# User 's Guide

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# VR200
# APPLICA TION SOFTW ARE
## Data Viewer Instruction Manual

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**WARNING:** These products are not designed for use in, and should not be used for, patient-connected applications.

## Forward

Thank you for purchasing the VR200-SW Data Viewer for Windows95.
This manual describes the precautions, functions, the operating procedures in using this software on Windows95. Please read this manual thoroughly beforehand to ensure proper use.
Afterwards, keep the manual in a safe place for quick reference whenever a question arises.
For information regarding the precautions, functions, and operating procedures of the View Recorder VR100/VR200 and the operating procedures of Windows95, refer to the corresponding manuals.

## Notes

- The contents of this manual are subject to change without prior notice as a result of improvements in the software's performance and functions. Display contents illustrated in this manual may differ slightly from what actually appear on your screen.
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# Product Overview

## VR200-SW Data Viewer Software

This VR200-SW Data Viewer Software consists of the following software.

- **Beagle for VR**

  This software enables you to display, convert, and print the data saved to the floppy disk by VR100 or VR200, on the PC. It is capable of displaying waveforms and digital values, making cursor measurements, converting the measurement data to ASCII/Lotus/Excel formats, and printing the measured data.

## Files Created by VR100 or VR200

- **Event File (xxx.dat)**

  File containing the event data sampled at the specified sampling interval.

  The event data can be displayed, converted to a different data format, or printed using this software.
- **Display data file (xxx.dat)**

  File containing the data used to display the waveform on the LCD screen of the VR100 or VR200.

  The display data can be displayed, converted to a different data format, or printed using this software.
- **Information file (xxx.inf)**

  File containing event, power failure, and alarm information in ASCII format.

  This file is opened for obtaining event, power failure, and alarm information with this software.
- **Setting list file (xxx.lst)**

  File containing a list of settings in ASCII format. Not used by this software.
- **Setting file (xxx.pnl, xxx.pns)**

  File containing setting values for the VR100 or VR200 in ASCII format. Not used by this software.

## System Requirements Necessary for Operation

- **Personal computer**

  Personal computer on which Windows95 can run.

  CPU: 80486DX4 or higher (Pentium 120 Mhz or higher recommended)

  Memory: 16 MB of more (24 MB or more recommended)
- **OS**

  Windows 95
- **Floppy disk drive**

  3.5 inch 1.44 MB (MS-DOS compatible). Floppy disk also used in setting up this software.
- **Hard disk**

  15 MB of free disk space or more
- **Display**

  Display supported by Windows95 with analog RGB and 32000 colors or more (65536 colors or more recommended).
- **Printer**

  Printer supported by Windows95
- **Mouse**

  Mouse supported by Windows95

# Before Setup

- **Backing up the System Floppy Disk**

  Please make a back up floppy disk (2HD 1.44 MB) of the original system floppy disk which you have purchased. From this point, use the backup floppy disk for setup and for other tasks. Also, when setting up the software, set the floppy disk's write protect switch to allow writing.

- **Procedure on Backing up the System Floppy Disk**

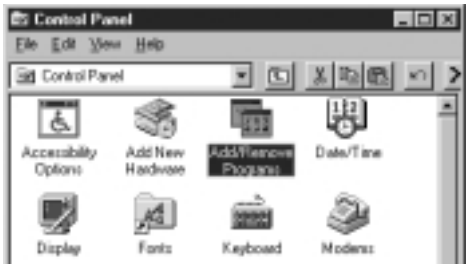
  From the MS-DOS prompt in Windows or in DOS, type the command, "diskcopy a: a:" (when the floppy disk drive is "a") and execute the backup. Then, follow the instructions on the screen.

# Setting up the Software

## Operation

To setup the VR200-SW Data Viewer Software (Beagle for VR), start the setup program by following the steps below.

1. Turn the computer on and start Windows95.
2. Click the “Start” button and point to “Settings.” Open the “Control Panel” and double click “Add or Remove Programs.”

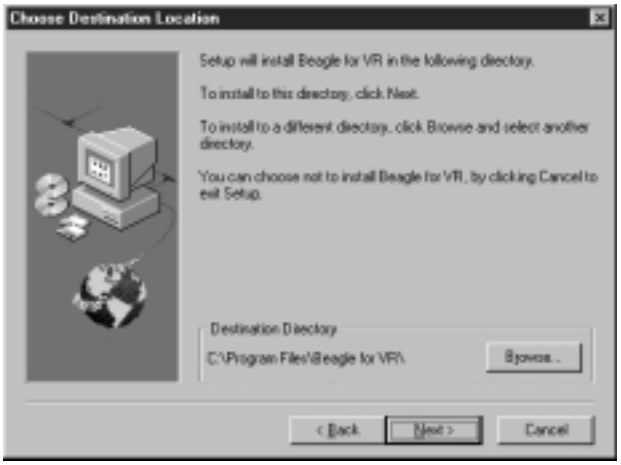



3. Click “Install” on “Install/Uninstall.” The installer starts.

4. Set the system floppy disk (backup copy) in the floppy disk drive and click “Next.”
5. Check that the “Command line for installation program” textbox is set to “a:\setup.exe” and click “Finish.”

6. Follow the setup program instructions. Click “Next.”

7. The setup program asks where to install the software. If you wish to change the destination, click “Browse...” and enter a new location. After setting the destination, click “Next.”



8. If the installation completes correctly, the following message is displayed. Click “OK.”

***Note***

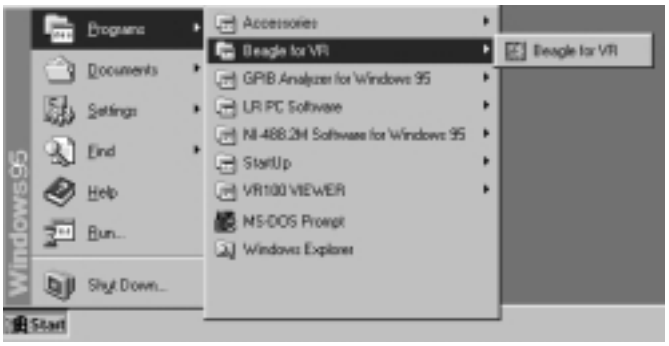
The following folders are created when this software is setup correctly.

- Destination folder\Program: Contains the VR200-SW Data Viewer software
- Destination folder\Sample: Contains sample data files.

## Explanation

### Creating the “Beagle for VR” folder

When this software is setup correctly, “Beagle for VR” folder is created automatically. This “Beagle for VR” folder is automatically registered in the “Program” menu of the “Start” menu as shown below.

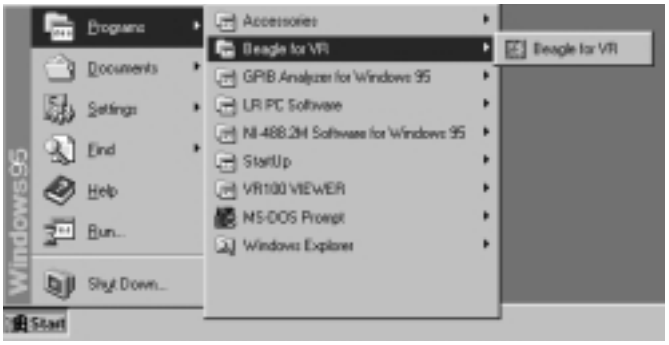


# 1.1 Starting and Exiting the Software

## Operation

- **Starting the software**

  Click the “Start” button, and point to “Programs.” Next, point to the “Beagle for VR” folder, then click “Beagle for VR” to start the software.




- **Exiting the software**

  Select either “File”- “Exit” from the menu bar or “Close” on the window.

- **Displaying the tool bar/status bar**

  To display the tool bar, select “View” then “Tool bar” from the menu bar.

  To display the status bar, select “View” then “Status bar” from the menu bar.

***Note***

The tool bar and status bar are displayed upon starting the software.

# 1.2 Opening a File

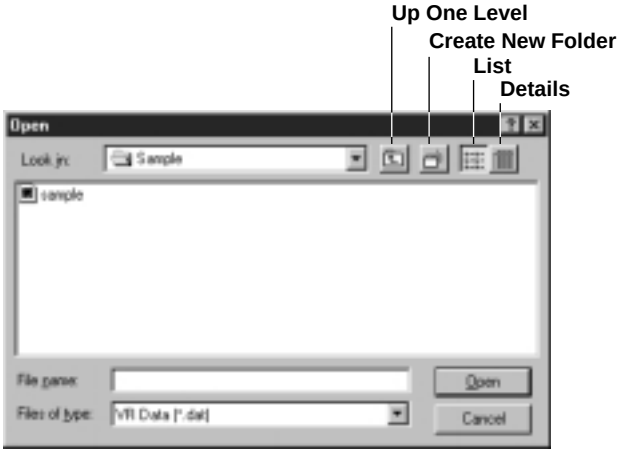
- **Opening a File**

  After starting the software, the measured data can be read in and the waveform can be displayed by following the steps below.

## Operation

1. Select “File” then “Open” from the menu bar, or click the file open icon on the tool bar.

2. Select the file to display from the “File name” list box.
   Select a file with “.dat.” extension. Select the appropriate folder (location of the file) and the file type as necessary.




3. Click “Open” and the waveform is displayed.

***Note***

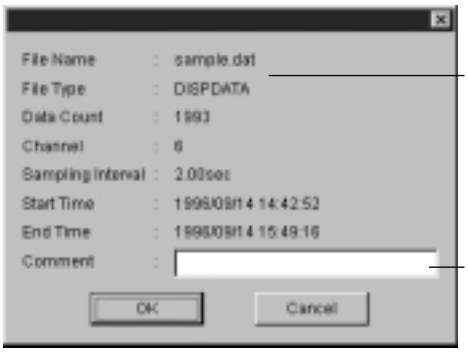
- The number of files that can be opened simultaneously depends on the memory size and free disk space on the PC.
- When saving files on the VR100 or VR200, if the data file name is set to auto-setting or auto-increment, event files become “Exxx.dat” and display data files become “Dxxx.dat.”
- It is convenient to copy the data file from the floppy disk to the hard disk for use.

- **Viewing the file information**

  You can view the file information of the displayed waveform by following the steps below.

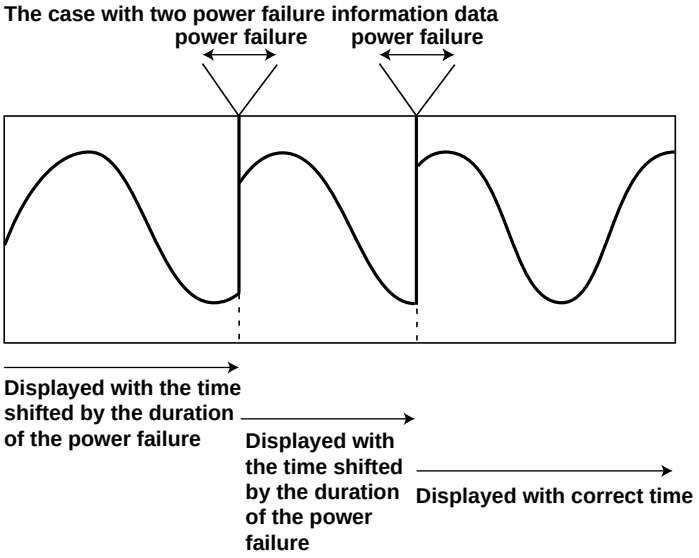
## Operation

Select “Information” then “File information” from the menu bar. Information similar to the one shown below is displayed.



