TEAC

Wave Monitor

VR View

User's Manual

Please read this manual before using the product and keep the manual handy.

June 2016 Revision 1.11
TEAC CORPORATION

Update History

Revision	Date	Description
1.00	2015, March	First version
1.02	2015, March	Adds output file formats to 6 types
1.03	2015, April	Support set CAN ID and Signals
1.04	2015, July	Adds rotating image function and selecting map style
1.05	2015, November	Supports slow playback（1/2 to 1/64）
1.07	2016, January	Supports OpenStreetMap
1.11		

LICENSE AGREEMENT AND LIMITED WARRANTY

IMPORTANT:
PLEASE CAREFULLY READ THE LICENSE AGREEMENT HEREIN BEFORE USING THE SOFTWARE. THE RIGHT TO USE THE SOFTWARE IS GRANTED ONLY ON THE CONDITION THAT YOU AGREE TO THE LICENSE AGREEMENT. IN CASE YOU DO NOT AGREE TO THE LICENSE AGREEMENT, DO NOT INSTALL THE SOFTWARE. IF YOU HAVE ALREADY INSTALLED THE SOFTWARE, STOP THE USE AND UNINSTALL THE SOFTWARE. IF YOU DO NOT AGREE TO THE LICENSE AGREEMENT, YOU MAY RETURN THE PACKAGE FOR A REFUND. UNAUTHORIZED REPRODUCTION OR DISTRIBUTION OF THE SOFTWARE, OR ANY PORTION OF IT, MAY RESULT IN SEVERE CIVIL AND CRIMINAL PENALTIES, AND WILL BE PROSECUTED TO THE MAXIMUM EXTENT POSSIBLE UNDER LAW.

This License Agreement with limited warranty is a legal agreement between you (either an individual or a single entity) and **TEAC CORPORATION** ("TEAC") for the SOFTWARE, which include computer software and electronic documentation.

1. GRANT OF LICENSE
TEAC grants to you the right to use the SOFTWARE only in combination with the TEAC VR-24.

2. COPYRIGHT
All title and copyrights in and to the SOFTWARE and any copies thereof are owned by TEAC or a supplier to TEAC. The SOFTWARE is protected by Japanese copyright laws, international treaty provisions, and all other applicable national laws.

3. RESTRICTIONS
You may not distribute copies of the SOFTWARE to third parties.
You may not reverse engineer, decompile, or disassemble the SOFTWARE, except and only to the extent that applicable law notwithstanding this limitation expressly permits such activity.
You may not rent or lease the SOFTWARE.
You may not reproduce the SOFTWARE except for archival purpose.

4. TERMINATION
Your rights under this Agreement terminate upon the disposal of all copies of the SOFTWARE, or without prejudice to any other rights, TEAC may terminate this Agreement if you fail to comply with the terms and conditions of this Agreement. In such event, you must destroy all copies of the SOFTWARE.

5. LIMITED WARRANTY
TEAC warrants that the SOFTWARE will be usable for the purpose expressed on TEAC's document when properly installed on a computer. TEAC does not warrant that the operation of the SOFTWARE will be uninterrupted or error free, and that the SOFTWARE is fit for any particular purpose.

6. NO LIABILITY FOR CONSEQUENTIAL DAMAGES
TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, IN NO EVENT SHALL TEAC BE LIABLE FOR ANY SPECIAL INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES WHATSOEVER (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION, OR ANY OTHER PECUNIARY LOSS) ARISING OUT OF THE USE OF OR INABILITY TO USE THE SOFTWARE, EVEN IF TEAC HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. BECAUSE SOME STATES AND JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

7. MISCELLANEOUS
This agreement is governed by the laws of Japan.

Should you have any questions concerning this Agreement, or if you desire to contact TEAC for any reason, please write to the address set forth below:

Measurement Products Dept. Information Products Div.
TEAC CORPORATION
ZIP code: 206-8530
Address: 1-47 Ochiai, Tama-shi, Tokyo, Japan
E-mail: tic_cs@teac.co.jp

Index

Note:

Chapter 1: Overview

1.1 Introduction

VR View is a data viewer software that displays data recorded by the VR-24 analog visual recorder as a waveform, and segments and saves it.

- As of May, 2016, it supports VR-24, WX-7000 Series and LX-100 Series data files.
- This manual applies to VR View Version 1.11 and above.

Manual Descriptions

When selecting settings, highlighted display is called cursor display and highlighting is called cursor.
Displayed items and messages are described as follows: <MENU> and <Are you sure?>.
Control button or selection items are described like the following example: [REC].

1.2 What this Software Can Do

- **Waveform display of large capacity data**
  Scroll display of up to 256 channels of data. All time ranges from the start to the stop point of recorded data are displayed (depending on the free space in the PC memory that can read data. It will be scroll display if the data exceeds the free space) and data trends can be listed. In addition, waveform displays of each channel can be overwritten freely. When an event is entered, its position is recorded in the window.
- **Video display**
  Video data recorded by the VR-24 can be displayed in synchronization with other data.
- **CAN signal display**
  CAN monopoly data recorded by VR-24 can be displayed as a signal and compared with analog data.
  (Supports CANdb file reading and manual settings.)
- **GPS mapping display**
  GPS data recorded by VR-24 can be used to display a position in map data and locus information.

  ⚠ ● To display GPS maps, install Super MAPPLE Digital (National Edition) Ver. 15 (Shobunsha).
- **Zoom waveform display**
  A zoom position can be specified by dragging the two cursor lines with a mouse. The cursor value at that time, the maximum/minimum values between cursors, and the values of gaps between the cursor points can be listed.
- **Sound reproduction**
  The sounds of analog data and voice memos in displayed sections can be reproduced.
- **Waveform segmenting and file conversion**
  Analog data can be converted to ASCII data, which can be processed in commercial spreadsheet software, and to files able to be imported to various types of analytical software such as thinning data output. Convertible file formats are DADiSP(TAFFmat), ASCII, MATLAB, ATI (IDEAS), WAV, Universal File and RPC3.

  ⚠ ● The convertible file formats of 24-bit recording data are restricted.
  ● The convertible file formats of CAN and GPS data are restricted.
- **Waveform processing function**
  Waveform data FFT display, X-Y display, IIR digital filter operation and statistic operation can be performed.

1.3 Precautions when Using this Software

General precautions regarding the use of this software will now be explained.

- The film format is NTFS-compatible and waveform display can be performed even with large data files exceeding 4GB per file.
- The side scale of the waveform display when opening a file is determined automatically by the size of your PC's free memory.
- The relationship between the size of data files that can be opened and the size of the PC memory is not restricted besides that mentioned above.
- The size of data that can be handled for data conversion is a data section of 2GB or less.

Note:

Chapter 2 - Installing and Starting/Terminating the Software

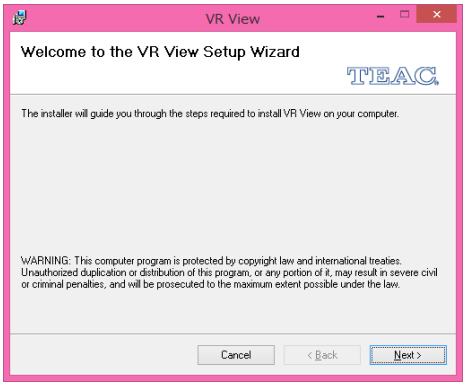
2.1. Installing the Software

The software can only be operated on PCs that fulfill the following requirements.

CPU:	2nd generation Intel®Core™i5 3.0GHz or above
Screen resolution:	1280 × 768 or higher
Memory:	4GB or more
Free HDD space:	200 GB or more
CD-ROM drive:	For program installation
OS	Windows 7
	Windows 8
	Windows 8.1
.NetFramework	4.0 or more
Map data	Mapping display／ Super MAPPLE Digital (National Edition) Ver. 15 (Shobunsha).

- This does not guarantee the operations on all PCs that fulfill the above requirements.
- Operations may not be continuously maintained depending on resident software, various services and the relationship between things such as the operating status and HDD speed of other drivers and applications.
- The size and number of files that can be handled by a PC may be limited by the file system.
- Installing a larger memory may extend the time range for displaying data in the window.
- A Windows sound system is required to reproduce voice memos.
- To directly read recorded media data, the drive used for that disk must be connected to your PC.
- Select [Small - 100% (Default)] to display text and other items at the standard size.
  They may not be displayed correctly if a different setting is used.

The installation method of this software is detailed below. (Standard Windows applications can be installed by a similar method.)



1. Insert the provided installation CD in your computer.

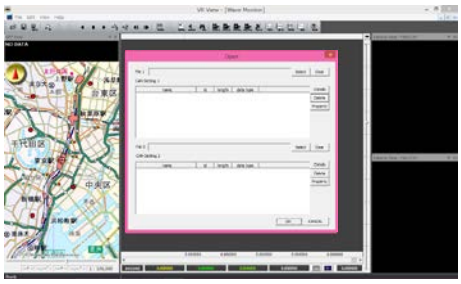
2. Execute "setup.msi" in the installation CD.

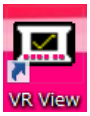
3. Follow the displayed messages and proceed with setup.

4. When installation is complete, an Application Startup icon will be added to the Startup Menu. The default path to the execution software is
C:¥Program Files (x86)¥TEAC¥VR View¥VRView.exe.

2.2 Starting/Exiting the Software

Starting and exiting the software is performed in the same way as standard Windows applications.



1. Double-click the 

Application Startup icon created in the Startup Menu or Desktop.

The default path is [All Programs] ⇒ [TEAC] ⇒ [VR View].
The <Open> dialog is displayed and files to display data can be selected.

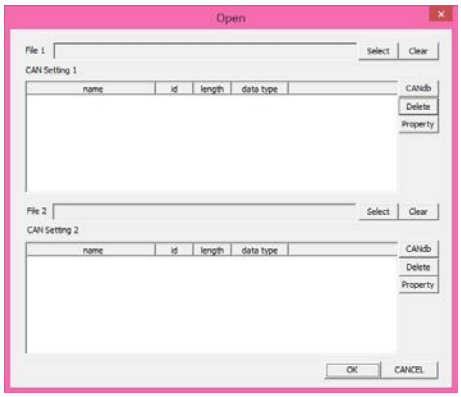
2. The content of the previously selected folder is displayed in the <Open> folder dialog automatically displayed at startup.

3. The <Open> file dialog can be closed by clicking  in the upper right corner or the [Cancel] button.

4. To exit the software, close the <Open> dialog and then click  in the upper right corner of the window or [File] ⇒ [Exit] in the menu bar.

2.3 Opening Display Files

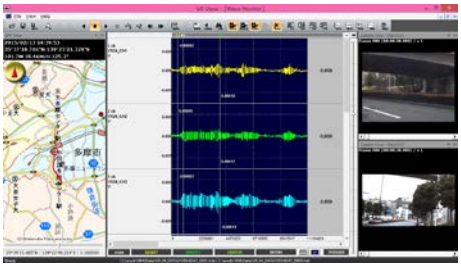
- Waveform display can be performed with large data files exceeding 4GB per file.
- The side scale of the waveform display when opening a file is determined automatically by the size of your PC's free memory.
- The relationship between the size of data files that can be opened and the size of the PC memory is not restricted besides that mentioned above.



1. Select the file in the <Open> dialog displayed at startup. Alternatively, click  in the toolbar and select the file in the displayed <Open> dialog.

To select 1 file, select "File 1". To select 2 files, such as when synchronizing files, use File 1 and File 2.

Item	Description
File1	Open the file dialog with the <Select> button and select the file. Clear the file selection with the <Clear> button.
CAN Setting1	Open the file dialog with the <CANdb> button and select the CANdb file. Select the signal from the list defined in the CANdb file. The selected signal can be deleted with the <Delete> button. Settings can be changed and added with the <Property> button. With regard to data recorded with CAN by VR-24, waveforms similar to analog data can be displayed in the signal waveform display window selected here.
File2	Open the file dialog with the <Select> button and select the file. Clear the file selection with the <Clear> button.
CAN Setting2	Open the file dialog with the <CANdb> button and select the CANdb file. Select the signal from the list defined in the CANdb file. The selected signal can be deleted with the <Delete> button. Settings can be changed and added with the <Property> button. With regard to data recorded with CAN by VR-24, waveforms similar to analog data can be displayed in the signal waveform display window selected here.



