HIOKI

INSTRUCTION MANUAL

9624

PQA-HiVIEW

HIOKI E. E. CORPORATION

Contents

User's License Agreement

Important Please read the following agreement carefully. This user's license agreement (hereafter referred to as Agreement) is a legal contract between the software user (individual or institution) and HIOKI E. E. CORPORATION (hereafter referred to as HIOKI). The term "software" includes any related electronic documentation and computer software and media, as well as any printed matter (such as the Instruction Manual).
By installing, reproducing, or using the software, you, the Licensee, agree to accept the license terms set forth in this Agreement.

This software is protected by copyright laws, international copyright agreements, as well as non-corporate laws. The software is a licensed product, and is not sold to the user.

1. License

This Agreement grants you, the Licensee, a license to install a single copy of the software on a specified computer system.

2. Explanation of other rights and restrictions

-1. Restrictions on reverse engineering, decompiling, and disassembling:
You may not reverse engineer, decompile, or disassemble the software.

-2. Separation of components:
This software is licensed for use as a single product. You may not separate the components for use on multiple computer systems.

-3. Loaning:
You may not loan or lease the software.

-4. Transfer of software:
You may transfer full rights in accordance with this Agreement. However, if you do so, you may not retain any copy of the software, but must transfer the software in its entirety (all components, media, related documentation such as the Instruction Manual, and this Agreement), and must ensure that the receiver of the software agrees with the terms set forth in this Agreement.

-5. Cancellation:
In the event that the terms and conditions set forth in this Agreement are violated, HIOKI retains the right to cancel this Agreement without compromise of any of its other rights. In this event, you must destroy all copies of the software and its components.

3. Copyright

The title and copyright rights concerning the software's related documentation, such as the Instruction Manual and copies of the software, are the property of HIOKI and other licensors, and are protected by copyright laws and international agreement regulations. Accordingly, you must treat the software as you would any other copyrighted document. However, you are permitted to make copies as indicated in (A) and (B) below provided such copies are not intended for use other than back-up purposes.

(1) You may make a single copy of the software.

(2) You may install this software on a single computer. However, you may not reproduce the documentation supplied with the software, such as the Instruction Manual.

4. Dual media software

You may receive the same software on more than one type of media. However, regardless of the type and size of media provided, you may only use one media type and only on a single computer. You must not use or install the other media on any other computer. Furthermore, except when transferring the software as stipulated above, you may not loan, lease, or transfer the other media to any other user.

5. Warranty

-1. HIOKI reserves the right to make changes to the software specifications without any prior warning. If HIOKI releases a new version of the software, it will provide registered users with information about the revised software.

-2. If the software does not operate in accordance with the supplied Instruction Manual, or the software media or Instruction Manual are damaged in any way, you have one year from the date of purchase to apply for either an exchange or repair at HIOKI's discretion.

-3. In no event will HIOKI be liable for any damages resulting from fire, earthquake, or actions of a third party under the conditions stated in item number 2 above, or for any damage caused as a result of your using the software incorrectly or under unusual circumstances. Further, the warranty is invalid if the following occurs:

(1) Damage incurred through transport, moving, droppage, or any other kind of impact after you purchased the software.

(2) Damage incurred through any form of alteration, unwarranted servicing, or any other type of mistreatment.

-4. In the event that the software is exchanged or repaired, the period of warranty expires on the latest occurring date out of the day stated in the original warranty, and exactly 6 months from the day the exchanged/repaired software is returned to you.

-5. Regardless of the grounds for making a legal claim, HIOKI and its licensors will not be liable for any damage incurred (including, but not limited to: lost profits, suspension of business, loss of data or lost savings) unstated in the warranty terms for the use of this software. This is true even if HIOKI is notified of the possibility of such damages. In any event, HIOKI's liability shall be limited only to replacing defective software with software that is not defective

Introduction

Thank you for purchasing the HIOKI "9624 PQA-HiVIEW".
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

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 computer software application is a program for analyzing binary codes stored on a PC Card by the Model 3196 POWER QUALITY ANALYZER.

(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.

❖ 3.2, "Windows" (Page 21)

(2) Demand and Integrated Power Calculation Functions

Demand and integrated power calculations can be performed from the active power TIME PLOT data.

❖ Chapter 10, "Integrated and Demand Power Analysis" (Page 61)

(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 34)
❖ 7.10, "Cursor Measurements" (Page 53)

(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 11, "CSV Format Conversion Function" (Page 65)

(5) Printing Function

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

❖ Chapter 12, "Print Function" (Page 69)

NOTE

- The 9624 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

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
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)

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) Copy Function

Copy contents	Save various windows as BMP files

(6) 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)

(7) 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.

(8) Select Text Function

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

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).

1.3 Calculation Formulas

Chapter 2 Setup

2.1 System Requirements

The computer running the 9624 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 95 (requires OSR2 or later, and Internet Explorer 3 later) • Microsoft Windows 98 • Microsoft Windows Me • Microsoft Windows NT 4.0 • Microsoft Windows 2000 • Microsoft Windows XP
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

Installation

Use the following procedure to install the software.

1. Shut down all currently running applications.
2. Insert the CD-R disc into the CD-ROM drive.
3. Excute the setup file 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 installer start: follow the directions on the screen to complete the installation.

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.

Uninstallation

Use the following procedure to uninstall the software.

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 PQA-HiVIEW** in the list of applications, and click **Add/Remove**.

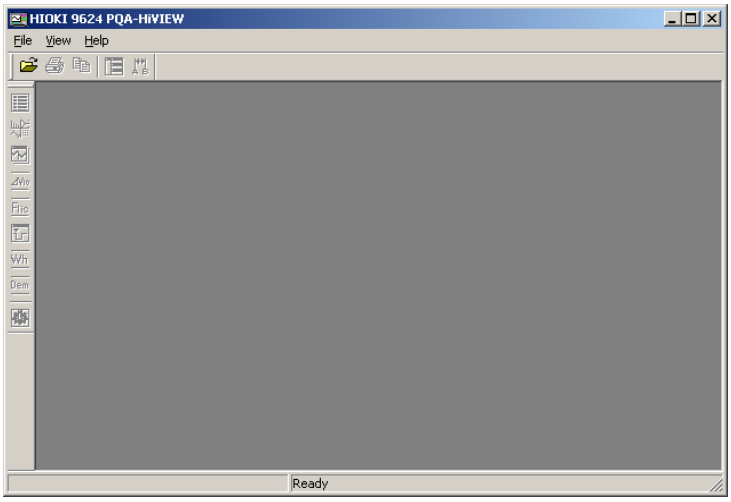
   This runs the uninstaller, which removes the 9624 software.

2.3 Launching and Exiting the 9624 Program

Launching

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

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



Exiting

1. Select **File** - **Exit** from the main screen.
2. The program closes.

2.4 Reading Data

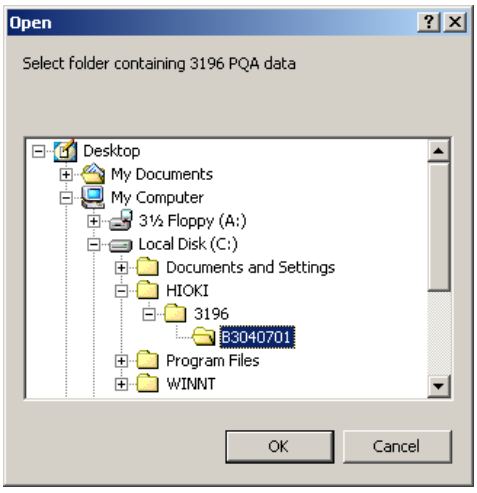
Various windows are displayed on the main screen for reading data recorded on a PC Card with the 3196.

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

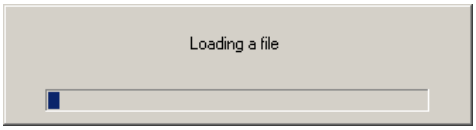
- SET files .....Setting data
- ITV files .....TIME PLOT data
- EVT files .....EVENT data (lists, voltage/current waveforms, transient waveforms and numerical values)
- FLC files .....Flicker data (Delta V10, IEC)
- TRN files.....Transient waveform data
- WDU files .....Event voltage fluctuation data

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 15)

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

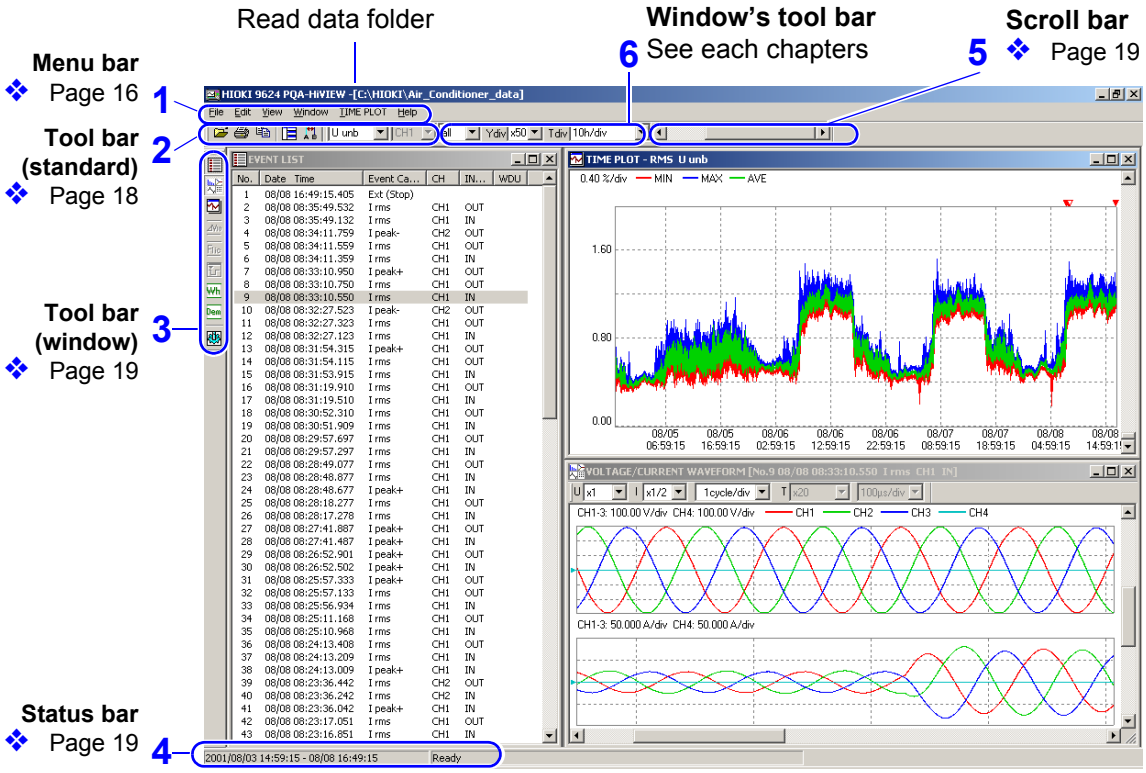
- New data can be read after having read data previously, in which case only the new data is displayed.
- Reading a folder containing a large amount of data may take some time. The time required to read the data depends on the computer system.

Screen Structures and Common Operations Chapter 3

3.1 Screens

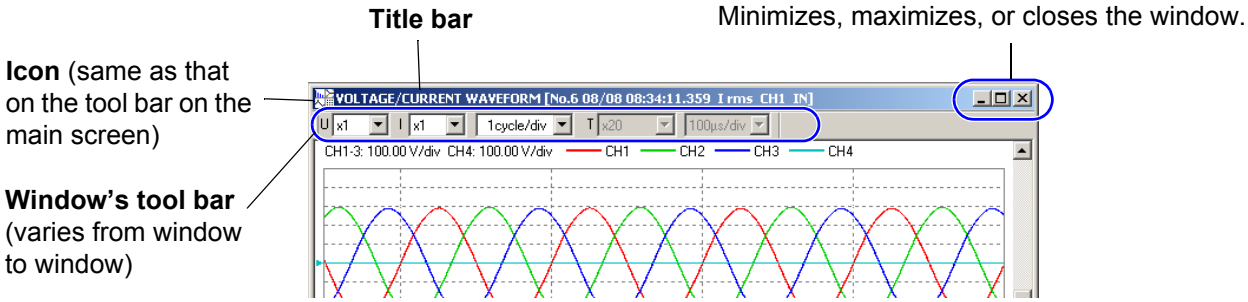
Main Screen

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



Windows

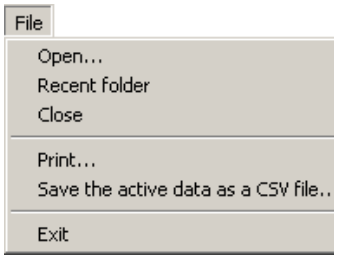
When measurement data is read, the measurement data windows appear.
You can use the menu bar or tool bar to change the windows.



(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	
Close	
Print *1	❖ Chapter 12, Print Function (page 69)
Save the active data as a CSV file	❖ Chapter 11, CSV Format Conversion Function (page 65)
Exit	

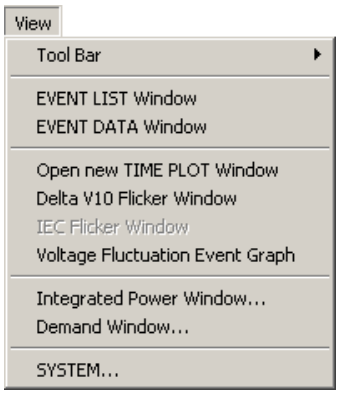
*1: The standard tool bar (2. Tool bar (standard) (page 18)) has icons for the same operations.

2. Edit menu

Copy *1	Displays can be copied to the clipboard ❖ 3.4, Copying to the Clipboard (page 26)

*1: The standard tool bar (2. Tool bar (standard) (page 18)) has icons for the same operations.