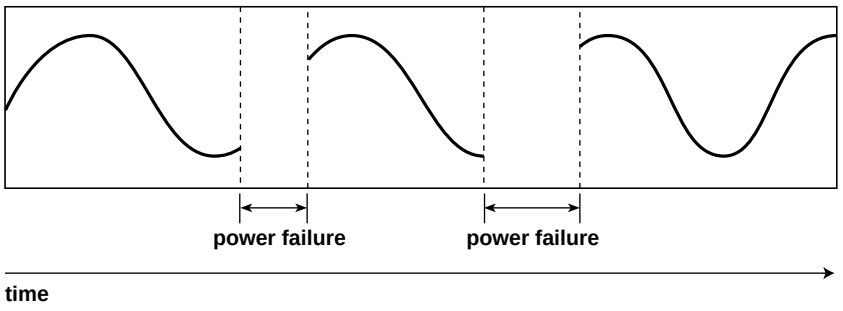

## Explanation

- **Displaying event files containing power failure information data**
  - When displaying an event file containing power failure information data, the waveform data is displayed with incorrect time information. (The time of the measurement before the power failure is shifted by the amount of time of the power failure duration.)
  - When displaying the waveform of an event file containing power failure information data, the data indicating the power failure duration is displayed as one point with a value larger than the range on the top edge of the waveform display area. This is displayed as one point with a value larger than the range on the digital value display.



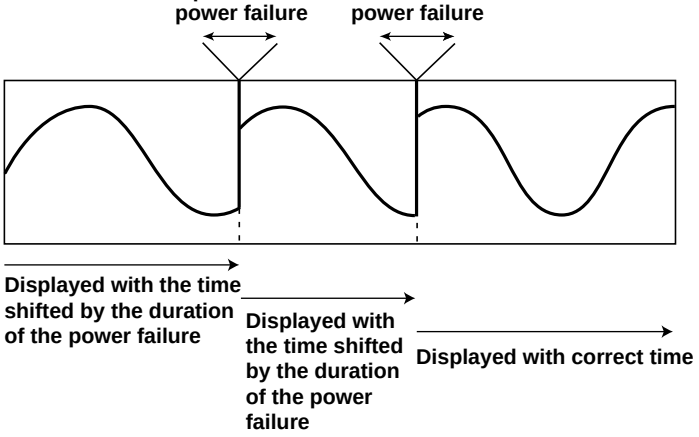
- **Displaying display data files containing power failure information data**
  - When the information file containing power information data exists in the same folder as the display data file, the power failure duration is displayed with a blank section. (The measured data is displayed with correct time information.)

**The case with two power failure information data**

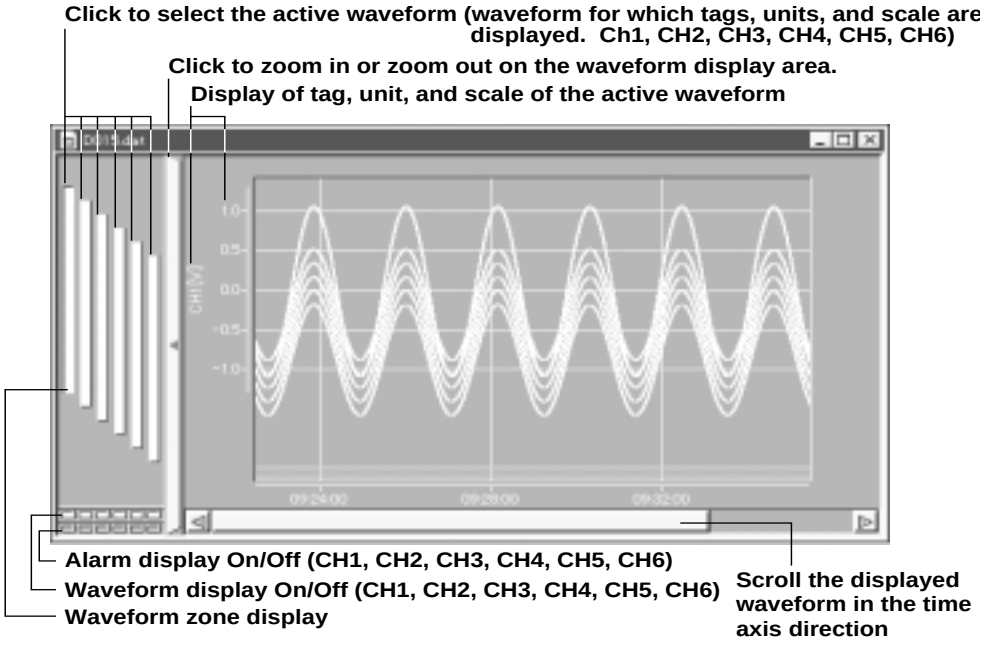



  - When the information file containing power failure information data does not exists in the same folder as the display data file, the data indicating the power failure duration is displayed as one point with a value larger than the range on the top edge of the waveform display area. This is displayed as one point with a value larger than the range on the digital value display. (The measured data is displayed with incorrect time information. The time of the measurement before the power failure is shifted by the amount of time of the power failure duration.)

**The case with two power failure information data**




  - Waveform display example



# 1.3 Changing the Waveform Display Settings

## Setting the Details of the Waveform Display

While displaying the waveform, you can change the settings of the following items by following the steps below.

- **Waveform display On/Off, Alarm display On/Off**
- **Tag**
- **Unit**
- **Scale**

  Sets the display range in order to display the measured waveform with an appropriate scale.
- **Zone**

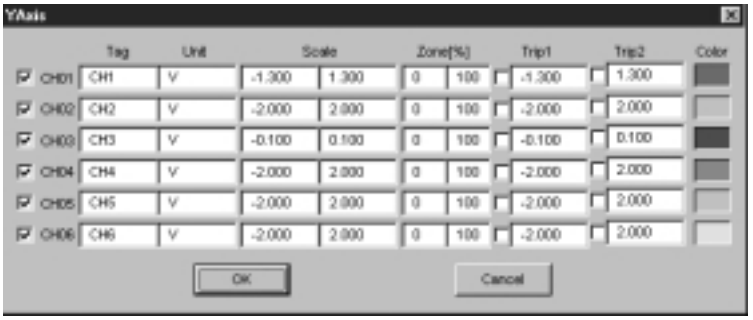
  Sets the display position on the waveform display area (zone). When displaying multiple waveforms, you can position each waveform so that it does not overlap.
- **Trip Point**

  Sets the position of the horizontal line used to mark a certain value on the waveform display area. Also, sets the display of this line On/Off.
- **Display color**

  Sets the color of the displayed waveform.

## Operation

1. Select “Yaxis” then “Detail...” from the menu bar.

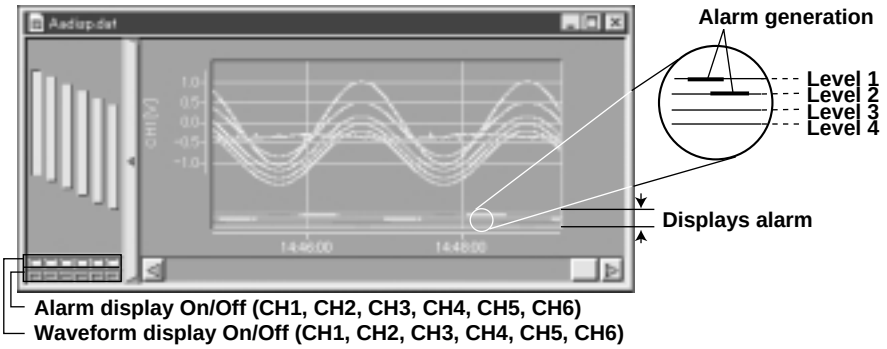



***Note***

When displaying the waveform from a data file saved on a VR100 or VR200 4CH input model, the settings for CH5 and CH6 can not be changed

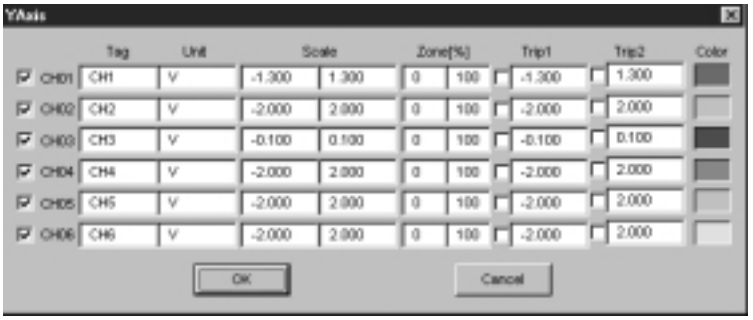
- **Turning the waveform display On/Off, and alarm display On/Off**

2. To turn the waveform display On/Off, click each checkbox for the channels, or click each channel button on the lower left corner of the waveform display area.
3. To turn the alarm display On/Off, click each channel button on the lower left corner of the waveform display area.




***Note***

Alarms (maximum of 4 alarms per channel) generated on the VR100 are displayed at the bottom of the waveform display area with the same color as the waveform color for each channel.




- **Setting tags**

4. Enter characters in the “Tag” text box for each channel.

- **Setting units**

5. Enter characters in the “Unit” text box for each channel.

- **Setting the scale**

6. Set the scale value for each channel. Text box on the left is the minimum value and the text box on the right is the maximum value.

***Note***

Input range is from -999999 to 999999.

- **Setting zones**

7. Sets the zone for each channel in terms of percentages of the waveform display area. Text box on the left is the minimum value and the text box on the right is the maximum value.

***Note***

- The input range for the minimum value is from 0 to 99 % and the input range for the maximum value is from 1 to 100 %.
- The bottom of the display area is 0 % and the top is 100 %.

- **Displaying trip point 1 and trip point 2**

8. Click the “Trip1” and “Trip2” check boxes for each channel.
9. Input the display positions of trip point 1 and trip point 2 for each channel.

***Note***

- Trip points can be set to any value within the scale range for each channel.
- Trip point 1 is red and trip point 2 is yellow.
- The actual trip points displayed on the waveform display are the trip points for the active waveform.
- The display position of a trip point can be changed by dragging the trip point displayed on the right of the waveform display area.