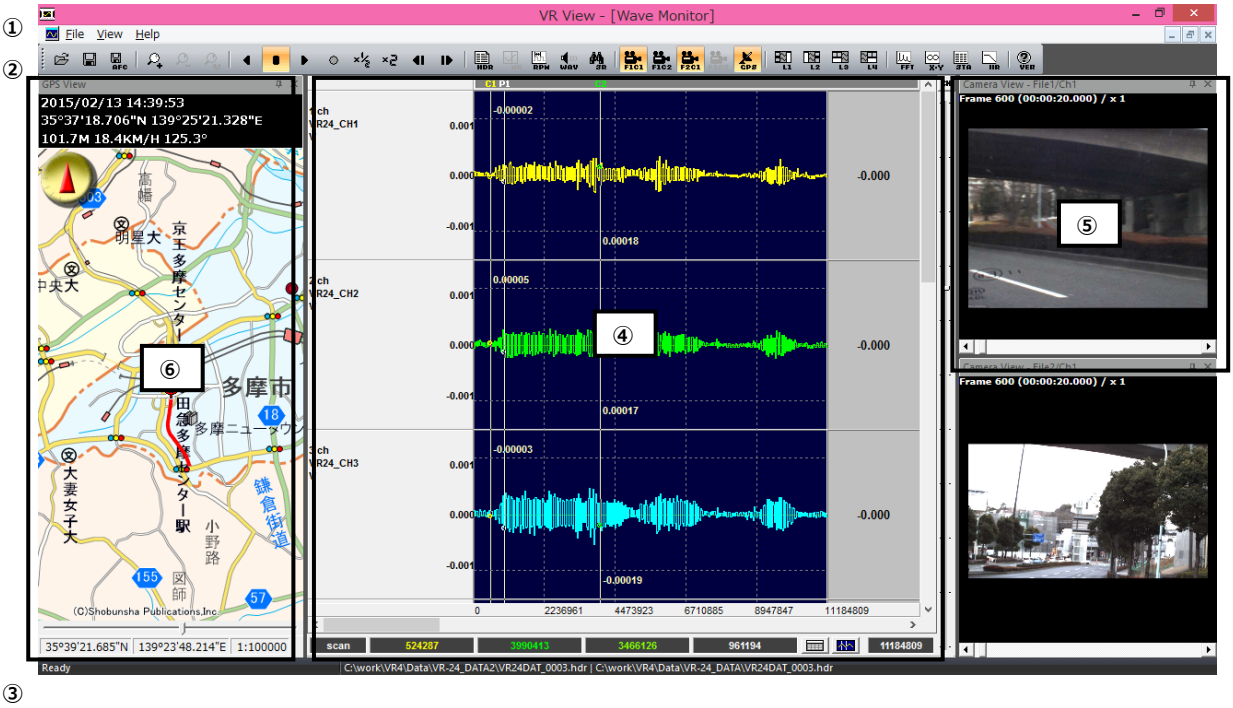
2. Select a file and click [Open] to display the waveform display window.

Note:

Chapter 3 - Basic Operations

3.1. Screen Structure

The structure of this software's screen is described as follows.

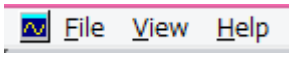


Item		Description
①	**Menu bar**	Displays and hides various settings and dialogs.
②	**Toolbar**	Displays and hides various settings and dialogs.
③	**Status bar**	Displays the full pathname of currently open data.
④	**Waveform display window**	Displays time-series waveforms.
⑤	**Video display window**	Displays video.
⑥	**GPS display screen**	Displays GPS mapping. (To display GPS maps, you must install Super MAPPLE Digital (National Edition) Ver. 15 (Shobunsha).

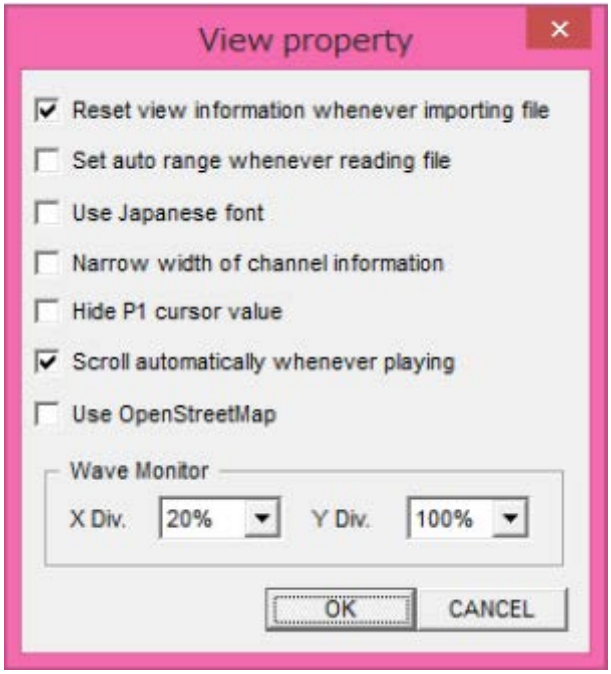
3.2 Screen Operations

This software's screen operations are described as follows.

Menu bar



File	Exit	Exits the program
View	ToolBar	Displays/hides the toolbar
	Statusbar	Displays/hides the status bar
	View Property	Sets waveform display properties and map data for GPS mapping display



Item	Description
① **Reset view information whenever importing file**	Checkbox ON: Resets waveform display settings when opening files. (Display range and file layout, etc. will return to default) Checkbox OFF: Previous waveform display information is displayed as before. ⚠ If display information is saved, information relating to the number of display target channels will also remain. Accordingly, if the number of recording channels of previously opened files is less than the number of currently opened files, all channels will not be displayed.
② **Set auto range whenever reading file**	Checkbox ON: Displays the waveform display range in auto range when reading data. (Sets the minimum/maximum values of read data to full-scale.) Checkbox OFF: Maintains the waveform display range.
③ **Use Japanese font**	Checkbox ON: Uses a font that can display Japanese text. Checkbox OFF: Uses a font that can display English text.
④ **Narrow width of channel information**	Checkbox ON: Narrows the width of waveform display channel information. Checkbox OFF: Narrows the width of waveform display channel information
⑤ **Hide P1 cursor value**	Checkbox ON: Does not display the P1 cursor value of waveform displays. Checkbox OFF: Displays the P1 cursor value of waveform displays.
⑥ **Scroll automatically Whenever playing**	Checkbox ON: While playing back (except waveform playback), automatically scrolls when P1 cursor reached the end and continues playback. Checkbox OFF: Playback (except waveform playback) stops when P1 cursor reached the end.

⑦ **Use Open Street Map**	Checkbox ON: Uses the Open Street Map in the GPS Mapping display. Checkbox OFF: Uses Super MAPPLE Digital (National Edition) Ver. 16 (Shobunsha) in the GPS Mapping display ⚠ Uses Open Street Map to display overseas maps. You must connect to the Internet to use Open Street Map.
⑧ **Wave monitor**	X Div.: Scale (%) for X axis is selected from 100, 50, 25 and 20%. Y Div.: Scale (%) for Y axis is selected from 100, 50 and 25%.

Graph Copy — Copies waveform to the clipboard. [Ctrl+C] also works in the same way.

Help — About... — Displays version information

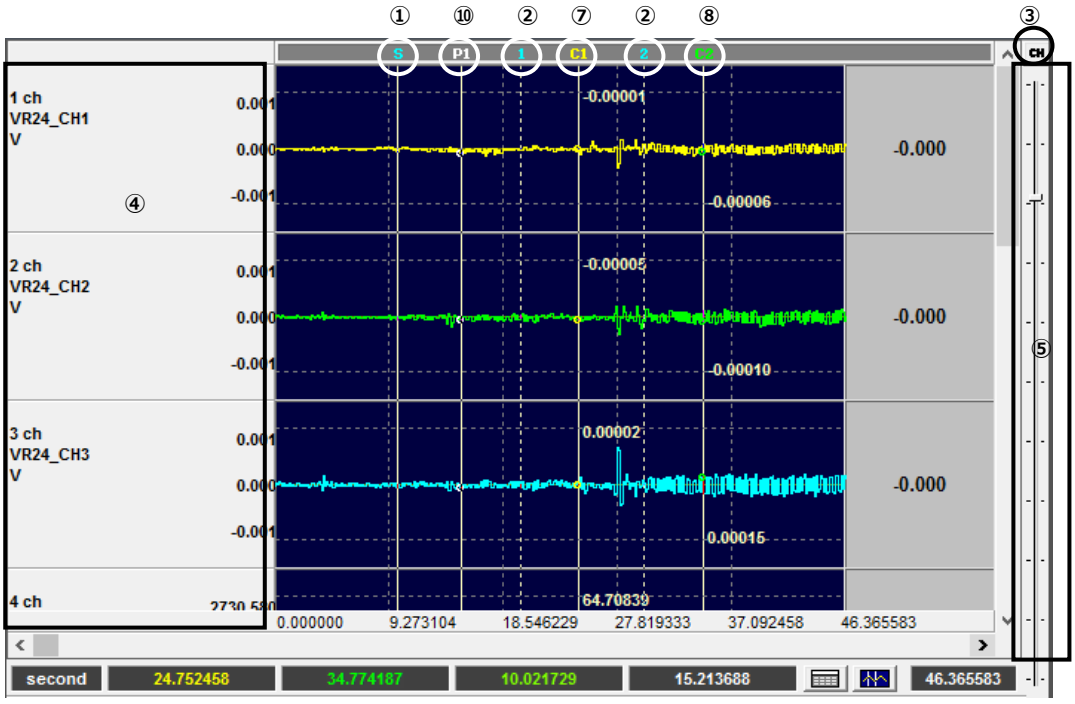
Toolbar

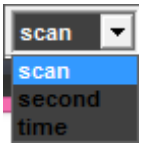
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱ ⑲ ⑳ ㉑ ㉒ ㉓ ㉔ ㉕ ㉖ ㉗ ㉘ ㉙ ㉚ ㉛ ㉜

Item	Description
① **Open**	Opens files.
② **Export**	Saves files.
③ **Export(AFCNEO)**	Saves files (only applies to analog data that starts AFCNEO).
④ **Zoom**	Magnifies display between C1 and C2 cursors.
⑤ **Undo**	Returns to the previous (magnified) screen.
⑥ **Reset**	Returns to the initial screen.
⑦ **Backward**	Reproduces data in reverse.
⑧ **Stop**	Stops reproduction.
⑨ **Forward**	Reproduces data.
⑩ **Capture**	Selects whether to create or not create a screen capture video file when reproducing data.
⑪ **Half Speed**	Halves the reproduction speed.
⑫ **Twice Speed**	Doubles the reproduction speed.
⑬ **Previous Frame**	Reverses frames.
⑭ **Next Frame**	Advances frames.
⑮ **Header**	Displays the content of header files.
⑯ **RPM**	Displays/hides the RPM conversion dialog.
⑰ **Wave Out**	Displays/hides the PC sound output (Wave Out) dialog.
⑱ **Search**	Searches and cues data
⑲ **Camera View - F1/C1**	Displays/hides the video display window (Camera Ch1 of File1).
⑳ **Camera View - F1/C2**	Displays/hides the video display window (Camera Ch2 of File1).
㉑ **Camera View - F2/C1**	Displays/hides the video display window (Camera Ch1 of File2).
㉒ **Camera View - F2/C2**	Displays/hides the video display window (Camera Ch2 of File2).
㉓ **GPS View**	Displays/hides the GPS display window.
㉔ **Layout1**	Organizes the layout of each displayed waveform/video/GPS window (left: video / center: waveform / right: GPS).
㉕ **Layout2**	Organizes the layout of each displayed waveform/video/GPS window (left: GPS / center: waveform / right: video).
㉖ **Layout3**	Organizes the layout of each displayed waveform/video/GPS window (top left: video / bottom left: GPS / right: waveform).
㉗ **Layout4**	Organizes the layout of each displayed waveform/video/GPS window (left: waveform / top right: video / bottom right: GPS).
㉘ **FFT**	Analyzes FFT.
㉙ **X-Y**	Displays X-Y.

㉚	**Statistics**	Analyzes statistics.
㉛	**IIR**	Sets IIR digital filter.
㉜	**About**	Displays version information.

Waveform display window





Item	Description
① **Start mark**	Displays the start trigger position when pre-trigger turns ON.
② **Event mark**	Displays the event mark position in a graph by the event mark No. and a vertical line.
③ **Display channel ON/OFF**	Launches the window to enable/disable each channel's display.
④ **Channel information**	Displays the channel No., channel name, unit name and display range.
⑤ **Waveform display (vertical axis) width**	Adjusts the width of the waveform display (vertical axis) in the y-axis direction by the slider.
⑥ **Horizontal axis units**	Allows time axis units to be selected when clicked. **scan:** Displays the scan count (data quantity from the top). **second:** Lapsed time display (sec) **time:** Lapsed time display (hr/min/sec)
⑦ **C1 cursor position**	Displays the C1 cursor position. The C1/C2 cursors are used to magnify the waveform and segment data.
⑧ **C2 cursor position**	Displays the C2 cursor position. The C1/C2 cursors are used to magnify the waveform and segment data.
⑨ **Width between C1/C2 cursors**	Displays the width of waveform display (vertical axis) between the C1/C2 cursors.
⑩ **P1 cursor position**	Displays the P1 cursor position. The P1 cursor displays the position of other data (video and GPS).
⑪ **Channel properties**	Displays/hides information relating to each channel.
⑫ **Max/min value**	Displays/hides the max/min value of each channel between the C1/C2 cursors.
⑬ **Waveform display (horizontal axis) width**	Displays the width of the waveform display (horizontal axis).