3. View menu

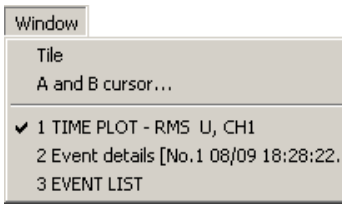


Checking a menu option below displays the selected window. Deselecting the option closes the window.

Tool Bar	Shows or hides the standard tool bar (top) and window tool bar (left).
EVENT LIST Window *2	❖ Chapter 6, Event List Window (page 41)
EVENT DATA Window *2	Opens the event details window and displays waveforms. ❖ Chapter 7, Event Data Window (page 43)
Open new TIME PLOT Window *2	Opens up to four new TIME PLOT windows.
Delta V10 Flicker Window *2	❖ 5.1, Delta V10 Flicker Window (page 39)
IEC Flicker Window *2	❖ 5.2, IEC Flicker Window (page 40)
Voltage Fluctuation Event Graph *2	❖ Chapter 8, Event Voltage Fluctuation Window (page 57)
Integrated Power Window *2	Opens the Integrated Power window which was set in the Start Integration dialog box. ❖ 10.1, Integrated Power Value Analysis (page 61)
Demand Window *1	Opens the Demand window which was set in the Start Demand Calculation dialog box. ❖ 10.2, Demand Analysis (page 63)
SYSTEM	The 3196 measurement conditions are displayed.

*1: The standard tool bar (2. Tool bar (standard) (page 18)) has icons for the same operations.
*2: The standard tool bar (3. Tool bar (window) (page 19)) has icons for the same operations.

4. Window menu



Tile	❖ 3.3, Tile Windows (page 25)
A and B cursor	❖ 4.5, Cursor Measurements (page 34) ❖ 7.10, Cursor Measurements (page 53)

The standard tool bar (2. Tool bar (standard) (page 18)) has icons for the same operations.

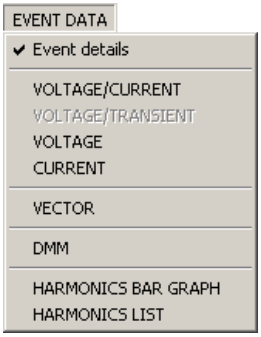
The names of currently open windows appear on this menu.

5. EVENT LIST/ EVENT DATA/ TIME PLOT

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

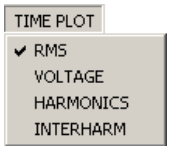
EVENT LIST

Time order	(Page 41)
Priority order	(Page 41)



EVENT DATA

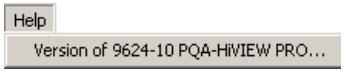
Event details	(Page 44)
VOLTAGE/CURRENT	(Page 45)
VOLTAGE/TRANSIENT	(Page 46)
VOLTAGE	(Page 47)
CURRENT	(Page 48)
VECTOR	(Page 49)
DMM	(Page 50)
HARMONICS BAR GRAPH	(Page 51)
HARMONICS LIST	(Page 52)



TIME PLOT

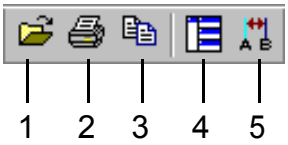
RMS	(Page 30)
VOLTAGE	(Page 31)
HARMONICS	(Page 32)
INTERHARM	(Page 33)

6. Help menu



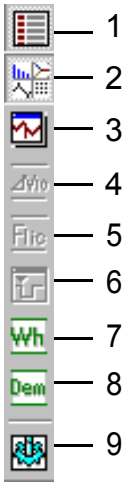
Version of 9624 PQA HiVIEW

(2) Tool bar (standard)



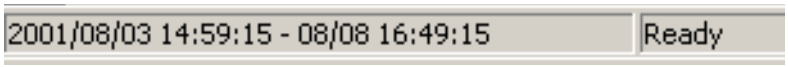
1		Open
2		Print
3		Copy
4		Tile
5		A and B cursors

(3) Tool bar (window)



1		Show/hide EVENT LIST Window
2		Show/hide EVENT DATA Window
3		Open new TIME PLOT Window
4		Open Delta V10 Flicker Window
5		Open IEC Flicker Window
6		Open Voltage Fluctuation Event Graph
7		Open Integrated Power Window
8		Open Demand Window
9		View system settings

(4) Status bar



Displays the current status or display information of the 9624 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.

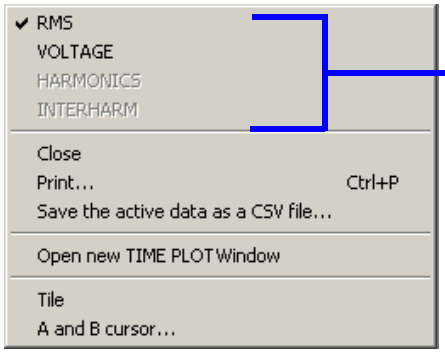
(6) Window's tool bars

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

Popup Menu

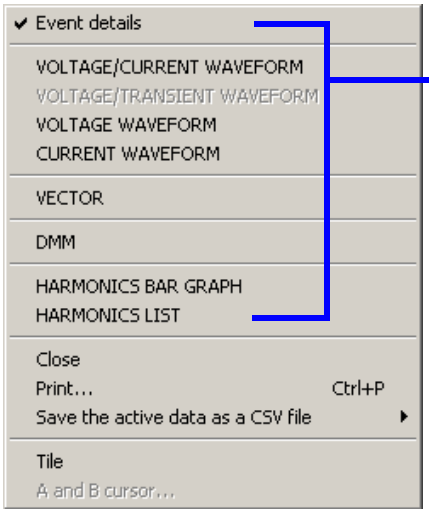
Right-click on a window, and a popup menu appears.
Operate the menu in the same way as the menu bar.
Menu options are grayed out if those options are not available for the currently selected measurement data.

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 Windows

The measurement data windows of the 9624 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 menu (which changes with the active window).

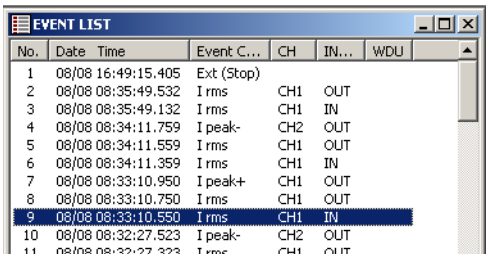
For details on operation, see the relevant chapters.

Normal Display Mode

Event List Window

❖ (Page 41)

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

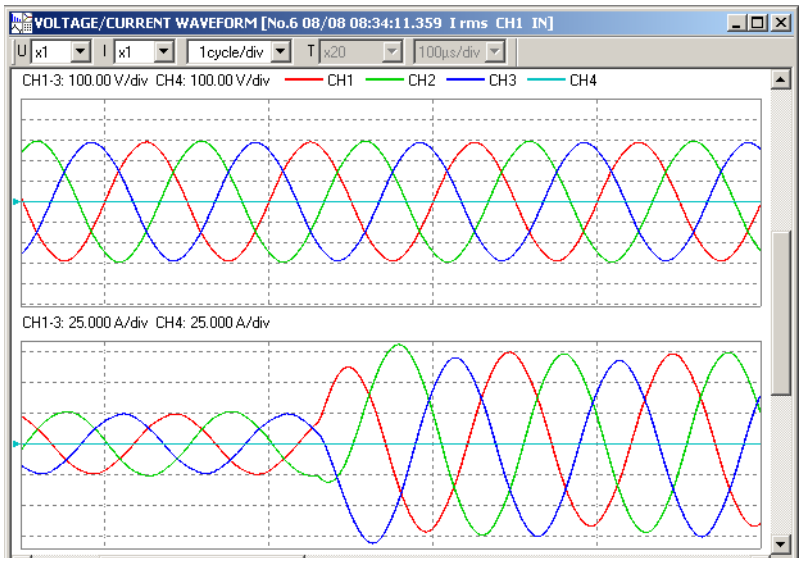


You can select "Time Order" or "Priority Order."

Event Data Window

❖ (Page 43)

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

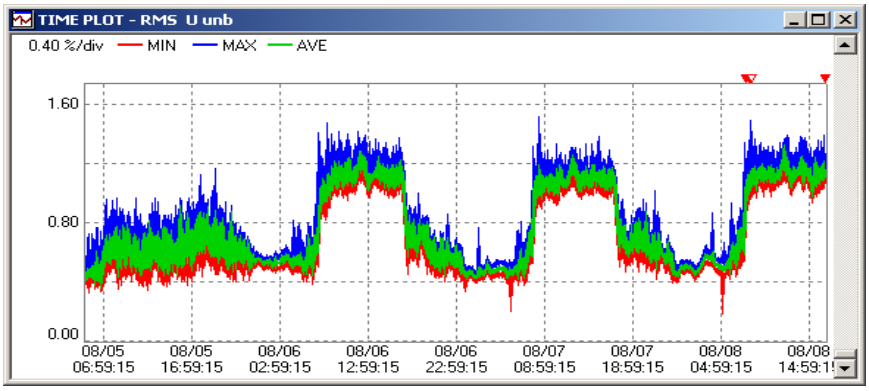


You can select the Event Details, Voltage/Current Waveform, Voltage/Transient Waveform, 4-ch Voltage Waveform, 4-ch Current Waveform, Vector, DMM, Harmonic Bar Graph, or Harmonic List windows.

TIME PLOT Window

❖ (Page 29)

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

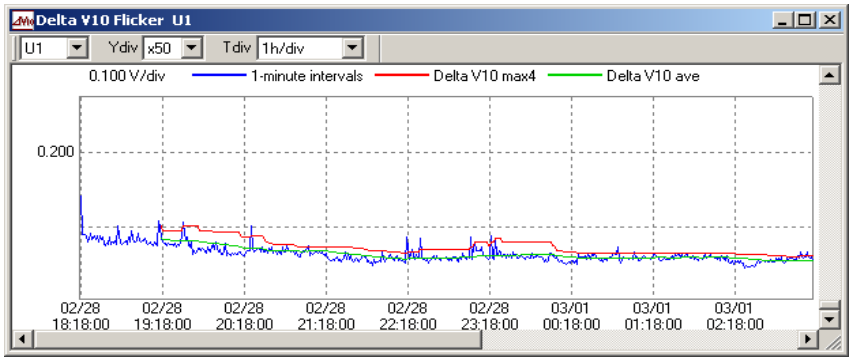


You can select the RMS Fluctuation, Voltage Fluctuation, Harmonics Fluctuation, or Interharmonics Fluctuation windows.
Press the button repeatedly or select **View - Open new TIME PLOT Window** on the menu bar to open up to four TIME PLOT windows.

Delta V10 Flicker Window

❖ (Page 39)

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

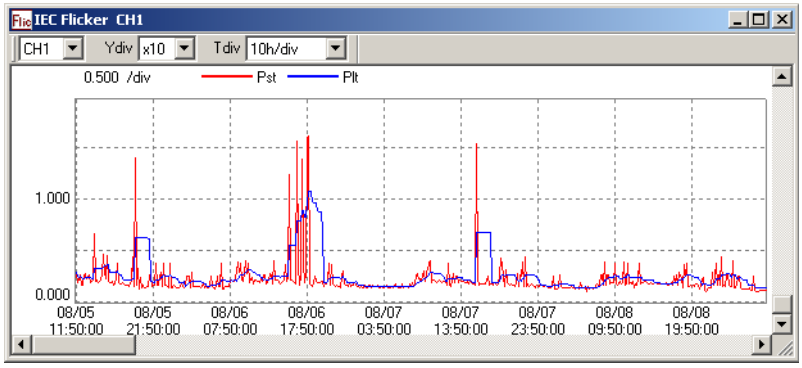


This window is not displayed unless the read data contains a Delta V10 Flicker (FLC) file.

IEC Flicker Window

❖ (Page 40)

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

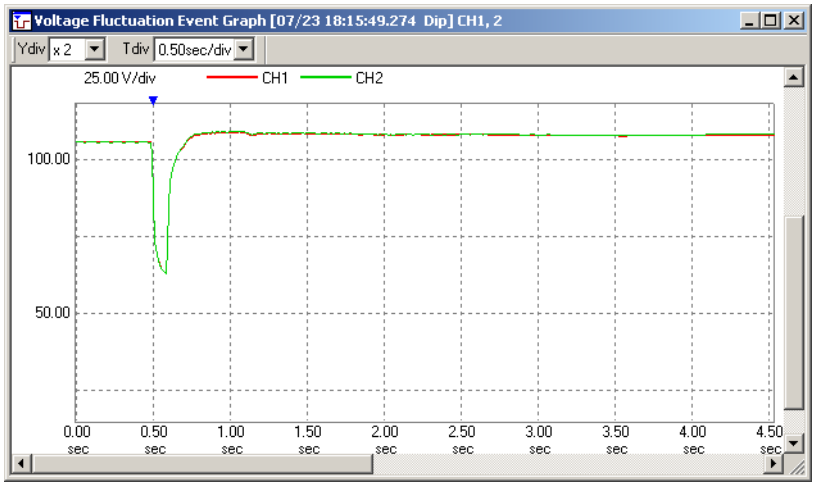


This window is not displayed unless the read data contains an IEC Flicker (FLC) file.

Event Voltage Fluctuation Window

❖ (Page 57)

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

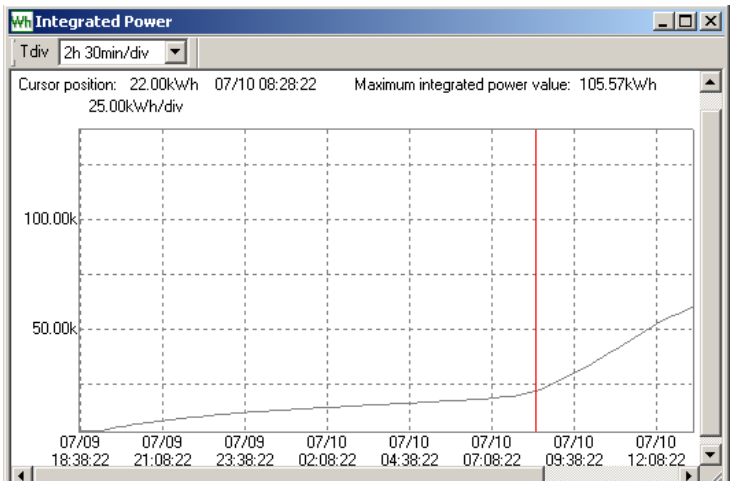


The graph is displayed only when the selected event has an event voltage fluctuation graph file (WDU file).

