined curve is a continuous line reaching the end of the graph.

1	Refresh of Sample Graph	Shows the data of user-defined curve entered in the upper-limit and lower-limit curve lists on the sample graph.
2	Set as Default Value	Data on the ITIC curve (ITIC Curve Chart(page 52)) is entered in the upper-limit and lower-limit curve lists.
3	Save...	Opens the Save dialog box for saving the user-defined curve entered in the upper-limit and lower-limit curve lists. The user-defined curve may be saved using an arbitrary filename. ❖ Setting Files(page 18)
4	Open...	Opens the Open dialog box. The user-defined curve is read out from a user-defined curve file (page 18) and shown in the upper-limit and lower-limit curve lists.
5	OK	Shows the user-defined curve entered in the upper-limit and lower-limit curve lists in the ITIC window, and exits the Curve Editor.
6	Cancel	Exits the Curve Editor without making any changes to the user-defined curve in the ITIC window.

ITIC Curve Chart

Upper limit curve		Lower limit curve	
x [s]	y [%]	x [s]	y [%]
1 m	200	20 m	0
3 m	140	20 m	70
3 m	120	500 m	70
500 m	120	500 m	80
500 m	110	10	80
1000	110	10	90
		1000	90

SEMI Curve Chart

Upper limit curve		Lower limit curve	
x [s]	y [%]	x [s]	y [%]
		20 m	0
		20 m	50
		200 m	50
		200 m	70
		500 m	70
		500 m	80
		10	80
		10	90
		1000	90

SEMI curve is made by the SEMI (Semiconductor Equipment and Materials International).
It judges the voltage dip and interruption only, and has easier limit than the ITIC curve between 20ms and 200ms.
There is no upper limit curve in the SEMI curve, but we recommend using the upper limit value; x:1m, y:200 and x:1000, y:200.

CISPR24 Curve Chart

Upper limit curve		Lower limit curve	
x [s]	y [%]	x [s]	y [%]
		20 m	30
		500 m	30
		500 m	95
		5	95
		5	100
		1000	100

Per operating judgment standard C

Flicker Window Chapter 6

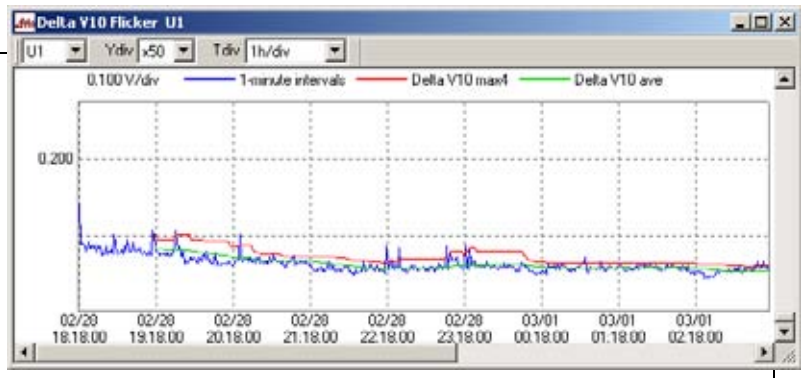
The Flicker windows in the 9624-10 program are equivalent to the Flicker Graph Screen (TIME PLOT) on the 3196 POWER QUALITY ANALYZER.

6.1 Delta V10 Flicker Window

Window Display

Click the (Open Delta V10 Flicker window) button or select **View** - **Delta V10 Flicker Window** on the menu bar.

Tool bar for the Delta V10 Flicker window

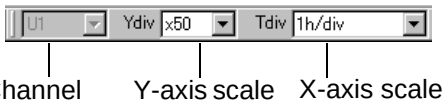


Scroll bar

Blue ....Every 1 minute
Red.....4th maximum in one hour
Green .Average over one hour

Display Content Switching

The tool bar for the Delta V10 Flicker window and the scroll bars appear in that window.
You can use the pull-down menus on the tool bar to change the content to be analyzed and displayed.



Display Scrolling

The scroll bars are used to scroll the window vertically and horizontally.

A and B Cursor Measurements and Interval Calculations

These functions can be used in the same way as in the TIME PLOT window.
❖ 4.5,"Cursor Measurements" (page 42)

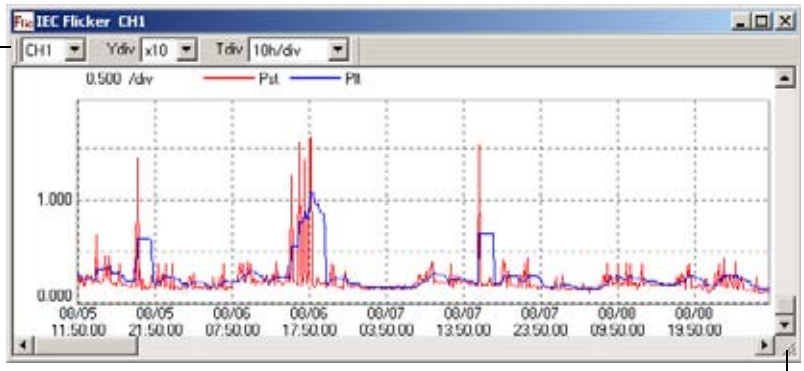
NOTE

The Delta V10 Flicker window cannot be displayed unless an FLC file is present in the read data.

6.2 IEC Flicker Window

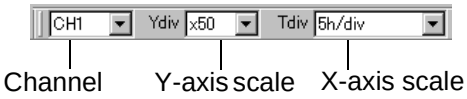
Window Display

Click the Flic (Open IEC Flicker window) button or select **View** - **IEC Flicker Window** on the menu bar.



Display Content Switching

The tool bar for the IEC Flicker window and the scroll bars appear in that window.
You can use the pull-down menus on the tool bar to change the content to be analyzed and displayed.



Display Scrolling

The scroll bars are used to scroll the window vertically and horizontally.

A and B Cursor Measurements and Interval Calculations

These functions can be used in the same way as in the TIME PLOT window.
❖ 4.5,"Cursor Measurements" (page 42)

NOTE

The IEC Flicker window cannot be displayed unless an FLC file is present in the read data.

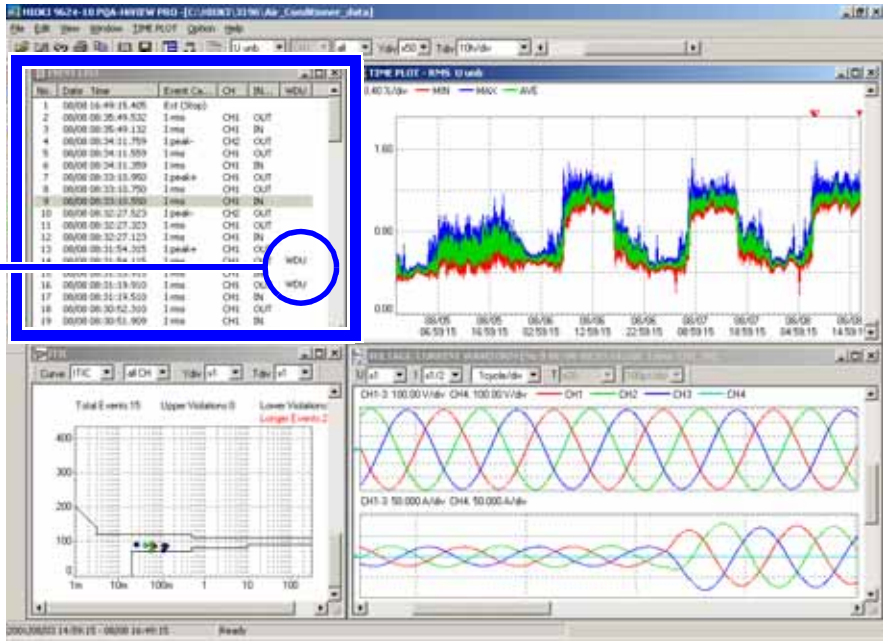
Event List Window

Chapter 7

The Event List window in the 9624-10 program is equivalent to the Event List screen on the 3196 POWER QUALITY ANALYZER.

Window Display

Click the (Show/hide EVENT LIST window) button or select **View** - **EVENT LIST Window** on the menu bar.
The Event List window opens.



```
Ipeak+      CH1   OUT
Irms        CH1   OUT   WDU
Irms        CH1   IN
Irms        CH1   OUT   WDU
Irms        CH1   IN
```

"**WDU**"
This indicates that the event has event voltage fluctuation graph data.

❖ Chapter 9, "Event Voltage Fluctuation Window" (page 71)

Event Selection

To select an event in the Event List window, use the mouse to click it directly or use the up/down cursor keys.
Selecting an event allows analysis to be conducted in synchronization with events in other windows.

❖ 3.6, "Synchronized Event Operation" (page 35)

Changing the Order of the Event List

Activate the Event List window. Select **Time order** or **Priority order** from the **Event List** menu on the menu bar or right-click and select one of these options on the popup menu.
The order of the Event List can be sorted chronologically, or by priority.

NOTE

The Event List window cannot be displayed unless an EVT file is present in the read data.

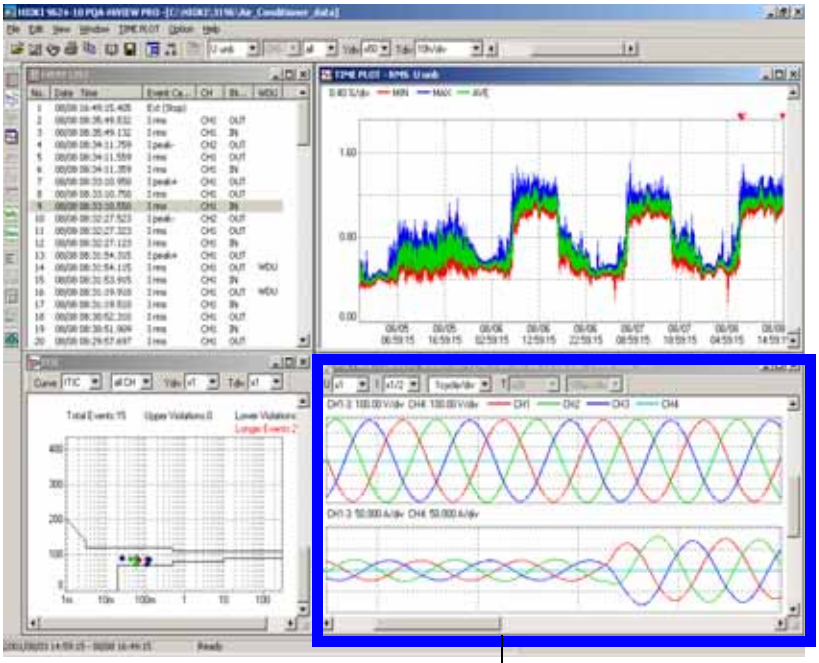
Event Data Window

Chapter 8

The Event Data window in the 9624-10 program is equivalent to the VIEW screen of the 3196 POWER QUALITY ANALYZER when an event is selected from the Event List and the ENTER key is pressed.

Window Display

Click the (Show/hide EVENT DATA window) button or select **View** - **EVENT DATA Window** on the menu bar.



These windows are collectively called the Event Data window.

Window Switching

Nine types of Event Data windows are available:
Event details, Voltage/Current Waveform, Voltage/Transient Waveform, Voltage Waveform, Current Waveform, Vector, DMM, Harmonics Bar Graph, and Harmonics List windows
Activate an Event Data window (Event Details), then select the window you wish to view from the **EVENT DATA** menu on the menu bar or right-click and select the window on the popup menu.

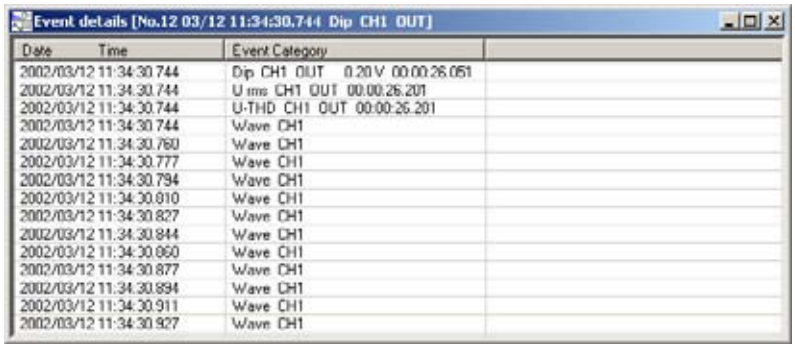
Synchronized Event Operation

The screen will change to the Event Data window of the selected event in the Event List window or TIME PLOT window.

8.1 Event Details Window

Window Display

Activate an Event Data window. Select **Event details** from the **EVENT DATA** menu on the menu bar or right-click and select the option on the popup menu.
The Event Data window switches to the Event Details window.

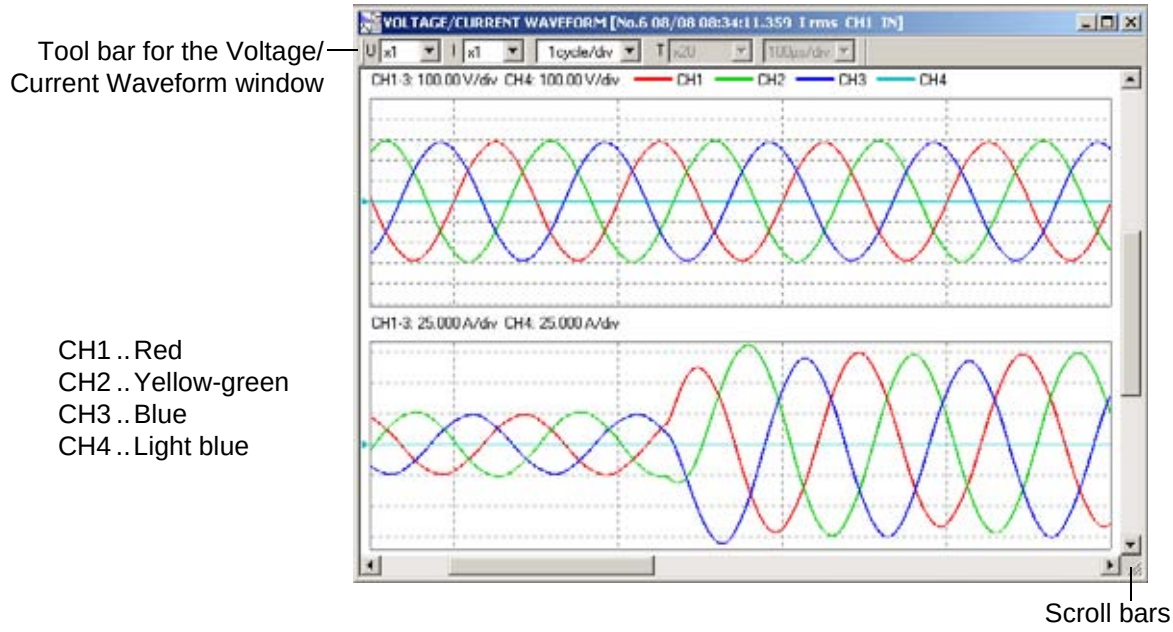


The Event Details window displays multiple events that occurred at the occurrence of the event selected in the Event List window.

8.2 Voltage/Current Waveform Window

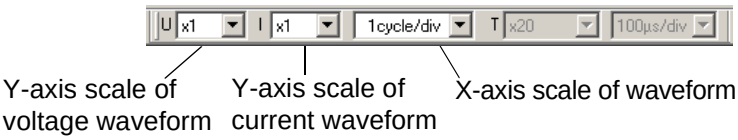
Window Display

Activate an Event Data window. Select **VOLTAGE/CURRENT WAVEFORM** from the **EVENT DATA** menu on the menu bar or right-click and select the option on the popup menu.
The Event Data window switches to the Voltage/Current Waveform window.



Display Content Switching

You can use the pull-down menus on the tool bar to change the content to be analyzed and displayed.



Display Scrolling

The scroll bars are used to scroll the window vertically and horizontally.