3.2 Operating the Scroll Bar to Magnify and Move Displays

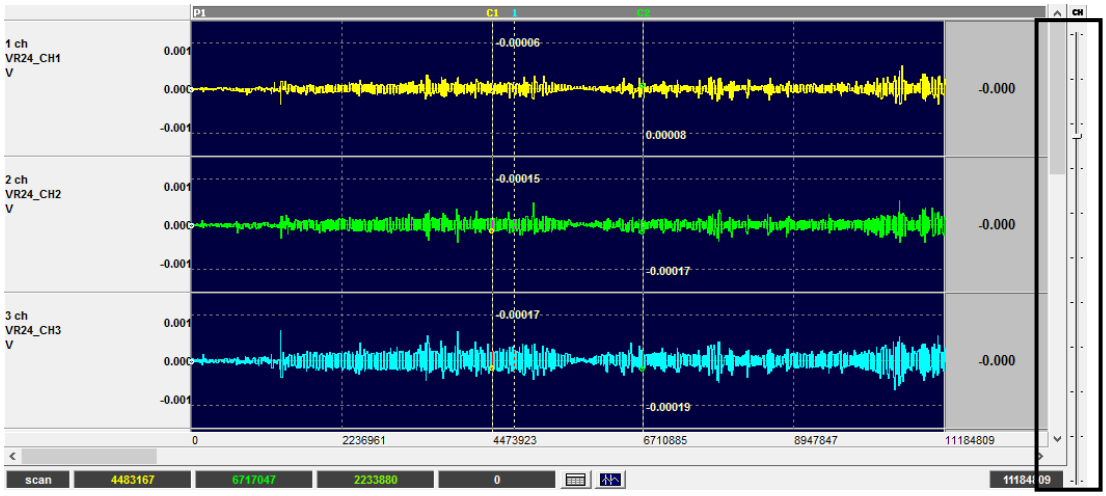
Vertically moving the slider control on the right edge of the waveform display window will magnify/shrink the display range of each channel's y-axis graph.

When all channels can no longer be displayed in the window, the vertical scroll bar will be displayed.

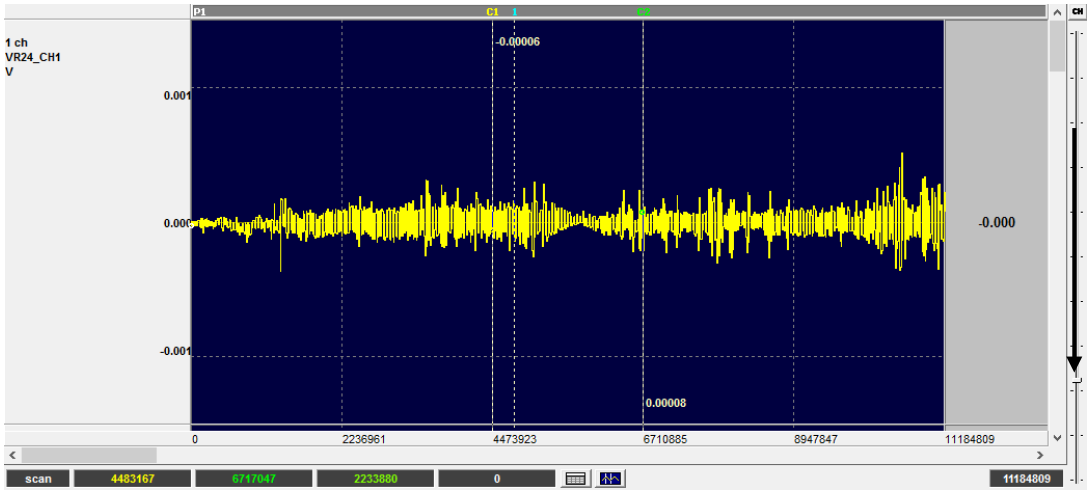
Operating the vertical scroll bar moves the displayed channel.

The size of the vertical scroll bar indicates the ratio of the currently displayed channel in relation to all the channels.

(Before dragging it downwards)



(After dragging it downwards)　The y-axis graph display range magnifies.

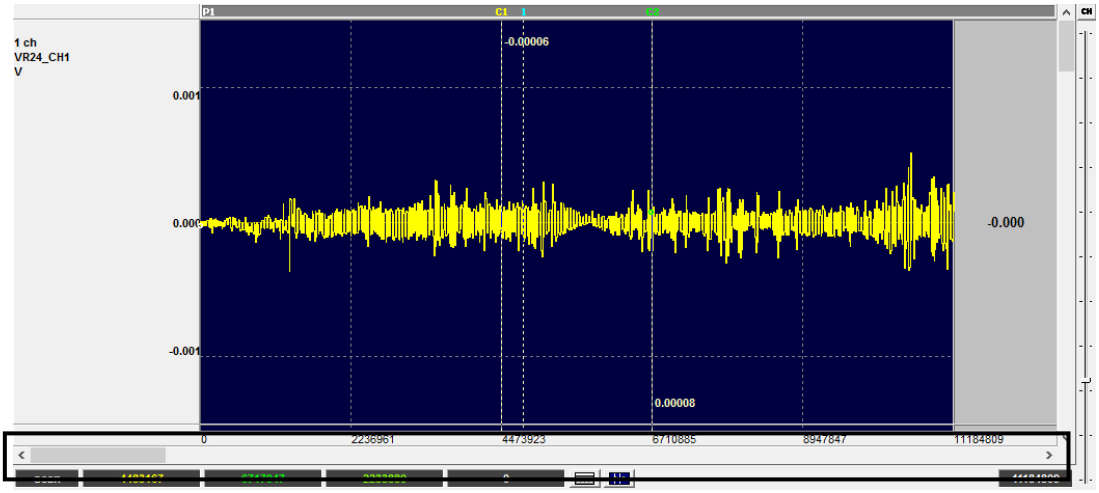


The horizontal scroll bar is for moving the display in the direction of time axis.

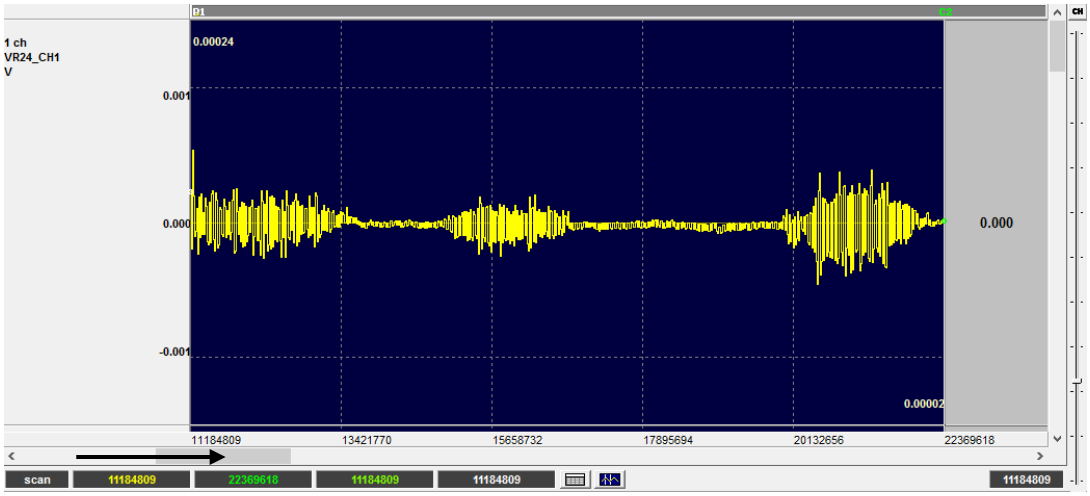
The size of the horizontal scroll bar indicates the ratio of the current display range in relation to all time axis data.

When all time axes are displayed in the window, the horizontal scroll bar is not displayed.

(Before moving right)



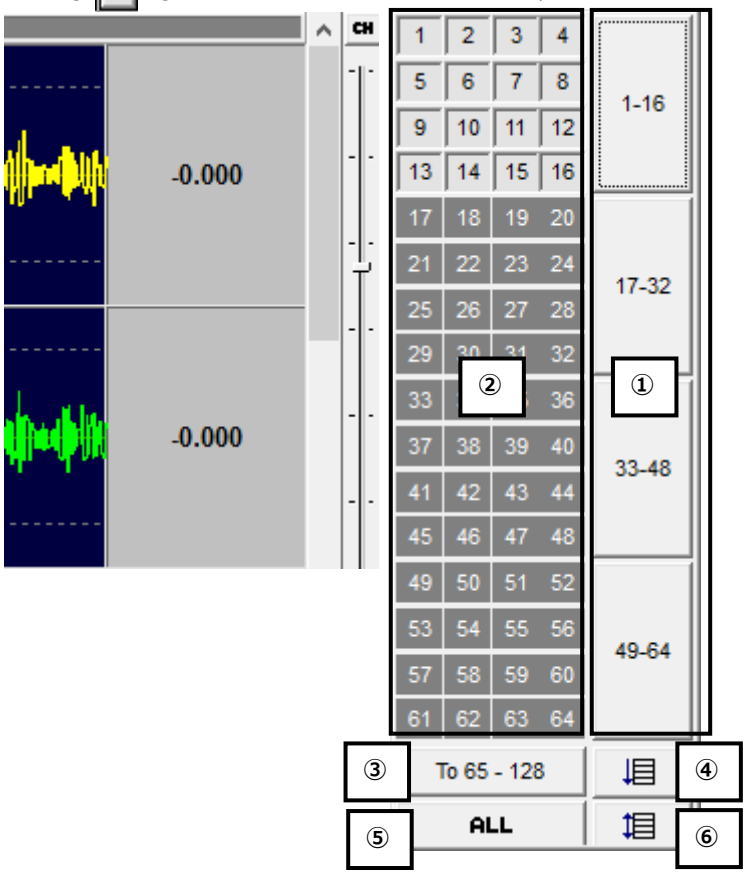
(After moving right) Moving in the lapsed time direction



3.3 Turning Displayed Channels ON/OFF

Clicking CH in the upper right corner of the waveform display window will display the channel selection panel and allow each channel display to be turned ON/OFF.

Clicking CH again will close the channel selection panel.

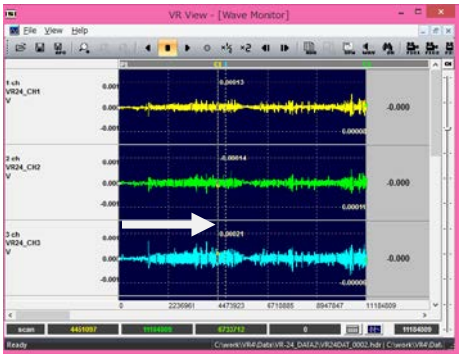


Item	Description
① **Each channel ON/OFF**	Clicking any of the numerical characters allows the display of that clicked channel to be turned OFF/ON. (display OFF is colored grey)
② **16 channels ON/OFF**	Turns ON the display in units of 16 channels. (If there are less than 16 channels, the display will turn ON the number of channels within that range.)
③ **Move 64-channel display**	Switches to the selection window of the next 64-channels.
④ **All channel display**	The all-channel display turns ON when [ALL] is displayed. (However, it may take some time to be displayed.) The all-channel display turns OFF when [DEL] is displayed
⑤ **Sort channel display**	Sorts displays in channel No. order.
⑥ **Currently displayed 1-window**	Changes the width of the y-axis so that the current display can be achieved in 1 window However, the number of channels that can be displayed in 1 window is restricted due to the number of data file channels and PC window resolution. If it cannot be displayed, the vertical scroll bar is automatically displayed.

3.4. Using the cursors to Zoom and Read Data

Data values can be read and the cursor sections can be shown in zoom display by using the two C1 and C2 cursors.

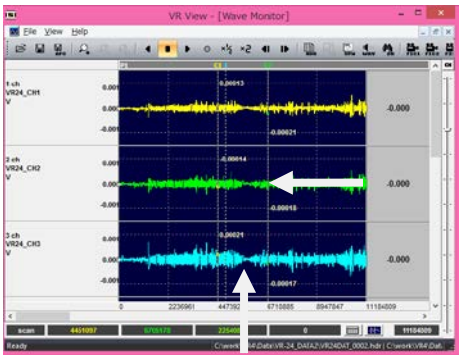
3.4.1 Time Axis Zoom



1. When files are newly displayed in the waveform display window, the C1 and C2 cursors are positioned respectively on the far left and far right of the waveform display.

2. When the mouse is moved to the cursor position on the far left, the mouse pointer changes to <⇔>.

3. Drag the mouse in its current state to remove the C1 cursor and move it to the start point of the zoom display section.



4. Similarly, remove the C2 cursor from the far right. Then move it to the end point of the zoom display section.

Section applying to the time axis surrounded by the C1 and C2 cursors

5. Click  in the toolbar.

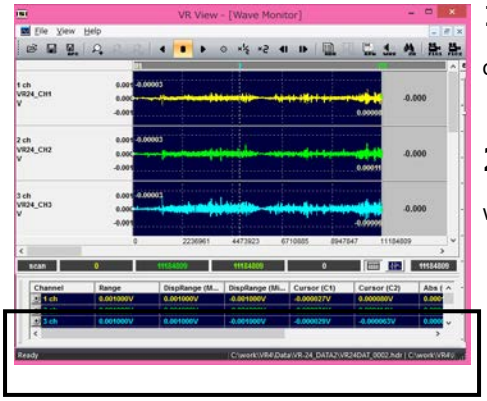
6. The time axis of the section surrounded by the cursors is displayed.