Integrated Power Value Window

❖ (Page 61)

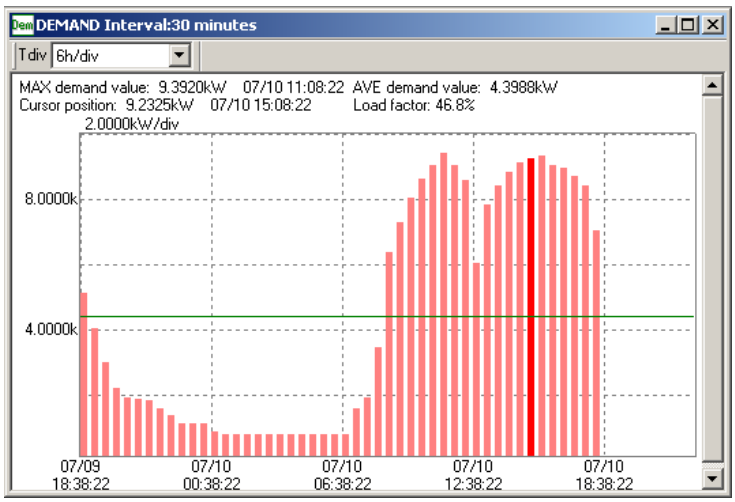
Click the  button or select **View - Open Integrated Power Window** on the menu bar, then set parameters in the Start integration dialog box.



Demand Window

❖ (Page 63)

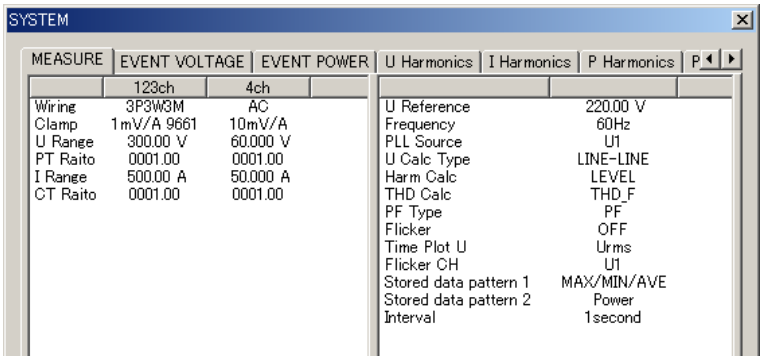
Click the Dem button or select **View - Demand Window** on the menu bar, then set parameters in the Start demand calculation dialog box.



Settings Window

❖ (Page 59)

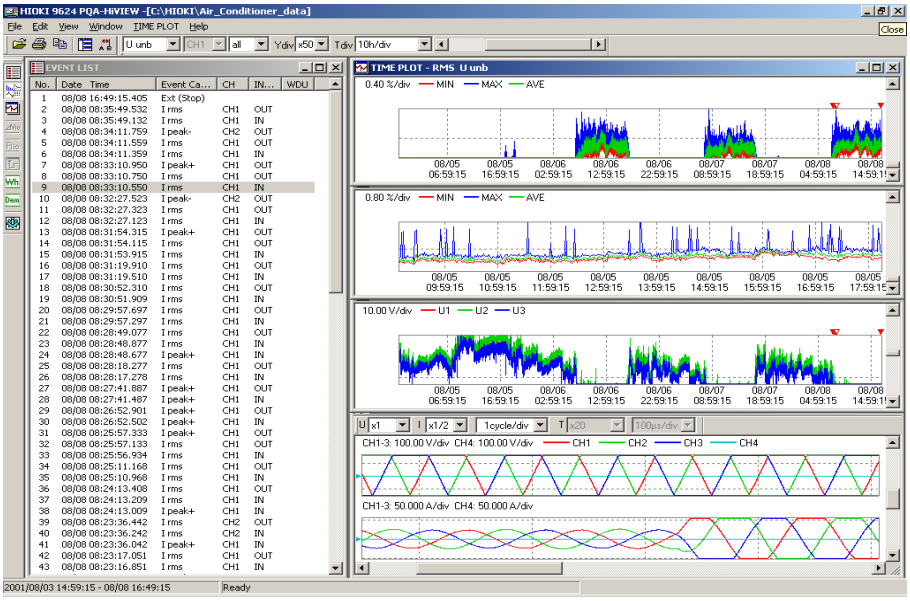
Click the button or select **View - SYSTEM** on the menu bar.



3.3 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.



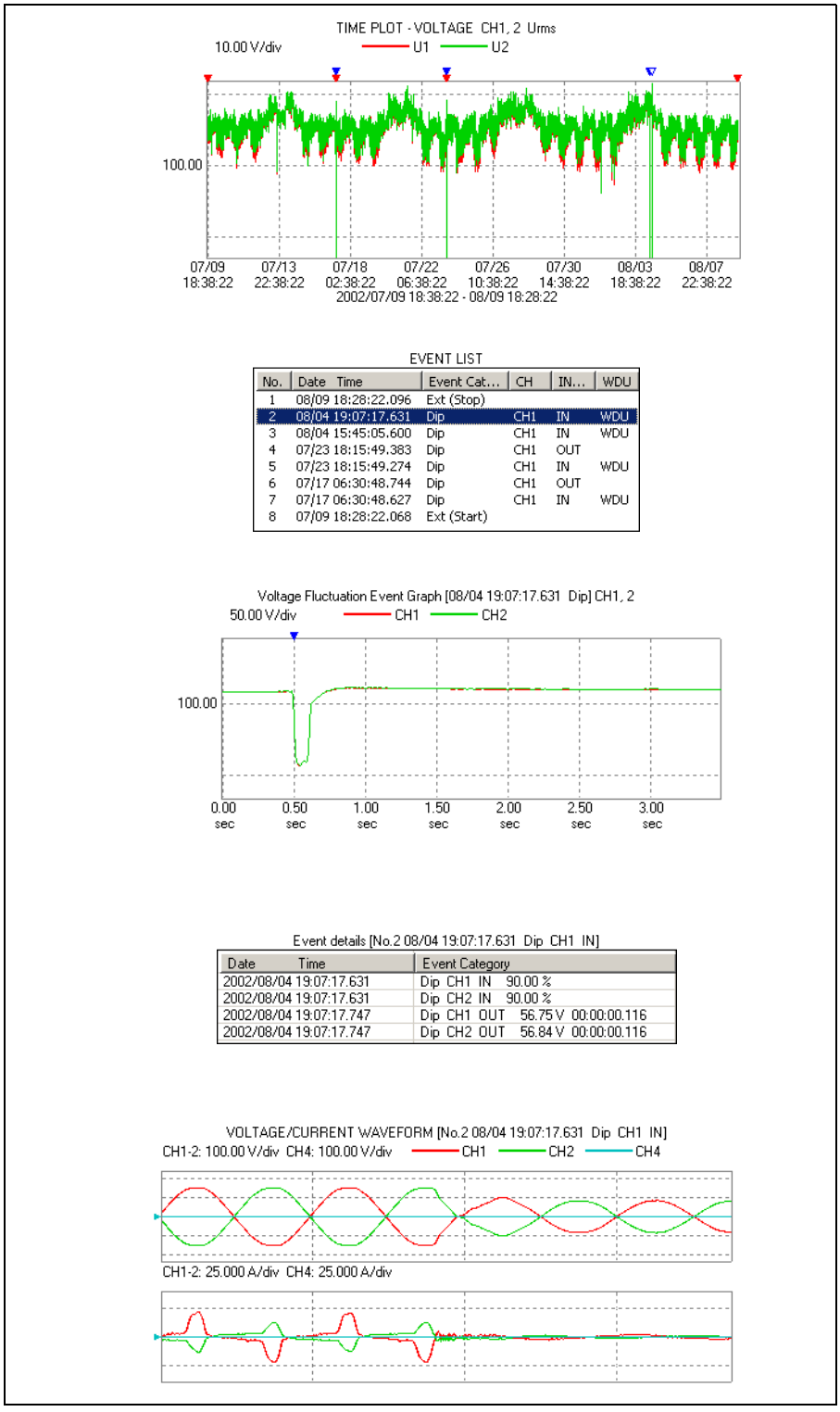
3.4 Copying to the Clipboard

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.)

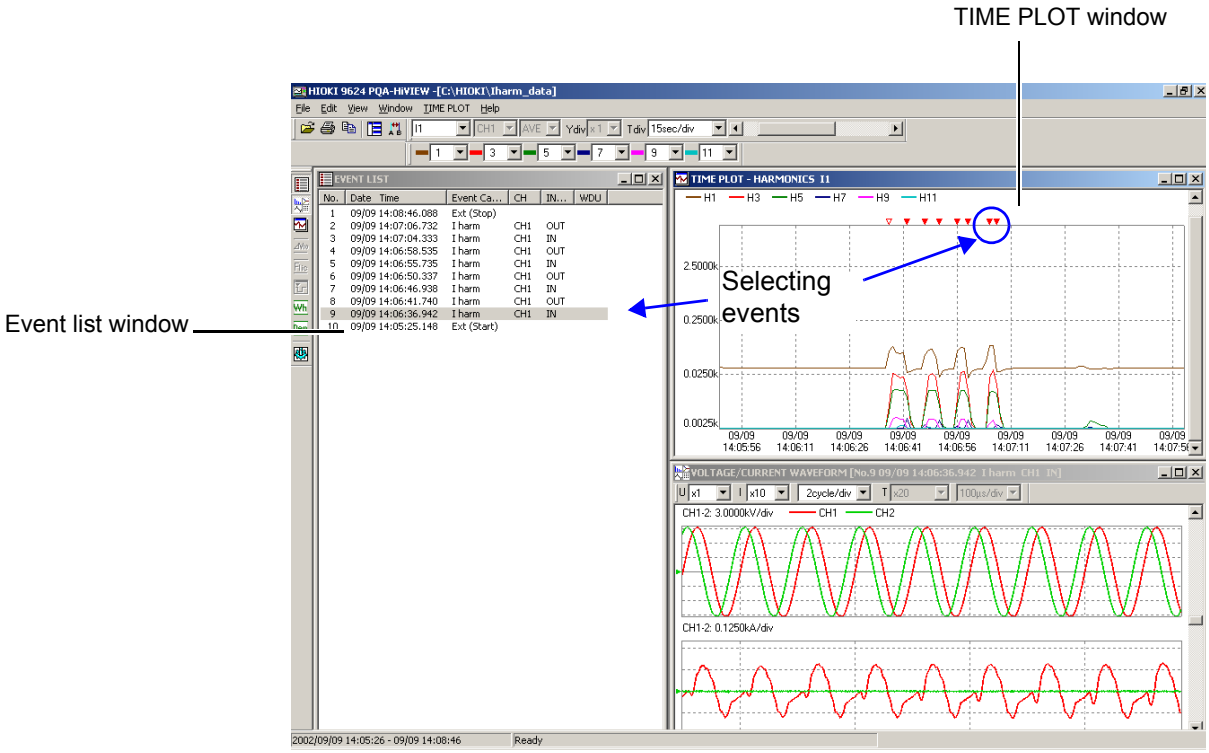


3.5 Synchronized Event Operation

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.

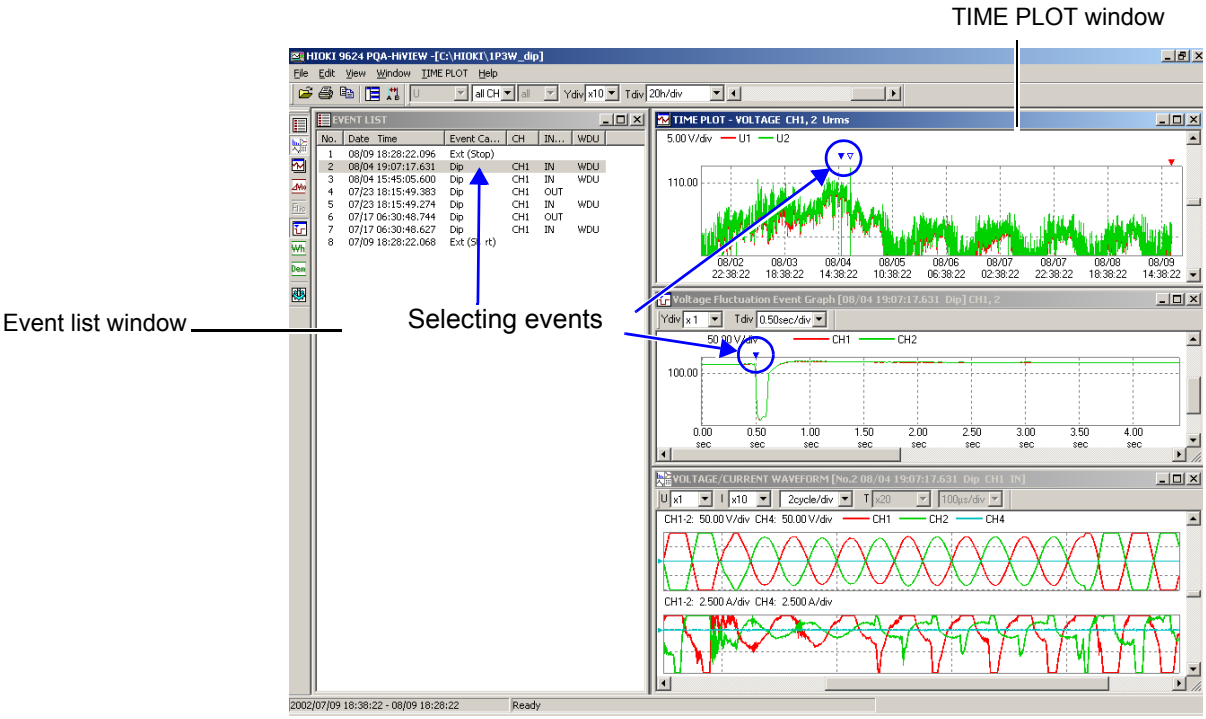
Synchronized Display

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.