❖ 8.10, "Cursor Measurements" (page 67)

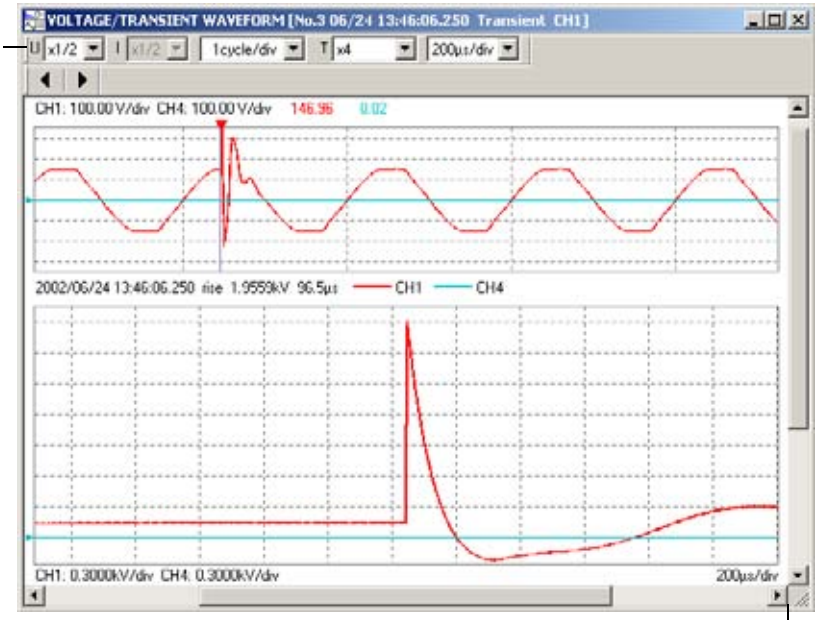
NOTE

During 50-, 60- and 400-Hz measurements, 14, 16 and 112 waveforms can be analyzed, respectively

8.3 Voltage/Transient Waveform Window

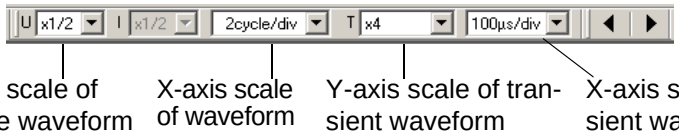
Window Display

Activate an Event Data window. Select **VOLTAGE/TRANSIENT WAVEFORM** from the **EVENT DATA** menu on the menu bar or right-click and select the option on the popup menu.
The Event Data window switches to the Voltage/Transient Waveform window.



Display Content Switching

You can use the pull-down menus on the tool bar to change the content to be analyzed and displayed.



: move the transient waveform view left and right.

Display Scrolling

The scroll bars are used to scroll the window vertically and horizontally.

❖ 8.10, "Cursor Measurements" (page 67)

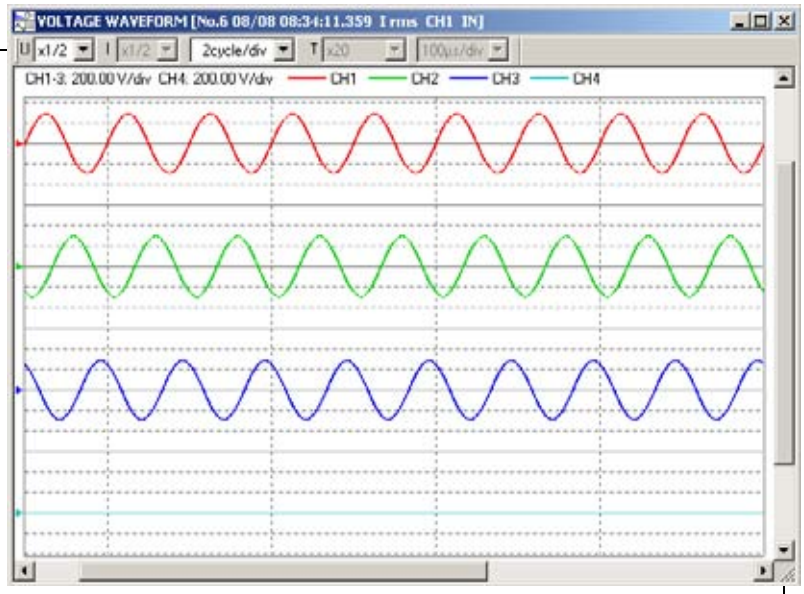
NOTE

- The Voltage/Transient Waveform window cannot be displayed unless a TRN file is present in the read data.
- Transient waveforms for up to 4096 μs are analyzed.

8.4 Four-Channel Voltage Waveform Window

Window Display

Activate an Event Data window. Select **VOLTAGE WAVEFORM** from the **EVENT DATA** menu on the menu bar or right-click and select the option on the popup menu.
The Event Data window switches to the Four-Channel Voltage Waveform window.



Tool bar for the Four-Channel Voltage Waveform window

CH1 ..Red
CH2 ..Yellow-green
CH3 ..Blue
CH4 ..Light blue

Scroll bars

Display Content Switching

You can use the pull-down menus on the tool bar to change the content to be analyzed and displayed.

Y-axis scale of voltage waveform

X-axis scale of waveform

Display Scrolling

The scroll bars are used to scroll the window vertically and horizontally.

❖ 8.10, "Cursor Measurements" (page 67)

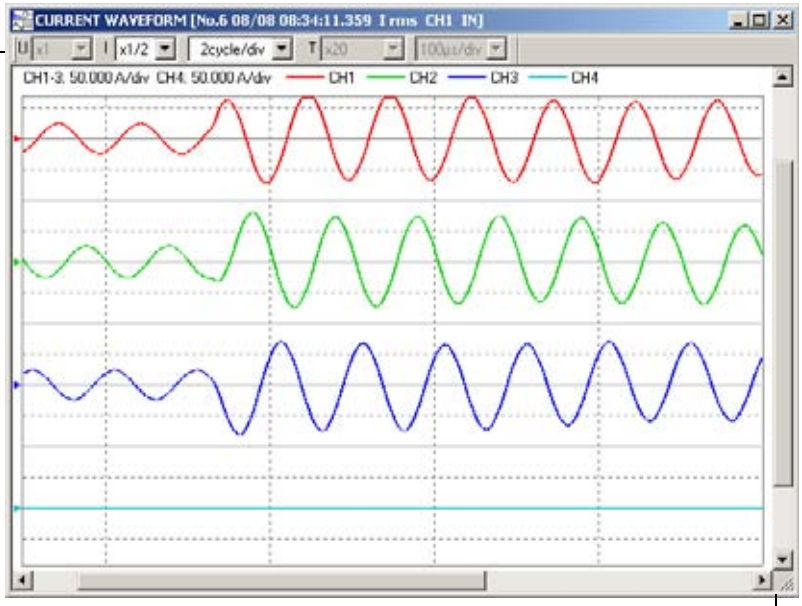
NOTE

During 50-, 60- and 400-Hz measurements, 14, 16 and 112 waveforms can be analyzed, respectively

8.5 Four-Channel Current Waveform Window

Window Display

Activate an Event Data window. Select **CURRENT WAVEFORM** from the **EVENT DATA** menu on the menu bar or right-click and select the option on the popup menu.
The Event Data window switches to the Four-Channel Current Waveform window.



Tool bar for the Four-Channel Current Waveform window

CH1 .. Red
CH2 .. Yellow-green
CH3 .. Blue
CH4 .. Light blue

Scroll bars

Display Content Switching

You can use the pull-down menus on the tool bar to change the content to be analyzed and displayed.

Y-axis scale of current waveform

X-axis scale of waveform

Display Scrolling

The scroll bars are used to scroll the window vertically and horizontally.

❖ 8.10, "Cursor Measurements" (page 67)

NOTE

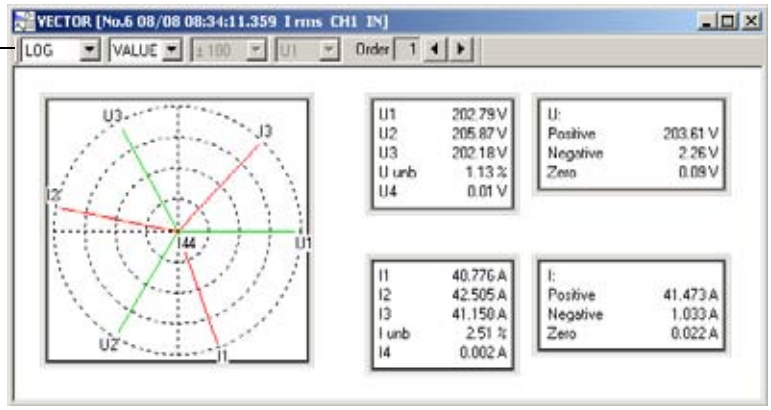
During 50-, 60- and 400-Hz measurements, 14, 16 and 112 waveforms can be analyzed, respectively

8.6 Vector Window

Window Display

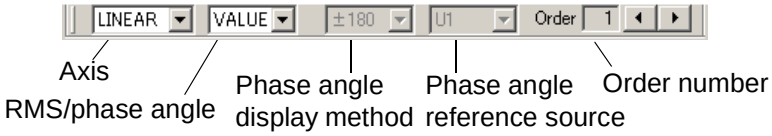
Activate an Event Data window. Select **VECTOR** from the **EVENT DATA** menu on the menu bar or right-click and select the option on the popup menu.
The Event Data window switches to the Vector window.
The Vector window displays the positive, negative, and zero phase calculation results, in addition to voltage and current data displayed on the 3196.

Tool bar for the Vector window



Display Content Switching

You can use the pull-down menus on the tool bar to change the content to be analyzed and displayed.



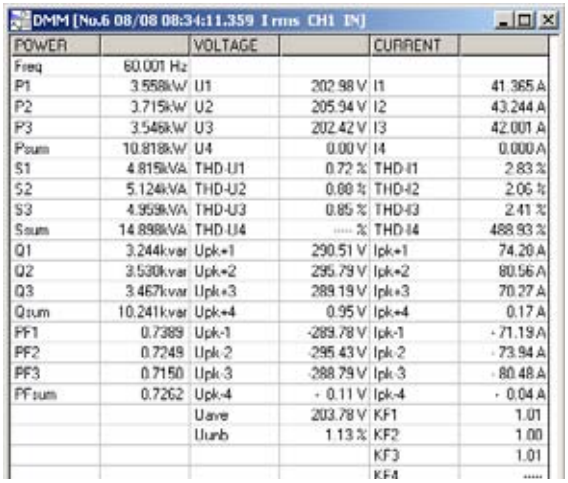
NOTE

- Positive, negative, and zero phase calculation results are shown only when using the 3P4W system.
- When measuring 400 Hz, harmonics up to the 10th are analyzed.

8.7 DMM Window

Window Display

Activate an Event Data window. Select **DMM** from the **EVENT DATA** menu on the menu bar or right-click and select the option on the popup menu.
The Event Data window switches to the DMM window.



POWER		VOLTAGE		CURRENT	
Freq	60.001 Hz				
P1	3.558kW	U1	202.98 V	I1	41.365 A
P2	3.715kW	U2	205.94 V	I2	43.244 A
P3	3.546kW	U3	202.42 V	I3	42.001 A
Psum	10.818kW	U4	0.00 V	I4	0.000 A
S1	4.815kVA	THD-U1	0.72 %	THD-I1	2.83 %
S2	5.124kVA	THD-U2	0.88 %	THD-I2	2.06 %
S3	4.959kVA	THD-U3	0.85 %	THD-I3	2.41 %
Ssum	14.898kVA	THD-U4	----- %	THD-I4	488.93 %
Q1	3.244kvar	Upk+1	290.51 V	Ipk+1	74.20 A
Q2	3.530kvar	Upk+2	295.79 V	Ipk+2	80.56 A
Q3	3.467kvar	Upk+3	289.19 V	Ipk+3	70.27 A
Qsum	10.241kvar	Upk+4	0.95 V	Ipk+4	0.17 A
PF1	0.7389	Upk-1	-289.78 V	Ipk-1	-71.19 A
PF2	0.7249	Upk-2	-295.43 V	Ipk-2	-73.94 A
PF3	0.7150	Upk-3	-288.79 V	Ipk-3	-80.48 A
PFsum	0.7262	Upk-4	-0.11 V	Ipk-4	-0.04 A
		Uave	203.78 V	KF1	1.01
		Uunb	1.13 %	KF2	1.00
				KF3	1.01
				KF4	-----

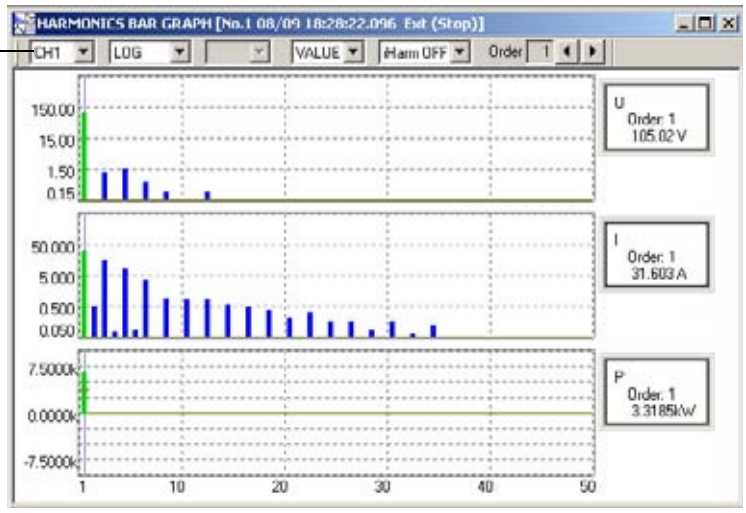
Use the mouse to select a range, then choose **Edit** - **Copy** on the menu bar. The data can be used as tab-delimited text in Microsoft Excel or similar applications.

8.8 Harmonic Bar Graph Window

Window Display

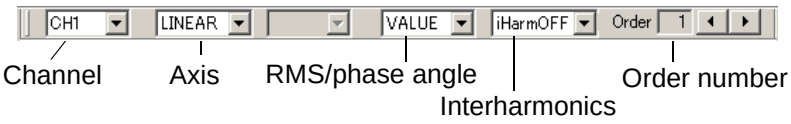
Activate an Event Data window. Select **HARMONICS BAR GRAPH** from the **EVENT DATA** menu on the menu bar or right-click and select the option on the popup menu.
The Event Data window switches to the Harmonic Bar Graph window.

Tool bar for the Harmonic Bar Graph window



Display Content Switching

You can use the pull-down menus on the tool bar to change the content to be analyzed and displayed.



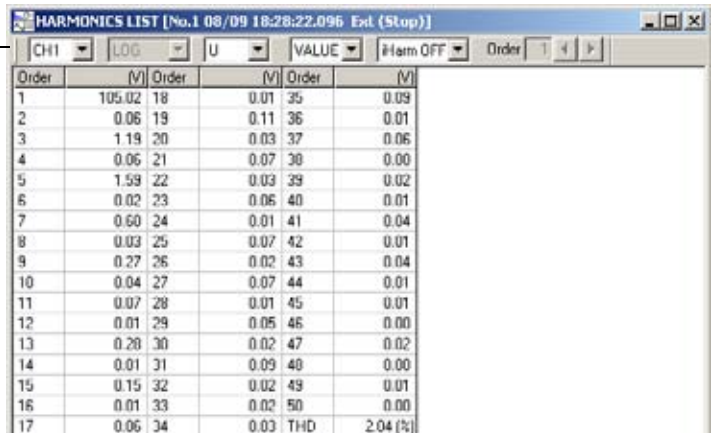
NOTE When measuring 400 Hz, harmonics up to the 10th are analyzed.

8.9 Harmonic List Window

Window Display

Activate an Event Data window. Select **HARMONICS LIST** from the **EVENT DATA** menu on the menu bar or right-click and select the option on the popup menu.
The Event Data window switches to the Harmonic List window.

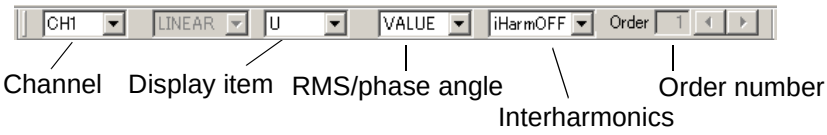
Tool bar for the Harmonic Bar Graph window



Order	(V)	Order	(V)	Order	(V)
1	105.02	18	0.01	35	0.09
2	0.06	19	0.11	36	0.01
3	1.19	20	0.03	37	0.06
4	0.06	21	0.07	38	0.00
5	1.59	22	0.03	39	0.02
6	0.02	23	0.06	40	0.01
7	0.60	24	0.01	41	0.04
8	0.03	25	0.07	42	0.01
9	0.27	26	0.02	43	0.04
10	0.04	27	0.07	44	0.01
11	0.07	28	0.01	45	0.01
12	0.01	29	0.05	46	0.00
13	0.28	30	0.02	47	0.02
14	0.01	31	0.09	48	0.00
15	0.15	32	0.02	49	0.01
16	0.01	33	0.02	50	0.00
17	0.06	34	0.03	THD	2.04 (%)

Display Content Switching

You can use the pull-down menus on the tool bar to change the content to be analyzed and displayed.



Use the mouse to select a range, then choose **Edit** - **Copy** on the menu bar. The data can be used as tab-delimited text in Microsoft Excel or similar applications.

NOTE

When measuring 400 Hz, harmonics up to the 10th are analyzed.

8.10 Cursor Measurements

Use the A and B cursors to view values at cursor positions on the waveforms when on one of the four event waveform windows: Voltage/Current Waveform, Voltage/Transient Waveform, 4-ch Voltage Waveform, and 4-ch Current Waveform.

About A and B Cursor Values

Click the (A and B cursor) button or select **A and B cursor** from the **Window** menu bar or the right-clicked pop-up menu.

A dialog box shows the values at the A and B cursor positions when they are displayed on a waveform window.