- **Setting the color of the waveform**

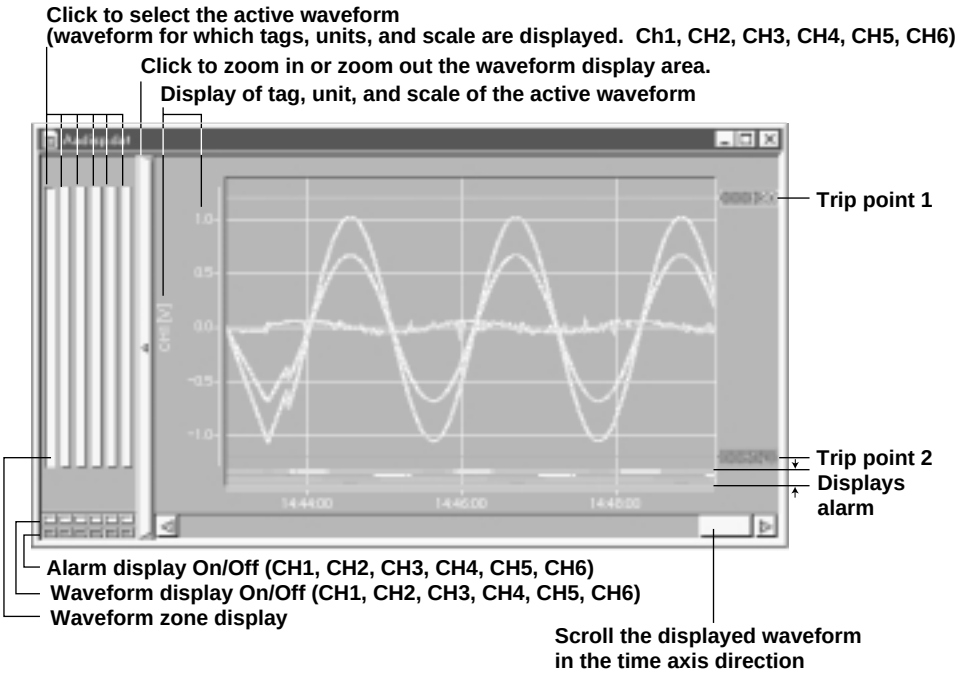
10. Click the “color” button for each channel.

11. Set the color.
12. Click “OK.”
13. Click “OK” on the “YAxis” dialog box.

    The waveforms and trip points are displayed according to the settings.

## Explanation

• Waveform display example



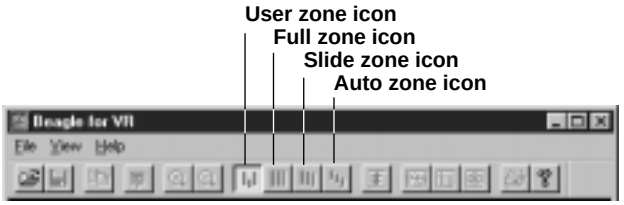
## Selecting the Waveform Display Zone Type

While displaying the waveform, you can select the waveform display zone type as shown, by following the steps below.

- User zone: Displays according to the position of the zones specified in the “YAxis” - “Detail” setting.
- Auto zone: Displays by dividing the waveform display area in equal parts according to the number of waveforms being displayed.
- Full zone: Displays all waveforms in full zone.
- Slide zone: Displays each waveform by sliding the waveform from the top to bottom of the waveform display area.

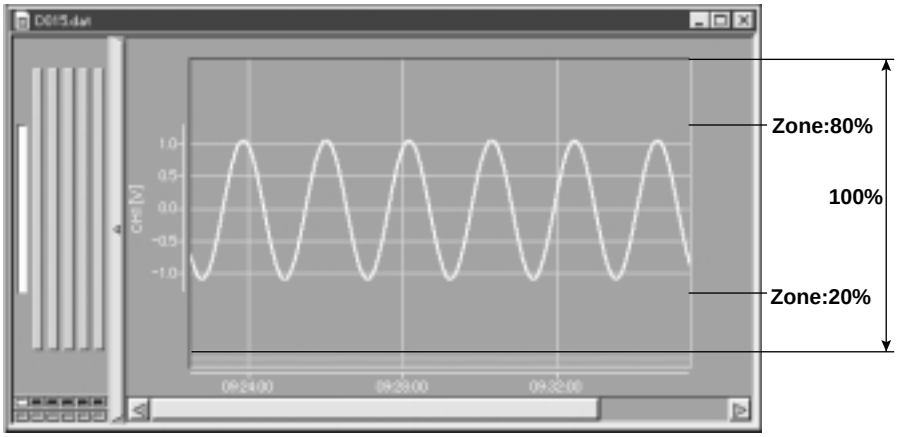
## Operation

- To display using user zone: Point to “YAxis” - “Zone” then select “User Zone” from the menu bar, or click the user zone icon on the tool bar.
- To display using auto zone: Point to “YAxis” - “Zone” then select “Auto Zone” from the menu bar, or click the auto zone icon on the tool bar.
- To display using full zone: Point to “YAxis” - “Zone” then select “Full Zone” from the menu bar, or click the full zone icon on the tool bar.
- To display using slide zone: Point to “YAxis” - “Zone” then select “Slide Zone” from the menu bar, or click the slide zone icon on the tool bar.

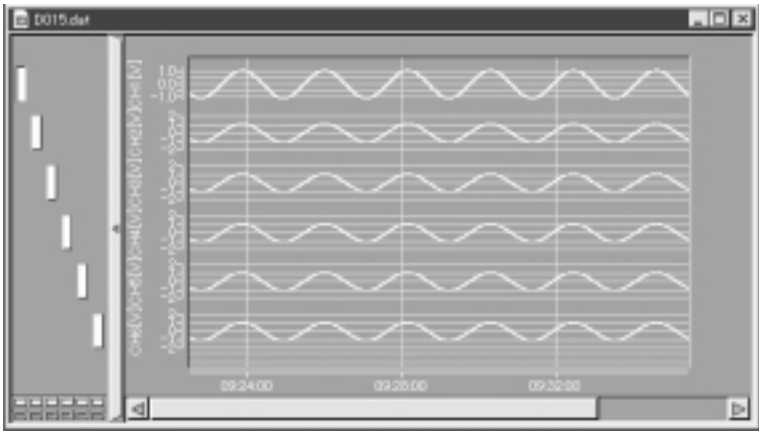



## Explanation

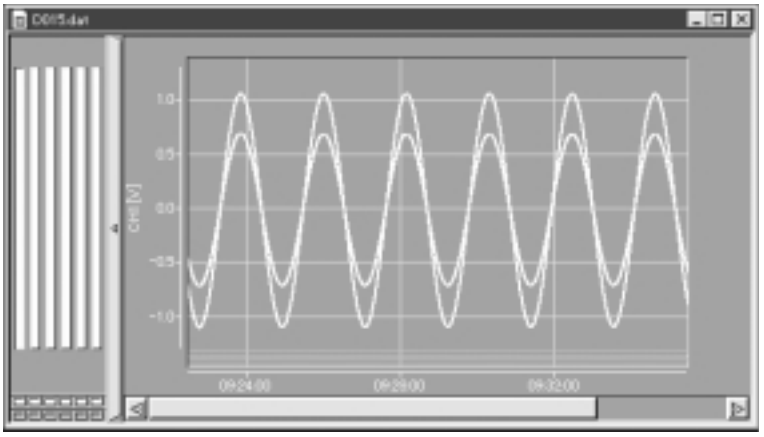
- Example of the waveform display using user zone (when Zone is set to 20 to 80 %)



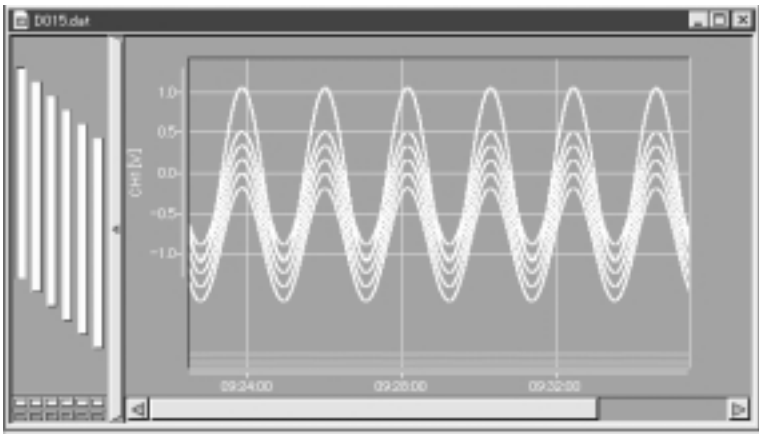

- Example of the waveform display using auto zone (when number of displayed waveforms is 6)



- Example of the waveform display using full zone




- Example of the waveform display using slide zone



## Setting Display Limits on the Displayed Waveform

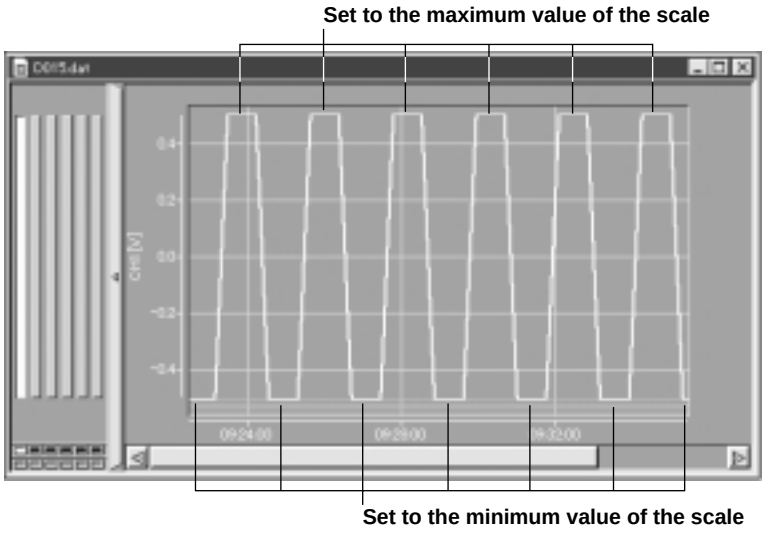
While displaying the waveform, you can set limits on the waveform display by following the steps below. The display range of the waveform in the Y axis direction is limited to the minimum and maximum scale values set in the “YAxis”- “Detail”. Measured values which are smaller than the minimum are set to the minimum value and the measured values which are larger than the maximum are set to the maximum value and displayed.