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.

TIME PLOT Window

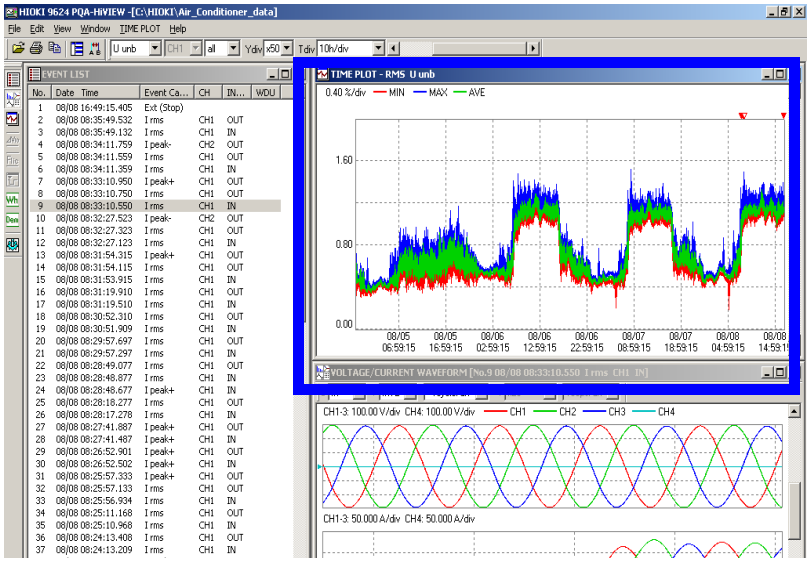
Chapter 4

The TIME PLOT window in the 9624 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 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 34)
- 4.6, "Scrolling a Graph"(page 35)
- 4.7, "Selecting Events"(page 36)

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

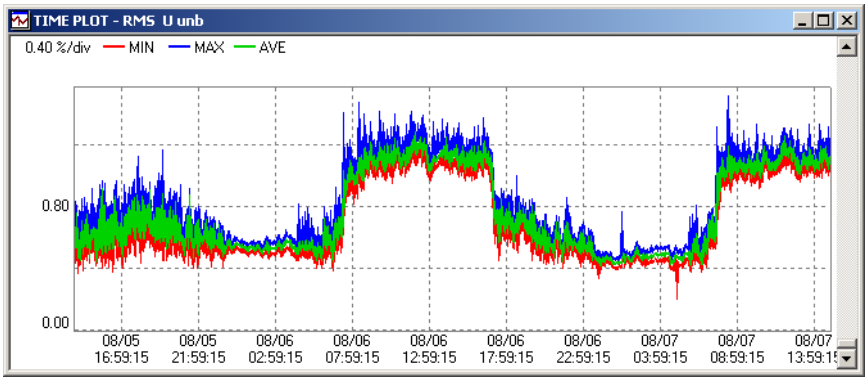
The TIME PLOT window cannot be displayed unless the read data includes an ITV file.
Also, the windows that can be selected depend on the contents of the type setting of the data to be recorded on the SYSTEM - MAIN - RECORDING screen of the 3196.

4.1 RMS

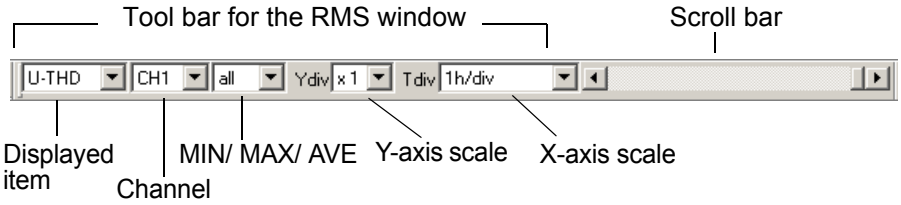
Window Display

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

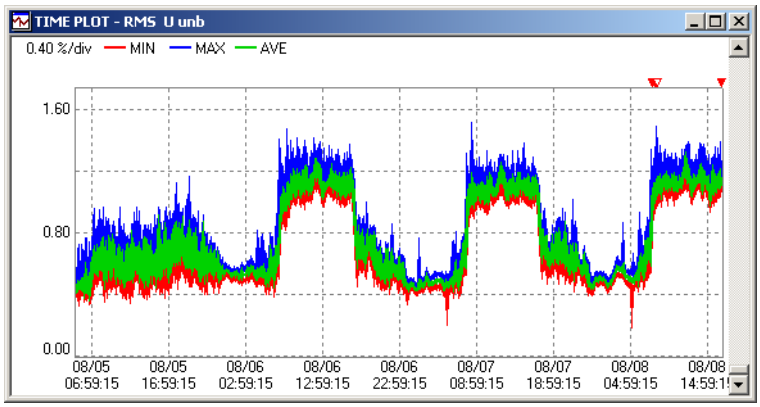
The scroll bars are used to scroll the window vertically and horizontally.

4.2 Voltage

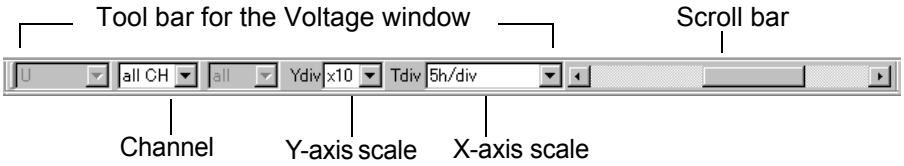
Window Display

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

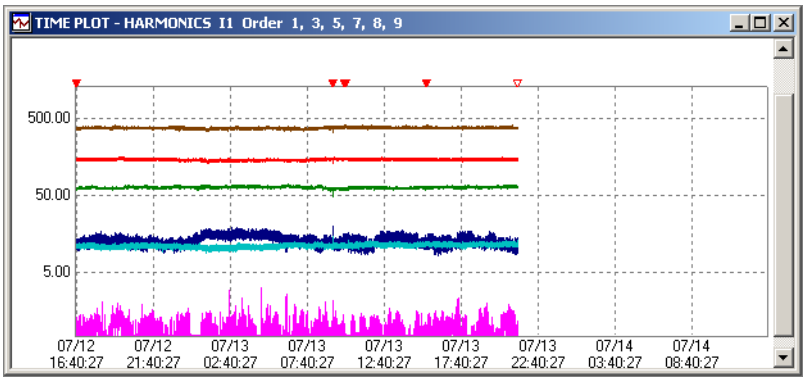
Each voltage data element consists of the MAX and MIN values acquired during a measurement interval. Therefore, when the horizontal axis is magnified, the data for each element is displayed as a vertical line connecting these MAX and MIN values, but note that the elements themselves are not interconnected.

4.3 Harmonics

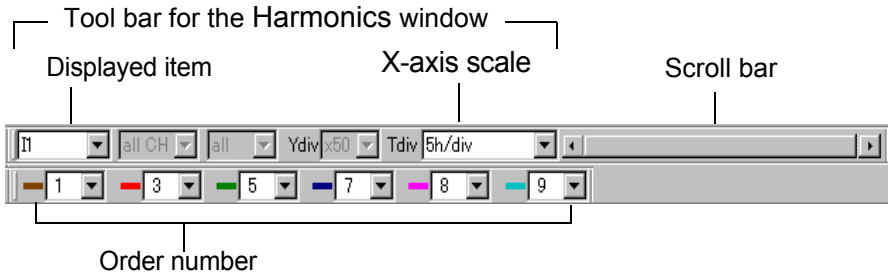
Window Display

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.

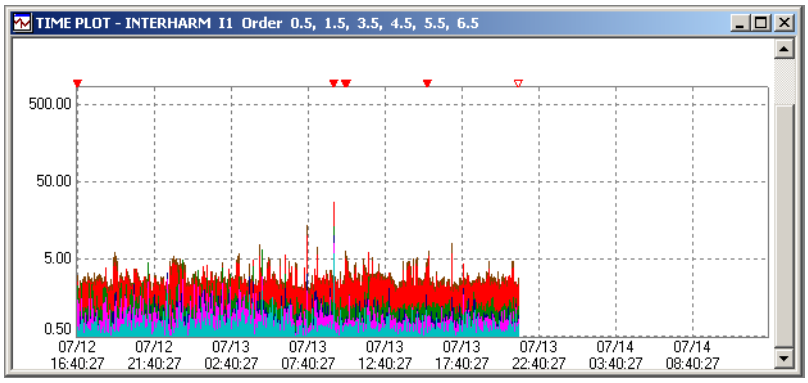
NOTE

- 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

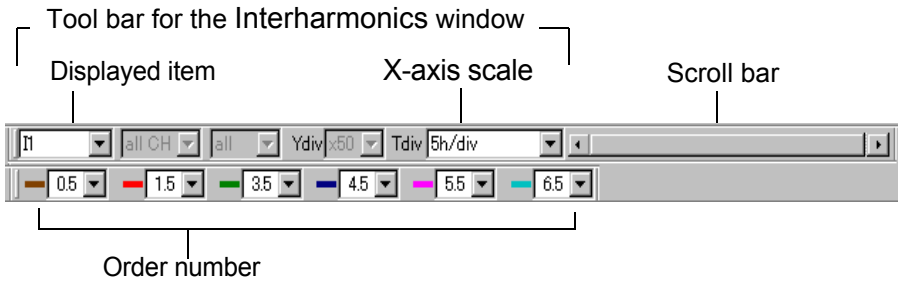
Window Display

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

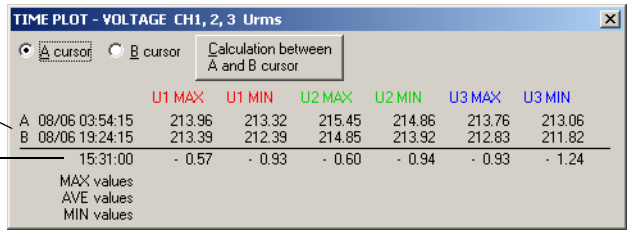
When the A and B cursors are displayed on the TIME PLOT window, the values at the cursor positions on the graph can be displayed.

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.

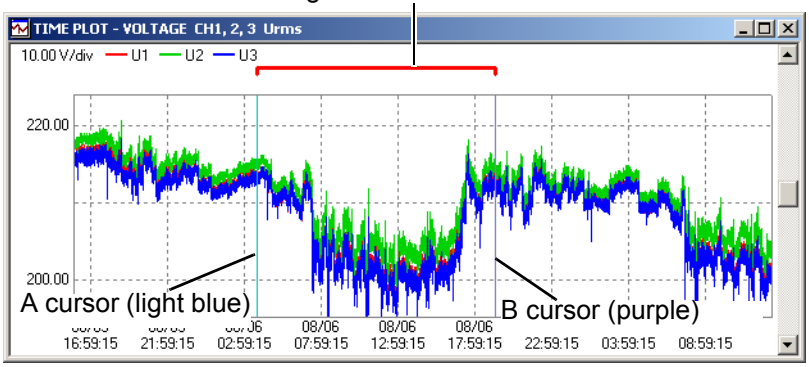
Moving A and B Cursors

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



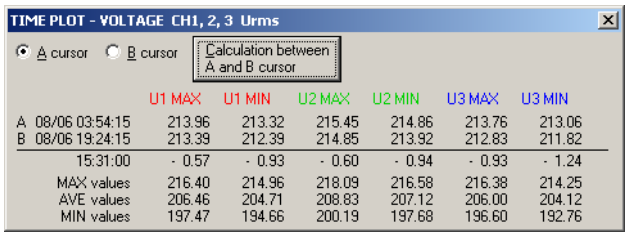
NOTE

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.

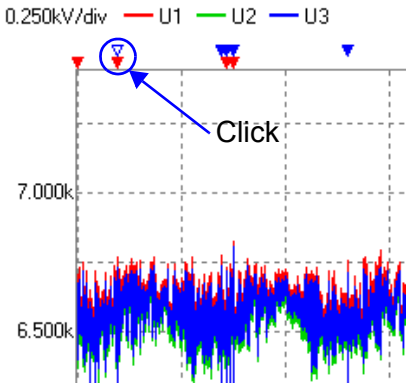
" ▼ " Red triangle event mark:
Indicates time position of normal event.

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

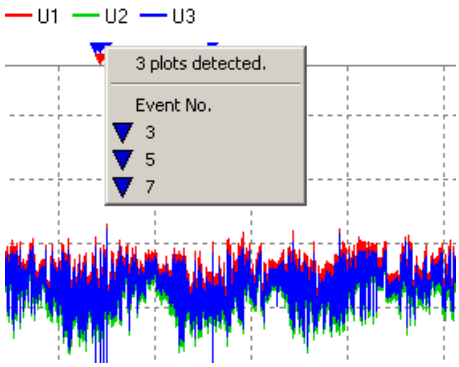
Selecting Events

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.