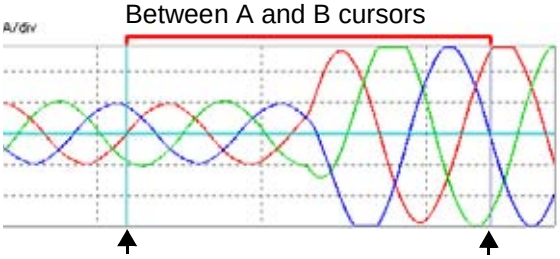
Voltage and current waveforms

"Clock time" and numeric data at A and B cursor positions

❖ Calculation (page 70)

Data obtained by subtracting A from B

Between A and B cursors



❖ Moving A and B Cursors(page 69)

A cursor (light blue) B cursor (purple)

Voltage/Current waveform window

The contents displayed in the dialog box depend on the particular voltage and current waveform windows (voltage/current waveform, voltage/transient waveform, 4-channel voltage waveform, and 4-channel current waveform windows).

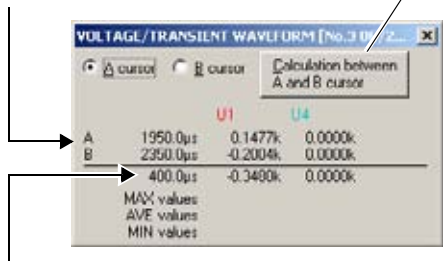
NOTE

The time difference between the A and B cursors is calculated using a pre-determined value of less than 0.001 second. Therefore, the last digit (0.001 sec) may not be entirely accurate.

Voltage/transient waveforms

"Period" and numeric data at A and B cursor positions

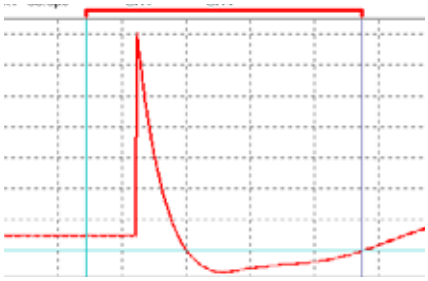
❖ Calculation (page 70)



The time data is obtained assuming that the left edge of the transient data is 0 µs and the right edge is 4096 µs.

Data obtained by subtracting A from B

Between A and B cursors



❖ Moving A and B Cursors(page 69)

A cursor (light blue) B cursor (purple)

Voltage/transient waveform window

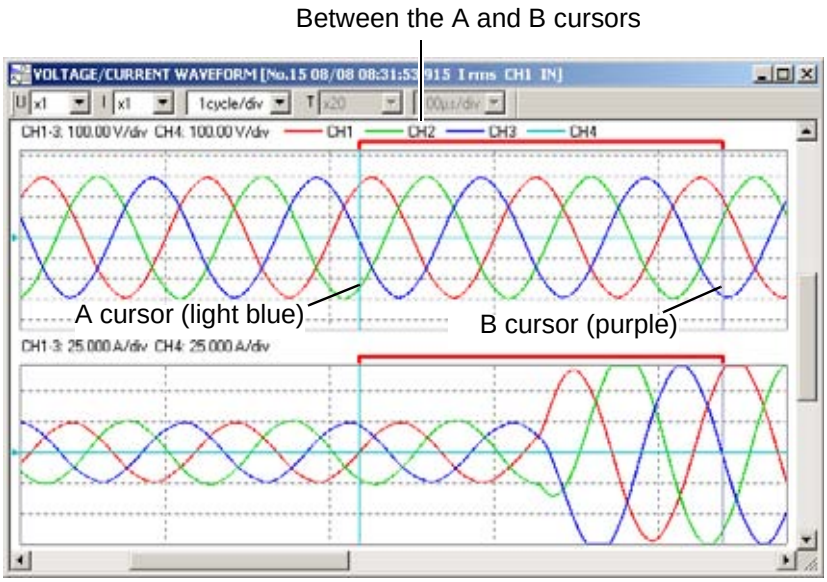
Moving A and B Cursors

1. Click the check box of the A or B cursor in the dialog box to select the cursor you wish to move.

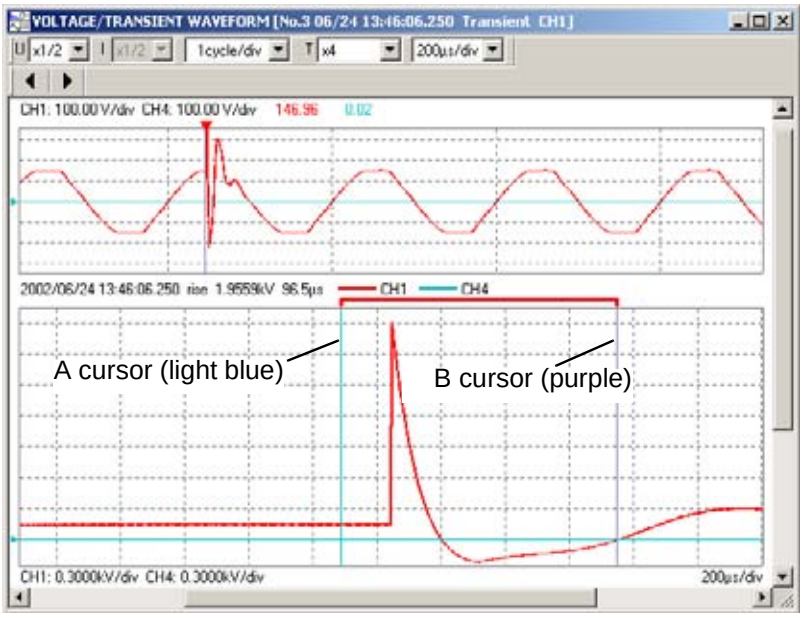
2. Activate an event waveform window. Move the cursor by clicking where you wish to move it to or press the right/left cursor keys on the keyboard.
The A cursor is shown in light blue, the B cursor in purple, and the range between both cursors in red.

Voltage and current waveforms

A cursor.. light blue
B cursor.. purple



Voltage/transient waveform



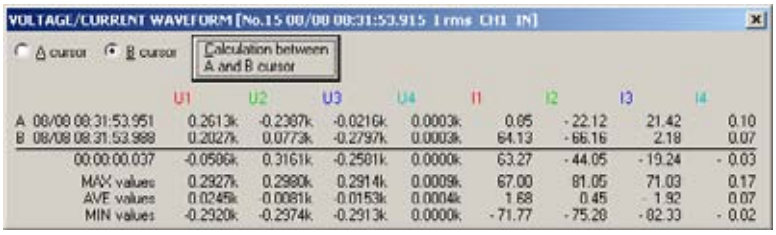
NOTE On the Event Waveform window, the cursors cannot be moved to a position at which there is no data.

Interval Calculation

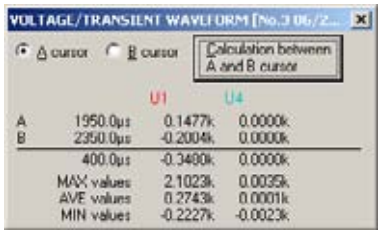
The A and B cursors can be used to apply a calculation over a specific period.

Click the **Calculation between A and B cursor** button to calculate the maximum, average and minimum values within the period demarcated by the A and B cursors.

Voltage and current waveforms



Voltage/transient waveform



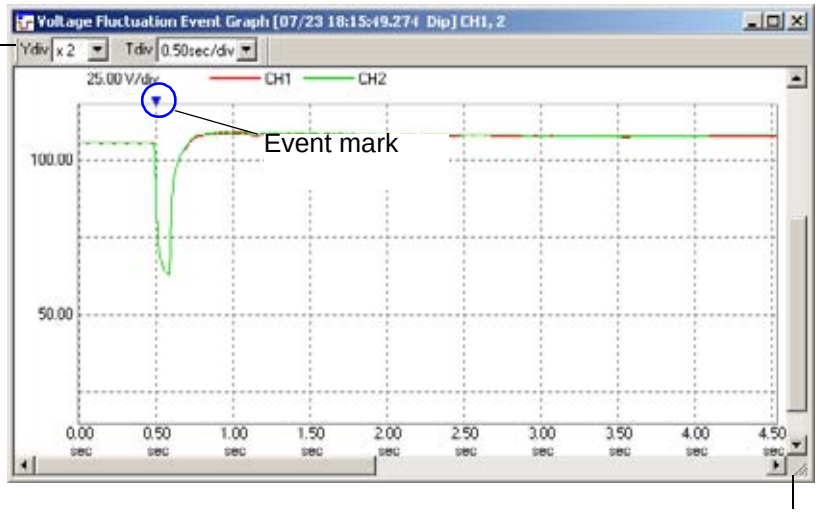
Event Voltage Fluctuation Window

Chapter 9

The event voltage fluctuation window of the 9624-10 is equivalent to the voltage fluctuation event screen (TIME PLOT) of the 3196 Power Quality Analyzer.
The window shows a time-series graph of RMS values calculated for a single waveform shifted by a half wave for 10 seconds when a voltage dip, voltage swell, or interruption of voltage occurs.

Window Display

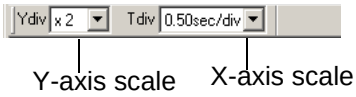
Click the (Open Voltage Fluctuation Event Graph) button or select **View** - **Voltage Fluctuation Event Graph** on the menu bar.



CH1..... Red
CH2..... Yellow-green
CH3..... Blue

Display Content Switching

You can use the pull-down menus on the tool bar to change the content to be analyzed and displayed.



Display Scrolling

The scroll bars are used to scroll the window vertically and horizontally.

Event Mark

A blue triangle event mark [▼] indicates the time position when a voltage dip, voltage swell, or interruption of voltage occurs.

Synchronized Event Operation

The screen will change to the Event voltage fluctuation window of the selected WDU event in the Event List window or TIME PLOT window.
❖ 3.6, "Synchronized Event Operation" (page 35)

A and B Cursor Measurements and Interval Calculations

These functions can be used in the same way as in the TIME PLOT window.
❖ 4.5, "Cursor Measurements" (page 42)

NOTE

If there is no WDU file for the selected event, the event voltage fluctuation window does not display a graph. "The WDU data file is not available." message appears instead.

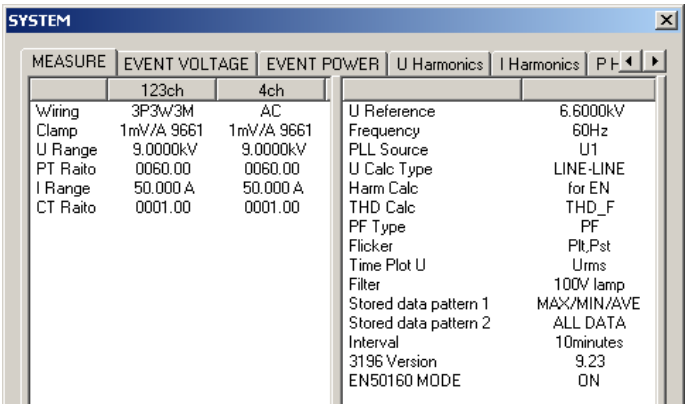
Settings Window

Chapter 10

The Settings window in the 9624-10 program is equivalent to the SYSTEM screen on the 3196 POWER QUALITY ANALYZER.
The contents of the 3196 SYSTEM settings screen for the currently read data can be verified.

Window Display

Click the (View system settings) button or select **View** - **SYSTEM** on the menu bar.



NOTE The Settings window only shows the setting contents: the settings cannot be changed.

Click the tabs to confirm various setting contents.
The setting contents of the 3196 screens that correspond to each tab are indicated below.

9624-10 Tab Name	3196 Screens
MEASURE	SYSTEM-DF2-MAIN - MEASURE and Partial RECORDING
EVENT VOLTAGE	SYSTEM-DF3-EVENT - VOLTAGE
EVENT POWER	SYSTEM-DF3-EVENT - POWER
U Harmonics	SYSTEM-DF3-EVENT - HARMONICS
I Harmonics	SYSTEM-DF3-EVENT - HARMONICS
P Harmonics	SYSTEM-DF3-EVENT - HARMONICS
Phase angle	SYSTEM-DF3-EVENT - HARMONICS
EN50160 (1)	EVENT-DF4- EN50160 - Setting1 (when EN50160 measurement is ON)
EN50160 (2)	EVENT-DF4- EN50160 - Setting2 (when EN50160 measurement is ON)
EN50160 (3)	EVENT-DF4- EN50160 - Setting3 (when EN50160 measurement is ON)

NOTE

- The Settings window cannot be displayed unless a SET file is present in the read data.
- The EN50160 setting tabs will not appear unless the read data contains EN50160 data.

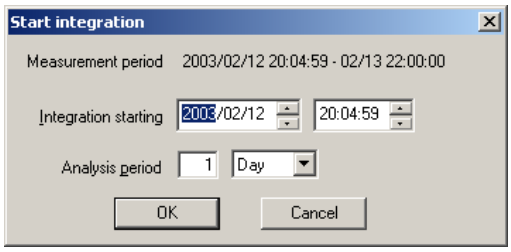
Integrated and Demand Power Analysis Chapter 11

11.1 Integrated Power Value Analysis

Window Display

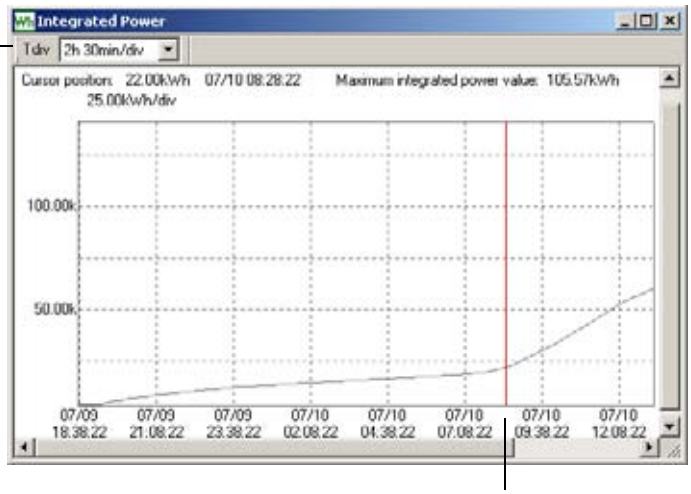
Click the Wh (Open Integrated Power window) button or select **View** - **Integrated Power Window** on the menu bar.

The Start Integration dialog box opens.



Set the analysis start time and analysis period in the dialog box, and click **OK** to start calculation.
When calculation finishes, the Integrated Power Value window opens.
Integrated power calculation cannot start unless the analysis start time is within the measurement period.

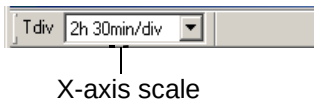
Tool bar for the Integrated Power window (page 76)



❖ A/B cursors: 4.5, "Cursor Measurements" (page42)

Display Content Switching

You can use the pull-down menus on the tool bar to change the content to be analyzed and displayed.

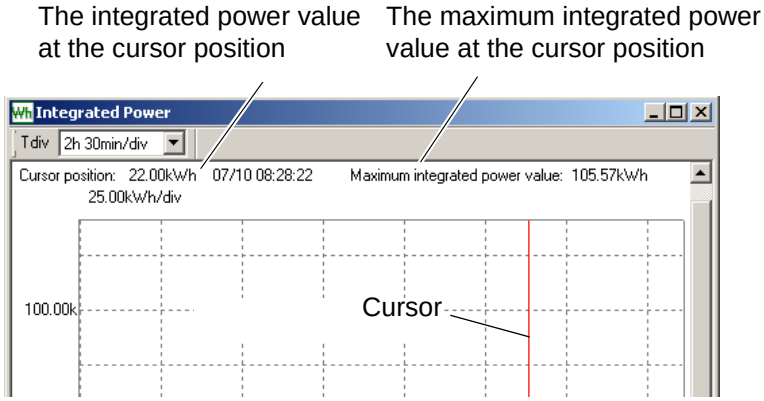


Display Scrolling

The scroll bars are used to scroll the window vertically and horizontally.

Cursor Measurement

The integrated power value and maximum integrated power value at the cursor position are displayed. The cursor is positioned with the mouse pointer or moved using the right/left cursor keys.



A and B Cursor Measurements and Interval Calculations

These functions can be used in the same way as in the TIME PLOT window.

❖ 4.5, "Cursor Measurements" (page42)

NOTE

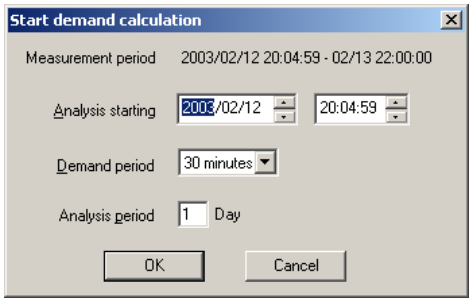
When the A/B cursor dialog box is opened, the A and B cursors are moved instead of the ordinary cursor.