## Operation

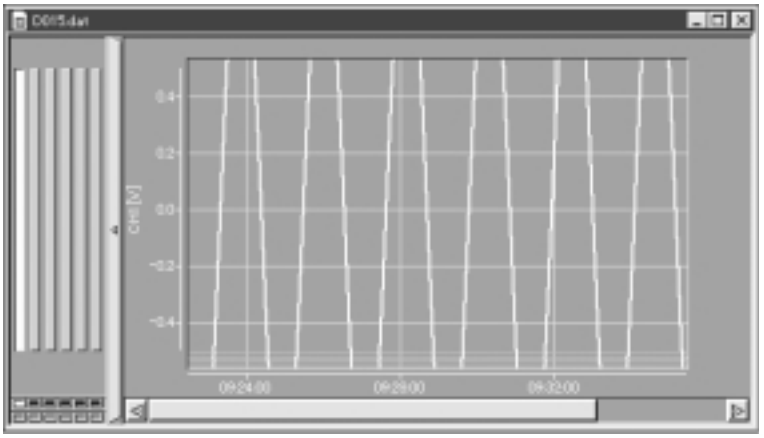
Select “YAxis” then “Limit” from the menu bar or click the limit icon on the tool bar.

## Explanation

- Display example when limit is set on the displayed waveform




- Display example when limit is not set on the displayed waveform



# 1.4 Changing the Time Axis Scale of the Waveform Display

While displaying the waveform, you can change the settings of the following items by following the steps below.

- **Displaying the entire waveform**
  The waveform is zoomed in or zoomed out in the time axis direction, to display the entire waveform.
- **Zooming in or zooming out on the waveform display by setting the scale factor**
  Set a desired scale factor to zoom in or zoom out on the waveform display in the time axis direction.
- **Zooming in or Zooming out on the waveform display by selecting the scale factor**
  Select the scale factor to zoom in or zoom out on the waveform display in the time axis direction.
- **Arbitrarily zooming in or zooming out on the waveform display**
  Waveform is zoomed in or zoomed out arbitrarily and displayed.

## Operation

- **Displaying the entire waveform**
  Select "TimeAxis" then "View All" from the menu bar to display the entire waveform.

- **Zooming in or zooming out on the waveform display by setting the scale factor**

1. Select "TimeAxis" then "Set Scale" from the menu bar.

**To zoom in on the display**

**To zoom out on the display**

2. When zooming in on the waveform display, enter the scale factor in the upper box and click the upper radio button. When zooming out on the waveform display, enter the scale factor in the lower box and click the lower radio button.
3. Click "OK."
   The waveform is displayed zoomed in or zoomed out in the time axis direction.

***Note***

- The range for zooming in on the waveform: 1 to 20 times (Integer values)
- The range for zooming out on waveform: 1/1 to 1/1000 times (Denominator: Integer values)

- **Zooming in or zooming out on the waveform display by selecting the scale factor**

  Selecting “TimeAxis” then “XXX” (scale factor) from the menu bar zooms in or zooms out on the waveform display in the time axis direction. (Selecting a scale factor larger than 1 results in zooming in; a scale factor smaller than 1 results in zooming out.)

- **Arbitrarily zooming in or Zooming out on the waveform**

  To zoom in on the waveform display, select “TimeAxis” then “Zoom In” from the menu bar or click the zoom in icon on the tool bar. To zoom out on the waveform display, select “TimeAxis” then “Zoom Out” from the menu bar or click the zoom out icon on the tool bar. The waveform is displayed zoomed in or zoomed out in the time axis direction.

## Explanation

- **Scale factor for zooming in and zooming out on the waveform display**

  The waveform can be zoomed into or zoomed out of in the time axis direction by changing the number of data* per line** on the time axis. The relation between the scale factor and the number of data per line is as follows

| Scale | Relation between the number of data and line |
|---|---|
| 1/1000 | 1000 data per line |
| 1/500 | 500 data per line |
| 1/200 | 200 data per line |
| 1/100 | 100 data per line |
| 1/50 | 50 data per line |
| 1/20 | 20 data per line |
| 1/10 | 10 data per line |
| 1/5 | 5 data per line |
| 1/2 | 2 data per line |
| 1 | 1 data per line |
| 2 | 1 data per every 2 lines |
| 5 | 1 data per every 5 lines |
| 10 | 1 data per every 10 lines |
| 20 | 1 data per every 20 lines |

* 1 data: 1 set of maximum and minimum data in the case of a display data file.

** 1 line: 1 vertical line on the screen

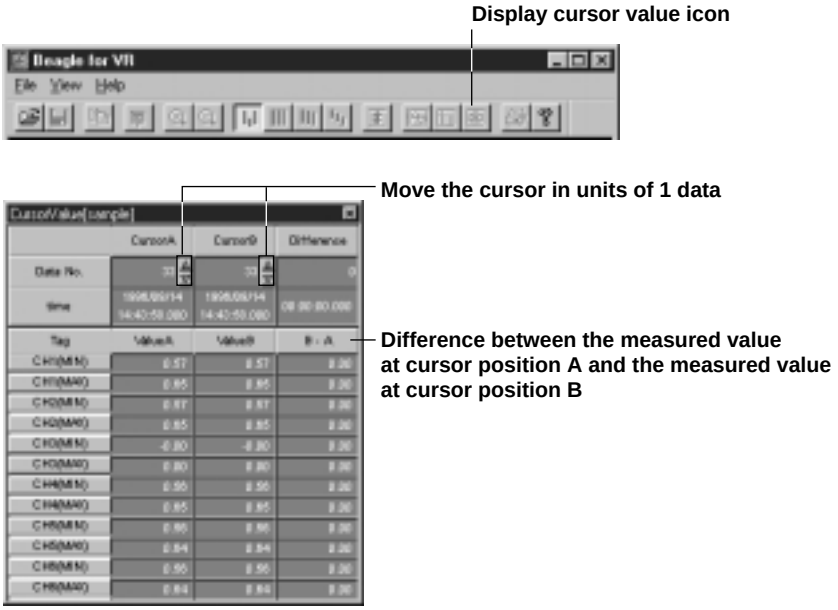
# 1.5 Reading the Measured Value with the Cursor

## Reading the Measured Value with the Cursor

While displaying the waveform, the measured data at the position specified by the cursor can be read by following the steps below. There are two types of cursors: cursor A and cursor B. The measured data at cursor A and cursor B and the difference between cursor A and cursor B can be displayed.

## Operation

1. In the waveform display area, set the mouse pointer to the position for reading the measured data, click and drag the mouse to the position you wish to read to. The point where you first clicked the mouse is cursor A and the point where you dragged the mouse to is cursor B.
2. Select "Window" then "Display Cursor Value" from the menu bar or click the display cursor value icon on the tool bar. Cursor value dialog box opens and the time and the measured values at the positions specified with the cursors are displayed. To make a fine adjustment in the cursor position, click the arrows in the data number in the cursor value dialog box. The cursor moves in units of 1 data.

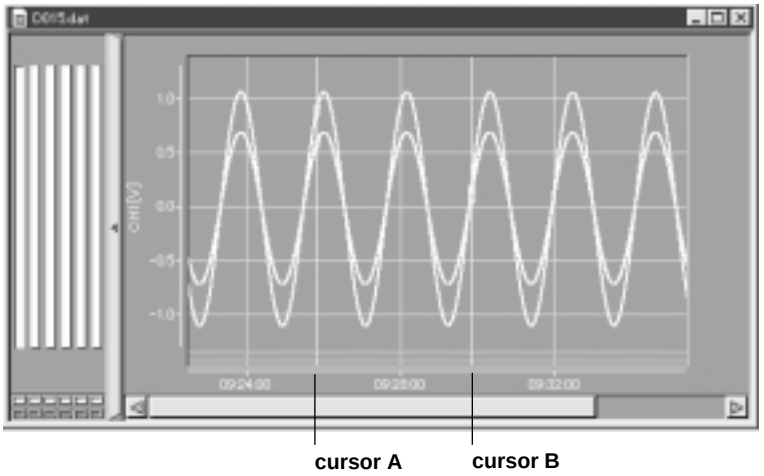



***Note***

- To select the beginning to the end of the measured data, it is convenient to use "Edit" then "Select All" from the menu bar.
- To clear the cursors from the waveform display area, select "View" then "Hide Cursor" from the menu bar.
- In the case of event files, a value larger than the range is displayed when reading the measured data during a power failure with the cursor. In the case of display data files, blank is displayed.

## Explanation

- Example displaying cursors



## Appending User-defined Marks/Deleting Marks/Resetting Marks

While displaying the waveform, you can add a mark at any desired position along the time axis by following the steps below. Also, you can delete marks (trigger mark, event marks, user-defined marks) displayed at the top of the waveform display area. Furthermore, you can reset the marks to the condition saved with the VR100 or VR200 (only trigger mark and event marks are displayed). The three types of marks are as follows:

- Trigger mark: Indicates the trigger point when the measurement was made with the VR100 or VR200.
- Event mark: Indicates the event marks added with the VR100 or VR200.
- User-defined mark: Marks added by the user with this software.

## Operation

- **Appending user-defined marks**

1. Move the mouse cursor to the position you wish to add the user-defined mark and click the mouse. Cursor is displayed.
2. Select “Edit” - “Append Mark...” from the menu bar or click the add user-defined mark icon on the tool bar.

3. Enter a label for the user-defined mark in the text box.

4. Click “OK.”
   Above the waveform display area at the position where the cursor is displayed, the label for the user-defined mark is displayed. You can display any number of marks by repeating steps 1 through 4.

***Note***

- You can not add an user-defined mark when the position of cursor A does not match that of cursor B.
- To rename a mark label, double click the mark you wish to rename, and carry out the steps from step 3.

- **Deleting Marks**

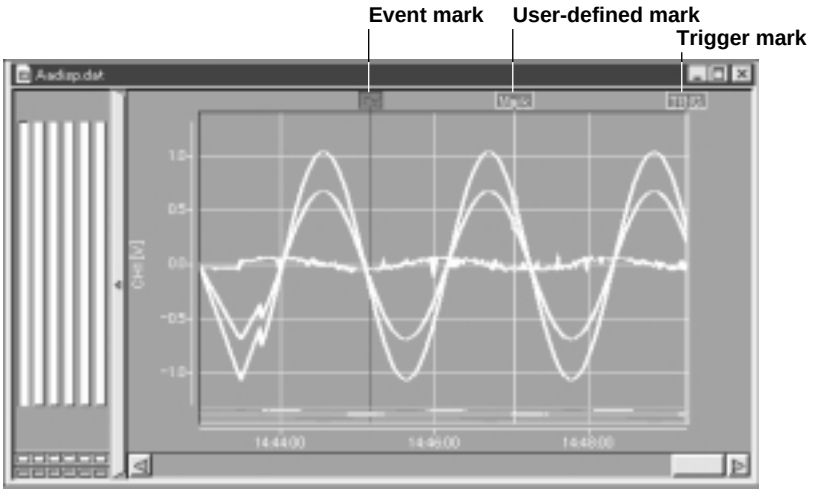
  1. Set using cursor A and cursor B, the range in which you wish to delete the marks on the waveform display area.
     Refer to “Reading the Measured Value with the Cursor” (page 1-13) for instructions on setting cursor A and cursor B.
  2. Select “Edit” then “Delete Mark” from the menu bar.
     Trigger mark, event marks, and user-defined marks in the specified range are deleted.