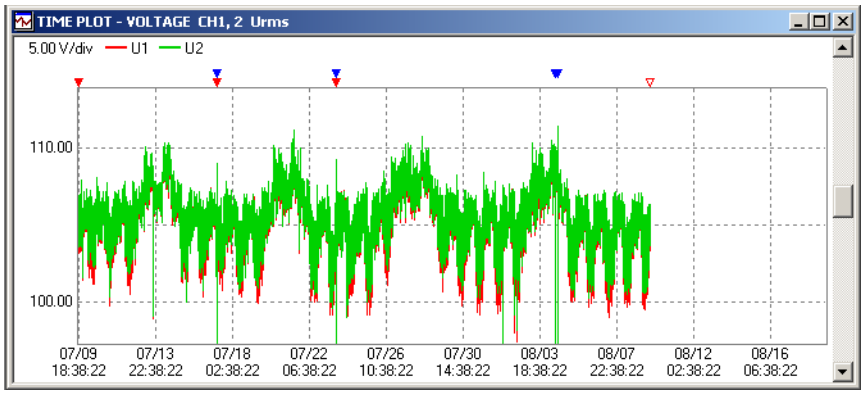


3. Select an event mark from the menu.
If a stack contains more than 30 event marks, a submenu appears for every 30 marks.

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.

❖ 3.5, "Synchronized Event Operation"(page 27)

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.

Flicker Window Chapter 5

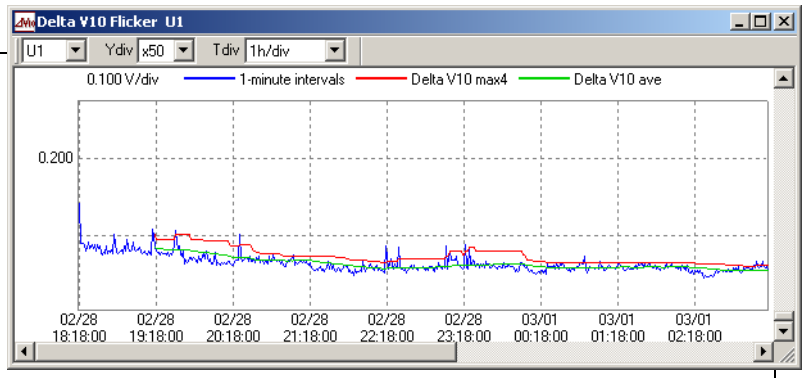
The Flicker windows in the 9624 program are equivalent to the Flicker Graph Screen (TIME PLOT) on the 3196 POWER QUALITY ANALYZER.

5.1 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

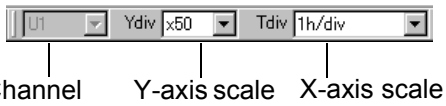


Blue .... Every 1 minute
Red ..... 4th maximum in one hour
Green . Average over one hour

Scroll bar

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 34)

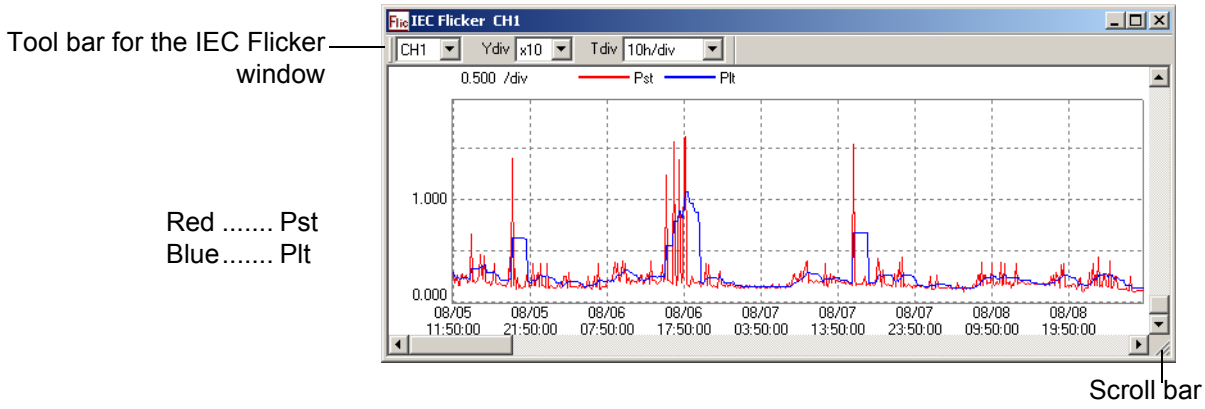
NOTE

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

5.2 IEC Flicker Window

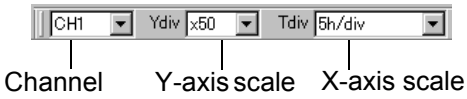
Window Display

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 34)

NOTE

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

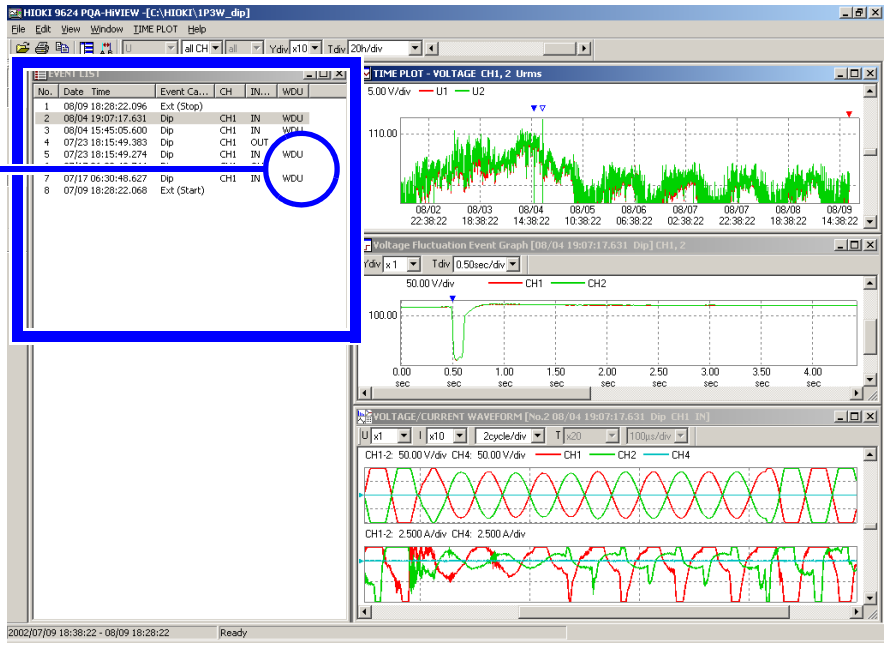
Event List Window

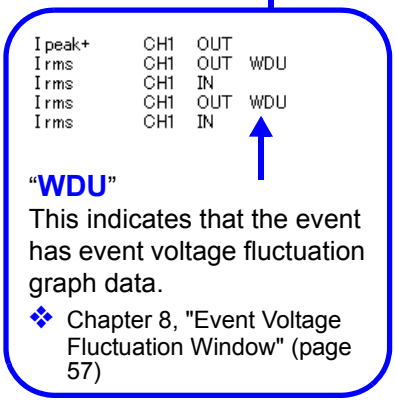
Chapter 6

The Event List window in the 9624 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.





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.

❖ 3.5, "Synchronized Event Operation" (page 27)

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.

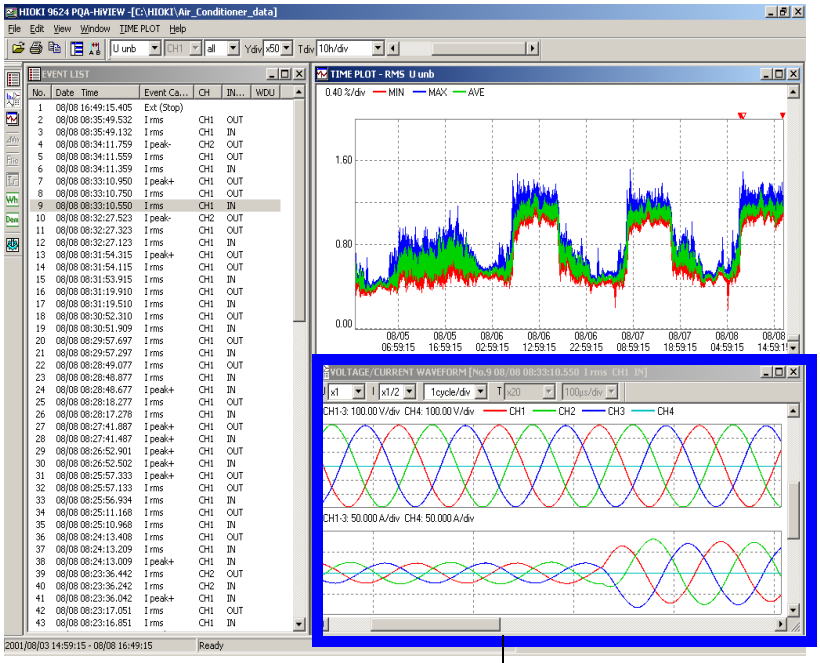
Event Data Window

Chapter 7

The Event Data window in the 9624 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.

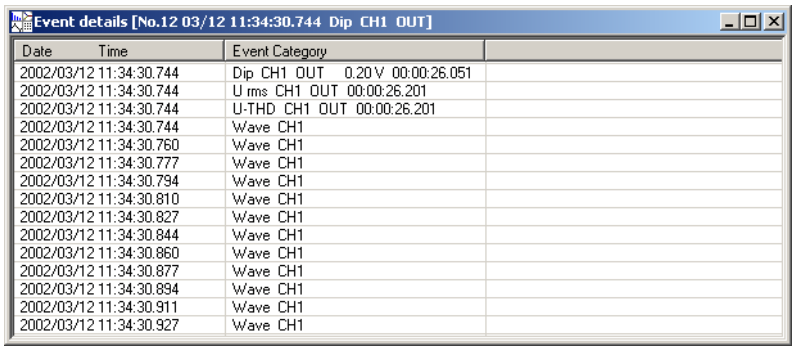
Synchronized Event Operation

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

7.1 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.

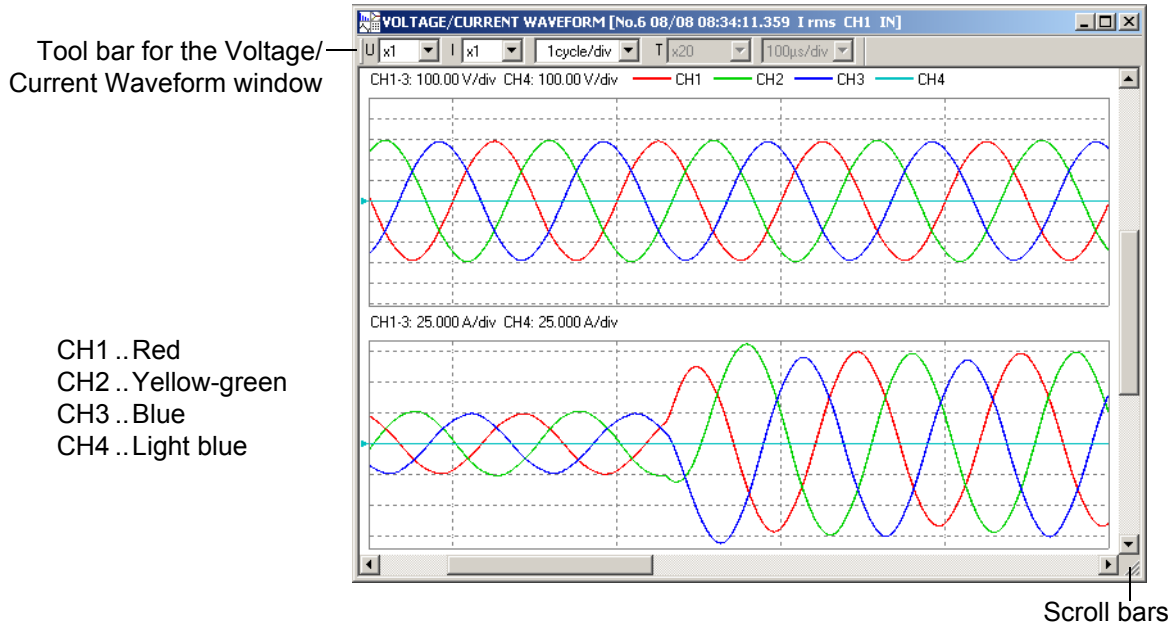


The Event Details window displays multiple events that occurred at the occurrence of the event selected in the Event List window.

7.2 Voltage/Current Waveform Window

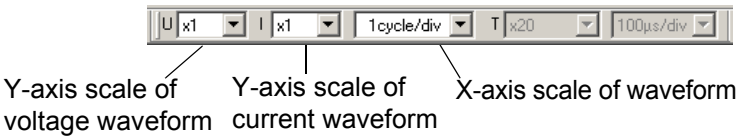
Window Display

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.

❖ 7.10, "Cursor Measurements" (page 53)

NOTE

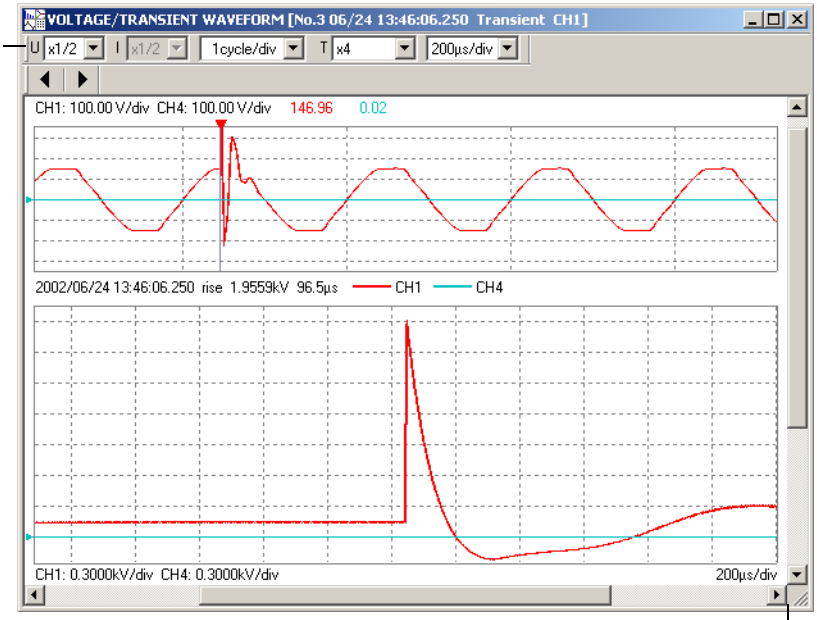
During 50-, 60- and 400-Hz measurements, 14, 16 and 112 waveforms can be analyzed, respectively

7.3 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.