7. To clear zoom display, click the next button in the toolbar.

Go back to the previous (display) 

Fully clear zoom 

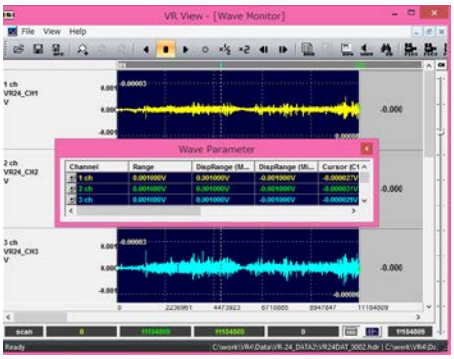
3.4.2 Displaying Cursor Position Data Values



1. To display details of data values between C1 and C2 cursors, click  at the bottom of the window.

2. <Wave Parameter> is displayed at the bottom of the waveform display window.

Item	Description
① **Channel**	Displays the channel No.
② **Range**	The input range selected when recording
③ **DispRange(Max)**	The maximum value of the display range (y-axis). The range is displayed with the dotted horizontal lines in the graph scale. The initial value will be the maximum value of the input range. The axis setting can be changed by the previously described <Channel Property>
④ **DispRange(Min)**	The minimum value of the display range (y-axis). The range is displayed with the dotted horizontal lines in the graph scale. The initial value will be the minimum value of the input range. The axis setting can be changed by the previously described <Channel Property>
⑤ **Cursor(C1)**	Value of data in the C1 cursor position
⑥ **Cursor(C2)**	Value of data in the C2 cursor position
⑦ **Abs (C1-C2)**	The difference (absolute value) between C1 cursor and C2 cursor position data
⑧ **Max (C1-C2)**	The maximum values in C1 cursor and C2 cursor position data
⑨ **Min (C1-C2)**	The minimum values in C1 cursor and C2 cursor position data
⑩ **Channel Name**	Displays the channel name.

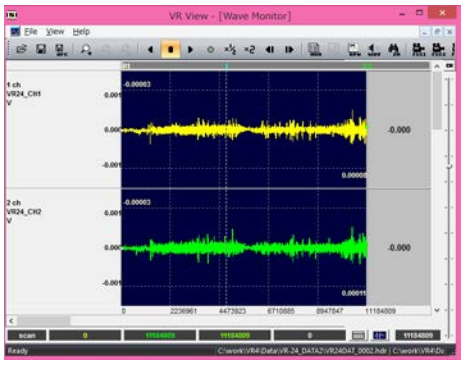


3. When the upper left corner of <Wave Parameter> is dragged by the mouse, the <Wave Parameter> can be placed in the left or upper side of the waveform display window.
To return the <Wave Parameter> to its original position, drag and drop it in the lower side of the waveform display window.

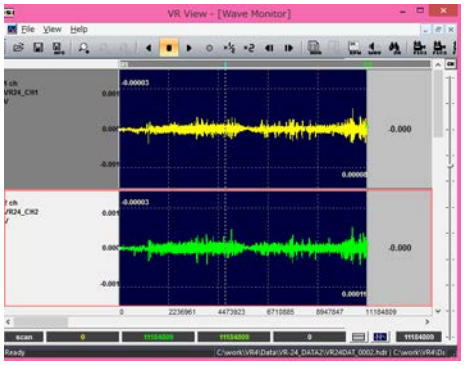
3.5 Overwritten Display

Channel displays can be overwritten. Overwriting can be performed over multiple channels.

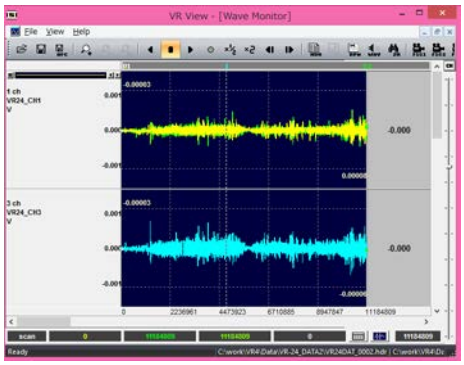
Changing the max/min values of the y-axis display scale for each channel is performed by <Channel Property>, which will be described later.



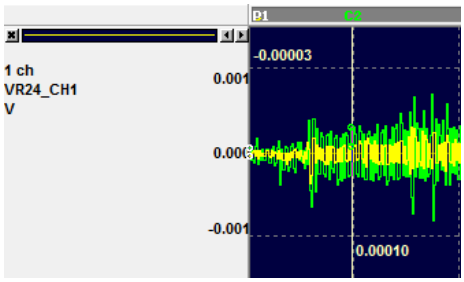
1. Display data in a waveform.



2. Drag the channel information part left of the overwrite origin waveform display window to the overwrite destination channel. The information part of the dragged channel will change to dark grey.



3. Overwrite is performed when dropping this information part onto the overwrite destination channel.

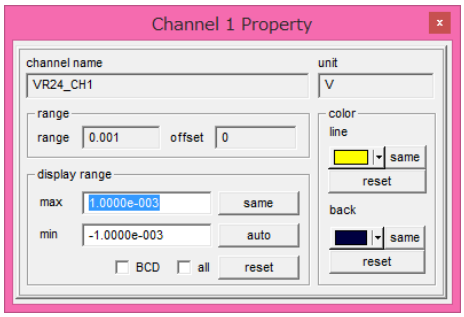


4. The overwritten channel information is displayed as shown on the left. Clicking the "X" in the left corner will clear the overwrite. Click ◂ ▸ to change the display order of overwritten channels.

3.6. Setting the Graph Display Style and y-Axis Scale (Channel Property)

The style of each channel's graph drawing and y-axis display scale can be changed with <Channel Property>.

1. Click  at the bottom of the waveform display window to display <Wave Parameter>.



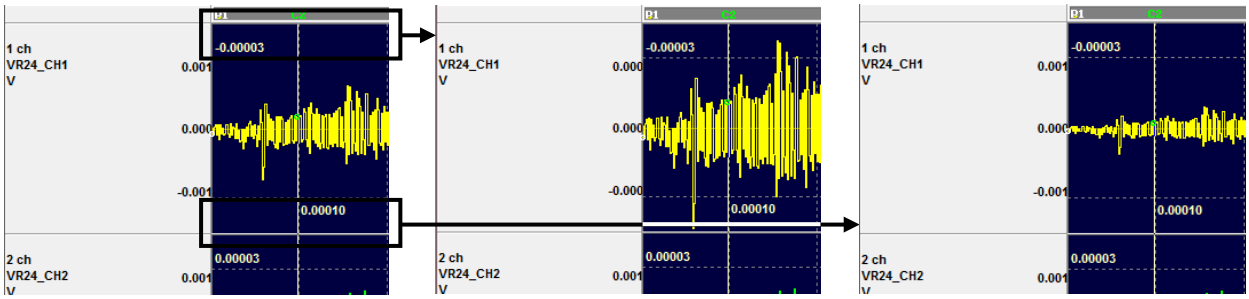
2. Double-click the channel position of <Wave Parameter> to display the <Channel Property> of that channel.

Item	Description
channel name	Displays the name of the channel set when recording.
unit	Displays the physical quantity unit set when recording.
range	
range	Displays the physical quantity coefficient set when recording.
offset	Displays the offset value set when recording.
display range	Sets the y-axis display scale.
max	Inputs the display maximum value. By default, the maximum value of the range set when recording is displayed.
min	Inputs the display minimum value. By default, the minimum value of the range set when recording is displayed
same	With "all" checked, click this to apply all values set here to all channels.
auto	Check this to display the max/min values of display data as a scale.
reset	Resets the max/min values set when recording.
all	When checked, applies operations to all other channels.
BCD	Makes and displays BCD changes.
color	Sets the graph line and background color.
line	Sets the graph line color.
▾	Click this to display the color palette and set a color.
same	Applies the color set here to all channels.
reset	Resets all channels to the default color.
back	Sets the background color of the graph.
▾	Click this to display the color palette and set a color.
same	Applies the color set here to all channels.
reset	Resets all channels to the default color.

3.7 Magnifying/Shrinking the Waveform y-Axis Scale

Clicking the upper/lower part of any waveform display area enables the y-axis scale of the waveform display to be doubled or halved.

(Magnify) (Shrink)

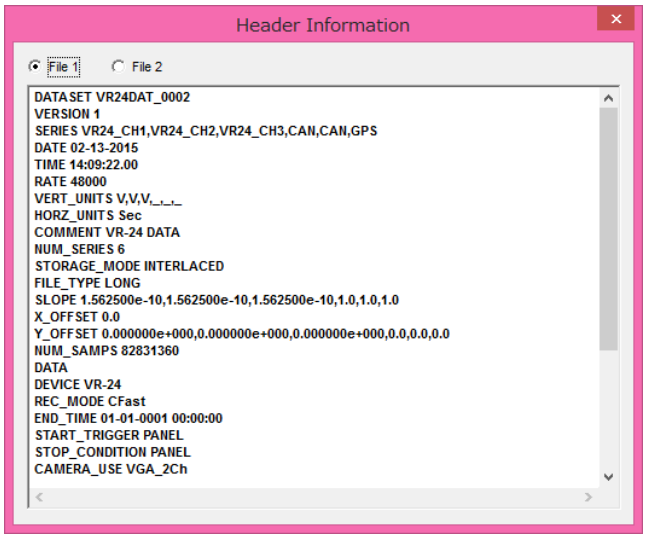


3.8 Displaying the Content of Header Files

Click 

in the toolbar to display the content of the displayed data's header file.

Click the radio button to switch between File1/File2 information.



3.9 Displaying Video

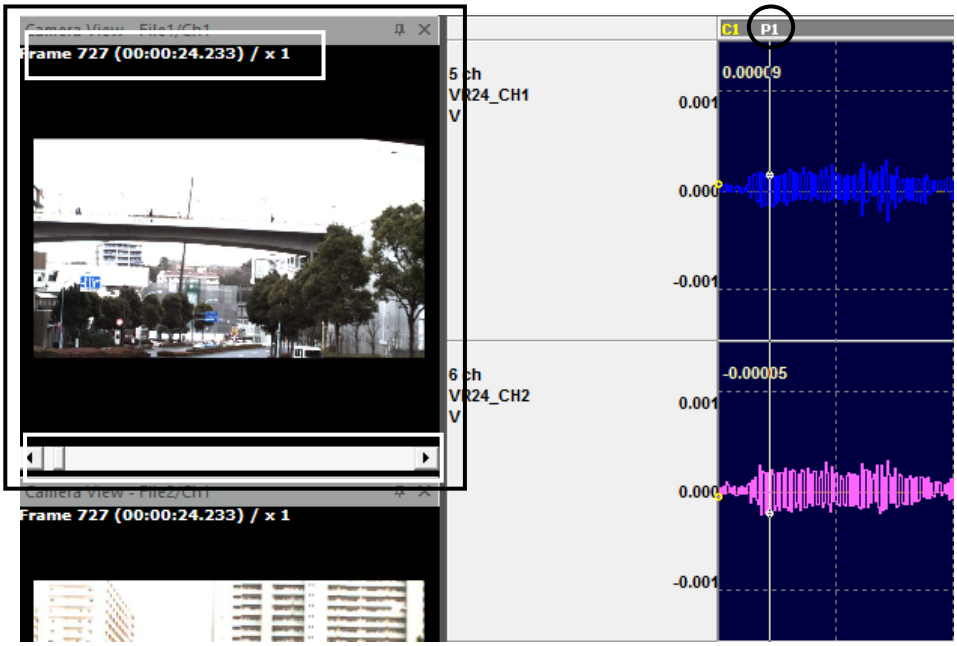
Video is displayed from the P1 cursor position in the waveform display window.

The four video windows are File 1 - Camera 1, File 1 - Camera 2 and File 2- Camera 1, File 2 - Camera 2.

Only the enabled Camera displays video.

The number of frames from the beginning, the lapsed time, and reproduction speed are displayed in the upper area of the video window.

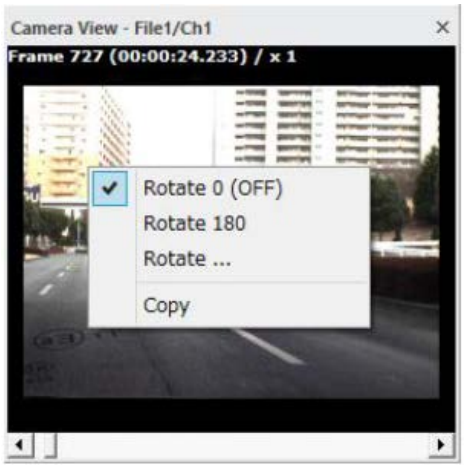
At the bottom of the video window, there is a scroll bar which can be used to scroll the video position.



Right-clicking on the video window will display a pop-up menu.

The video can be rotated. (It is set to "Rotate 0 (OFF)" at startup.)

Video images can be copied and pasted on documents.