- **Resetting Marks**

  Select “Edit” then “Reset Mark” from the menu bar.
  Only trigger mark and event marks which were deleted are displayed. User-defined marks are not displayed.

## Explanation

- Example of Mark Display



## Copying Measured Data to the Clipboard

While displaying the waveform, you can copy the measured data in the range specified by the cursor to the clipboard by following the steps below.

## Operation

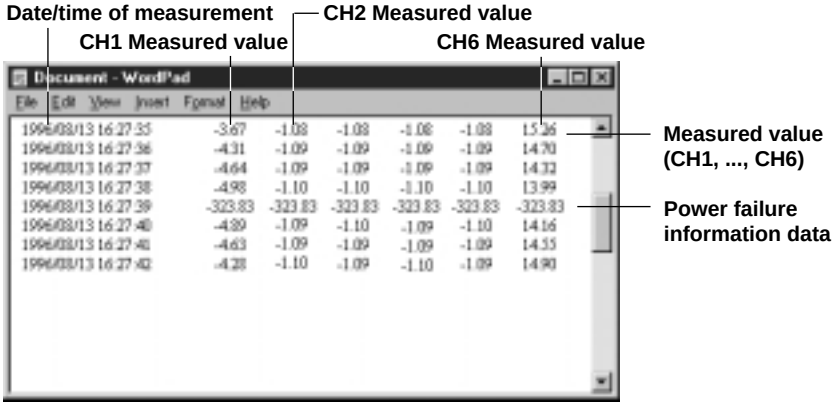
1. Set the range you wish to copy the measured data to the clipboard in the waveform display area using cursor A and cursor B.
   Refer to "Reading the Measured Value with the Cursor" (page 1-13) for instructions on setting cursor A and cursor B.
2. Select "Edit" then "Copy" from the menu bar or click the copy icon on the tool bar. The measured data is copied to the clipboard.

***Note***

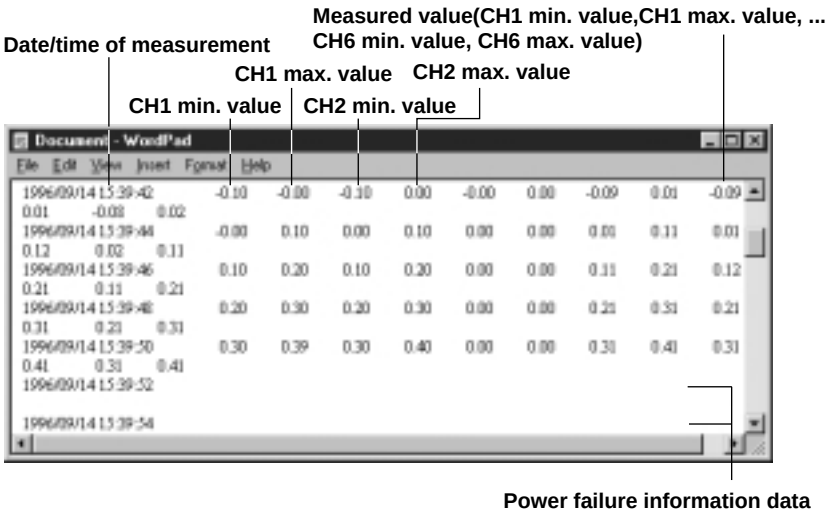
- The maximum number of data that can be copied to the clipboard is 1000 data points. For display data files, this constitutes 1000 sets of maximum and minimum data points.
- The number of channels copied to the clipboard is the number of all the channels saved in the data file. (It does not depend on the On/Off condition of the waveform display.)

## Explanation

- Example of copying the event file to the clipboard




- Example of copying the display data to the clipboard



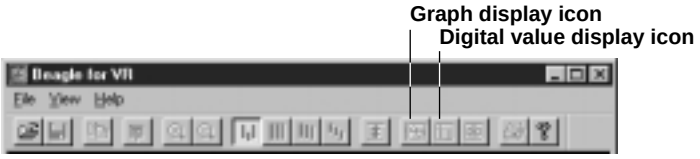
# 1.6 Displaying Digital Values

## Displaying Digital Values

The measured data can be displayed in digital value format by following the steps below.

## Operation

Select “Window” then “Display Digital” or click the digital value display icon on the tool bar. A separate window for displaying digital values opens, and the measured data is displayed in digital value format.

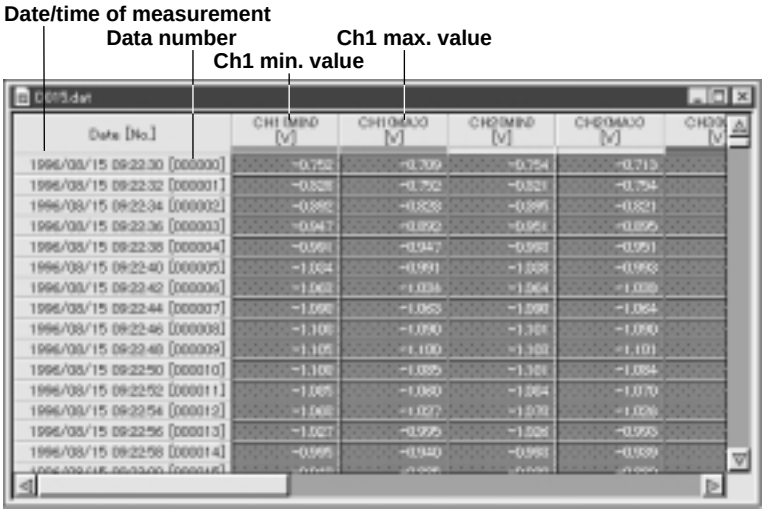



***Note***

When the digital value display window is maximized and you wish to return to the waveform display, select “Window” then “Display graph” or click the graph display icon on the tool bar.

## Explanation

- Example of digital value display



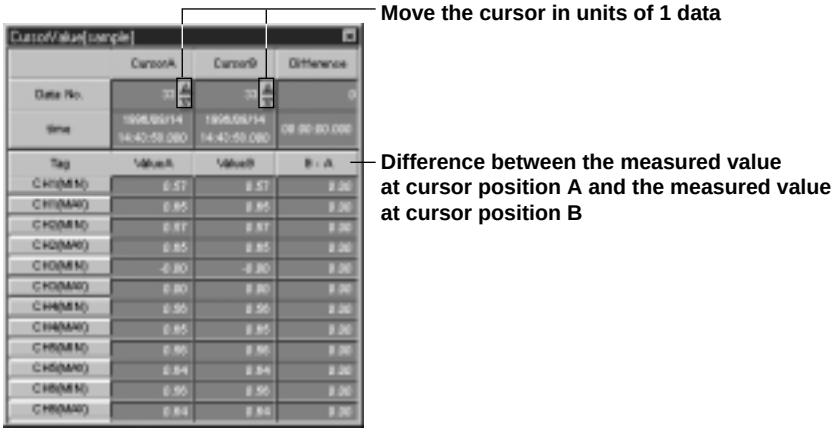
## Reading the Measured Value with the Cursor while Displaying Digital Values

While displaying the digital values, you can read the measured data at the position specified with the cursor by following the steps below. There are two types of cursors: cursor A and cursor B. The measured data at cursor A and cursor B and the difference between cursor A and cursor B can be displayed.

## Operation

1. While displaying the digital values, set the mouse pointer to the Date[No.] item of the measured data you wish to read, click and drag the mouse down to the next position. The point where you first clicked the mouse is cursor A and the point where you dragged the mouse to is cursor B.

2. Select “Window” then “Display cursor value” or click the cursor value display icon on the tool bar. Cursor value dialog box opens and the time and the measured values at the positions specified with the cursors are displayed. To make a fine adjustment in the cursor position, click the arrows in the data number in the cursor value dialog box. The cursor moves in units of 1 data.




***Note***

- To select the beginning to the end of the measured data, it is convenient to use “Edit” then “Select All” from the menu bar.
- To clear the cursor from the waveform display area, select “View” then “Hide Cursor” from the menu bar.
- In the case of event files, a value larger than the range is displayed when reading the measured data during the power failure with the cursor. In the case of display data files, blank is displayed.

## Copying Measured Data to the Clipboard while Displaying Digital Values

While displaying the waveform, you can copy the measured data in the range specified by the cursor to the clipboard by following the steps below.

## Operation

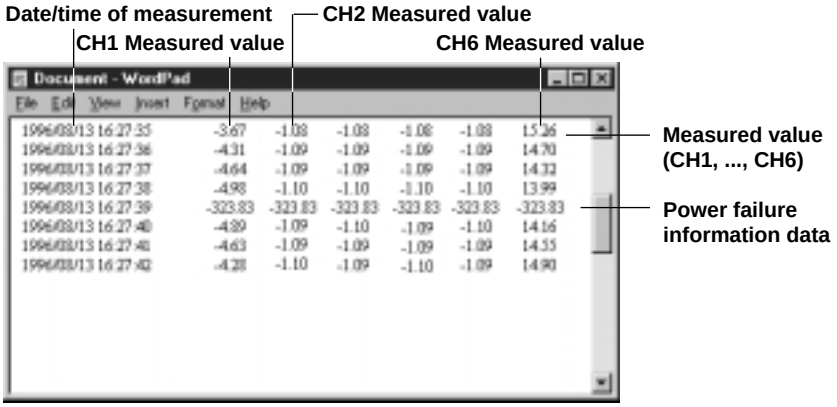
1. Set the range you wish to copy the measured data to the clipboard on the Data[No.] items using cursor A and cursor B.
   Refer to “Reading the Measured Value with the Cursor while Displaying Digital Values” (page 1-19) for instructions on setting cursor A and cursor B.
2. Select “Edit” then “Copy” from the menu bar or click the copy icon on the tool bar. The measured data is copied to the clipboard.

***Note***

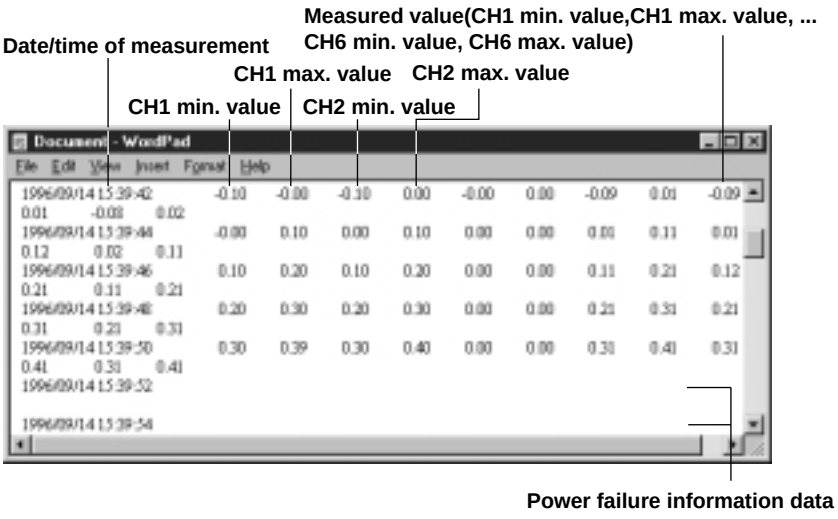
- The maximum number of data that can be copied to the clipboard is 1000 data points. For display data files, this constitutes 1000 sets of maximum and minimum data points.