11.2 Demand Analysis

Window Display

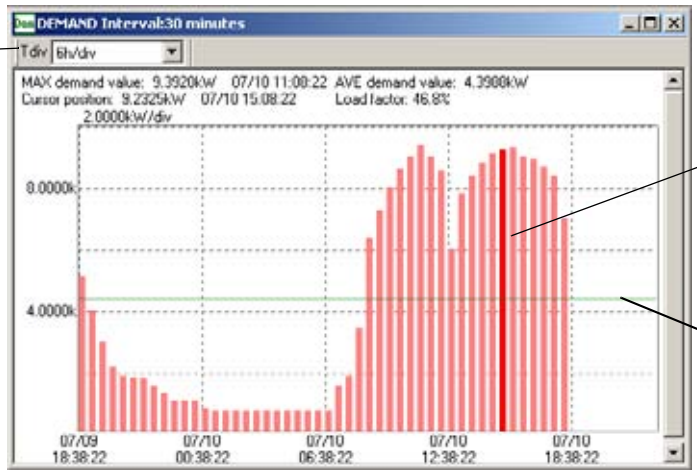
Click the Dem (Open Demand window) button or select **View** - **Demand Window** on the menu bar.

The Start Demand Calculation dialog box opens.



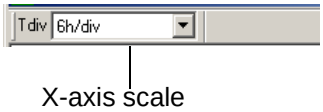
Set the analysis start time, demand period and analysis period in the dialog box, and click **OK** to start calculation.

When calculation finishes, the Demand window opens.
Demand calculation cannot start unless the analysis start time is within the measurement period.



Display Content Switching

You can use the pull-down menus on the tool bar to change the content to be analyzed and displayed.



Cursor Measurement

The demand value at the cursor position is displayed together with the maximum demand value, average demand value, and load factor.
The cursor is positioned with the mouse pointer or moved using the right/left cursor keys.

EN50160 Data Analysis Chapter 12

The EN50160 windows of the 9624-10 correspond to the EN50160 windows of the 3196 POWER QUALITY ANALYZER (Overview, Harmonic, Signaling, and Events windows).
The EN50160 windows (Overview, Harmonic, Signaling, and Measurement result classification) appear in EN50160 display mode. The other windows (TIME PLOT, Event List, Event Data, ITIC, Delta V10 Flicker, IEC Flicker, Event Voltage Fluctuation, Integrated Power Value, and Demand) appear in normal display mode.

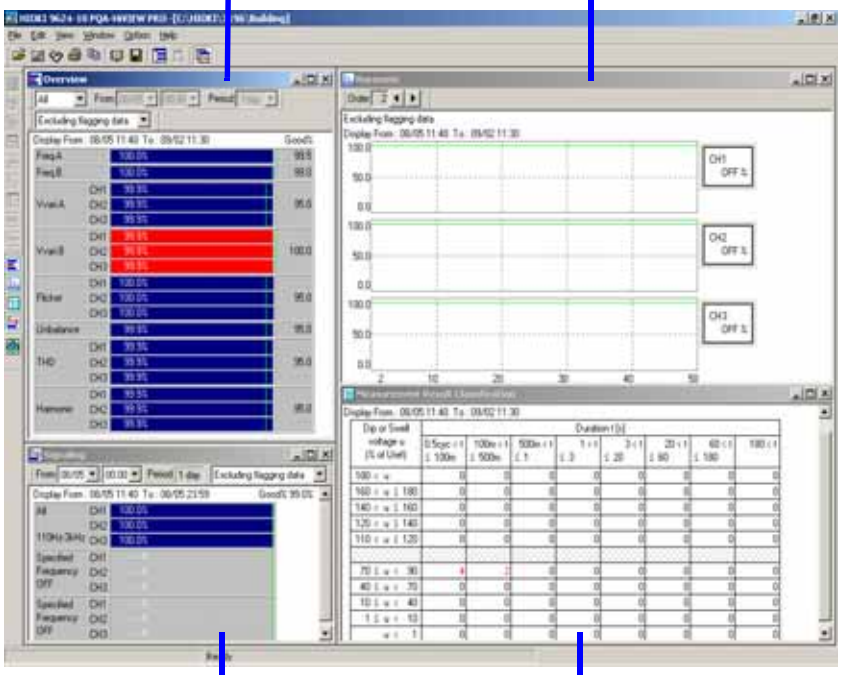
Switching between EN50160 Display Mode and Normal Display Mode

Press the (Switch to EN50160 screen) button or select **View - EN50160** on the menu bar.

When the EN50160 windows appear on the screen, the button is shown depressed with **EN50160** on the **View** menu on the menu bar selected.

Overview window
❖ (page 80)

Harmonic window
❖ (page 82)



Signaling window
❖ (page 83)

Measurement result classificatior
❖ (page 84)

NOTE

The EN50160 windows will not appear unless the read data contains an EN50160 file.

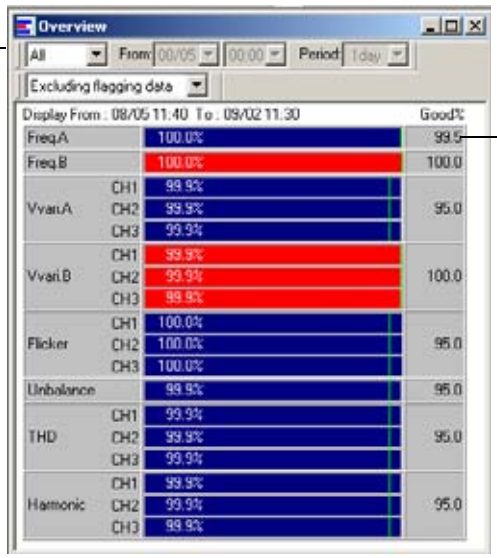
12.1 Overview Window

The Overview window of the 9624-10 corresponds to the Overview window (EN50160) of the 3196 POWER QUALITY ANALYZER.

Window Display

Press the (Open EN50160 Overview window) button or select **View - Overview Window** on the menu bar.
The Overview window then opens.

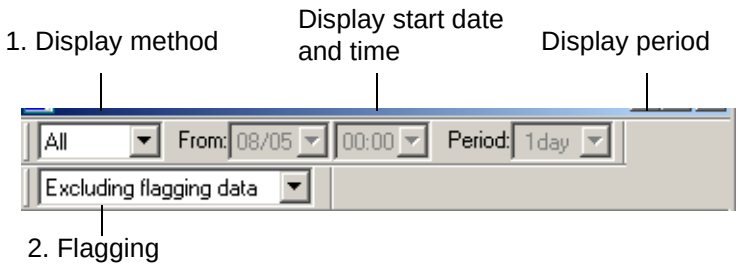
Tool bar for the Overview window



❖ To edit Good % (page 81)

Display Content Switching

You can use the pull-down menus on the tool bar to change the content to be analyzed and displayed.



1. Display method:
From the display method menu, select how to specify the period of data to display (from the two methods below).

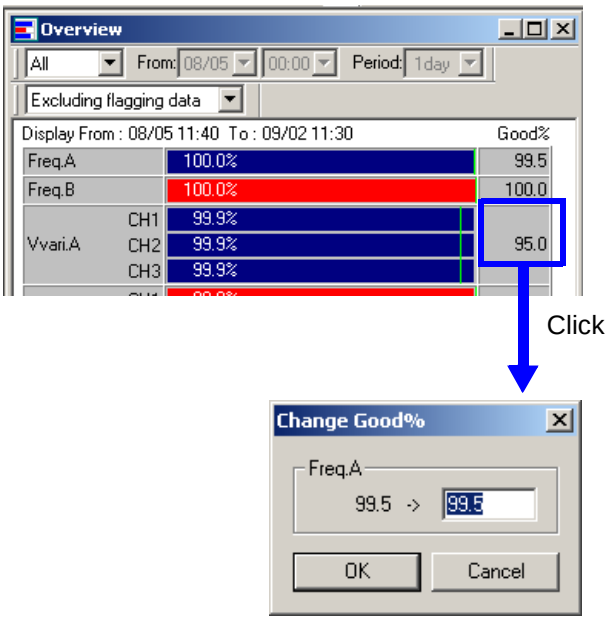
All	Displays data for the entire period in the EN data file.
Specific	Lets you specify the start date and time of data to display, and the period.

2. Flagging:
The flagging menu lets you choose whether to include flagged data in the statistics.

Including flagging data	Includes flagged data in the statistics.
Excluding flagging data	Does not include flagged data in the statistics.

❖ What is flagged data?(page 81)

Editing Good% Use the mouse to click a Good% setting area. The Change Good% dialog box then opens.



Enter a number you wish to change the current Good% to.
Click the **OK** button to reflect the entered Good% in the Overview window.

NOTE

What is flagged data?

Any voltage swell, voltage dip, or interruption that occurs may affect the data of other parameters (e.g., frequency), thus rendering the data unreliable. The data of other parameters are handled as “flagged data” when a voltage swell, voltage dip, or interruption occurs. Moreover, flagged data can be excluded from the statistics to ensure the reliability of statistical data.

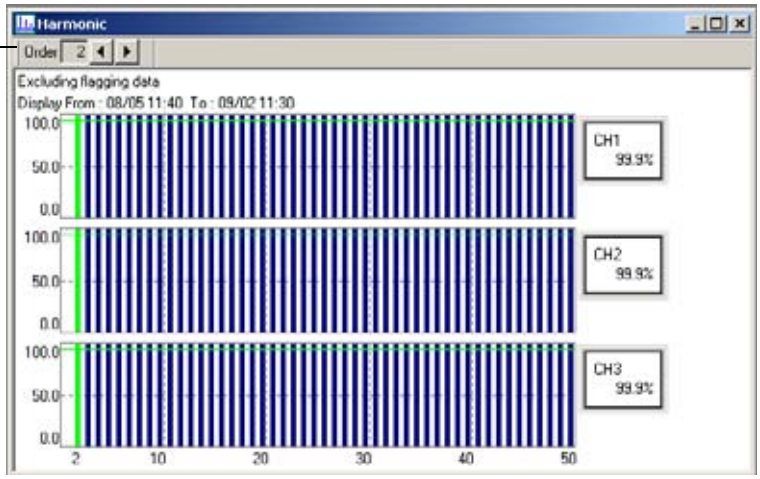
12.2 Harmonic Window

The Harmonic window of the 9624-10 corresponds to the Harmonic window (EN50160) of the 3196 POWER QUALITY ANALYZER.

Window Display

Press the (Open EN50160 Harmonic window) button or select **View - Harmonic Window** on the menu bar.
The Harmonic window then opens.

Tool bar for the Harmonic window



NOTE

The display start date and time, display period, and flagging setting reflect those set in the Overview window.

Display Content Switching

You can use the tool bar to change the content to be analyzed and displayed.

NOTE

The selectable ordinal numbers range from 2nd to 50th. You cannot select 1st.

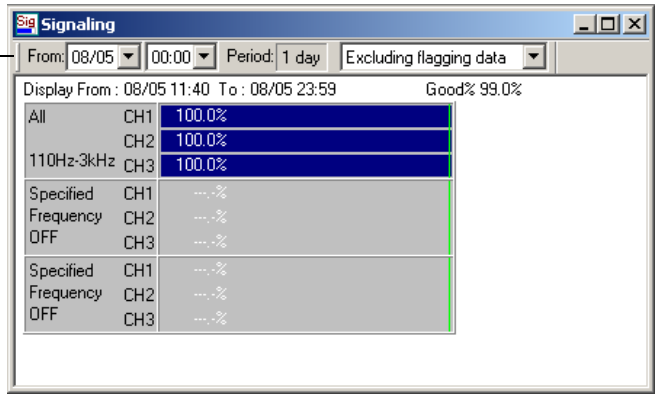
12.3 Signaling Window

The Signaling window of the 9624-10 corresponds to the Signaling window (EN50160) of the 3196 POWER QUALITY ANALYZER.

Window Display

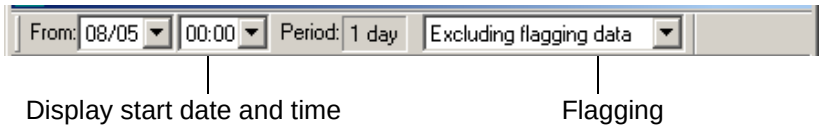
Press the (Open EN50160 Signaling window) button or select **View - Signaling Window** on the menu bar.
The Signaling window then opens.

Tool bar for the Signaling window



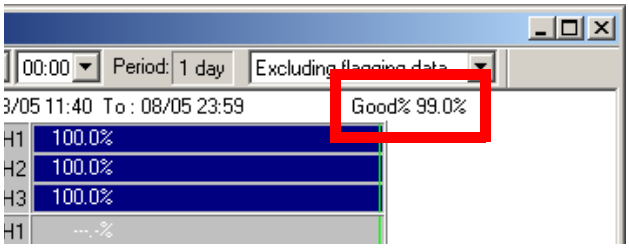
Display Content Switching

You can use the pull-down menus on the tool bar to change the content to be analyzed and displayed.



Editing Good%

Click the description “Good%” in the window to display the Change Good% dialog box. (Editing Good%(page 81))



Enter a number you wish to change the current Good% to.
Click the **OK** button to reflect the entered Good% in the Signaling window.

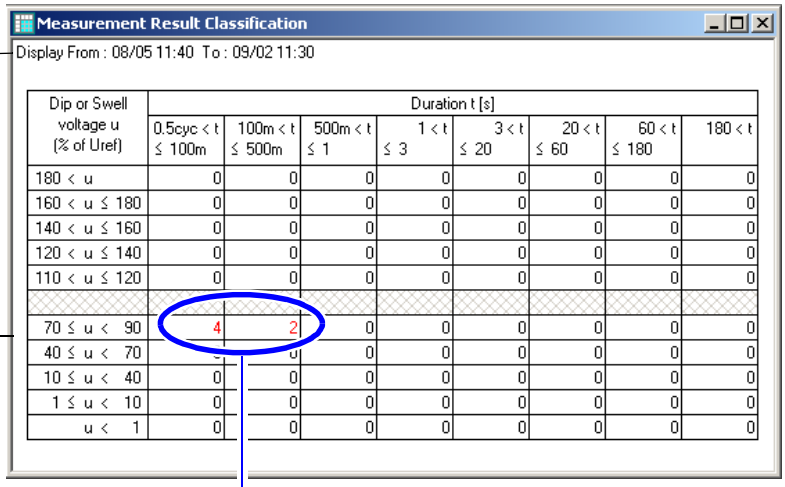
12.4 Measurement Result Classification Window

The Measurement Result Classification window of the 9624-10 corresponds to the Events window (EN50160) of the 3196 POWER QUALITY ANALYZER.

Window Display

Press the (Open EN50160 Measurement Result Classification window) button or select **View - Measurement Result Classification Window** on the menu bar.
The Signaling window then opens.

Display start and end date and time



Dip or Swell voltage u (% of Uref)	Duration t [s]							
	0.5cyc < t ≤ 100m	100m < t ≤ 500m	500m < t ≤ 1	1 < t ≤ 3	3 < t ≤ 20	20 < t ≤ 60	60 < t ≤ 180	180 < t
180 < u	0	0	0	0	0	0	0	0
160 < u ≤ 180	0	0	0	0	0	0	0	0
140 < u ≤ 160	0	0	0	0	0	0	0	0
120 < u ≤ 140	0	0	0	0	0	0	0	0
110 < u ≤ 120	0	0	0	0	0	0	0	0
70 ≤ u < 90	4	2	0	0	0	0	0	0
40 ≤ u < 70			0	0	0	0	0	0
10 ≤ u < 40	0	0	0	0	0	0	0	0
1 ≤ u < 10	0	0	0	0	0	0	0	0
u < 1	0	0	0	0	0	0	0	0

❖ To edit measurement result classification: (page 86)

Indicates the number of voltage swell, voltage dip, and interruption occurence in red.

NOTE

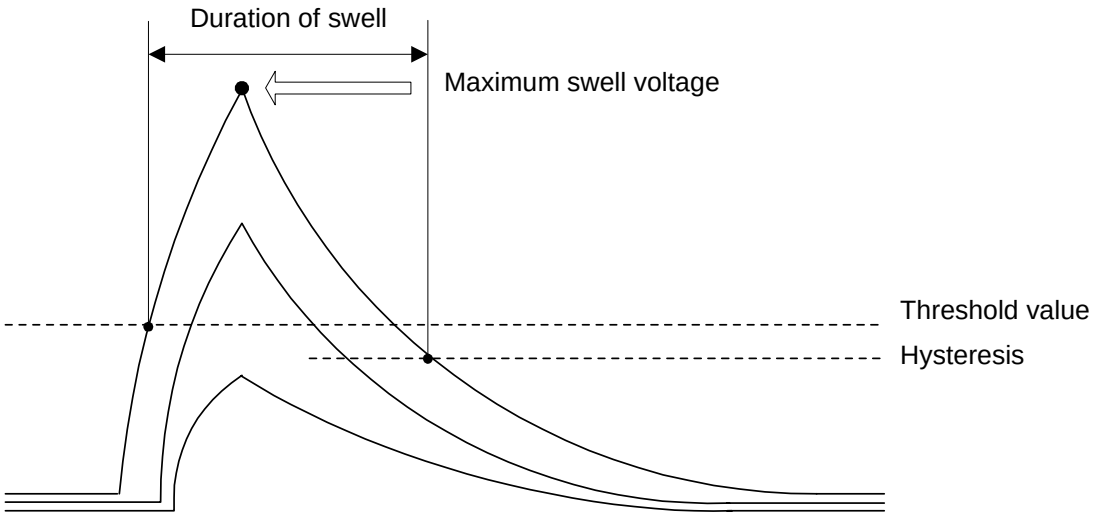
The display start date and time, and display period reflect those set in the Overview window.