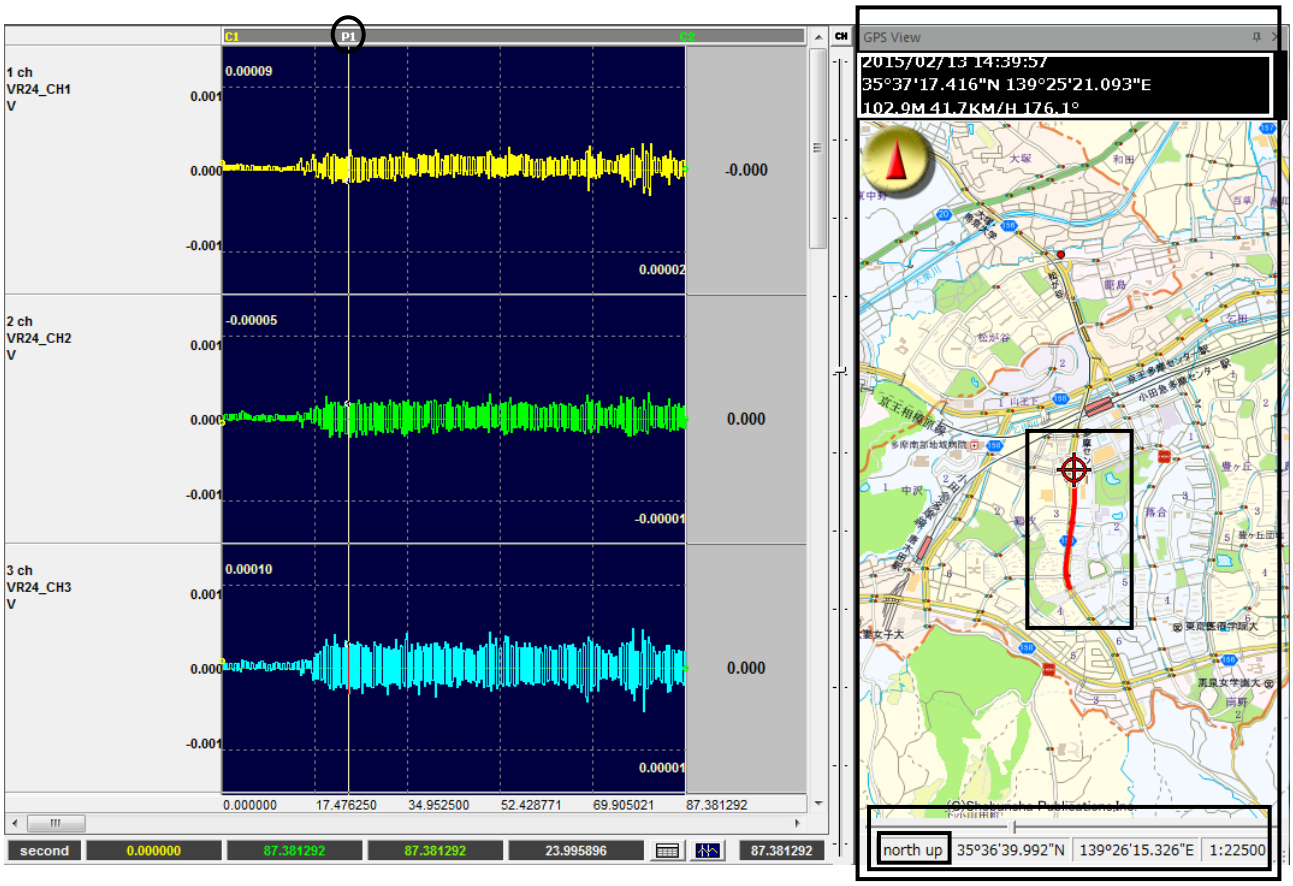


Item	Description
Rotate 0 (OFF)	Rotates the video to 0° (resets to original position).
Rotate 180	Rotates the video 180°.
Rotate ...	Displays a dialog to rotate the video at any angle (-360 to +360°).
Copy	Copies video images.

3.10 Displaying GPS Information

GPS information is displayed from the P1 cursor position in the waveform display window.

To display GPS maps, install Super MAPPLE Digital (National Edition) Ver. 16 (Shobunsha).



Move the P1 cursor to align the current position with the center of the map.

The GPS path in the waveform display range is displayed by a red line in the map.

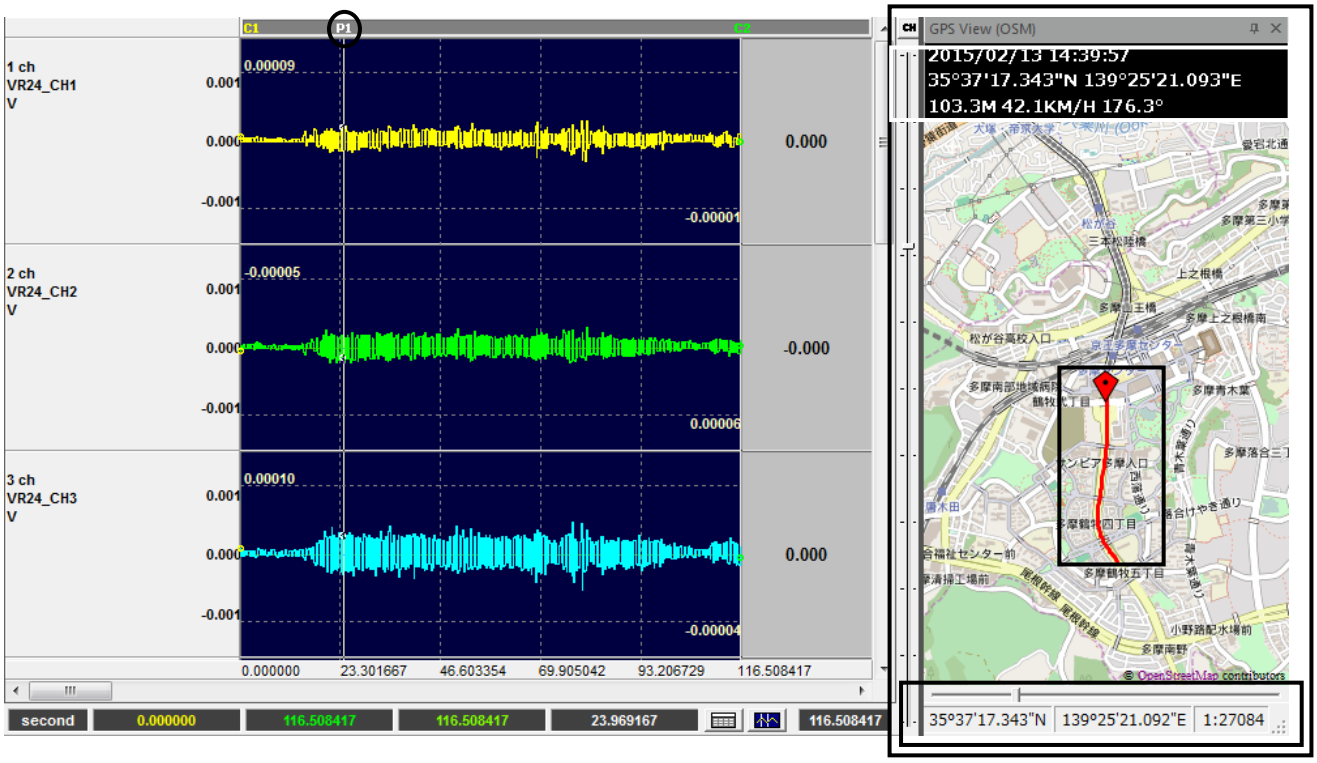
The time, latitude, longitude, altitude, speed and course are displayed in the upper area of the GPS window.

In the bottom area of the GPS window is the slider bar to magnify/shrink the map, the display style, the cursor's latitude/longitude, and rate of magnification.

"north up" and "heading up" can be selected as display styles and clicking the style allows you to switch between styles.

("north up" is set at startup.)

Additionally, OpenStreetMap can be used as map data if you can connect to the Internet.
(This is set in the View Property window.)
Use OpenStreetMap to display overseas maps.



Move the P1 cursor to align the current position with the center of the map.
The GPS path in the waveform display range is displayed by a red line in the map.

The time, latitude, longitude, altitude, speed and course are displayed in the upper area of the GPS window.
In the bottom area of the GPS window is the slider bar to magnify/shrink the map, the latitude/longitude at the center of the map, and the rate of magnification.

Clicking "OpenStreetMap" will display the OpenStreetMap copyright and license page.

Click "Reload Map" to reload the map display.

3.11 Reproduction/Reverse Reproduction

This operates the buttons in the toolbar.

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

	Item	Description
①	**Backward**	Reproduces data in reverse.
②	**Stop**	Stops reproduction.
③	**Forward**	Reproduces data.
④	**Capture**	Selects whether to create or not create a screen capture video file when reproducing data.
⑤	**Half Speed**	Halves the reproduction speed (min. is 1/64).
⑥	**Twice Speed**	Doubles the reproduction speed (max. is 2048).
⑦	**Previous Frame**	Reverses frames (moves to 2 frames before when the reproduction speed setting is "x 2").
⑧	**Next Frame**	Advances frames (moves to 2 frames ahead when the reproduction speed setting is "x 2").

- Reproduction speed of "x 1" refers to reversing/advancing one frame at a time rather than real time reproduction. (Speed depends on PC performance.)

3.12 Changing the Window Layout

The video/GPS window can be displayed/hidden by using the buttons in the toolbar.

① ② ③ ④ ⑤

	Item	Description
①	**Camera View - F1/C1**	Displays/hides the video display window (Camera Ch1 of File1).
②	**Camera View - F1/C2**	Displays/hides the video display window (Camera Ch2 of File1).
③	**Camera View - F2/C1**	Displays/hides the video display window (Camera Ch1 of File2).
④	**Camera View - F2/C2**	Displays/hides the video display window (Camera Ch2 of File2).
⑤	**GPS View**	Displays/hides the GPS display window.

With the video/GPS window, the waveform can be freely docked on each side of the window using the drag & drop operation. It can also be changed to one of four pre-set layouts by pressing the relevant button in the toolbar.

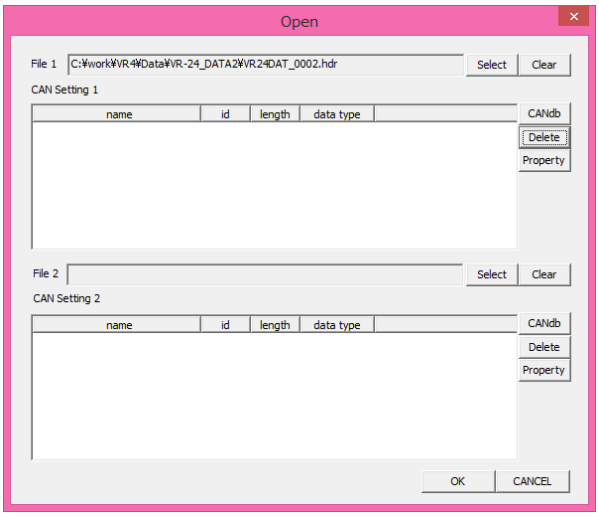
① ② ③ ④

	Item	Description
①	**Layout1**	Organizes the layout of each displayed waveform/video/GPS window (left: video / center: waveform / right: GPS).
②	**Layout2**	Organizes the layout of each displayed waveform/video/GPS window (left: GPS / center: waveform / right: video).
③	**Layout3**	Organizes the layout of each displayed waveform/video/GPS window (top left: video / bottom left: GPS / right: waveform).
④	**Layout4**	Organizes the layout of each displayed waveform/video/GPS window (left: waveform / top right: video / bottom right: GPS).

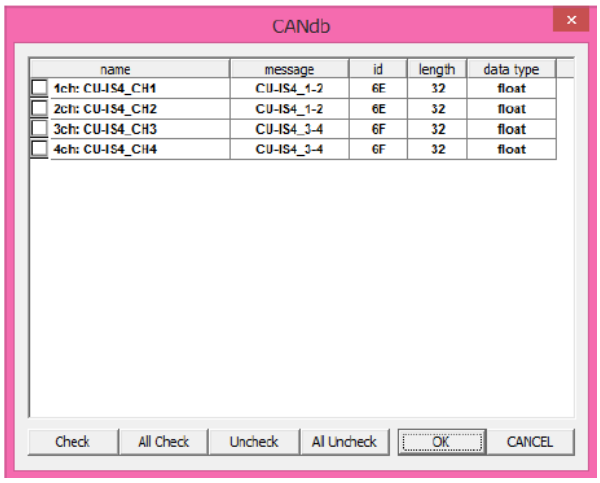
3.13 Displaying the CAN Signal

This sets the CAN signal displayed in the <Open> dialog.

Set <File1> and <File2> separately.