## Explanation

- Example of copying the event file to the clipboard




- Example of copying the display data to the clipboard



# 1.7 Saving the Display Settings

While displaying the waveform or the digital values, you can save the display settings to a file by following the steps below. There is only 1 file for saving the display settings.

## Operation

Select “File” then “Save Display Settings” from the menu bar or click the save display settings icon on the tool bar.
The display settings are saved to the file.

**Save display settings icon**

***Note***

- Extension “.vrv” is automatically added to the filename of which the waveform or the digital values is displayed, as the destination filename.
- The items saved to the file are shown below.
  Comment
  Position of cursor A and cursor B
  On/Off condition of the display waveform limit.
  On/Off condition of the alarm display
  YAxis detail items (On/Off condition of waveform display, tag, unit, scale, zone, trip point 1, trip point 2, and color)
  Mark information
- If you wish to display the data file as it was originally saved by the VR100 or VR200, delete the display settings file “xxx.vrv” then reopen the data file.

## Explanation

- **Display settings file**

  The display settings which are changed with this software are saved to the display settings file “xxx.vrv.” When the data file which has had the display settings saved is reopened, it is automatically displayed using the displayed settings. The display settings file can be overwritten any number of times.

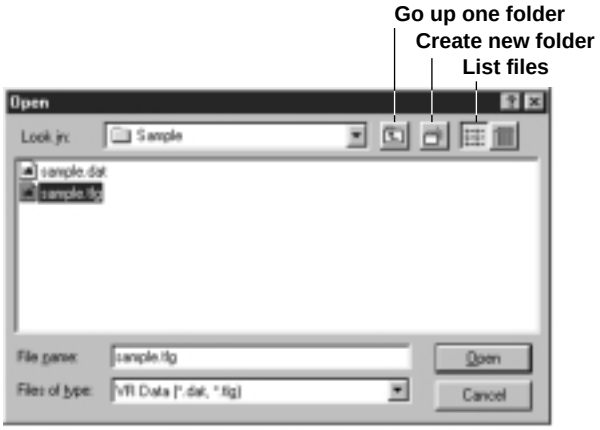
# 1.8 Opening TLOG Interval Timeout Data File

If statistical computation (TLOG) is performed on the VR200 model with the computation function, you will open the TLOG interval timeout data file containing the following information.
Start time of computation, unit and decimal point information on each channel.
TLOG interval timeout time and the measured/computed data at that time on each channel.
Stop time of computation and the measured/computed data at that time on each channel.

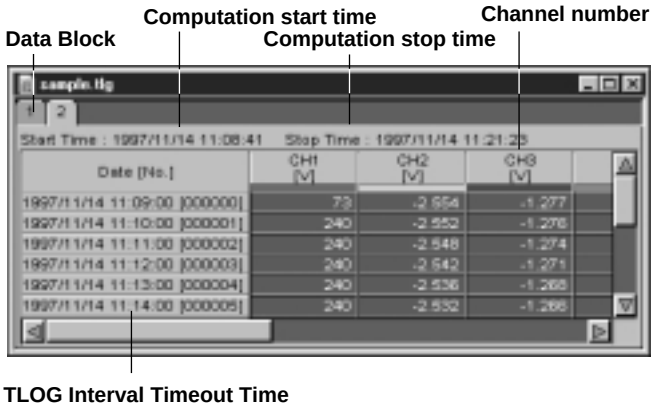
## Operation

1. Select “File” then “Open...” from the menu bar, or click the file open icon on the tool bar.

2. Select the filename from the “Filename:” list box. Select a file with “.tlg” extension. Also, select the appropriate folder and file type as necessary.




3. Clicking “Open” displays the table.




***Note***

The number of files that you can open simultaneously depends on the memory size and free disk space on the personal computer.
It is convenient to copy the data file from the floppy disk to the hard disk and use the file on the hard disk.

## Explanation

Capabilities of the software

This software is capable of doing the following:

Convert data format (see chapter 2).

Print to an external printer (see chapter 3).

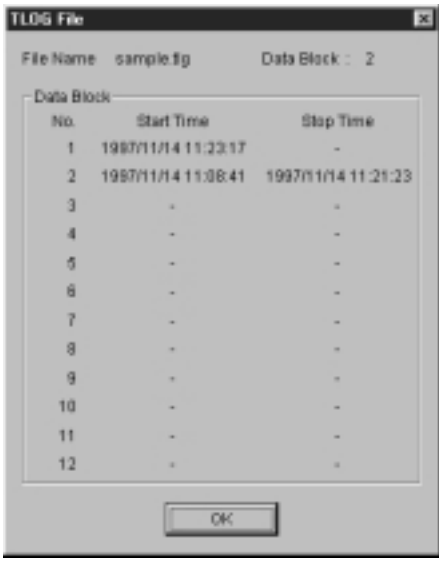
Display information from the TLOG interval timeout data file (see section 1.9).

# 1.9 Displaying Information on TLOG Interval Timeout Data File

Displays computation start and stop times of the TLOG interval timeout data file currently being displayed for each data block.

## Operation

1. Select “Information” then “About the TLOG file...” from the menu bar. The information about the TLOG interval timeout data file is displayed.



# 2.1 Converting the Data Format

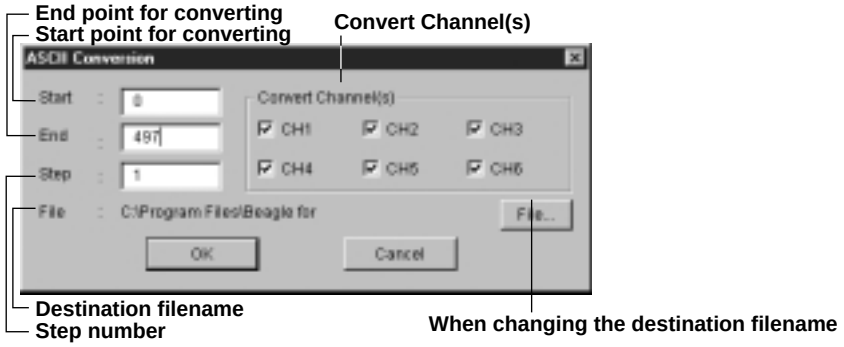


While displaying the waveform or the digital values, the measured data can be converted to 3 different data formats—ASCII, Lotus, or Excel format—by following the steps below.

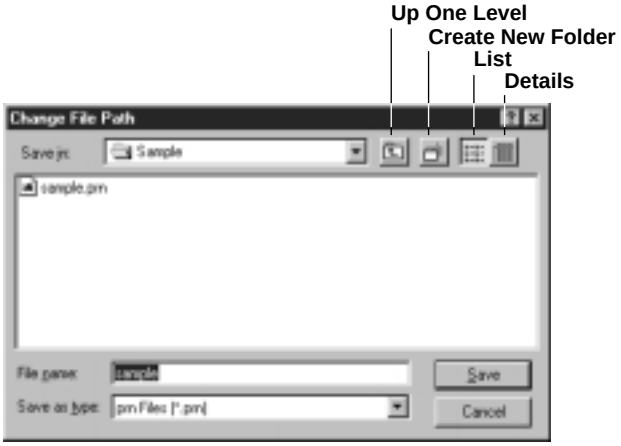
## Operation

1. Select “Convert” then “XXX” from the menu bar. (“XXX” is either ASCII, Lotus, or Excel format.)

2. In the XXX conversion dialog box, enter the range for converting the data(start and end points) and the step number(e.g. Entering “3” converts every 3 data). If you wish to convert all the data in the specified range, enter “1” for the step number. Click all the check boxes for the channels you wish to convert.




3. When changing the destination folder or the filename, click “File...”
Select or enter the destination filename in the “File name” text box. Select the folder or the file type as necessary. Then, click “Save.”

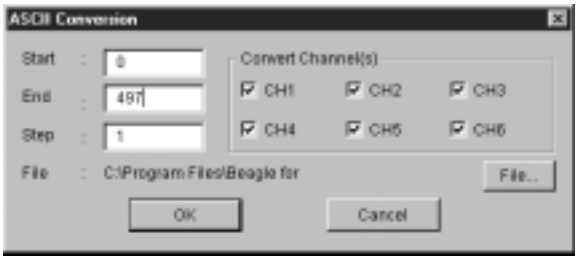



4. Click “OK” in the XXX conversion dialog box.
The measured data is converted to the specified data format and saved to the file.

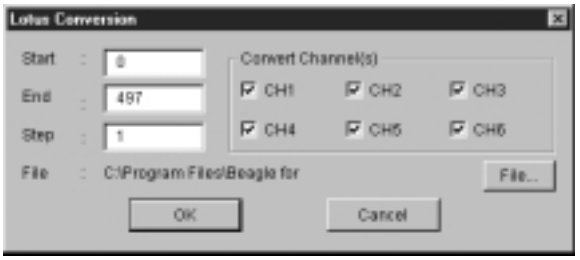
***Note***

The data range to be converted with each XXX conversion dialog box is automatically set to the range specified by cursor A and cursor B. (When the data range is not set with the cursor or when the cursor is turned off (deleted), the data number for the start point is automatically set to 0 and the data number for the end point is automatically set to the last number represented by -1.)

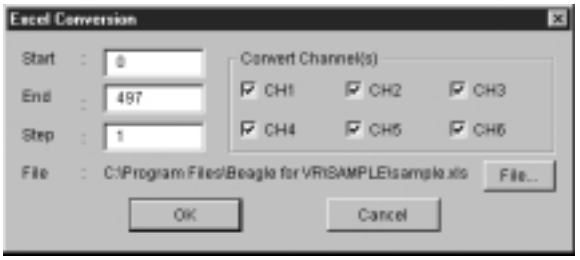
- ASCII conversion dialog box




- Lotus conversion dialog box




- Excel conversion dialog box




***Note***

- The destination filename automatically takes on the file name of the displayed waveform plus the extension to distinguish the different data formats. Extensions are ".prn" for ASCII format, ".wj2" (Version 2.0 or later) for Lotus format, and ".xls" (Version 4.0 or later) for Excel formats.
- For Lotus 1-2-3 and Excel, there is a limit on the number of data points that can be handled. This software does not limit the number of data points that can be converted. Therefore, make sure to set the number of data points equal to or less than the maximum data number allowed by these software. Also, when the available memory is low, there are cases when the data can not be read even when the number of data points is less than the limit.