Voltage u	In the event of a voltage swell, Voltage u represents the maximum swell voltage (% of nominal voltage). In the event of a voltage dip or interruption, Voltage u represents the residual voltage (% of nominal voltage).
Duration	Represents the duration of a voltage swell, voltage dip, or interruption.

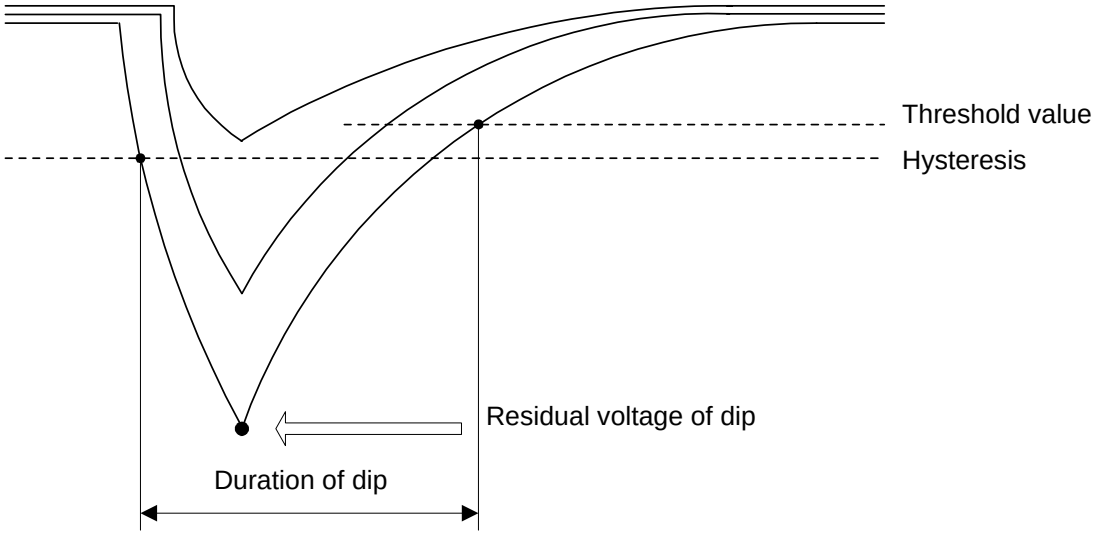
❖ For sorting of 3-phase voltage, data is sorted as shown below (on the next page).

Three-Phase RMS Voltage Fluctuation Graph

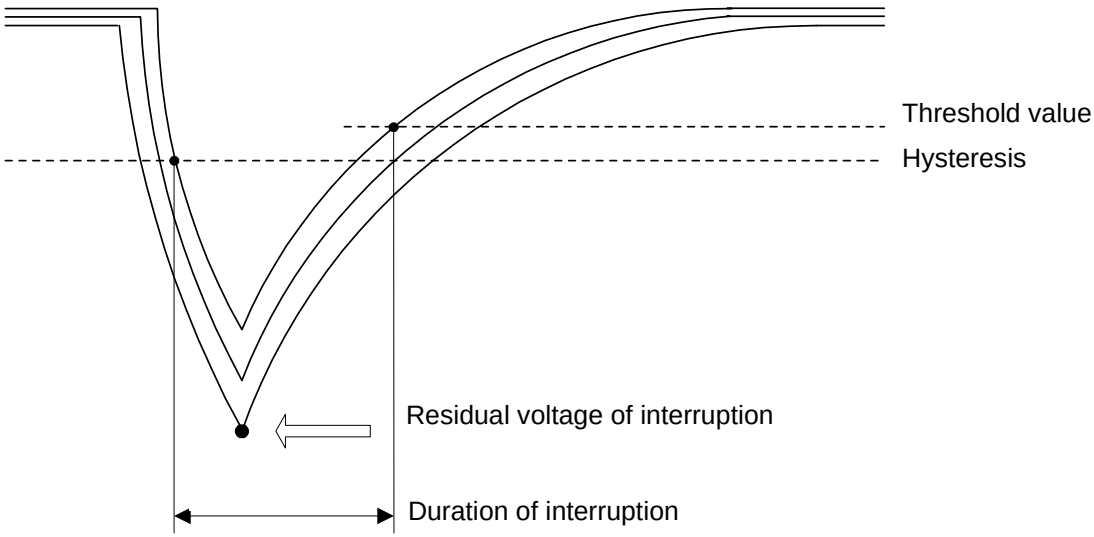
Swell



Dip



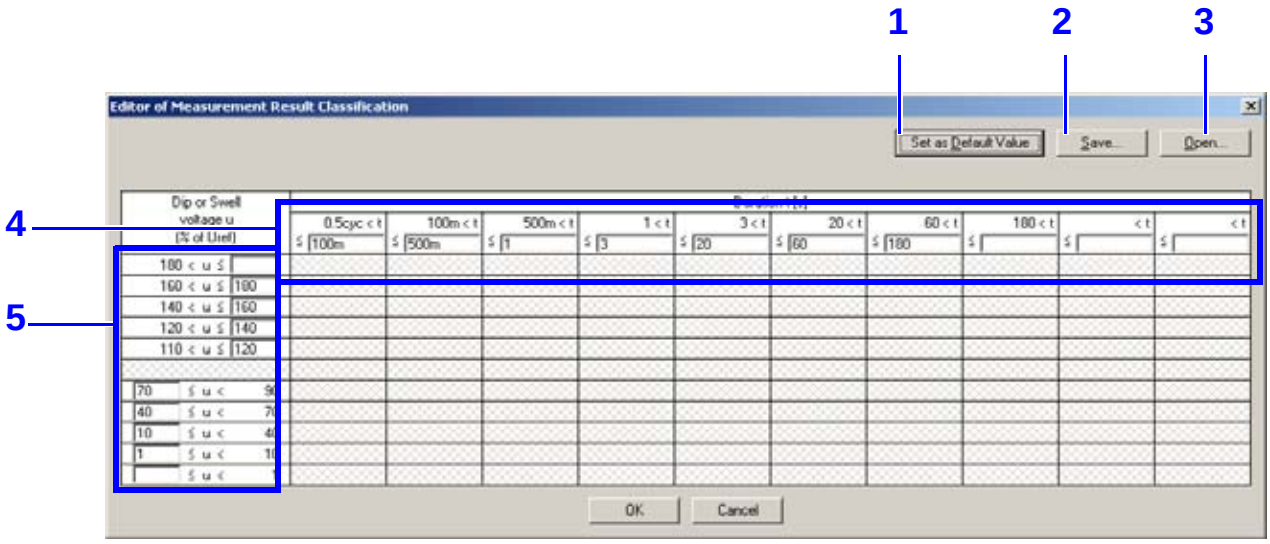
Interruption



Measurement Result Classification Editor

The Measurement result classification editor lets you edit the divisions of period and voltage of the table to be displayed in the Measurement Result Classification window.

Activate the Measurement Result Classification window. Select **Measurement Result Classification - Editor of Measurement Result Classification** from the menu bar or right-click and select **Editor of Measurement Result Classification** on the popup menu. The Measurement Result Classification editor then appears.



1	Set as Default Value	Set the divisions of period and voltage of the table to the defaults. (Measurement Result Classification Defaults Swell, Dip, Interruption(page 87))
2	Save...	Saves the divisions of period and voltage of the table currently shown in the Measurement Result Classification editor in a measurement result classification setting file (Setting Files(page 18)).
3	Open...	Reads out the divisions of period and voltage of the table from a measurement result classification setting file (ESP file), and reflects this information in the Measurement Result Classification editor.
4	0.5cyc < t ≤ 100m	Enter the division of the period.
5	160 < u ≤ 180	Enter the division of the voltage.

Measurement Result Classification Defaults

Swell, Dip, Interruption

Voltage u (% of Uref)	Duration t (seconds)							
	0.5cyc < t ≤ 100m	100m < t ≤ 500m	500m < t ≤ 1	1 < t ≤ 3	3 < t ≤ 20	20 < t ≤ 60	60 < t ≤ 180	180 < t
180 < u								
160 < u ≤ 180								
140 < u ≤ 160								
120 < u ≤ 140								
110 < u ≤ 120								
70 ≤ u < 90								
40 ≤ u < 70								
10 ≤ u < 40								
1 ≤ u < 10								
u < 1								

Reflecting in Measurement Result Classification Window

The divisions of period and voltage of the table are set by using one of the methods below.

- Read out the settings from a measurement result classification setting file. (press the Open button)
- Edit the table by manual entry.
- Click the **Set as Default Value** button.

Click the **OK** button to reflect the divisions of period and voltage of the table currently shown in the Measurement Result Classification editor in the Measurement Result Classification window.

CSV Format Conversion Function Chapter 13

The TIME PLOT, Event waveform, Flicker graph, Event voltage fluctuation, Demand, and Integrated power value windows allow you to convert data to CSV format, which can be used with spreadsheet programs such as Microsoft Excel.

- To convert and save time-series data in the range specified by A and B cursors from binary to CSV format
  (TIME PLOT window, Flicker graph window, Event voltage fluctuation window, Integrated power value window)
- To convert and save waveform data or demand data from binary to CSV format
  (Event waveform window and Demand window of the Voltage/current waveforms, Voltage/transient waveforms, 4-channel-voltage waveforms, 4-channel current waveforms)

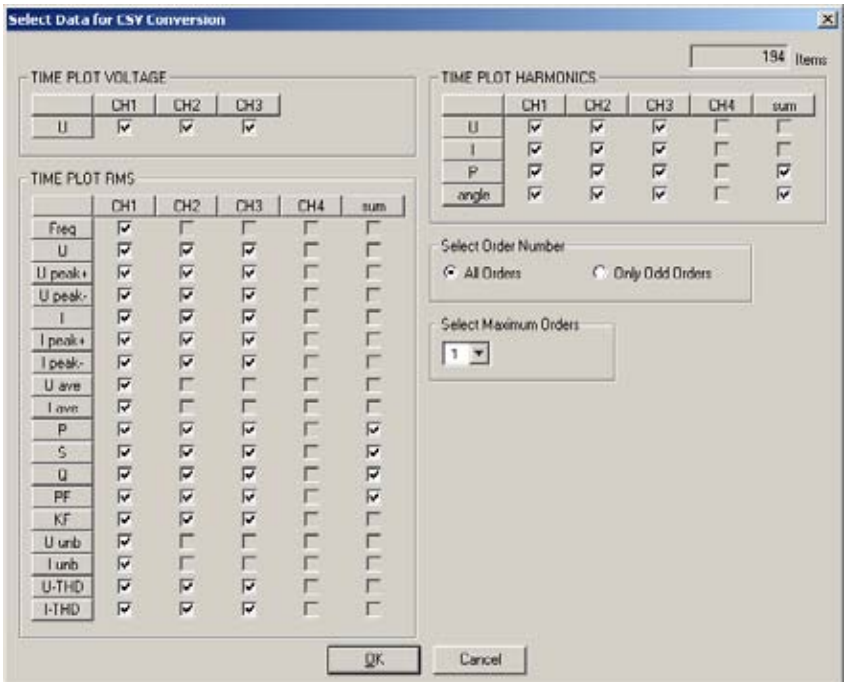
Conversion Procedure

TIME PLOT window, Flicker graph window, Event voltage fluctuation window, Integrated power value window

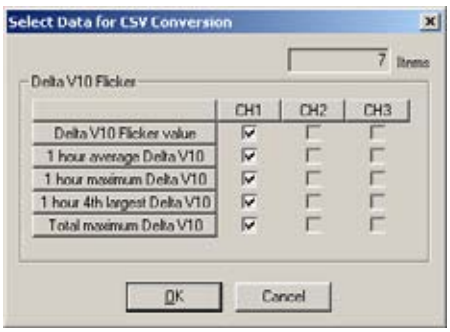
1. Activate any TIME PLOT window.
   Select the range of data to be converted to CSV format with the A and B cursors.
   ❖ 4.5, "Cursor Measurements"(page 42)

2. Select **File** - **Save the active data as a CSV file** on the menu bar.
   The Select Data for CSV Conversion dialog box opens.

TIME PLOT window

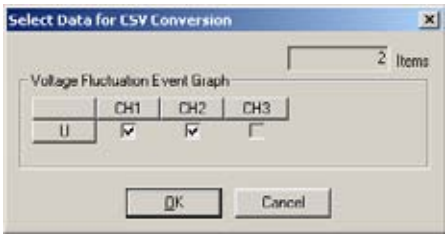


Delta V10 Flicker window

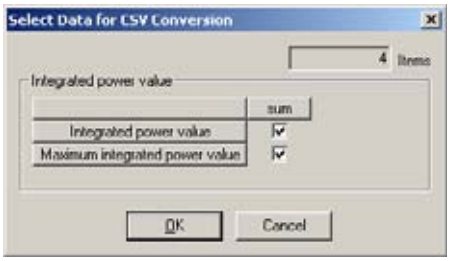


IEC Flicker window

Event voltage fluctuation window



Integrated power value window



3. Select the check boxes of measurement items to be converted to CSV format.

4. When you click the **OK** button, the Save As dialog box appears. Specify the location for saving the file and the file name.

NOTE

Select measurement items so that the number of items (Items) appearing in the upper right corner of the Select Data for CSV Conversion dialog box does not exceed 256.
Microsoft Excel cannot accommodate CSV data with more than 256 items.

Event Waveform Window

1. Activate the Event Waveform screen.
Select either **Save the active data as a CSV file** – **Event waveform data** or **Save the active data as a CSV file** – **Event transient waveform data** from the **File** menu or the right-clicked pop-up menu.

   The Select Data for CSV Conversion dialog box opens.

   With Event Waveforms:

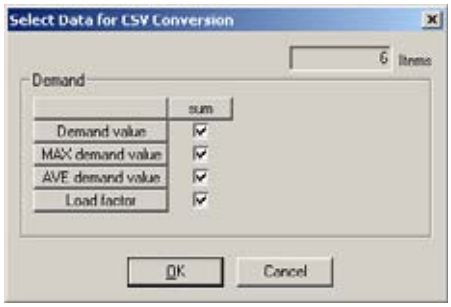
   With Transient Waveforms:

2. Select the check boxes of waveforms to be converted to CSV format.

3. When you click the **OK** button, the Save As dialog box appears.
Enter the location for saving the file and the file name.

Demand window

1. Activate the Demand window.
Select **Save the active data as a CSV file** from the **File** menu or the right-clicked pop-up menu.
The Select Data for CSV Conversion dialog box opens.



2. Select the check boxes of waveforms to be converted to CSV format.

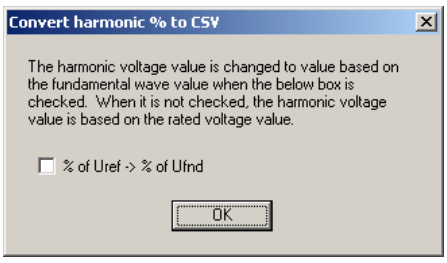
3. When you click the **OK** button, the Save As dialog box appears. Enter the location for saving the file and the file name.

NOTE

- The format of data in the resulting CSV file is the same as that produced by the 3196 POWER QUALITY ANALYZER. For details about the CSV format, see the user manual provided on CD-ROM for the 3196 POWER QUALITY ANALYZER.
- To convert transient waveform data to CSV format, first make sure the Voltage/Transient screen is open and active.

CSV Conversion of Relative Harmonic Content

If the measurement data to be analyzed is EN50160 data, display the “CSV Harmonic Content Conversion” dialog box from the Options menu.
Harmonic voltage (distinct from interharmonic voltage) content measured with the 3196 in the EN50160 mode is recorded as a percentage value relative to the reference voltage (% of Uref).
If the check box is checked, harmonic voltage is converted from the reference voltage standard to the fundamental wave standard before saving to CSV format.

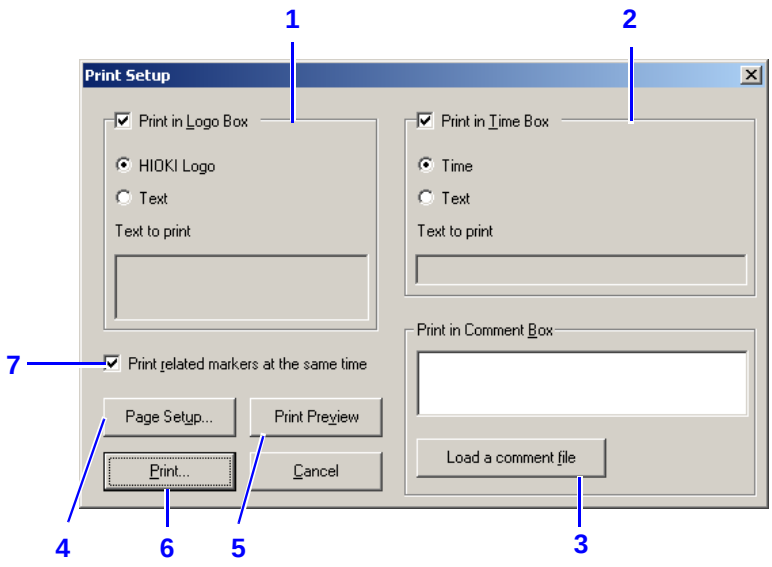


Print Function Chapter 14

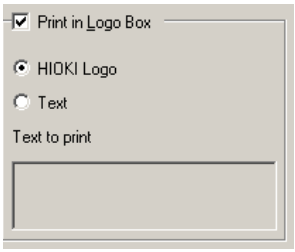
The TIME PLOT, Event voltage fluctuation, Event List, Event Data, Flicker, Integrated Power Value, and Demand windows can each be output to a printer a page at a time.
The TIME PLOT window can be opened and printed all at once.