Tool bar for the Voltage/Transient Waveform window



Scroll bars

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

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 | Y-axis scale of transient waveform | X-axis scale of transient waveform


: move the transient waveform view left and right.

Display Scrolling

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

❖ 7.10, "Cursor Measurements" (page 53)

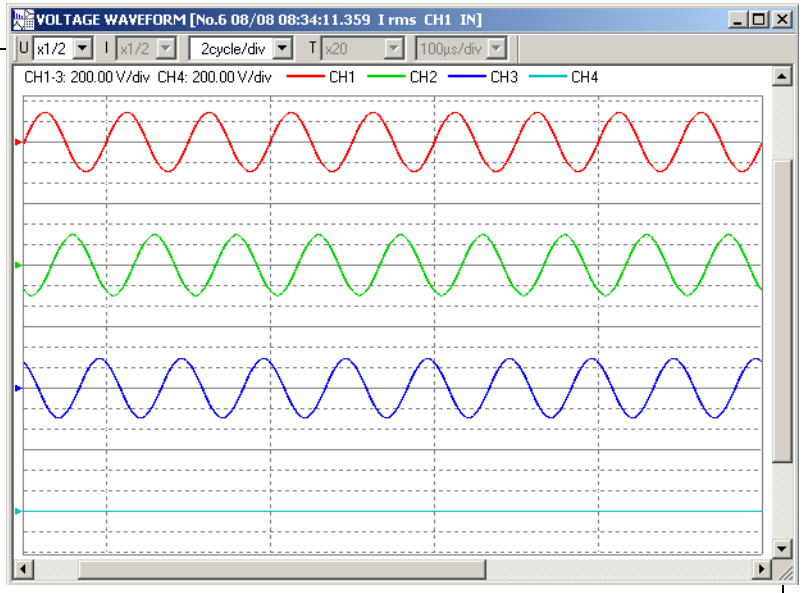
NOTE

- 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.

7.4 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.

❖ 7.10, "Cursor Measurements" (page 53)

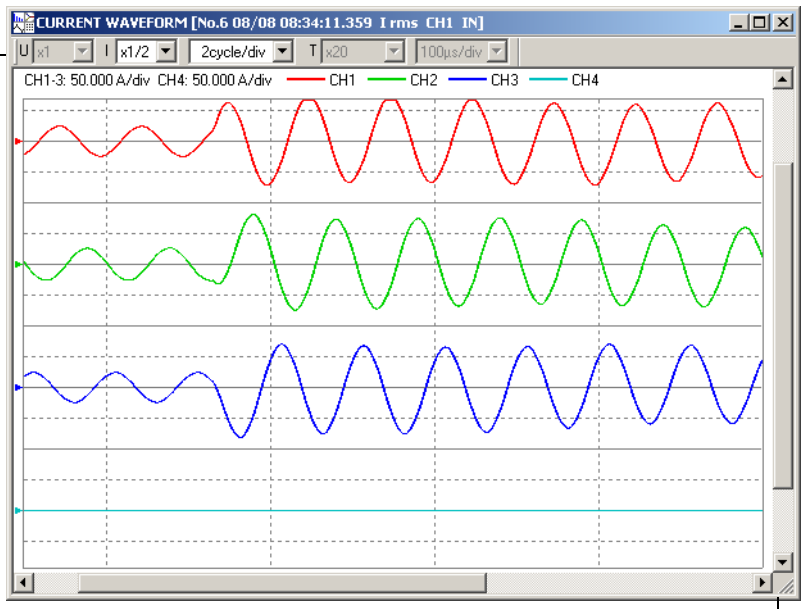
NOTE

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

7.5 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.

❖ 7.10, "Cursor Measurements" (page 53)

NOTE

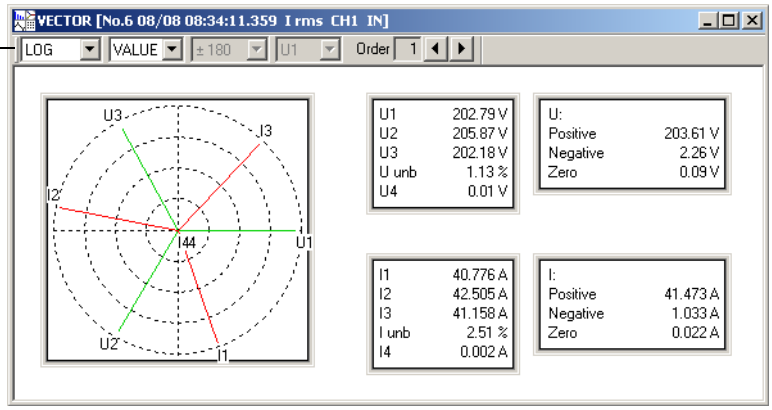
During 50-, 60- and 400-Hz measurements, 14, 16 and 112 waveforms can be analyzed, respectively

7.6 Vector Window

Window Display

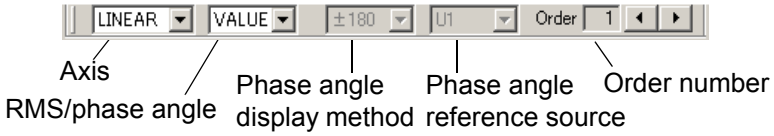
Activate an Event Data window. Select **VECTOR** from the **EVENT DATA** menu on the menu bar or right-click and select the option on the popup menu.
The Event Data window switches to the Vector window.
The Vector window displays the positive, negative, and zero phase calculation results, in addition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



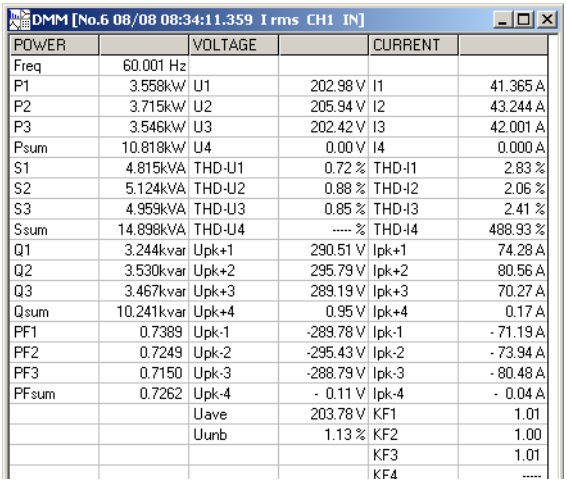
NOTE

- 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.

7.7 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.



DMM [No.6 08/08 08:34:11.359 Irms CH1 IN]

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	74.28 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	-----

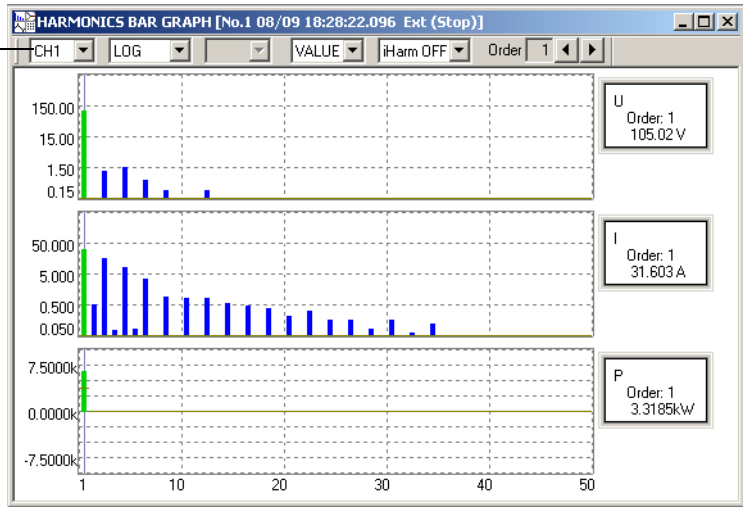
Use the mouse to select a range, then choose **Edit** - **Copy** on the menu bar. The data can be used as tab-delimited text in Microsoft Excel or similar applications.

7.8 Harmonic Bar Graph Window

Window Display

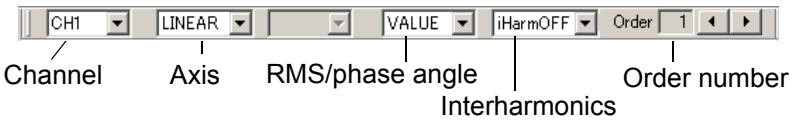
Activate an Event Data window. Select **HARMONICS BAR GRAPH** from the **EVENT DATA** menu on the menu bar or right-click and select the option on the popup menu.
The Event Data window switches to the Harmonic Bar Graph window.

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.



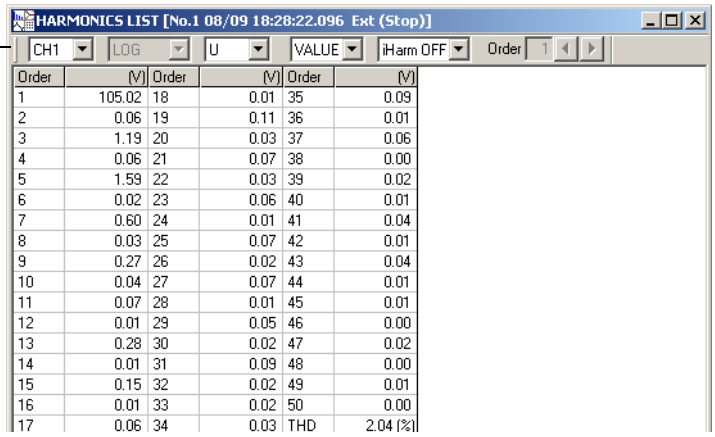
NOTE When measuring 400 Hz, harmonics up to the 10th are analyzed.

7.9 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.

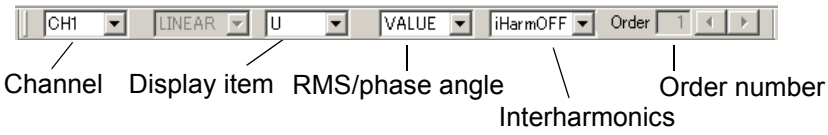
Tool bar for the Harmonic Bar Graph window



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.

7.10 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

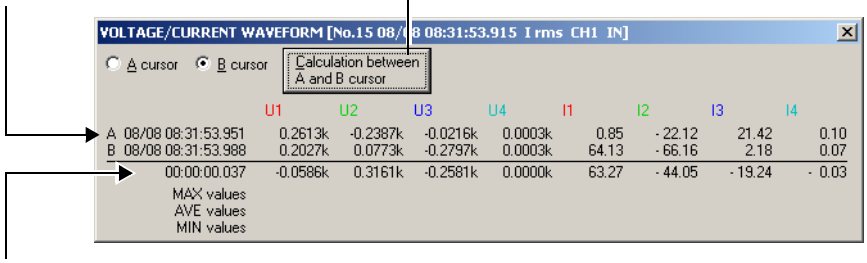
Click the  (A and B cursor) button or select **A and B cursor** from the **Window** menu bar or the right-clicked pop-up menu.

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

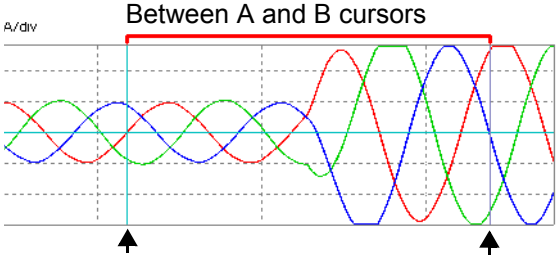
"Clock time" and numeric data at A and B cursor positions

❖ Calculation (page 56)



Data obtained by subtracting A from B

Between A and B cursors



❖ Moving A and B Cursors(page 55)

A cursor (light blue) B cursor (purple)

Voltage/Current waveform window

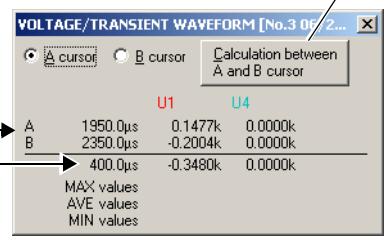
The contents displayed in the dialog box depend on the particular voltage and current waveform windows (voltage/current waveform, voltage/transient waveform, 4-channel voltage waveform, and 4-channel current waveform windows).