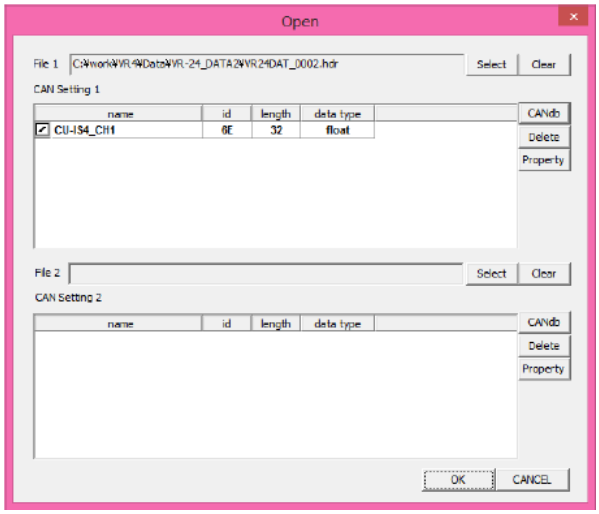
1. Select the CANdb file with the <CANdb> button.



2. After selecting the file, the signal list is displayed.

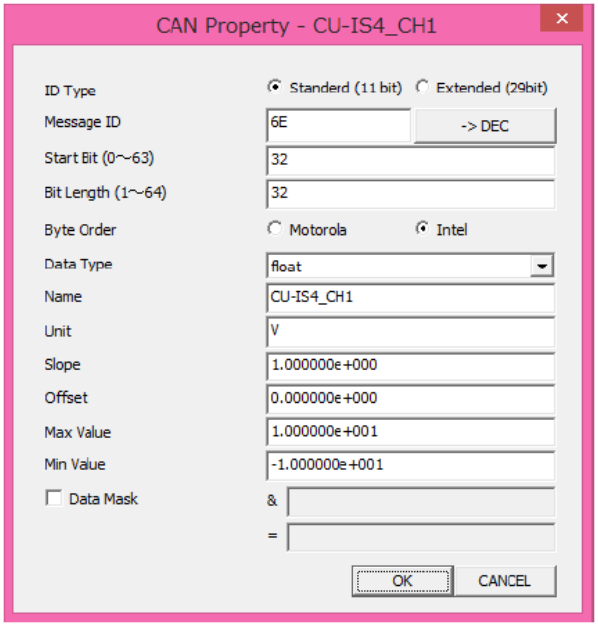
Select the signal you want to display.

(Select by checking the checkbox at the left of the list.)



3. The selected signal is registered.

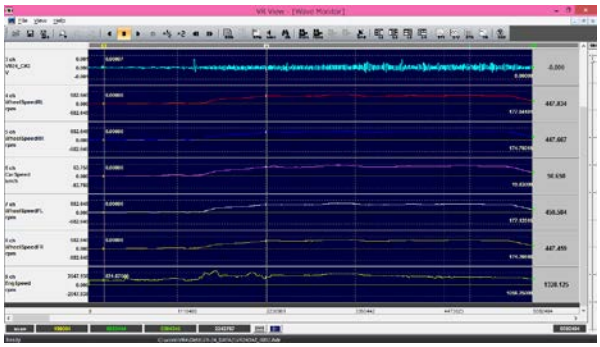
To cancel the selection, click <Delete> after selecting the relevant signal.



4. When selecting the list and clicking <Property>,
(it is also OK to double-click the list)
the <CAN Property> dialog is displayed and the CAN signal settings can be changed.

When the <Property> button is clicked without selecting it,
(it is also OK to double-click outside the list)
the <CAN Property> dialog is displayed and CAN signal settings can be newly added.

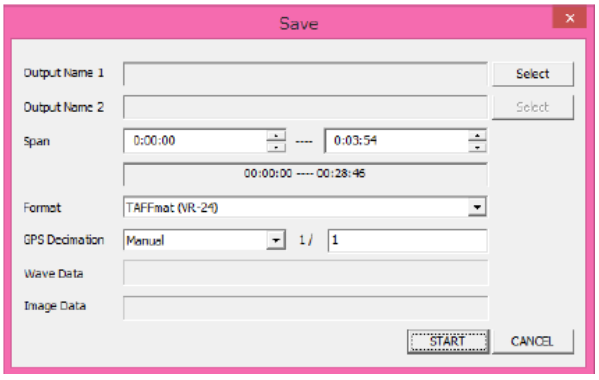
(Data mask function)
Check the [Data Mask] to activate it.
In the case that FFFFFF is set in [&] and 04410C is set in [=], CAN signal conversion is performed on packets which meet the below condition.
(0 to 24 bits) & 0xFFFFFF = 0x04410C



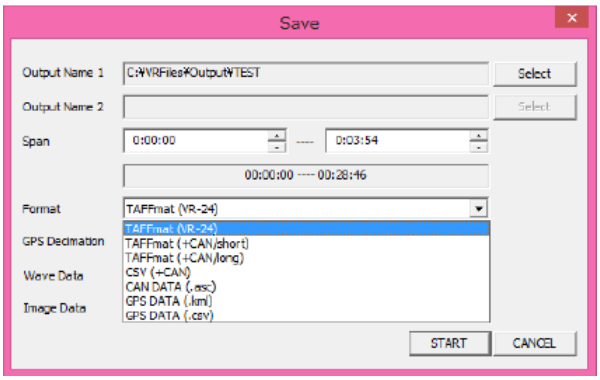
5. The selected CAN signal is displayed in the waveform display window.

3.14 Outputting Files

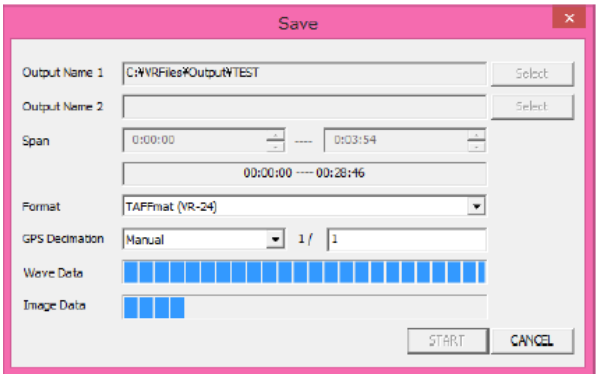
Click  in the toolbar to display the <Save> dialog.



1. Select the output file from the <Select> button.
File1 is set to <Output Name 1> and File2 to <<Output Name 2>.



2. Select the segment range (unit of sec) in <Span>.



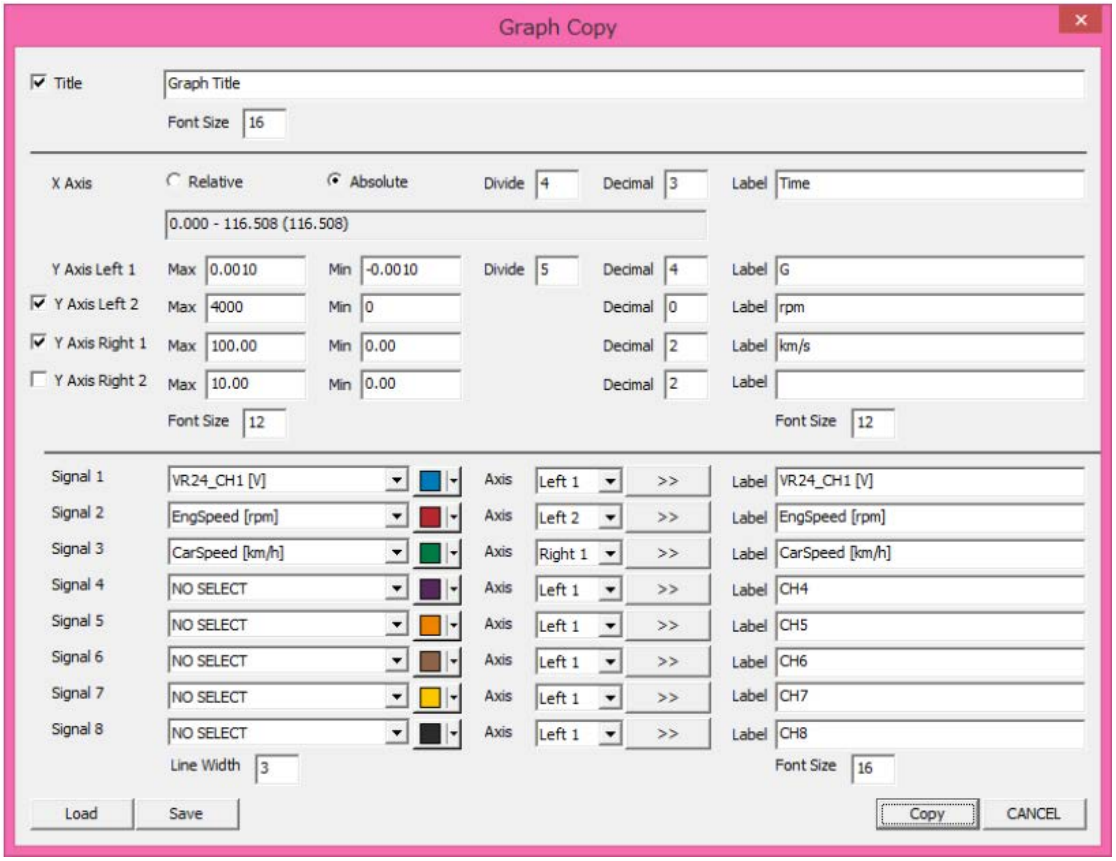
3. Select the output format in <Format>.

Item	Description
TAFFmat (VR-24)	This TAFFmat format is the same as VR-24.
TAFFmat (+CAN/short)	This is a 16-bit integer TAFFmat format that outputs CAN signal data as channel data. The resolution will drop depending on the 24-bit recorded data and CAN signal data type.
TAFFmat (+CAN/long)	This is a 32-bit integer TAFFmat format that outputs CAN signal data as channel data. The resolution will drop depending on the CAN signal data type.
CSV (+CAN)	This is a comma-delimited text format. A large amount of time is required for conversion.
CAN Data (.asc)	CAN data is converted to ASC format.
GPS Data(.kml)	GPS data is converted to KML format. [GPS Decimation] sets the number of data to thin out. Select auto-setting (1Hz/5Hz/10Hz) or manual setting (Manual).
GPS Data(.csv)	GPS data is converted to CSV format. [GPS Decimation] sets the number of data to thin out. Select auto-setting (1Hz/5Hz/10Hz) or manual setting (Manual).

4. Click <START> to start output.

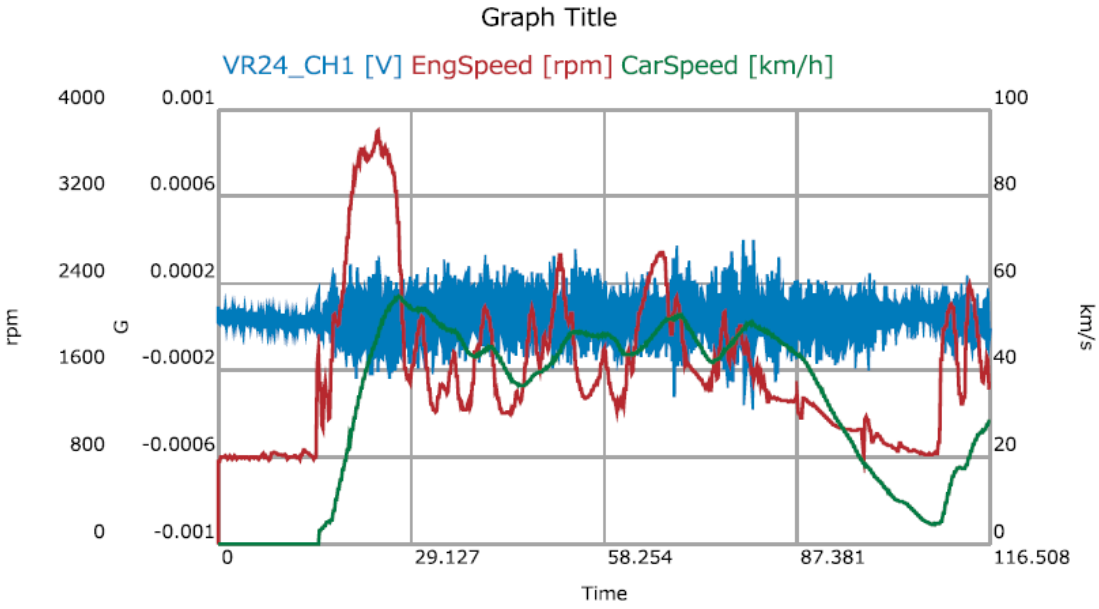
3.15 Copy waveforms to Clipboard

The below dialog box shows up when clicking [Graph Copy] under [View] on the menu bar (Ctrl+C is also OK), and the waveform currently shown is copied to Clipboard.