Printing Method

1. Activate the window you wish to print out. Change the window size to specify the print area.
2. Press the (Print) button or select **File - Print** on the menu bar. The Print Setup dialog box then opens.
3. Set the printing requirements and press the **Print** button. Printing then begins.

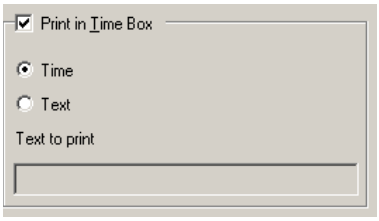


1



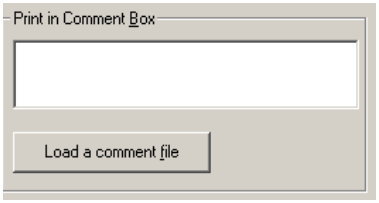
Select whether to print nothing, a logo (bitmap file), or specified text in the log area. When logo is selected without specifying a filename, the HIOKI logo will be printed.

2



Select whether to print the current date or selected text in the time input field. Otherwise, leave it blank.

3



Data recorded in the comment input field appears in the printout. Text can be read into the field from the specified file.

4

Change settings of the destination printer by clicking this button.

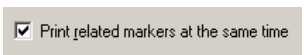
5

To check the appearance of the printout in advance, click this button.

6

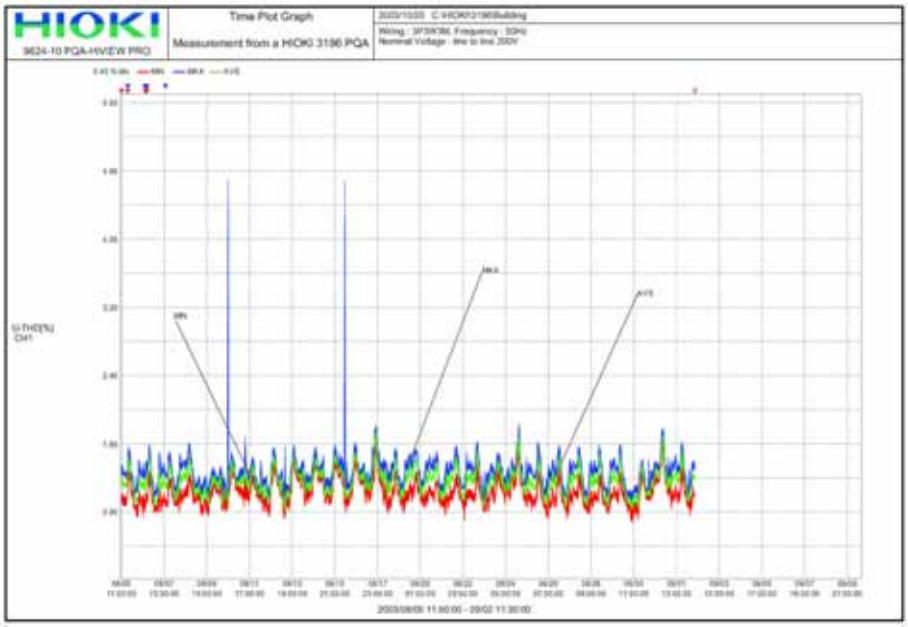
Printing starts when you click this button.

7

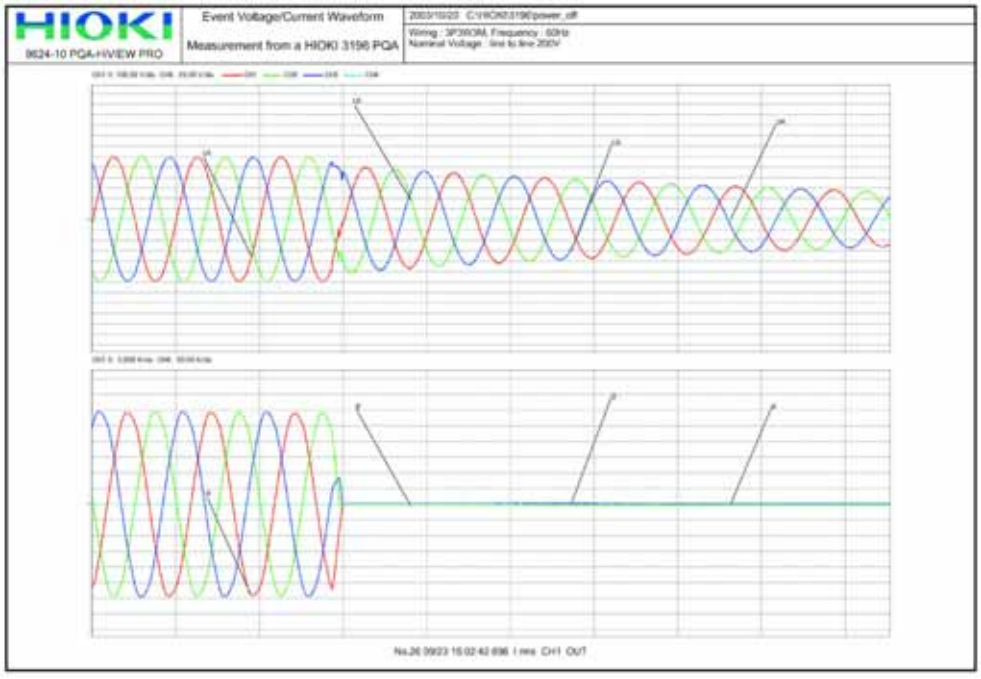


Choose whether or not to print markers for items such as MAX/MIN/AVE or channels at the same time.

(Print Example)
Screen: TIME PLOT window – U-THD RMS fluctuation
Paper setting: A4, Print orientation: Landscape



(Print Example 2)
Screen: Event Waveform window
Paper setting: A4, Print orientation: Landscape



NOTE

The area displayed in the window is the area that can be printed. To obtain clear printouts of larger quantities of data, maximize window display prior to printing.

Report Wizard Chapter 15

15.1 Report Creation Method

You can create a report of read measurement data and print it out or save it as a Rich Text format file.

NOTE

Rich Text format files can be read out and edited on word processing software, such as Microsoft Word and Word Pad (included as part of Windows).

Creating Report

1. Press the (Report Wizard) button or select **File - Report Wizard** on the menu bar.
The Report Wizard - Start Page dialog box then opens.

NOTE

When all windows (e.g., TIME PLOT window) are closed, the Report Wizard will not start up.

2. Make necessary selections in the Start page dialog box.
❖ **Setting the start page:**(page 98)

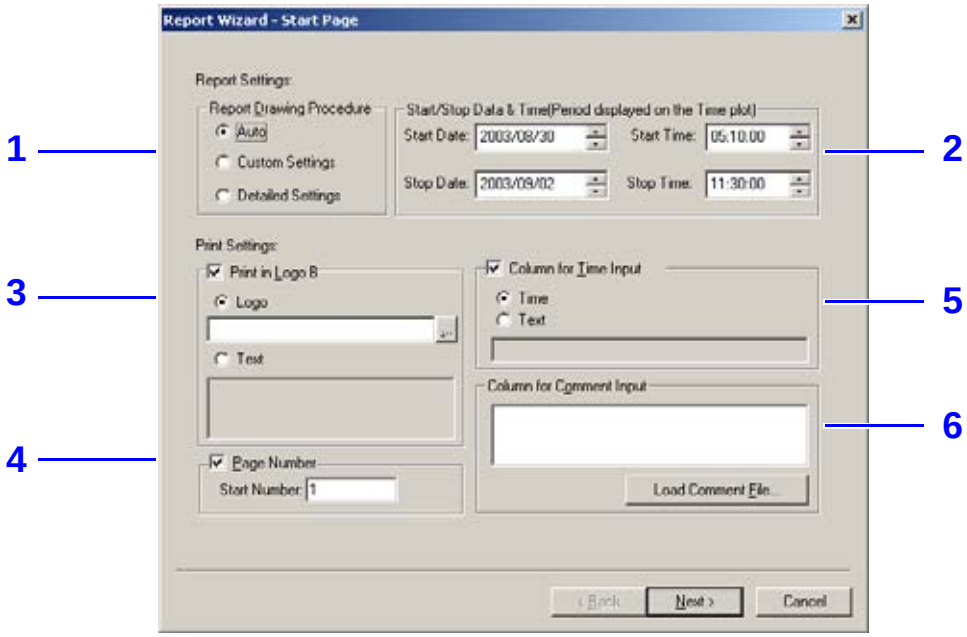
Choose a report creation method.
❖ Automatic Report Creation(page 99)
❖ Individual Setting for Report Creation(page 99)
❖ Detail Setting for Report Creation(page 100)

Press the **Next** button to move to the next step.

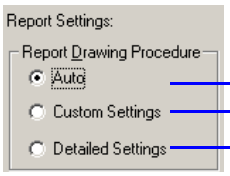
3. In the Last page dialog box, choose whether to save or print out the report.
❖ **Setting the last page:**(page 102)

Start page

When the Report Wizard starts up, the range of measurement data used to create a report is automatically set to the range specified with the A and B cursors when the cursors appear in the TIME PLOT window. If the cursors do not appear, the range is set to the maximum period for a report from the beginning of the measurement data.



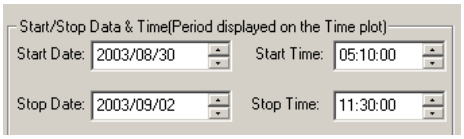
1



(page 99)
(page 99)
(page 100)

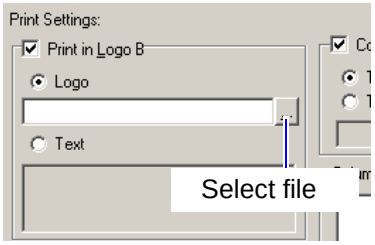
Select a report creation method.
The next page varies depending on the method selected; therefore, the selectable output items also vary. When Auto is selected, however, there is no setting page, and fixed setting is used to create a report.

2



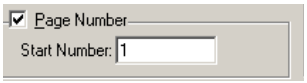
This sets the start date and time, and the end date and time of the report. These values are set automatically at wizard startup. The settings can be edited by directly entering the date and time.

3



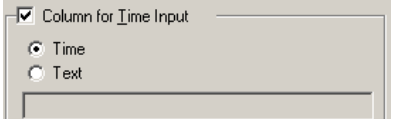
Just like ordinary print setting, select whether to print nothing, a logo (bitmap file), or specified text in the log area. When logo is selected without specifying a filename, the HIOKI logo will be printed.
This logo print setting is valid for printing only; the logo is not output to a Rich Text format file.

4



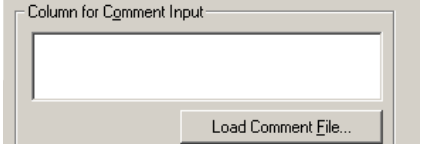
Specify the starting page No. of the report to be output.

5



Select whether to output nothing, a clock time, or specified text in the time area.

6



Specify the text to output in the comment area. You can specify a file to read out in this area.

(1) Automatic Report Creation

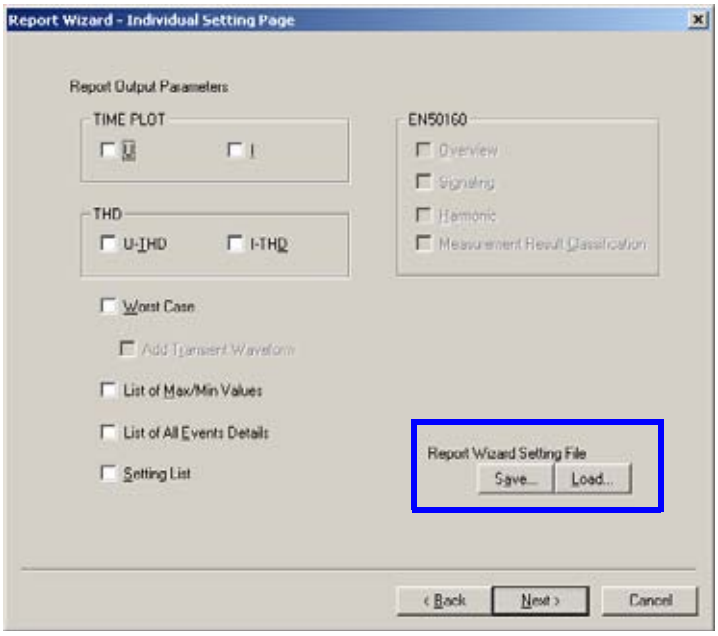
Automatic report creation automatically creates a report that includes the RMS voltage fluctuation graph, worst case, max/min list, total harmonic voltage distortion graph, EN50160 data, and all-event detail list without having to set up the requirements.

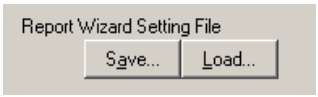
❖ For the output items available for Automatic Report: 15.2, "Report Output Items"(page 103)

(2) Individual Setting for Report Creation

Individual setting report creation lets you create a report of items selected from RMS voltage/current fluctuation graph, worst case, max/min list, total harmonic voltage distortion graph, EN50160 data, all-event detail list, and setting list.

Check the items you wish to output in the report.
Note that worst case must be selected in order to select a transient waveform.





This reads out or saves a Report Wizard setting file (page 18).
A Report Wizard setting file contains the items to output in a report. You can read out this file when creating a report with the same output items as those of a previous report.

NOTE

A Report Wizard setting file contains the output items of both individual and detail settings.

❖ For the output items available for individual setting, see 15.2, "Report Output Items"(page 103).

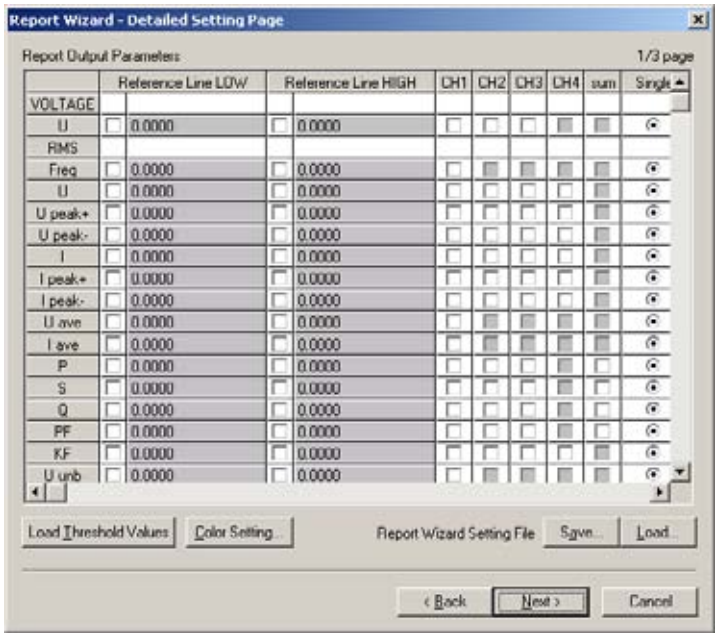
(3) Detail Setting for Report Creation

Detail setting report creation lets you create a report by setting details for voltage fluctuation, RMS fluctuation, harmonics fluctuation, and interharmonics fluctuation graphs that are displayed in a TIME PLOT window.

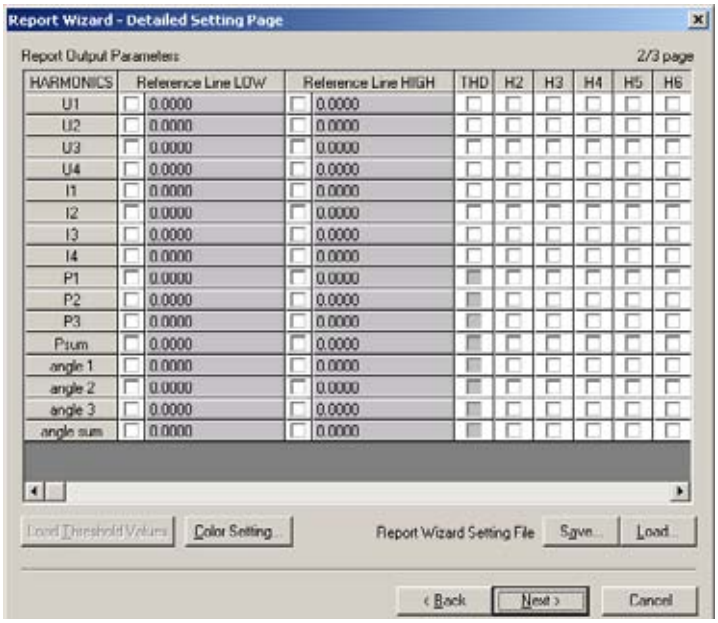
There are three pages of detail setting dialog boxes and each page sets different items as shown below.
page 1: Voltage fluctuation and RMS fluctuation
page 2: Harmonics fluctuation
page 3: Interharmonics fluctuation

NOTE When the read data does not contain harmonics fluctuation or interharmonics fluctuation, setting pages 2 and 3 will not appear.