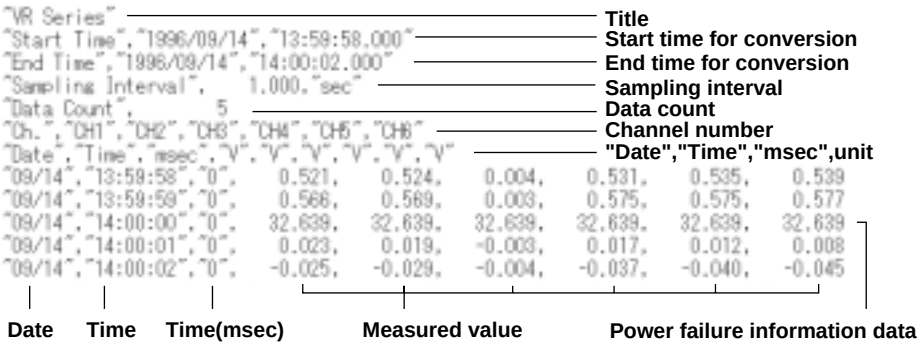
# 2.2 File Format of the Converted Data



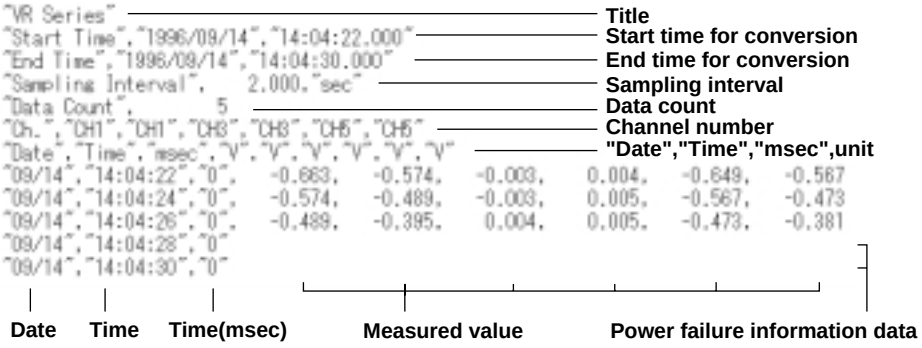
## Explanation

Converting the data according to the steps described in Section 2.1, data are created in the format shown below.

- **ASCII Conversion File**
  - Event file




  - Display data file




***Note***

- When converting an event file containing power failure information data, the waveform data does not get converted with correct time information. (The time of the measurement before the power failure is shifted by the amount of time of the power failure duration.)
  When converting a display data file containing power failure information, it is converted with correct time information.
- In the case of event files, the measurement data during the power failure is converted to a value larger than the range. In the case of display data files, blanks are inserted for the duration of the power failure.

- **Lotus Conversion File**

  This file has the format that can be read by Lotus 1-2-3.

  - Event file

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 1 | VR Series | | | | | | |
| 2 | Start Time | | 1996/09/14 | | 14:04:22.000 | | |
| 3 | End Time | | 1996/09/14 | | 14:04:32.000 | | |
| 4 | Sampling Interval | | 2.000 sec | | | | |
| 5 | Data Count | | 6 | | | | |
| 6 | | | Ch. | CH1 | CH2 | CH3 | CH4 |
| 7 | Data. | Time | msec | V | V | V | V |
| 8 | 09/14 | 14:04:22 | 0 | - 0.663 | - 0.574 | - 0.003 | 0.004 |
| 9 | 09/14 | 14:04:24 | 0 | - 0.574 | - 0.489 | - 0.003 | 0.005 |
| 10 | 09/14 | 14:04:26 | 0 | - 0.489 | - 0.395 | 0.004 | 0.005 |
| 11 | 09/14 | 14:04:28 | 0 | | | | |
| 12 | 09/14 | 14:04:30 | 0 | | | | |
| 13 | 09/14 | 14:04:32 | 0 | | | | |

  - Display data file

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 1 | VR Series | | | | | | |
| 2 | Start Time | | 1996/09/14 | | 13:59:58.000 | | |
| 3 | End Time | | 1996/09/14 | | 14:00:03.000 | | |
| 4 | Sampling Interval | | 1.000 sec | | | | |
| 5 | Data Count | | 6 | | | | |
| 6 | | | Ch. | CH1 | CH2 | CH3 | CH4 |
| 7 | Data. | Time | msec | V | V | V | V |
| 8 | 09/14 | 13:59:58 | 0 | 0.521 | 0.524 | 0.004 | 0.531 |
| 9 | 09/14 | 13:59:59 | 0 | 0.566 | 0.569 | 0.003 | 0.575 |
| 10 | 09/14 | 14:00:00 | 0 | 32.639 | 32.639 | 32.639 | 32.639 |
| 11 | 09/14 | 14:00:01 | 0 | 0.023 | 0.019 | 0.003 | 0.017 |
| 12 | 09/14 | 14:00:02 | 0 | - 0.025 | - 0.029 | - 0.004 | - 0.037 |
| 13 | 09/14 | 14:00:03 | 0 | - 0.080 | - 0.079 | - 0.004 | - 0.086 |

***Note***

- When converting an event file containing power failure information data, the waveform data does not get converted with correct time information. (The time of the measurement before the power failure is shifted by the amount of time of the power failure duration.)
  When converting a display data file containing power failure information, it is converted with correct time information.
- In the case of event files, the measurement data during the power failure is converted to a value larger than the range. In the case of display data files, blanks are inserted for the duration of the power failure.

## • Excel Conversion File

This file has the format that can be read by Excel.

• Event file

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 1 | VR Series | | | | | | |
| 2 | Start Time | | 1996/09/14 | | 14:04:22.000 | | |
| 3 | End Time | | 1996/09/14 | | 14:04:32.000 | | |
| 4 | Sampling Interval | | 2.000 sec | | | | |
| 5 | Data Count | | 6 | | | | |
| 6 | | | Ch. | CH1 | CH2 | CH3 | CH4 |
| 7 | Data. | Time | msec | V | V | V | V |
| 8 | 09/14 | 14:04:22 | 0 | - 0.663 | - 0.574 | - 0.003 | 0.004 |
| 9 | 09/14 | 14:04:24 | 0 | - 0.574 | - 0.489 | - 0.003 | 0.005 |
| 10 | 09/14 | 14:04:26 | 0 | - 0.489 | - 0.395 | 0.004 | 0.005 |
| 11 | 09/14 | 14:04:28 | 0 | | | | |
| 12 | 09/14 | 14:04:30 | 0 | | | | |
| 13 | 09/14 | 14:04:32 | 0 | | | | |

• Display data file

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 1 | VR Series | | | | | | |
| 2 | Start Time | | 1996/09/14 | | 13:59:58.000 | | |
| 3 | End Time | | 1996/09/14 | | 14:00:03.000 | | |
| 4 | Sampling Interval | | 1.000 sec | | | | |
| 5 | Data Count | | 6 | | | | |
| 6 | | | Ch. | CH1 | CH2 | CH3 | CH4 |
| 7 | Data. | Time | msec | V | V | V | V |
| 8 | 09/14 | 13:59:58 | 0 | 0.521 | 0.524 | 0.004 | 0.531 |
| 9 | 09/14 | 13:59:59 | 0 | 0.566 | 0.569 | 0.003 | 0.575 |
| 10 | 09/14 | 14:00:00 | 0 | 32.639 | 32.639 | 32.639 | 32.639 |
| 11 | 09/14 | 14:00:01 | 0 | 0.023 | 0.019 | 0.003 | 0.017 |
| 12 | 09/14 | 14:00:02 | 0 | - 0.025 | - 0.029 | - 0.004 | - 0.037 |
| 13 | 09/14 | 14:00:03 | 0 | - 0.080 | - 0.079 | - 0.004 | - 0.086 |

***Note***

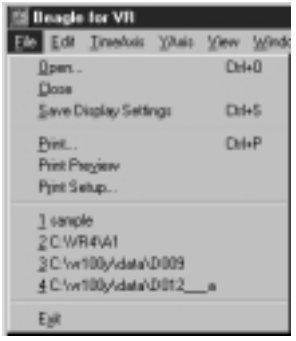
- When converting an event file containing power failure information data, the waveform data does not get converted with correct time information. (The time of the measurement before the power failure is shifted by the amount of time of the power failure duration.)
  When converting a display data file containing power failure information, it is converted with correct time information.
- In the case of event files, the measurement data during the power failure is converted to a value larger than the range. In the case of display data files, blanks are inserted for the duration of the power failure.

# 3.1 Setting up the Printer

## Operation

You can set setup the printer by following the steps below.

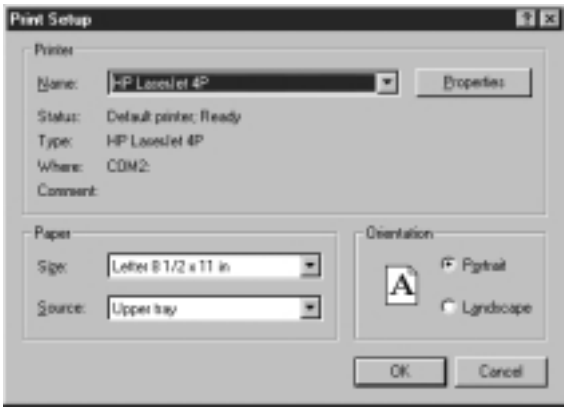
1. Select “File” then “Printer Setup...” from the menu bar.




***Note***

If there is a file already opened, the menu shown above will also have a print menu.

2. Set the printer, orientation, and paper.




## Explanation

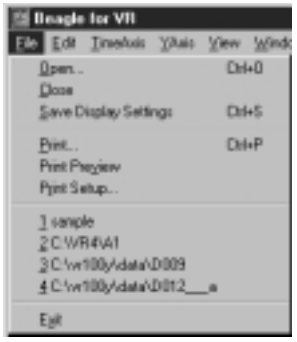
To set the printer, follow the procedures according to the system configuration you are using.

# 3.2 Print Previewing

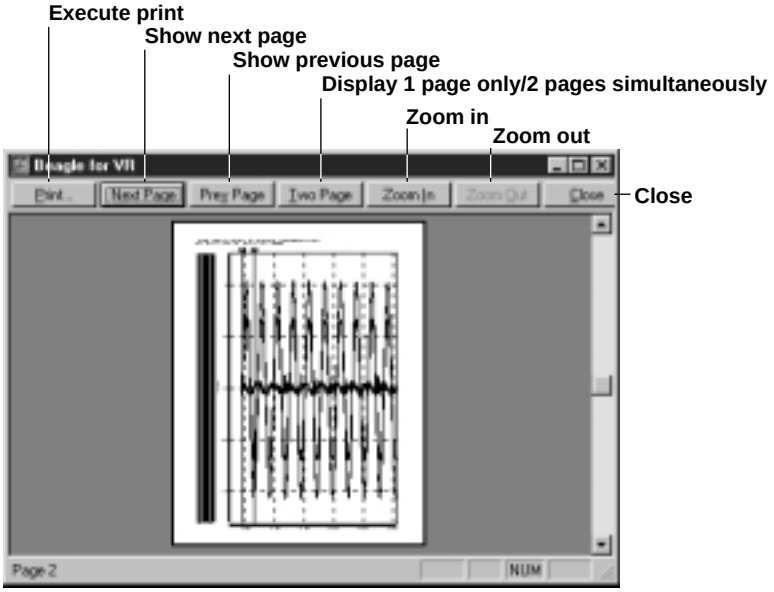
## Operation

You can preview the layout before printing by following the steps below.