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

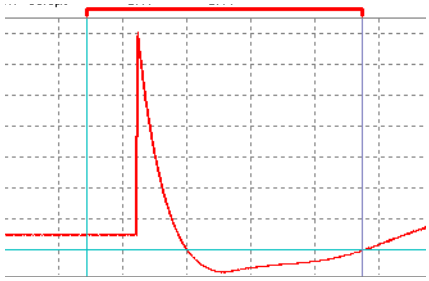
❖ Calculation (page 56)



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 55)

A cursor (light blue) B cursor (purple)

Voltage/transient waveform window

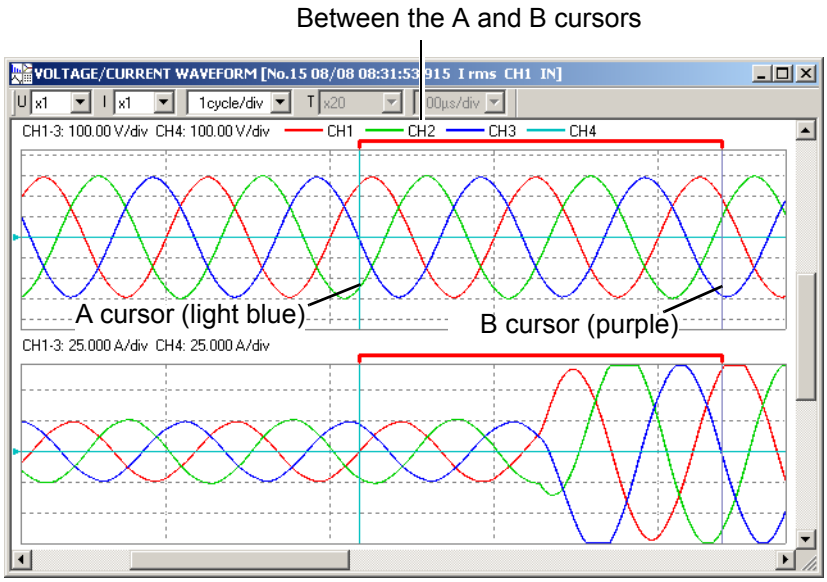
Moving A and B Cursors

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

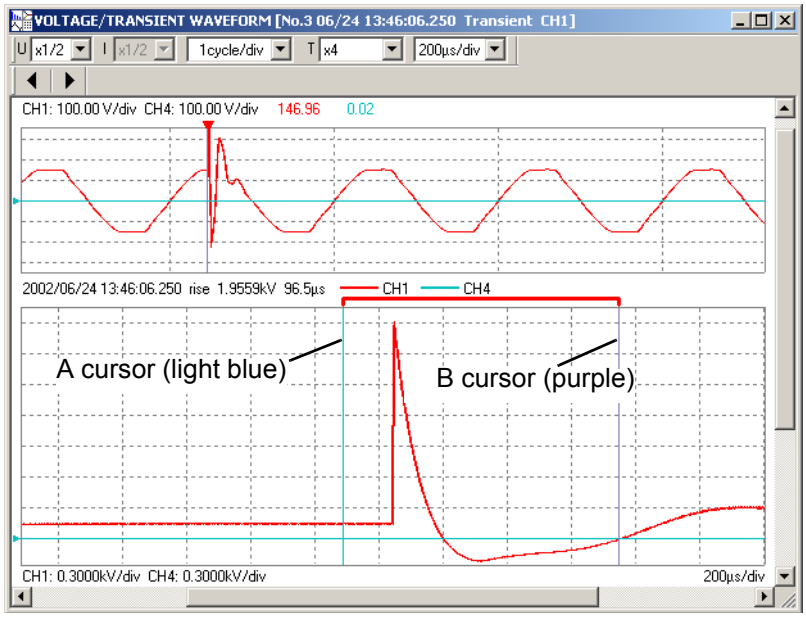
2. Activate an event waveform window. Move the cursor by clicking where you wish to move it to or press the right/left cursor keys on the keyboard.
The A cursor is shown in light blue, the B cursor in purple, and the range between both cursors in red.

Voltage and current waveforms

A cursor.. light blue
B cursor.. purple



Voltage/transient waveform



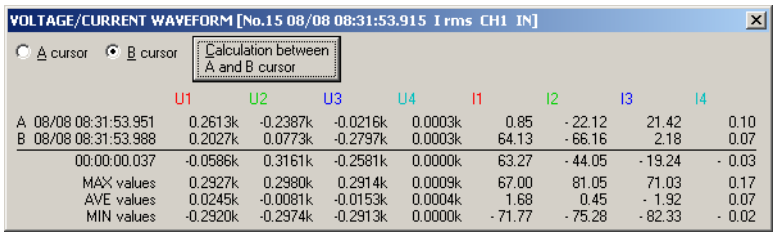
NOTE On the Event Waveform window, the cursors cannot be moved to a position at which there is no data.

Interval Calculation

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

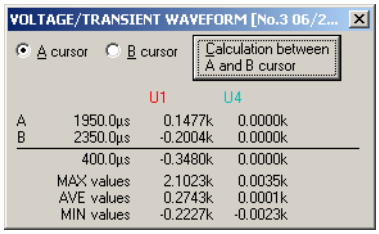
Click the **Calculation between A and B cursor** button to calculate the maximum, average and minimum values within the period demarcated by the A and B cursors.

Voltage and current waveforms



	U1	U2	U3	U4	I1	I2	I3	I4
A 08/08 08:31:53.951	0.2613k	-0.2387k	-0.0216k	0.0003k	0.85	- 22.12	21.42	0.10
B 08/08 08:31:53.988	0.2027k	0.0773k	-0.2797k	0.0003k	64.13	- 66.16	2.18	0.07
00:00:00.037	-0.0586k	0.3161k	-0.2581k	0.0000k	63.27	- 44.05	- 19.24	- 0.03
MAX values	0.2927k	0.2980k	0.2914k	0.0009k	67.00	81.05	71.03	0.17
AVE values	0.0245k	-0.0081k	-0.0153k	0.0004k	1.68	0.45	- 1.92	0.07
MIN values	-0.2920k	-0.2974k	-0.2913k	0.0000k	- 71.77	- 75.28	- 82.33	- 0.02

Voltage/transient waveform



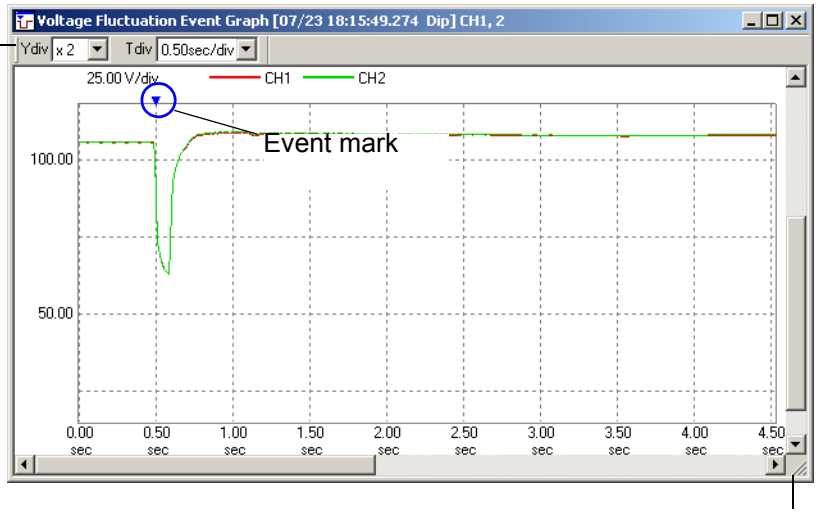
	U1	U4
A	1950.0µs	0.1477k	0.0000k
B	2350.0µs	-0.2004k	0.0000k
	400.0µs	-0.3480k	0.0000k
MAX values		2.1023k	0.0035k
AVE values		0.2743k	0.0001k
MIN values		-0.2227k	-0.0023k

Event Voltage Fluctuation Window Chapter 8

The event voltage fluctuation window of the 9624 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.

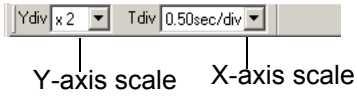
Window Display

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



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.
❖ 3.5, "Synchronized Event Operation" (page 27)

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 34)

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.

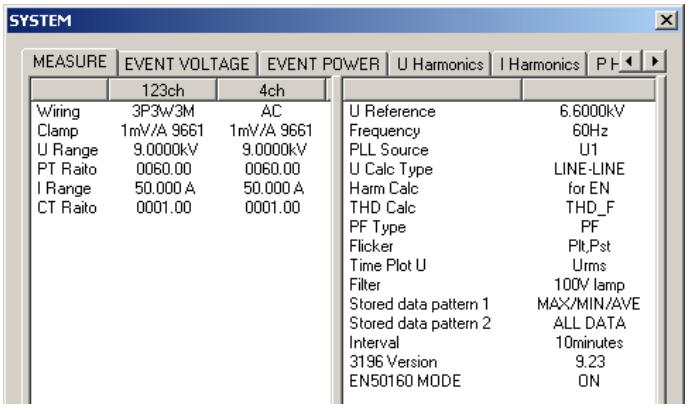
Settings Window

Chapter 9

The Settings window in the 9624 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 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

NOTE The Settings window cannot be displayed unless a SET file is present in the read data.

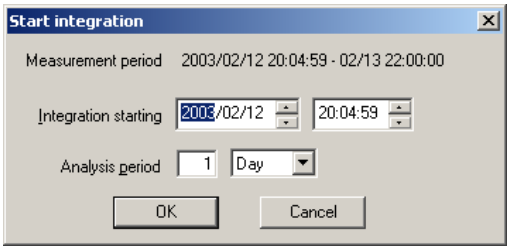
Integrated and Demand Power Analysis Chapter 10

10.1 Integrated Power Value Analysis

Window Display

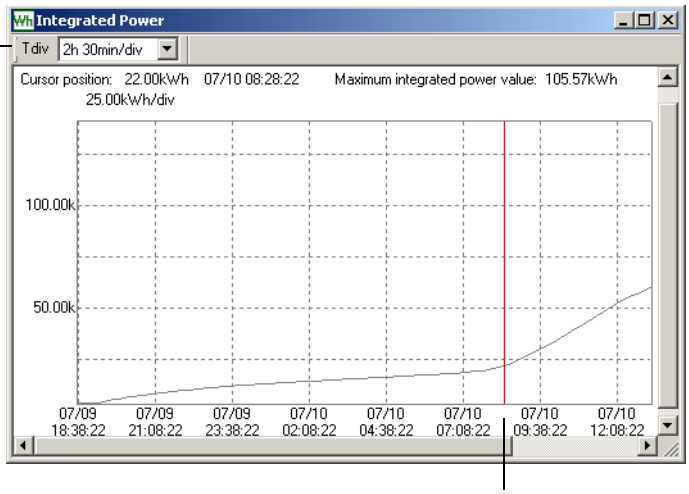
Click the Wh (Open Integrated Power window) button or select **View** - **Integrated Power Window** on the menu bar.

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.

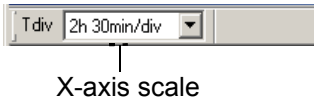
Tool bar for the Integrated Power window (page 62)



❖ A/B cursors: 4.5, "Cursor Measurements" (page34)

Display Content Switching

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

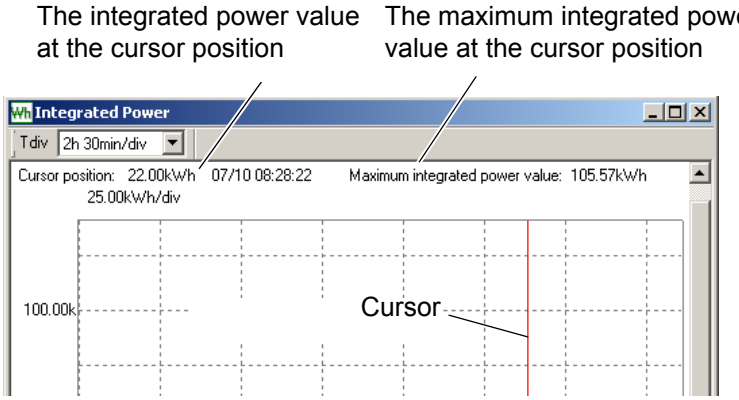


Display Scrolling

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" (page34)

NOTE

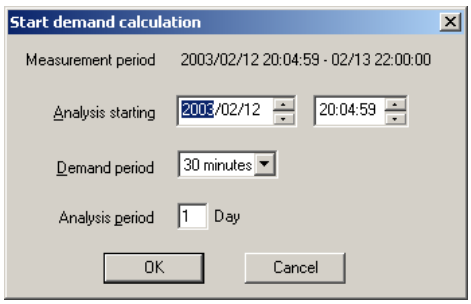
When the A/B cursor dialog box is opened, the A and B cursors are moved instead of the ordinary cursor.

10.2 Demand Analysis

Window Display

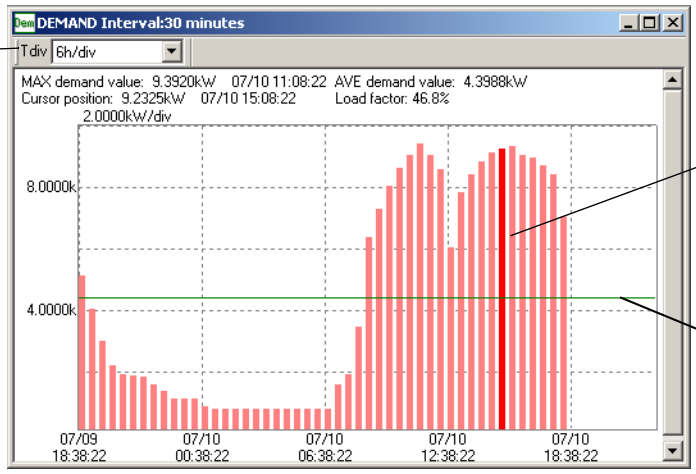
Click the Dem (Open Demand window) button or select **View** - **Demand Window** on the menu bar.

The Start Demand Calculation dialog box opens.



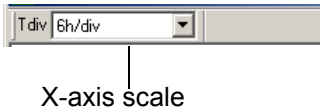
Set the analysis start time, demand period and analysis period in the dialog box, and click **OK** to start calculation.

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.