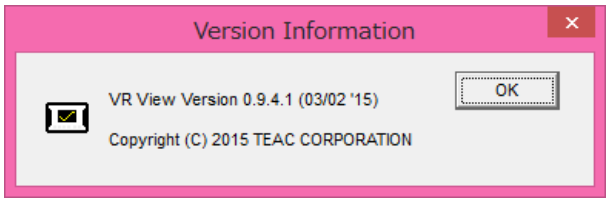
Item	Description
Title	When checked, title is shown above the graph (50 letters or less in English, 25 letters or less in Japanese). Font size can also be set (1 to 48pt).
X Axis	Select Relative display or Absolute display for display mode within the current waveform display range (second). (If display range is between 100 and 200, relative display is 0 to 100 and absolute display is 100 to 200.) Specifies the number of grid (Divide, 1 to 10), decimal point (Decimal, 1 to 6) and label name. The same font size as Y axis applies to the axis (left) and label name (right).
Y Axis	Select the display range of Y axis (Max/Min). Left2, Right1 and Right2 can be turned on or off. Specifies the number of grid (Divide, 1 to 10, applies to all the 4 axes), decimal point (Decimal, 1 to 6) and label name. The same font size as X axis applies to the axis (left) and label name (right).
Signal 1 to 8	Up to 8 signals can be set.. Specify color, axis (Left1, Left2, Roght1 and Right2) and label name for each axis. (Click on the >> to apply the label name and unit to the signal selected.) Specify the line thickness (Line width, 1 to 10pt), label name and font size as well.
Load	Load the saved settings.
Save	Save the current settings.
Copy	Copies waveform to clipboard with the current settings.
CANCEL	Cancels the changes.

Example



3.16 Checking the Software Version

Click  in the toolbar to check the software version.



Click [OK] to close the dialog.

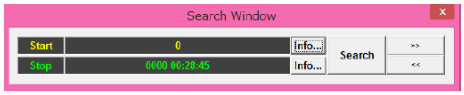
Note:

Chapter 4 - Applied Operations

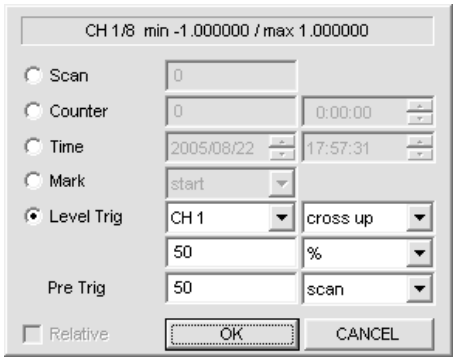
4.1 Search

Setting search conditions enables the required data segmented section to be selected. The start and ending points of the segment can be set respectively.

- It may not be possible to display the whole search section on the screen at once due to the memory capacity installed in the PC.



1. Click  in the toolbar to display the <Search Window> dialog.



2. When [Info…] is clicked, the Search setting dialog is displayed. The following settings can be made.

The <Relative> checkbox can be selected in the Stop dialog. Checking the <Relative> checkbox performs segmenting relative to the content set in Start.

Item	Description
Scan	Sets the segment points by the scan count.
Counter	Sets the segment points by the time lapsed since recording started.
Time	Sets the segment points by the absolute time.
Mark	Sets the segment points by the Mark (event) No.
Level Trig	Segments data by the data change point (level) Selects the target channel and sets the trigger detection method for either "cross up" or "cross down". Sets the threshold by % or voltage value (physical value). Sets the segment pre-trigger point in <Pre Trig> by the number of scans or seconds.
Relative	Stop dialog only: Segments relative to the content set in Start.
OK	Sets the input value as the segment point parameter.
CANCEL	Cancels the input value and resets it.

3. Click [Search] to segment and display data relative to set data.

Click on >> to segment and display the next data relative to set data

Click on << to segment and display the previous data relative to set data

The >> and << are valid for the below.

Start: Scan, Counter, Time Stop: Scan, Counter, Time

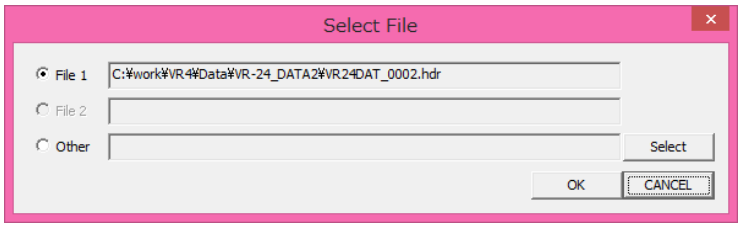
Start: Scan, Counter, Time, Mark Stop: Scan, Counter (Relative)

Start: Mark Stop: Mark

4.2 Data Conversion

Click  in the toolbar to convert data.

When the <Select File> dialog is displayed, select a file from File 1/File2/Other.



The conversion section to be input by default will be the display range in the current waveform display window.
To convert a section, specify that section by zoom operation or by search.

- Straight after opening the file, the cursor lines will be on the left and right sides of the window, so the currently displayed data file section can be converted.

4.2.1 Converting Data in Files Recorded by WX-7000 Series, LX-100 Series, LX Series, GX-1 and es8

"PL-S1002 AFC NEO" is started if the data file was recorded by the WX-7000 Series, LX-100 Series, LX Series, GX-1 and es8 recorder.

If you are using PL-S1002 AFC NEO as a stand-alone, the waveform display function is not included, so execute [AFCNEO.EXE] of the installed software to directly display the dialog.

- The names of the converted file and folder do not support Japanese. Use alphanumeric characters that can be used in Windows.
- The size of files that can be converted is 2GB or less.
- The format of convertible files differs according to the data type.

SHORT type TAFFmat/Text/Wav(16bit mono)/Merge(2 files)/Matlab/Head Acoustics/ATI/Universal /EDF/RPC3

Item	Description
DADiSP	DADiSP (TAFFmat) format (.dat/.hdr) In the case of GX-1, data recorded in multi-sample format is converted to single sample format.
ASCII-A/D (TAB)	Text format, A/D value output, TAB delimited (.txt)
ASCII-A/D (CSV)	Text format, A/D value output, CSV delimited (.csv)
ASCII-A/D (SPACE)	Text format, A/D value output, SPACE delimited (.txt)
ASCII-Volt (CSV)	Text format, voltage value output, CSV delimited (.csv) However, this may be the EU (physical) value conversion depending on HDR information.
ASCII-EU (CSV)	Text format, physical value output, CSV delimited (.csv)
16-bit Wave file (mono)	16bit Wave format (.wav) However, it converts any 1ch of the recorded channels.
Merge	Merges 2 TAFFmat files (.dat/.hdr). Used to merge 2 synchronously recorded data files into 1 file.
TAFFmat	DADiSP (TAFFmat) format (.dat/.hdr) In the case of GX-1, data recorded in multi-sample format is converted to multi-sample format.
MATLAB (Ver.4.x)	Matlab version 4 format (.mat)
MATLAB (Ver.6.x)	Matlab version 6 format（.mat）
Head Acoustics	Head Acoustics format (.hdf)
ATI-Volt (I-DEAS)	I-DEAS voltage value output format (.ati) However, this may be the EU (physical) value conversion depending on HDR information.
ATI-EU (I-DEAS)	I-DEAS physical value output format (.ati)
Universal	UFF58 text format (.uff)
EDF	EDF format (.rec)
RPC3	RPC3 format (.tim)

LONG type TAFFmat/Text/Wav(32bit float mono)/Merge(2 files)/Matlab

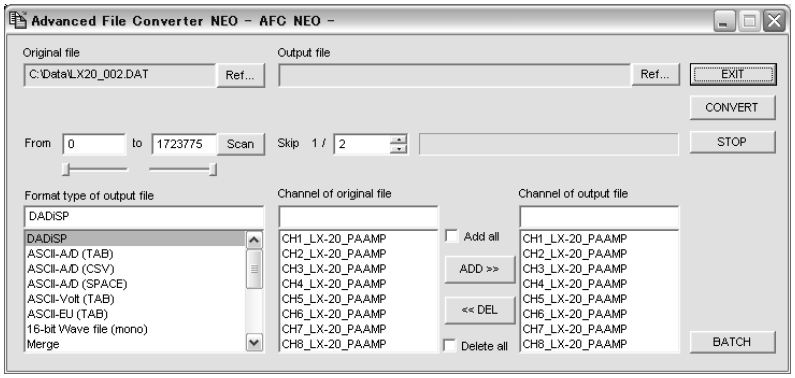
Item	Description
TAFFmat	DADiSP (TAFFmat) format (.dat/.hdr)
ASCII-A/D (CSV)	Text format, A/D value output, CSV delimited (.csv)
ASCII-Volt (CSV)	Text format, voltage value output, CSV delimited (.csv)
ASCII-EU (CSV)	Text format, physical value output, CSV delimited (.csv)
32-bit Wave file (mono)	32-bit Wave format (.wav) However, it converts any 1ch of the recorded channels.
Merge	Merges 2 TAFFmat files (.wav) Used to merge 2 synchronously recorded data files into 1 file.
MATLAB (Ver.6.x)	Matlab version 6 format (.mat)

1. Use zoom by cursor or search to display the data relating to the section to be converted.

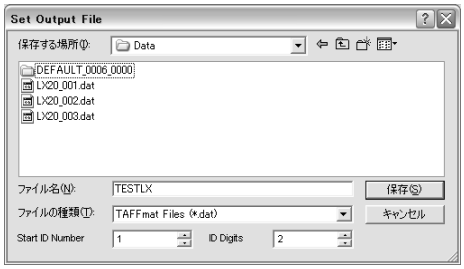
2. Click  in the toolbar.

3.Display <AFC NEO>.

The wave display window will then disappear, but the original waveform will automatically be displayed when "AFC NEO" finishes.



Item	Description
Original file	Displays the full path of the file to be converted. Click [Ref...] to select the folder. 2 files can only be selected when [Merge] is set as the file conversion format.
Output file	Click [Ref...] to set the folder to save converted files and the file name.
From	Displays the conversion start point by the scan count. This can be changed by manual input or by using the slide controller at the bottom.
To	Displays the conversion end point by the scan count. This can be changed by manual input or by using the slide controller at the bottom.
Skip	Inputs the data thinning parameter. Enter [10] when extracting 1 piece of data for every 10 pieces of data. If the file format does not support this function, <1/1> is displayed and numerical characters cannot be input.
Format type of output file	Selects the format of files after they are converted. When the selected file format differs to the format selected by <File Type (T)> in <Output file> ⇒ <Set Output File>, the extension of the <Output file> file name will be the extension of the file format selected here.
Channel of original file	The channel of the file to be converted is displayed in <Channel of original file>. Use [Add all]/[ADD>>]/[<<DEL]/[Delete all] to add or delete the channel needed for the converted file in <Channel of output file>.
Channel of output file	Click a channel display to select [ADD>>] to add the relevant channel to the <Channel of output file> from the <Channel of original file> or [<<DELL] to delete it. Check [Add all] to add all channels to the <Channel of output file> or check [Delete all] to delete all channels displayed in <Channel of output file>. Channels displayed in <Channel of output file> in the initial state will be the channels selected by the channel selection panel.
EXIT	Closes the dialog.
CONVERT	Starts the conversion of data relating to the selected section. <Now converting...> is displayed during conversion, so users can confirm the state of progress. Click [STOP] in the dialog to interrupt the conversion.
BATCH	Displays the batch processing window, which is to be described later.



4. Click [Ref...] in <Output File> to display <Set Output File>.

Select the directory name, name and type of the file after it is converted.

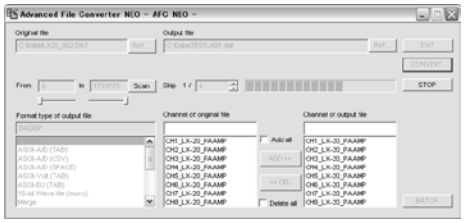
Input the initial value of the ID No. added to the end of the specified file name in the <Start ID Number>. Also input the number of digits of that ID No. in <ID Digits>. In the case of the left window example, the name of the converted file will be <TESTLX01.dat>.

This ID No. initial value and number of digits will be used for [Batch processing] of multiple files, which will be described later.

The extension of the <File type (T)> displayed here will be the extension selected in <Format type of output file>.

5. After making the necessary settings in <Set Output File>, click [Save (S)] to confirm the file name setting.

6. Make the remaining settings in <AFC NEO> if necessary.



7. Click [CONVERT] to convert the file.

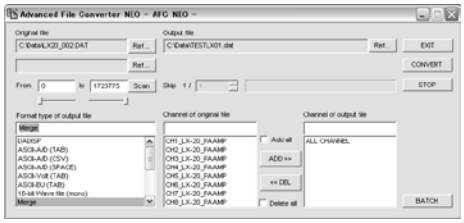
The file conversion state of progress is displayed in the <Progress bar> left of [STOP].

To interrupt the conversion, click [STOP] while converting.

Merging data files

Use the synchronized recording function of WX-7000/LX-100/LX Series and GX-1 to merge 2 data files into a single data file.

- The maximum number of channels that can be merged as a single data file is 128.
- If the tacho input channel is ON, it will be counted as a channel when merging synchronously recorded data files with the LX-100/LX Series. For each tacho channel, there will be 1 channel's worth of 16-bit mode data and 2 channel's worth of 32-bit mode data.
- The section of slave device data files to be merged will be the window display section of data files for the master device.
- Channels cannot be selected with the merge function.



1. Display the master data files.

2. When selecting and clicking [Merge] in <Format type of output file> of <AFC NEO>, the slave file's selection area will be displayed under <Original file>.