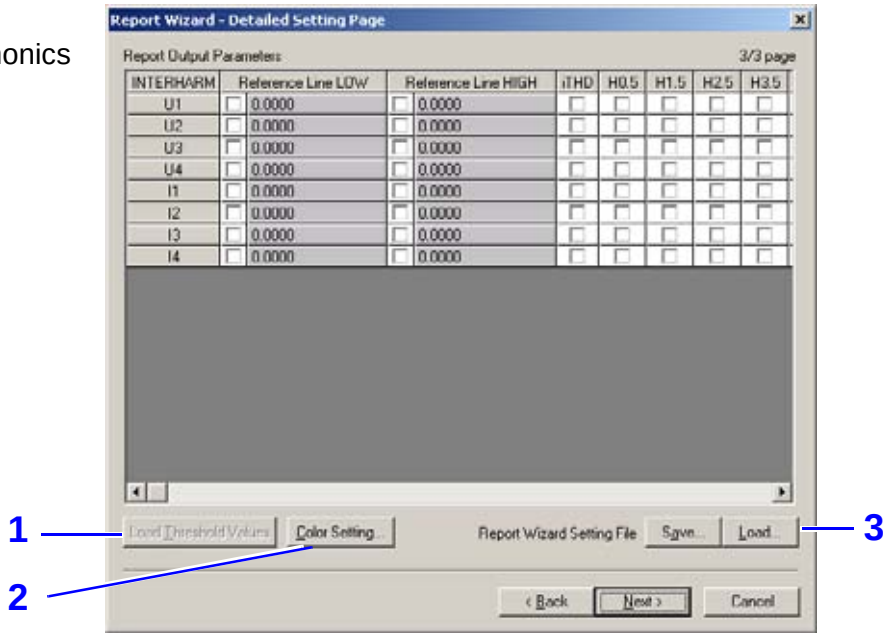
Page 1(1/3):
Setting the Voltage fluctuation and RMS fluctuation



Page 2(2/3):
Setting the Harmonics fluctuation



Page 2(2/3):
Setting the Interharmonics fluctuation



❖ For the output items available for individual setting, see ”Output Items Available for Detail Setting(page 104).”

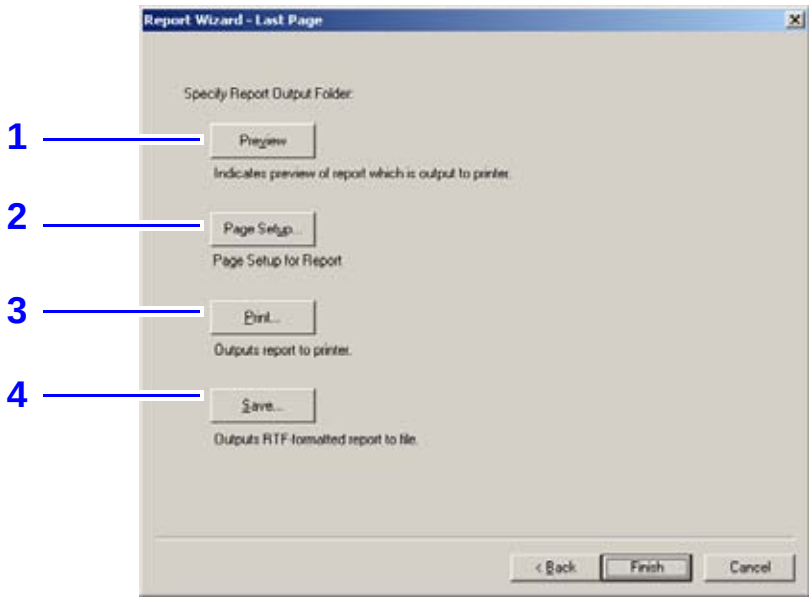
1	Load Threshold Values	Sets the thresholds read out from a setting file (SET file) as reference line values.
2	Color Setting...	Opens the Color Setting dialog box for setting colors of the graph to output in the report. The same colors are used for voltage fluctuation and RMS fluctuation, and for harmonics fluctuation and interharmonics fluctuation. The set colors only apply to graphs output in the report.
3	Save... Load...	This reads out or saves a Report Wizard setting file (page 18). This is the same button as on the individual setting page.

NOTE

A Report Wizard setting file contains the output items of both individual and detail settings.

Last page

The report set up with the wizard may be printed out on a printer or saved as a Rich Text format file.



1	Preview	Displays the print preview. Check to see how the printed pages will look.
2	Page Setup...	Opens the Page Setup dialog box. This controls the printer and paper settings.
3	Print...	Opens the Print dialog box so you can begin printing.
4	Save...	Opens the Save RTF File dialog box. You can save the report as a Rich Text format file.

15.2 Report Output Items

Different output items are available for reports created using the automatic, individual setting, and detail setting methods as shown below.

Output Items Available for Automatic/Individual Setting

The following items can be output to reports created by automatic report creation and individual setting report creation.

Automatic: the output item setting is fixed/ Individual Setting: Selectable whether to output
*1 : Transient waveform is selectable only when worst case is selected.

Report Output Items	Automatic	Individual Setting	Contents
RMS voltage fluctuation graph	●	●	Outputs an RMS voltage fluctuation graph displayed in a TIME PLOT window.
RMS current fluctuation graph	—	●	Outputs an RMS current fluctuation graph displayed in a TIME PLOT window.
Total harmonic voltage distortion graph	●	●	Outputs a total harmonic voltage distortion graph of RMS fluctuation displayed in a TIME PLOT window.
Total harmonic current distortion graph	—	●	Outputs a total harmonic current distortion graph of RMS fluctuation displayed in a TIME PLOT window.
EN50160 Overview	●	●	Outputs the content displayed in the EN50160 Overview window.
EN50160 Signaling	●	●	Outputs the content displayed in the EN50160 Signaling window.
EN50160 Harmonic	—	●	Outputs the content displayed in the EN50160 Harmonic window.
EN50160 Measurement result classification	—	●	Outputs the EN50160 measurement result classification table.
Worst case	●	●	Outputs the five worst values of events (i.e., voltage swell, voltage dip, voltage interruption, transient waveform) that occurred during the report output period. The worst values include largest voltage swell, longest duration of a voltage swell, smallest voltage dip, longest duration of a voltage dip, longest duration of interruption, and maximum value of the transient waveform data.
Transient waveform	—	●*1	Outputs the transient waveform of the worst case.
Max/min list	●	●	Outputs a list of maximum and minimum values, and the hours of occurrence regarding voltage fluctuation (each channel), RMS fluctuation (each channel for voltage/current), frequency, active power, reactive power, and apparent power during the report output period.
All-event detail list	●	●	Outputs a list of all events and a detailed list of events. The chronological or priority order of events in the lists depends on the setting made in the Event List window.
Setting list	—	●	Outputs a list of settings of the currently read data. These settings are the same as the content of the setting window that appears when **View - Setting** is selected on the menu bar.

Output Items Available for Detail Setting

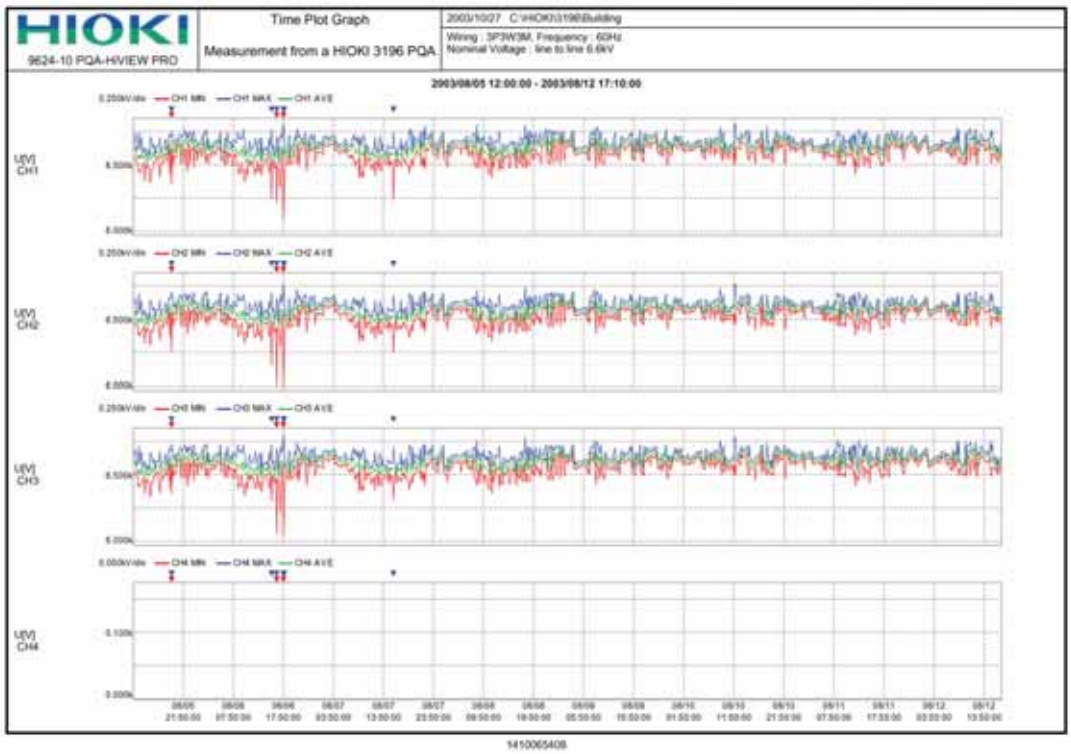
You can make the output settings of graphs separately for every item and every channel regarding voltage fluctuation, RMS fluctuation, harmonics fluctuation, and interharmonics fluctuation.
Moreover, you can draw two (High and Low) reference lines on the graphs.

On the voltage fluctuation graph and RMS fluctuation graph, the print format can be selected separately for every item from the options below.

Single	Plot a single graph of all channels and output one graph as one page.
Division	Plot a graph for every channel and output the graphs of all channels as one page.
Separate	Plot a graph for every channel and output each graph as one page.

15.3 Print Examples

Example: Automatic Report Creation



HIOKI
9624-10 PQA-HIVIEW PRO

Worst Case
Measurement from a HIOKI 3196 PQA

2003/10/27 C:\HIOKI\3196\Building
Wiring : 3P3W3M, Frequency : 60Hz
Nominal Voltage : line to line 6.6kV

2003/08/05 12:00:00 - 2003/08/10 12:00:00

No. of Dips in the Period: 30

Minimum Value of Dip

Worst	CH	Voltage Value	Event Period	Date Time
1	CH3	4.7060kV	00:00:00.108	2003/08/06 16:21:41.555
2	CH2	4.8443kV	00:00:00.058	2003/08/05 19:27:11.744
3	CH2	5.5014kV	00:00:00.125	2003/08/06 16:21:41.579
4	CH1	5.6869kV	00:00:00.068	2003/08/06 16:21:41.530
5	CH2	5.6892kV	00:00:00.133	2003/08/06 17:46:54.763

Longest Period of Dip

Worst	CH	Voltage Value	Event Period	Date Time
1	CH2	5.6892kV	00:00:00.133	2003/08/06 17:46:54.763
2	CH2	5.5014kV	00:00:00.125	2003/08/06 16:21:41.579
3	CH3	5.7167kV	00:00:00.125	2003/08/06 17:46:54.763
4	CH3	4.7060kV	00:00:00.109	2003/08/06 16:21:41.555
5	CH1	5.7933kV	00:00:00.108	2003/08/06 17:46:54.755

No. of Swells in the Period: 0
No. of Interruptions in the Period: 0
No. of Transients in the Period: 0

HIOKI
9624-10 PQA-HIVIEW PRO

List of Max/Min Values
Measurement from a HIOKI 3196 PQA

2003/10/27 C:\HIOKI\3196\Building
Wiring : 3P3W3M, Frequency : 60Hz
Nominal Voltage : line to line 6.6kV

2003/08/05 12:00:00 - 2003/08/10 12:00:00

VOLTAGE Urms U Reference 6.6000k[V]

U	CH	MIN[V]		MAX[V]	
	CH1	5.687k	2003/08/06 16:30:00	6.828k	2003/08/06 17:50:00
	CH2	4.844k	2003/08/05 19:30:00	6.774k	2003/08/06 17:50:00
	CH3	4.708k	2003/08/06 16:30:00	6.807k	2003/08/06 17:50:00

RMS

U	CH	MIN[V]		MAX[V]	
	CH1	6.082k	2003/08/06 17:50:00	6.815k	2003/08/06 17:50:00
	CH2	5.992k	2003/08/06 17:50:00	6.768k	2003/08/06 17:50:00
	CH3	6.036k	2003/08/06 17:50:00	6.799k	2003/08/06 17:50:00
	CH4	0.000k	2003/08/05 12:00:00	0.000k	2003/08/05 12:00:00

I	CH	MIN[A]		MAX[A]	
	CH1	0.000	2003/08/05 12:00:00	0.000	2003/08/05 12:00:00
	CH2	0.000	2003/08/05 12:00:00	0.000	2003/08/05 12:00:00
	CH3	0.000	2003/08/05 12:00:00	0.083	2003/08/07 22:30:00
	CH4	0.000	2003/08/05 12:00:00	0.000	2003/08/05 12:00:00

Freq	MIN[Hz]		MAX[Hz]	
	59.838	2003/08/10 08:30:00	60.166	2003/08/08 23:50:00

POWER

P	CH	MIN[W]		MAX[W]	
	CH1	0.00k	2003/08/05 12:00:00	0.00k	2003/08/05 12:00:00
	CH2	0.00k	2003/08/05 12:00:00	0.00k	2003/08/05 12:00:00
	CH3	0.00k	2003/08/05 12:00:00	0.00k	2003/08/05 12:00:00
	sum	0.0000M	2003/08/05 12:00:00	0.0000M	2003/08/05 12:00:00

S	CH	MIN[VA]		MAX[VA]	
	CH1	0.00k	2003/08/05 12:00:00	0.00k	2003/08/05 12:00:00
	CH2	0.00k	2003/08/05 12:00:00	0.00k	2003/08/05 12:00:00
	CH3	0.00k	2003/08/05 12:00:00	0.32k	2003/08/07 22:30:00
	sum	0.0000M	2003/08/05 12:00:00	0.0003M	2003/08/07 22:30:00

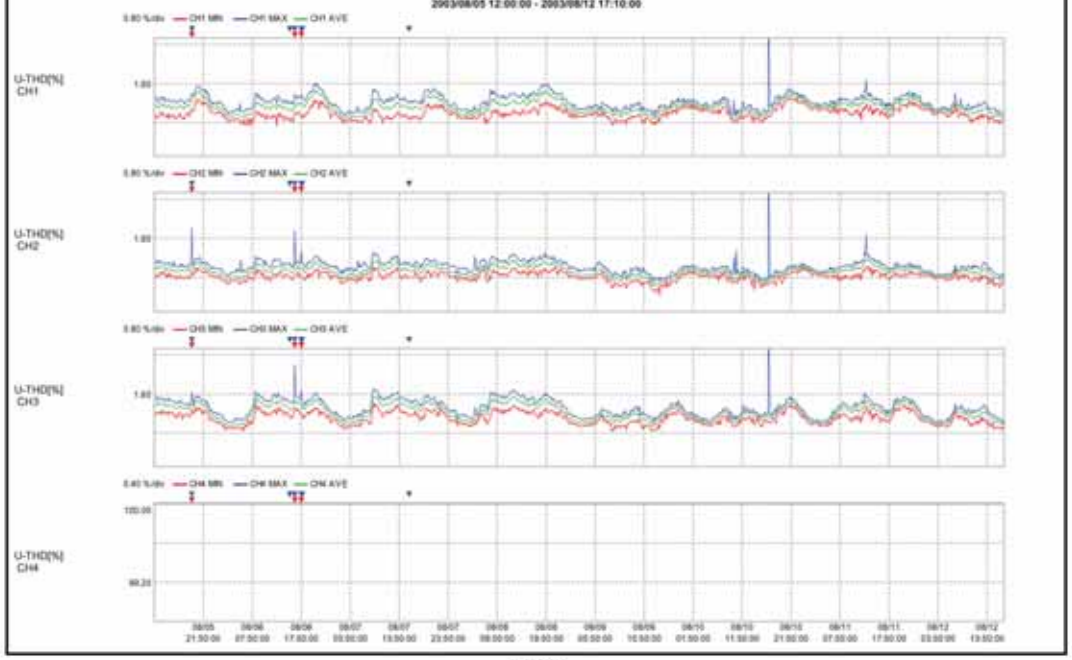
Q	CH	MIN[var]		MAX[var]	
	CH1	- 0.00k	2003/08/05 12:00:00	0.00k	2003/08/05 12:00:00
	CH2	- 0.00k	2003/08/05 12:00:00	0.00k	2003/08/05 12:00:00
	CH3	- 0.31k	2003/08/09 19:50:00	0.32k	2003/08/07 22:30:00
	sum	-0.0003M	2003/08/09 19:50:00	0.0003M	2003/08/07 22:30:00