CSV Format Conversion Function Chapter 11

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)

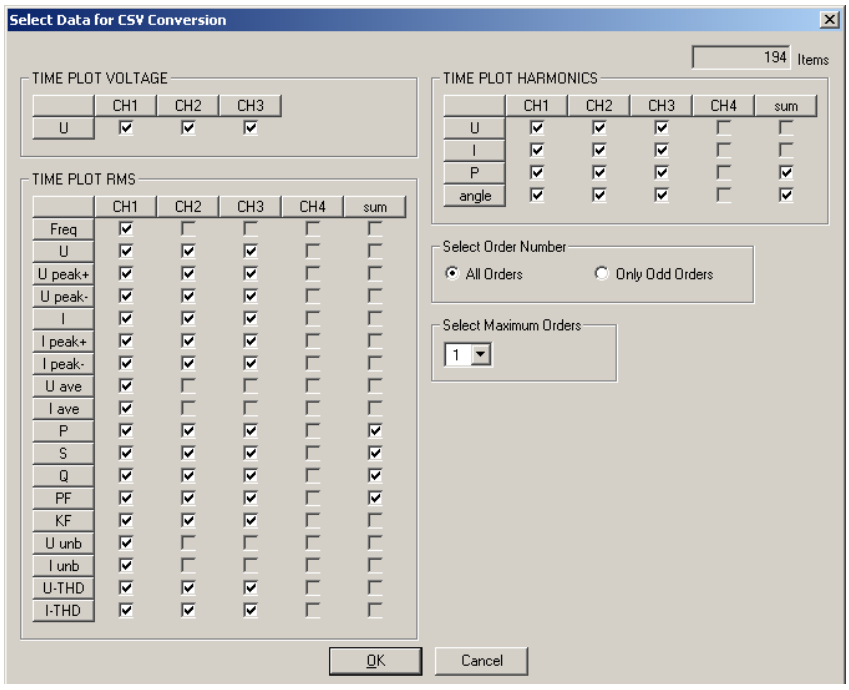
Conversion Procedure

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

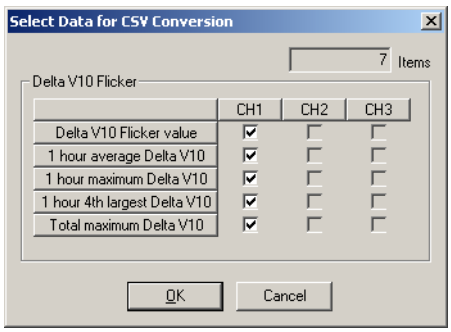
1. Activate any TIME PLOT window.
   Select the range of data to be converted to CSV format with the A and B cursors.
   ❖ 4.5, "Cursor Measurements"(page 34)

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

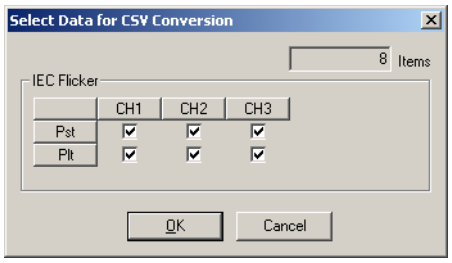
TIME PLOT window



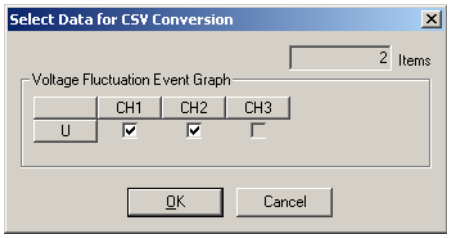
Delta V10 Flicker window



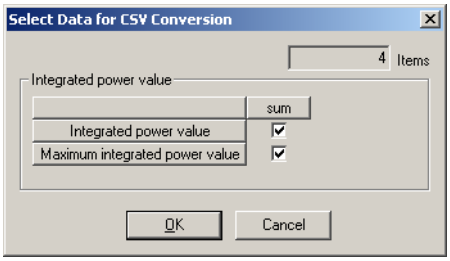
IEC Flicker window



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

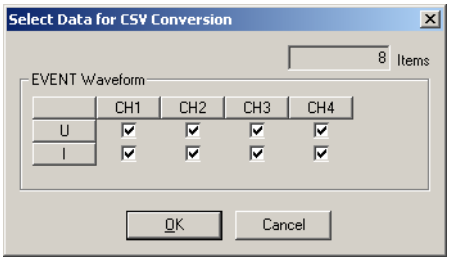
Select measurement items so that the number of items (Items) appearing in the upper right corner of the Select Data for CSV Conversion dialog box does not exceed 256.
Microsoft Excel cannot accommodate CSV data with more than 256 items.

Event Waveform Window

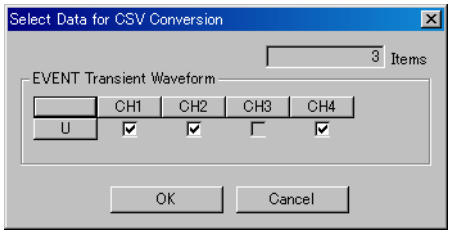
1. Activate the Event Waveform screen.
Select either **Save the active data as a CSV file** – **Event waveform data** or **Save the active data as a CSV file** – **Event transient waveform data** from the **File** menu or the right-clicked pop-up menu.

   The Select Data for CSV Conversion dialog box opens.

   With Event Waveforms:



   With Transient Waveforms:

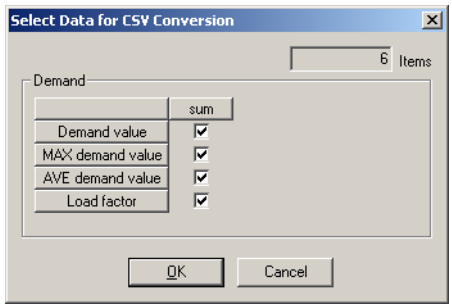


2. Select the check boxes of waveforms to be converted to CSV format.

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

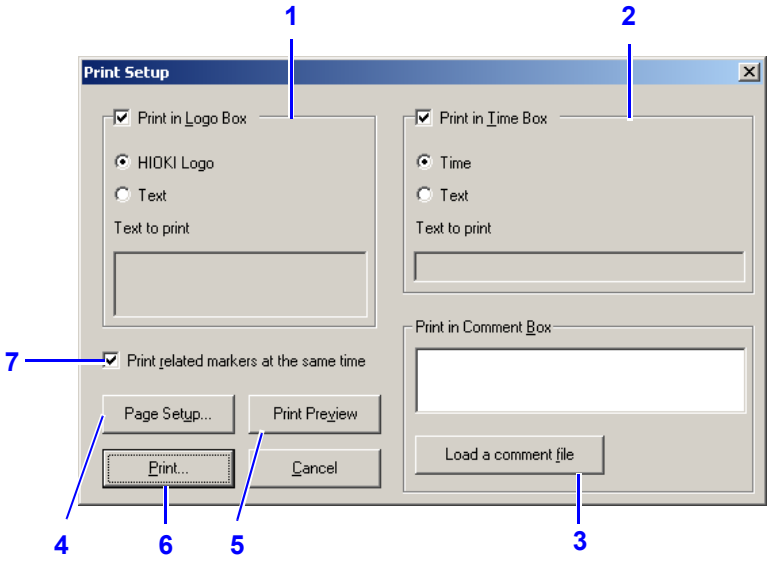
- The format of data in the resulting CSV file is the same as that produced by the 3196 POWER QUALITY ANALYZER. For details about the CSV format, see the user manual provided on CD-ROM for the 3196 POWER QUALITY ANALYZER.
- To convert transient waveform data to CSV format, first make sure the Voltage/Transient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

Chapter 12 Print Function

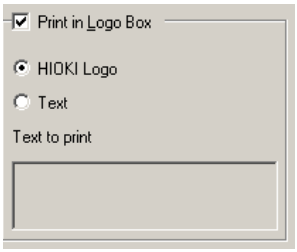
The TIME PLOT, Event voltage fluctuation, Event List, Event Data, Flicker, Integrated Power Value, and Demand windows can each be output to a printer a page at a time.
The TIME PLOT window can be opened and printed all at once.

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.

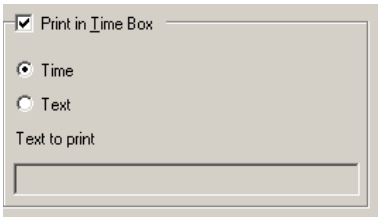


1



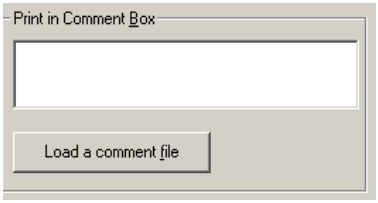
Select whether to print nothing, a logo (bitmap file), or specified text in the log area. When logo is selected without specifying a filename, the HIOKI logo will be printed.

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.

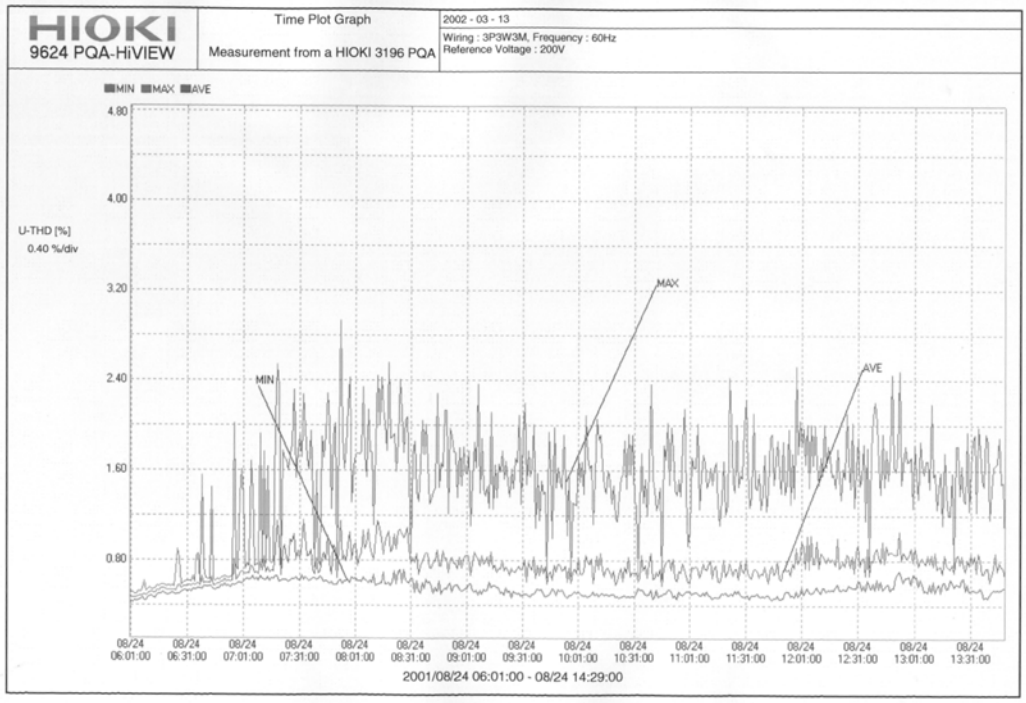
6

Printing starts when you click this button.

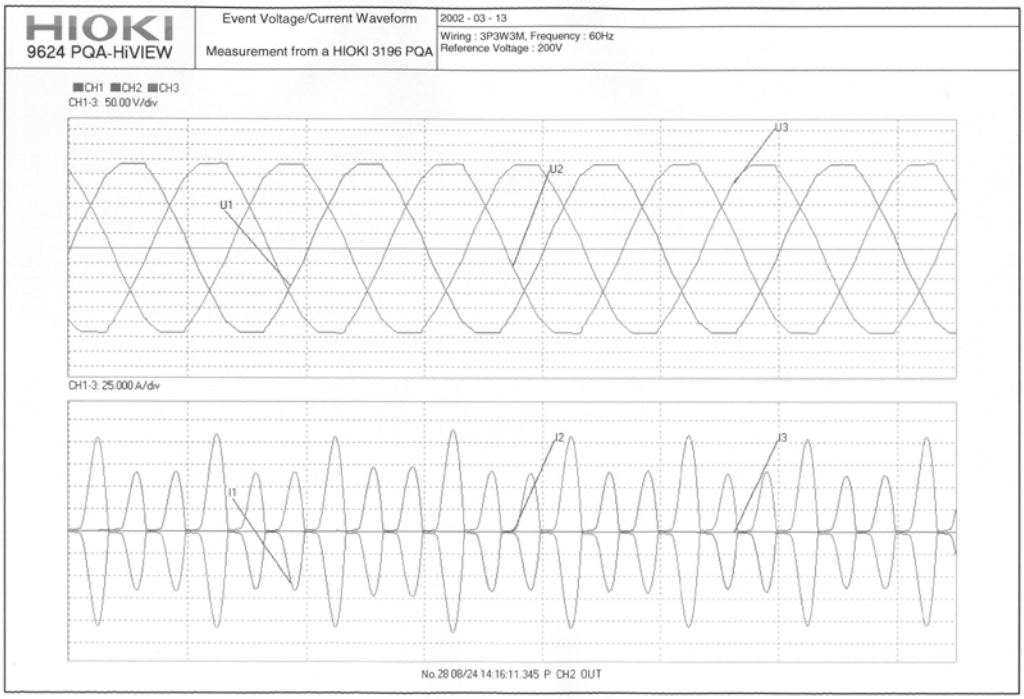
7

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.

HIOKI 9624 PQA-HiVIEW
Instruction Manual

Publication date: September 2004 Revised edition 3

Edited and published by HIOKI E.E. CORPORATION
Technical Support Section

All inquiries to International Sales and Marketing Department
81 Koizumi, Ueda, Nagano, 386-1192, Japan
TEL: +81-268-28-0562 / FAX: +81-268-28-0568
E-mail: os-com@hioki.co.jp
URL http://www.hioki.co.jp/

Printed in Japan 9624A981-03

HIOKI

HIOKI E. E. CORPORATION

HEAD OFFICE
81 Koizumi, Ueda, Nagano 386-1192, Japan
TEL +81-268-28-0562 / FAX +81-268-28-0568
E-mail: os-com@hioki.co.jp / URL http://www.hioki.co.jp/

HIOKI USA CORPORATION
6 Corporate Drive, Cranbury, NJ 08512, USA
TEL +1-609-409-9109 / FAX +1-609-409-9108

9624A981-03 04-09H

Printed on recycled paper