1. Select “File” from the menu bar to display the file menu.
   Print menu has been added to the file menu shown in Section 1.2.
2. Select “Print Preview.”




3. Click the appropriate buttons to operate the print preview.




***Note***

- Print preview begins with the first data in the file.
- There are cases when the actual print is slightly different from what is displayed in the print preview.

## Explanation

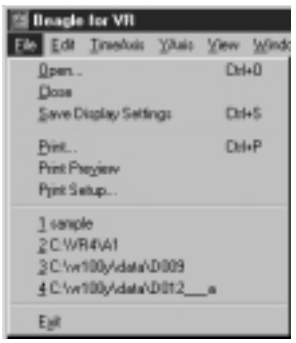
For information regarding the operation of the print preview, refer to the instruction manual for your system.

# 3.3 Printing the Displayed Waveform or Digital Values

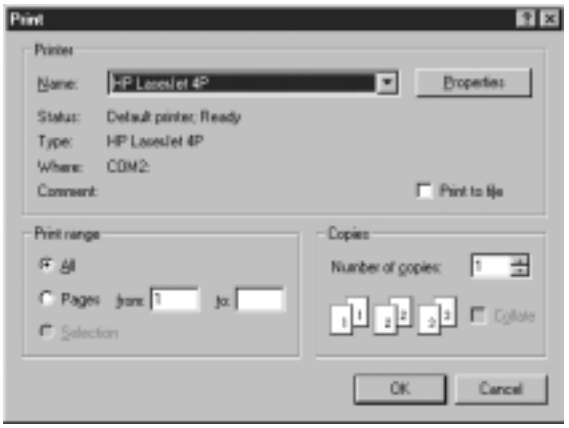
You can print the displayed waveform or the digital values by following the steps below.

## Operation

1. Select “File” then “Print...” from the menu bar or click the print icon on the tool bar.



3. Set the printer, orientation, and paper.

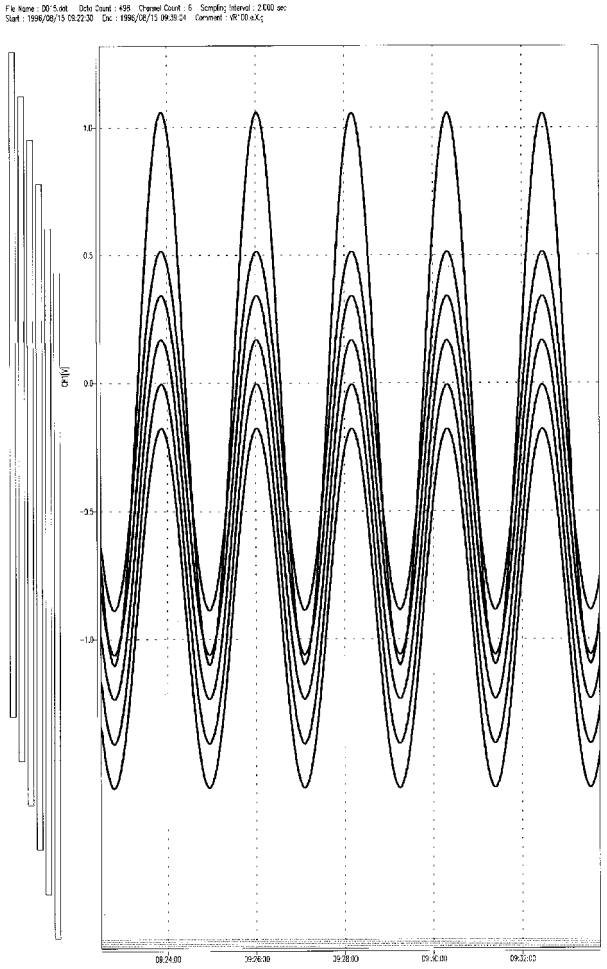



***Note***

The range for printing is set using cursor A and cursor B, when displaying the waveform or the digital values. For instructions on setting cursor A and cursor B when displaying the waveform, refer to “Reading the Measured Value with the Cursor” (page 1-13). For instructions on setting cursor A and cursor B when displaying the digital values, refer to “Reading the Measured Value with the Cursor while Displaying Digital Values” (page 1-19).

## Explanation

- Print example when displaying the waveform




- Print example when displaying the digital values

| Date [No.] | CH1 (MIN) [V] | CH1 (MAX) [V] | CH2 (MIN) [V] | CH2 (MAX) [V] | CH3 (MIN) [V] | CH3 (MAX) [V] | CH4 (MIN) [V] | CH4 (MAX) [V] |
|---|---|---|---|---|---|---|---|---|
| 1996/08/15 09:22:30 [000000] | -0.752 | -0.709 | -0.754 | -0.713 | -0.757 | -0.716 | -0.762 | -0.719 |
| 1996/08/15 09:22:32 [000001] | -0.828 | -0.752 | -0.821 | -0.754 | -0.824 | -0.757 | -0.827 | -0.762 |
| 1996/08/15 09:22:34 [000002] | -0.892 | -0.828 | -0.895 | -0.821 | -0.893 | -0.824 | -0.890 | -0.827 |
| 1996/08/15 09:22:36 [000003] | -0.947 | -0.892 | -0.951 | -0.895 | -0.953 | -0.893 | -0.957 | -0.890 |
| 1996/08/15 09:22:38 [000004] | -0.991 | -0.947 | -0.993 | -0.951 | -0.995 | -0.953 | -0.996 | -0.957 |
| 1996/08/15 09:22:40 [000005] | -1.034 | -0.991 | -1.038 | -0.993 | -1.037 | -0.995 | -1.039 | -0.996 |
| 1996/08/15 09:22:42 [000006] | -1.063 | -1.034 | -1.064 | -1.038 | -1.064 | -1.037 | -1.065 | -1.039 |
| 1996/08/15 09:22:44 [000007] | -1.090 | -1.063 | -1.090 | -1.064 | -1.090 | -1.064 | -1.091 | -1.065 |
| 1996/08/15 09:22:46 [000008] | -1.100 | -1.090 | -1.101 | -1.090 | -1.101 | -1.090 | -1.101 | -1.091 |
| 1996/08/15 09:22:48 [000009] | -1.105 | -1.100 | -1.103 | -1.101 | -1.103 | -1.101 | -1.103 | -1.101 |
| 1996/08/15 09:22:50 [000010] | -1.100 | -1.085 | -1.101 | -1.084 | -1.101 | -1.083 | -1.101 | -1.083 |
| 1996/08/15 09:22:52 [000011] | -1.085 | -1.060 | -1.084 | -1.070 | -1.083 | -1.067 | -1.083 | -1.065 |
| 1996/08/15 09:22:54 [000012] | -1.060 | -1.027 | -1.070 | -1.026 | -1.067 | -1.024 | -1.065 | -1.033 |
| 1996/08/15 09:22:56 [000013] | -1.027 | -0.995 | -1.026 | -0.993 | -1.024 | -0.991 | -1.033 | -0.988 |
| 1996/08/15 09:22:58 [000014] | -0.995 | -0.940 | -0.993 | -0.939 | -0.991 | -0.936 | -0.988 | -0.932 |
| 1996/08/15 09:23:00 [000015] | -0.940 | -0.885 | -0.939 | -0.882 | -0.936 | -0.879 | -0.932 | -0.876 |
| 1996/08/15 09:23:02 [000016] | -0.885 | -0.818 | -0.882 | -0.814 | -0.879 | -0.811 | -0.876 | -0.808 |
| 1996/08/15 09:23:04 [000017] | -0.818 | -0.742 | -0.814 | -0.740 | -0.811 | -0.735 | -0.808 | -0.732 |
| 1996/08/15 09:23:06 [000018] | -0.742 | -0.657 | -0.740 | -0.654 | -0.735 | -0.657 | -0.732 | -0.656 |
| 1996/08/15 09:23:08 [000019] | -0.657 | -0.573 | -0.654 | -0.570 | -0.657 | -0.566 | -0.656 | -0.562 |

# 4.1 Troubleshooting

When there is a message displayed on the screen, refer to Section 4.2 “Error Messages and Corrective Actions” (page 4-2).

| Problem | Possible cause/Corrective Action |
|---|---|
| Unable to read floppy disk. | Check the format type of the floppy disk. |
| Unable to setup software | Check that there is 15 MB or more free disk space. |

# 4.2 Error Messages and Corrective Actions

**• Operation Confirmation Messages**

Displayed when confirming an operation.

| Message | Explanation |
|---|---|
| Correct time can not be displayed because there is no information file. Continue? | Displayed when the information file (.inf) does not exist in the same folder as the data file. |
| Correct time can not be displayed because the display data file contains more than 10 power failure data. Continue? | Displayed when more than 10 power failure data existed when saving the measured data on VR100 or VR200. |
| Correct time can not be displayed because the event file contains power failure data. Continue? | Displayed when the event file contains power failure data. (The event file can not be displayed with correct time information.) |

**• Error messages**

Shown in the following figure are displayed when attempting to set invalid values or when the instrument is in an abnormal condition. If errors persist even after carrying out the corrective actions, please contact OMEGA Engineering.

| Error Message | Corrective Action |
|---|---|
| File open error. | Check the data file that is being read. |
| File read error. | Check the data file that is being read. |
| File write error. | Floppy disk is protected or the disk is corrupt. |
| Insufficient memory. | Check the amount of free disk space and delete unnecessary files. |
| Not OMEGA standard format. | Check the data file that is being read. |
| Not VR100 measured data. | Select a file saved by VR100 or VR200. |
| Invalid information in information file. | Select a file saved by VR100 or VR200. (The file was not saved by VR100 or VR200, or the file is corrupt.) |
| Data created using external sampling signal. | Data file created using external sampling signal can not be read. |
| No information file. | If the information file (.inf) exists, copy the information file in the same folder as the data file before opening. |
| Memory allocation error. Exit the program immediately. | Exit the program immediately. |

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OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of 25 months from date of purchase. OMEGA Warranty adds an additional one (1) month grace period to the normal two (2) year product warranty to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components which wear are not warranted, including but not limited to contact points, fuses, and triacs.

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The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR WARRANTY RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR NON-WARRANTY REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

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- Infrared Pyrometers

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