HIOKI
9624-10 PQA-HIVIEW PRO

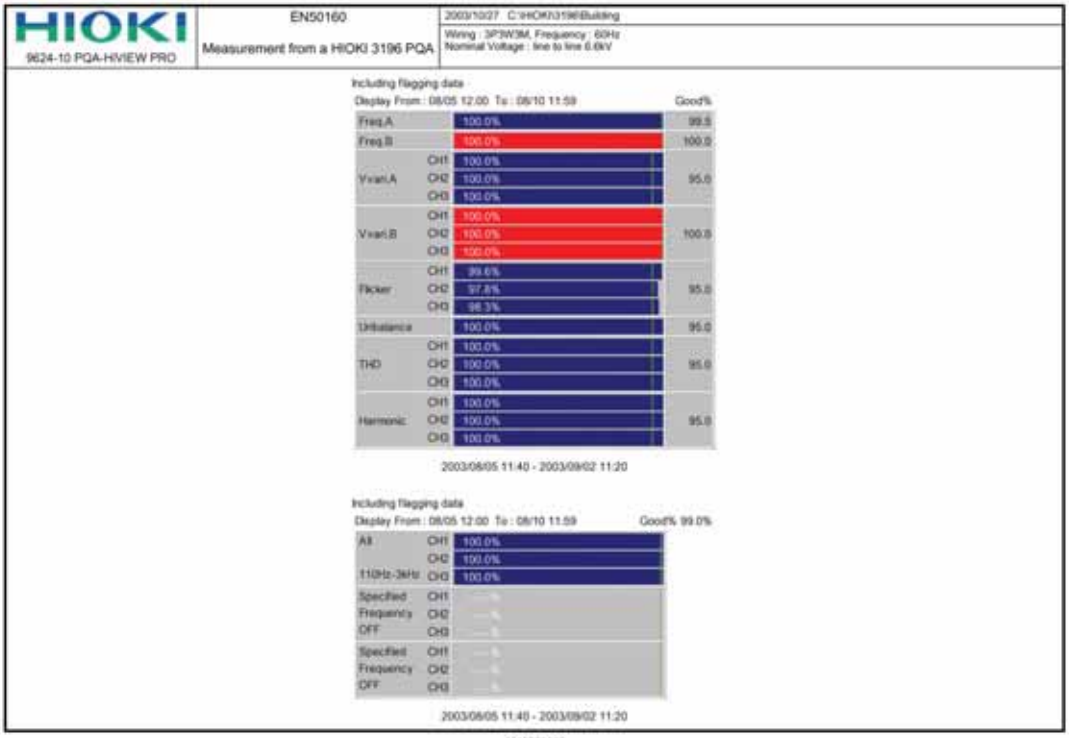
U-THD
Measurement from a HIOKI 3196 PQA

2003/10/27 C:\HIOKI\3196\Building
Wiring : 3P3W3M, Frequency : 60Hz
Nominal Voltage : line to line 6.6kV

2003/08/05 12:00:00 - 2003/08/12 17:10:00



1410D05411



HIOKI
9624-10 PQA-HiVIEW PRO

EN50160
Measurement from a HIOKI 3196 PQA

2003/10/27 C:\HIOKI\3196\Building
Wiring : 3P3W3M, Frequency : 60Hz
Nominal Voltage : line to line 6.6kV

Including flagging data
Display From : 08/05 12:00 To : 08/10 11:59 Good%

			Good%
Freq.A		100.0%	99.5
Freq.B		100.0%	100.0
V-var.A	CH1	100.0%	95.0
	CH2	100.0%	
	CH3	100.0%	
V-var.B	CH1	100.0%	100.0
	CH2	100.0%	
	CH3	100.0%	
Flicker	CH1	99.6%	95.0
	CH2	97.8%	
	CH3	98.3%	
Unbalance		100.0%	95.0
THD	CH1	100.0%	95.0
	CH2	100.0%	
	CH3	100.0%	
Harmonic	CH1	100.0%	95.0
	CH2	100.0%	
	CH3	100.0%	

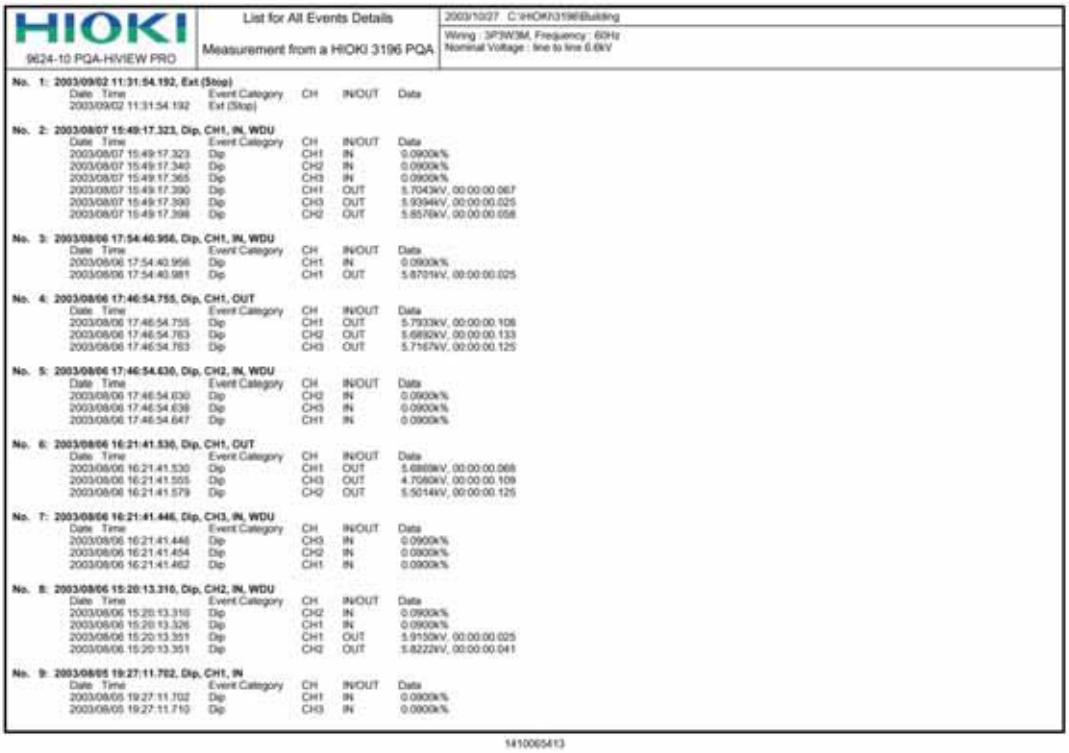
2003/08/05 11:40 - 2003/09/02 11:20

Including flagging data
Display From : 08/05 12:00 To : 08/10 11:59 Good% 99.0%

All	CH1	100.0%
	CH2	100.0%
110Hz-3kHz	CH3	100.0%
Specified Frequency OFF	CH1	--.-%
	CH2	--.-%
	CH3	--.-%
Specified Frequency OFF	CH1	--.-%
	CH2	--.-%
	CH3	--.-%

2003/08/05 11:40 - 2003/09/02 11:20

1410065412



HIOKI
9624-10 PQA-HiVIEW PRO

List for All Events Details
Measurement from a HIOKI 3196 PQA

2003/10/27 C:\HIOKI\3196\Building
Wiring : 3P3W3M, Frequency : 60Hz
Nominal Voltage : line to line 6.6kV

No. 1: 2003/09/02 11:31:54.192, Ext (Stop)

Date Time	Event Category	CH	IN/OUT	Data
2003/09/02 11:31:54.192	Ext (Stop)			

No. 2: 2003/08/07 15:49:17.323, Dip, CH1, IN, WDU

Date Time	Event Category	CH	IN/OUT	Data
2003/08/07 15:49:17.323	Dip	CH1	IN	0.0900kV
2003/08/07 15:49:17.340	Dip	CH2	IN	0.0900kV
2003/08/07 15:49:17.365	Dip	CH3	IN	0.0900kV
2003/08/07 15:49:17.390	Dip	CH1	OUT	5.7043kV, 00:00:00.067
2003/08/07 15:49:17.390	Dip	CH3	OUT	5.9394kV, 00:00:00.025
2003/08/07 15:49:17.398	Dip	CH2	OUT	5.8578kV, 00:00:00.058

No. 3: 2003/08/06 17:54:40.956, Dip, CH1, IN, WDU

Date Time	Event Category	CH	IN/OUT	Data
2003/08/06 17:54:40.956	Dip	CH1	IN	0.0900kV
2003/08/06 17:54:40.981	Dip	CH1	OUT	5.8701kV, 00:00:00.025

No. 4: 2003/08/06 17:46:54.755, Dip, CH1, OUT

Date Time	Event Category	CH	IN/OUT	Data
2003/08/06 17:46:54.755	Dip	CH1	OUT	5.7933kV, 00:00:00.108
2003/08/06 17:46:54.763	Dip	CH2	OUT	5.6892kV, 00:00:00.133
2003/08/06 17:46:54.763	Dip	CH3	OUT	5.7167kV, 00:00:00.125

No. 5: 2003/08/06 17:46:54.630, Dip, CH2, IN, WDU

Date Time	Event Category	CH	IN/OUT	Data
2003/08/06 17:46:54.630	Dip	CH2	IN	0.0900kV
2003/08/06 17:46:54.638	Dip	CH3	IN	0.0900kV
2003/08/06 17:46:54.647	Dip	CH1	IN	0.0900kV

No. 6: 2003/08/06 16:21:41.530, Dip, CH1, OUT

Date Time	Event Category	CH	IN/OUT	Data
2003/08/06 16:21:41.530	Dip	CH1	OUT	5.6869kV, 00:00:00.068
2003/08/06 16:21:41.555	Dip	CH3	OUT	4.7086kV, 00:00:00.109
2003/08/06 16:21:41.579	Dip	CH2	OUT	5.5014kV, 00:00:00.125

No. 7: 2003/08/06 16:21:41.446, Dip, CH3, IN, WDU

Date Time	Event Category	CH	IN/OUT	Data
2003/08/06 16:21:41.446	Dip	CH3	IN	0.0900kV
2003/08/06 16:21:41.454	Dip	CH2	IN	0.0900kV
2003/08/06 16:21:41.462	Dip	CH1	IN	0.0900kV

No. 8: 2003/08/06 15:20:13.310, Dip, CH2, IN, WDU

Date Time	Event Category	CH	IN/OUT	Data
2003/08/06 15:20:13.310	Dip	CH2	IN	0.0900kV
2003/08/06 15:20:13.326	Dip	CH1	IN	0.0900kV
2003/08/06 15:20:13.351	Dip	CH1	OUT	5.9150kV, 00:00:00.025
2003/08/06 15:20:13.351	Dip	CH2	OUT	5.8222kV, 00:00:00.041

No. 9: 2003/08/05 19:27:11.702, Dip, CH1, IN

Date Time	Event Category	CH	IN/OUT	Data
2003/08/05 19:27:11.702	Dip	CH1	IN	0.0900kV
2003/08/05 19:27:11.710	Dip	CH3	IN	0.0900kV

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HIOKI
9624-10 PQA-HiVIEW PRO

List for All Events Details
Measurement from a HIOKI 3196 PQA

2003/10/27 C:\HIOKI\3196\Building
Wiring : 3P3W3M, Frequency : 60Hz
Nominal Voltage : line to line 6.6kV

2003/08/05 19:27:11.736	Dip	CH3	OUT	5.8863kV, 00:00:00.026
2003/08/05 19:27:11.744	Dip	CH1	OUT	5.8157kV, 00:00:00.042
2003/08/05 19:27:11.744	Dip	CH2	OUT	4.8443kV, 00:00:00.058

No. 10: 2003/08/05 19:27:11.686, Dip, CH2, IN, WDU

Date Time	Event Category	CH	IN/OUT	Data
2003/08/05 19:27:11.686	Dip	CH2	IN	0.0900kV

No. 11: 2003/08/05 11:40:00.121, Ext (Start)

Date Time	Event Category	CH	IN/OUT	Data
2003/08/05 11:40:00.121	Ext (Start)			

Download via LAN Chapter 16

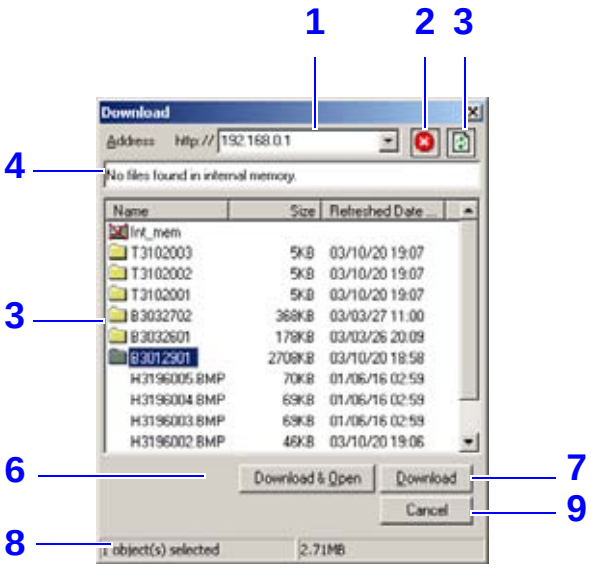
The 9624-10 can download data files from internal memory of the 3196 POWER QUALITY ANALYZER or from the PC card inserted in the 3196 via LAN connection with the 3196.

For the LAN setting, see Section 11.2, "Control and Monitoring Using the LAN Interface," in the Instruction Manual for the 3196 POWER QUALITY ANALYZER.

Downloading

1. Press the (Download) button or select **File - Download** on the menu bar.

The Download dialog box then opens.



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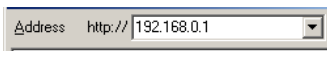
1 

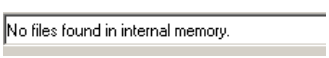
Enter or select the IP address of the 3196 POWER QUALITY ANALYZER to which to connect your 9624-10. Up to 10 previously-connected IP addresses will remain in the log. To view the log, press .

2

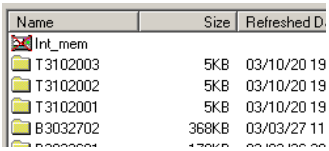
Cancels connection with the 3196 POWER QUALITY ANALYZER.

3

Connects with the 3196 POWER QUALITY ANALYZER and updates the data file list.

4 

Displays errors that occurred during connection with the 3196 POWER QUALITY ANALYZER and download.

5 

Displays a list of data files in internal memory of the connected the 3196 POWER QUALITY ANALYZER and the PC card inserted in the 3196. Internal memory information is always shown at the top of the list with icons.

: Internal memory has no data.

: Internal memory has data.

6

Starts downloading data selected from the data file list (after selecting the folder) and opens the data on the 9624-10 after downloading is complete.

7

Starts downloading the data selected from the data file list.

8

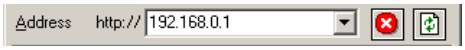
Indicates how many objects are currently selected in the data file list. An object must be selected for this indication to appear.

9

Indicates the total capacity of objects currently selected in the data file list. An object must be selected for this indication to appear.

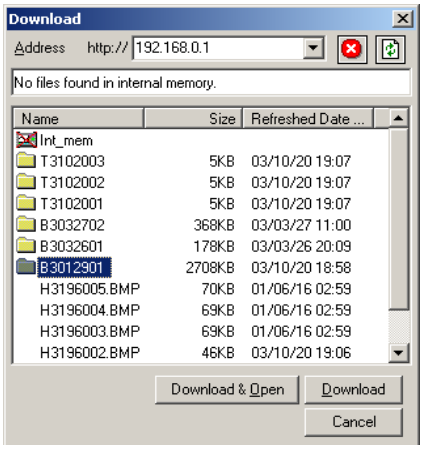
---

2. Enter the IP address of the 3196 POWER QUALITY ANALYZER.



3. Click the (Update) button.
Connection with the 3196 POWER QUALITY ANALYZER is established and the data file list updated.
A list of data files in internal memory of the connected 3196 POWER QUALITY ANALYZER and the PC card inserted in the 3196 then appears.

4. Choose the data file you wish to download from the data file list.



5. Click the **Download** button.
The Choose Folder dialog box then opens.

6. Choose a location to save the data and then press **OK**. Downloading then begins.

NOTE

- You cannot establish connection with the POWER QUALITY ANALYZER or download data from the 3196 when the 3196 is in [WAITING] or [RECORDING] status.
- When you wish to open data on the 9624-10 after downloading, choose a folder with a name starting with "B."

HIOKI 9624-10 PQA-HiVIEW PRO
Instruction Manual

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