3. Click <Ref...> to the right of the displayed file selection area to display <Select File>.

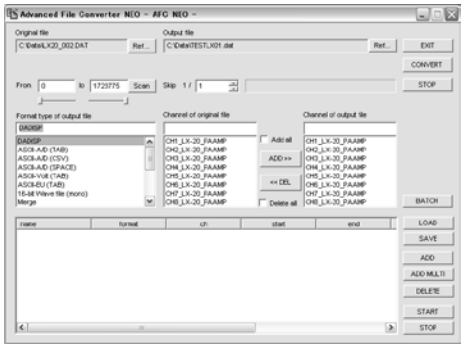
4. Select the slave file with <Select File> and click [Open (O)].

5. The slave file is displayed in the file selection area.

6. Then, execute file merge in accordance with file conversion procedures.

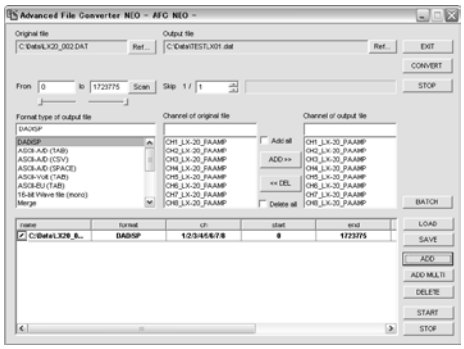
Converting batch files

Register the file conversion procedures to convert multiple files in a batch.



1. Click [BATCH] in <AFC NEO>.

2. The batch processing input window is displayed at the bottom of the startup window.



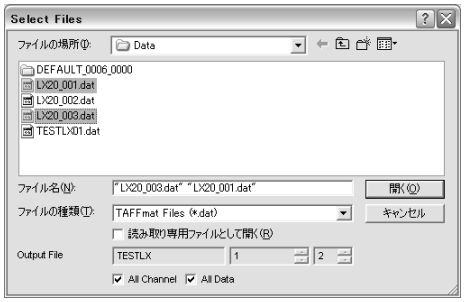
3. Select the file to be converted in accordance with the previously-mentioned file conversion operation, and then click [ADD] to add it in line with the settings input by the first process.

4. The following field is displayed when the slider under the batch process input window is moved.

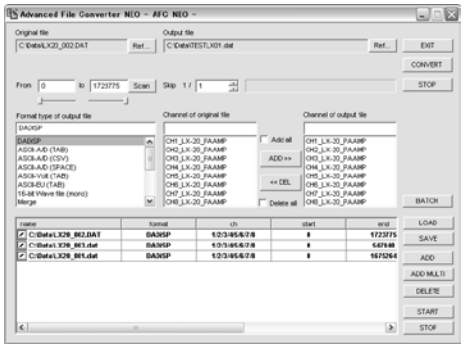
Item	Description
name	The file name of the <Original file> to be converted
format	The conversion format of the file selected by <Format type of output file>
ch	The channel of the file after it is converted. The channel number is displayed by the slash delimiter
start	The start scan count displayed in <from>
end	The end scan count displayed in <to>
Skip	The data thinning count displayed by <Skip>
output	The file name of the <Output file> after it is converted
data type	Displays the data type (SHORT/LONG).
status	When batch processing starts, the conversion status of progress is displayed as %.

5. Then set the file to be converted and click [ADD] to enter the following process.
Repeat this operation to add the process.

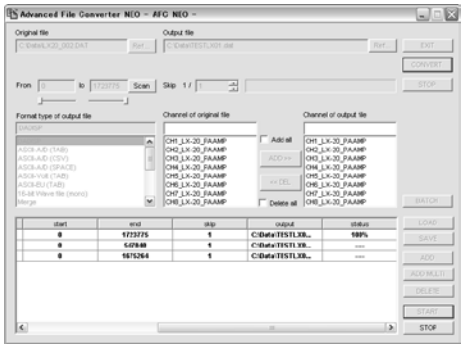
6. To delete the added content, move the cursor to the content you want to delete, highlight it and click [DELETE].
The added content will not be converted if the <name> checkbox on the left side is unchecked.



7. Click [ADD MULTI] to display the <Select Files> dialog. Several files to be converted can be selected at once by the Windows file selection operation (Shift key + arrow key; Ctrl key + left click).
By clicking [All Channels] and [All Data], all channel data relating to the selected file will be converted. Click [Open (O)] to confirm a selection.
However, if you select too many files names, it is possible that not all of the files will be added.



8. ID Nos. are added in increments from the initial value that was set to the file name added in <Set Output File>.



9. Click [START] to start the batch processing of added files.

The conversion status of progress is displayed in [status].
Click [STOP] to interrupt the conversion.

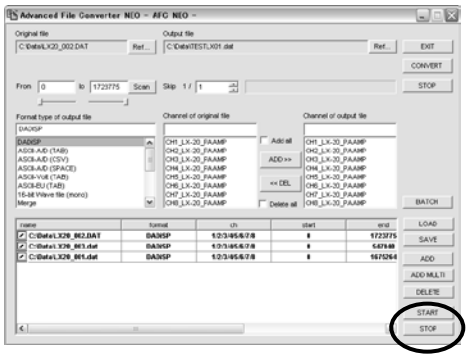
Registered information on batch file conversion operation procedures is saved as parameter files and can be invoked. By editing this parameter file by text editor, etc., registered information is changed and invoked to the batch processing window for use.

Saving registered information

Click [SAVE] to display the <Save as> dialog, and name the currently displayed batch processing registration information to save it as a parameter file. The file extension is <prm>.

Invoking registered information

Click [LOAD] to display the <Open File> dialog and invoke previously saved parameter file of batch processing registration information.



Content of registration information parameter files

In parameter files, registration information is recorded in field items per line in a text and comma-delimited format.

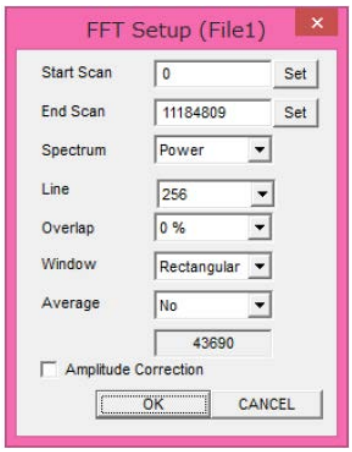
Note:

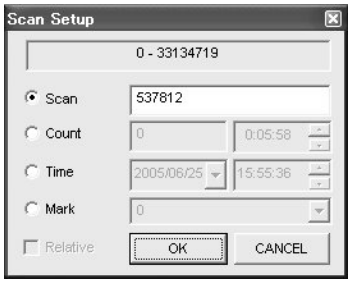
Chapter 5 - Analyzing and Displaying Data

Clicking the icon in the menu bar displays FFT in an X-Y format against displayed waveform data.

5.1 Displaying FFT

FFT is processed in displayed data and the results can be displayed.



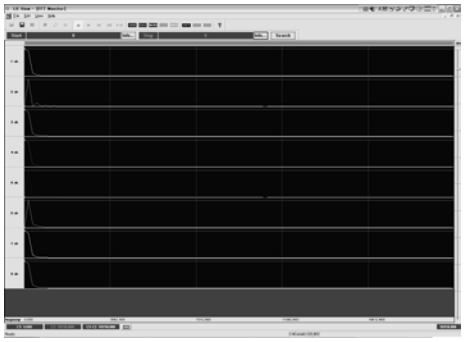


1. Click  in the toolbar.

2. <FFT Setup> is displayed. Select a process from the pull-down list.

Item	Description
Start Scan	Inputs the start scan count. It is in the display start position by default. The position can be set by the Count/Time/Mark as well as Scan by pressing the [Set] button.
End Scan	Inputs the end scan count. It is in the display end position by default. The position can be set by the Count/Time/Mark as well as Scan by pressing the [Set] button.
Spectrum	Selects the FFT type. It can be selected from Power/Linear/RMS/PSD (power spectrum density).
Line	Selects the resolution of the frequency axis. It can be selected from 256/512/1024/2048/4096/8192/16386/32768.
Overlap	Selects the overlap value. It can be selected from 0%/25%/50%/75%.
Window	Selects a window function It can be selected from Rectangular/Hanning/Hamming/Kaiser-Bessel/Flat Top. Click on the Amplitude Correction to activate amplitude correction.
Average	Sets the averaging method. It can be selected from No/Linear/Exponential/Max. In the case of "No", FFT processing will be performed for the data amount (1 time amount) from the left edge of the display [Line].
Average no. of times	When the number (average value) displayed at the bottom is "0", the selected Line/Overlap parameter shows that FFT processing cannot be performed for reasons such as a lack of processable data. In such a case, change each parameter.

3. Click [OK] in <FFT Setup>.



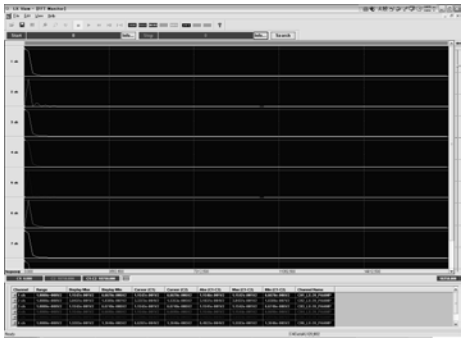
4. The FFT processing results are displayed in each channel.

While the results are displayed, click  to change the processing parameter.

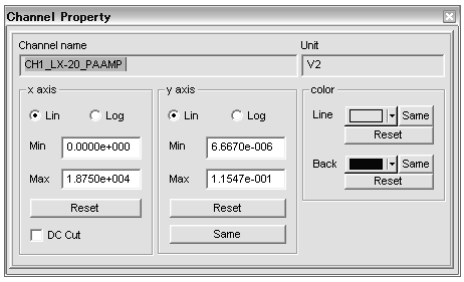
The maximum number of channels that can be displayed at once is 16. (The initial display is 1 to 16 channels.)

Click  at the top right of the waveform display to change the display channel.

5. Operate the cursor at both ends of the window to read the values. When the mouse cursor is moved to the left edge of the window's graph display area, the pointer will change to <⇔>. Left-click the mouse and drag it to remove the C1 cursor line and move it to the position you want to read. Similarly, move the mouse to the right edge of the window and, using the same operation, remove the C2 cursor line to the position you want to read.



6. Click the  channel property button to display the data for the C1/C2 cursor position.



7. To change the display scale of each channel, double-click the line of the channel you want to change from the channel property list to display the <Channel Property>.

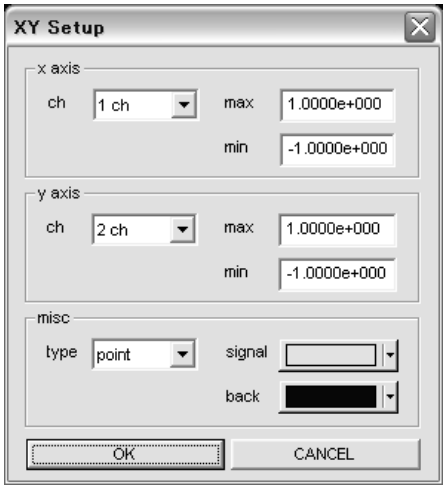
Item	Description
Channel name	Displays the name of the channel set when recording.
Unit	Displays the physical quantity unit set when recording.
x axis/y axis	Sets the display axis information for both the x-axis and y-axis.
Lin	Displays data in a linear scale axis.
Log	Displays data in a logarithm scale axis.
Min	Inputs the minimum value of the display.
Max	Inputs the maximum value of the display.
Reset	Resets the initial value.
DC Cut	Cuts the DC component and displays it.
Same	Click this to apply all values set here to all channels.
Color	Sets the graph line and background color.
Line	Sets the graph line color.
▾	Click this to display the color palette and set a color.
Same	Applies the color set here to all channels.
Reset	Resets all channels to the default color.
Back	Sets the background color of the graph.
▾	Click this to display the color palette and set a color.
Same	Applies the color set here to all channels.
Reset	Resets all channels to the default color.

8. To close the FFT display window, click [X] at the top right of that window.

5.2 Displaying the X-Y Graph

The X-Y graph can be displayed by selecting any 2 channels.

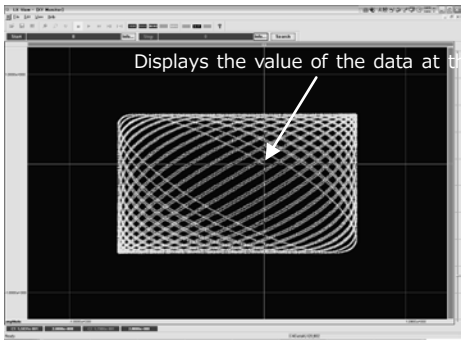
1. Click  in the toolbar.



2. <XY Setup> is displayed. Select a process parameter.

Item	Description
x axis/y axis	
ch	Selects the channel to display X-Y graph from the pull-down menu.
max	Inputs the maximum value of the display scale. The default value is the maximum value of the waveform display range.
min	Inputs the minimum value of the display scale. The default value is the minimum value of the waveform display range.
Misc	
type	The display format of the plot. Fixed at [point].
signal	Selects the plot color.
back	The background color of the X-Y display can be selected.

3. Click [OK] in <XY Setup>.



4. The X-Y graph of the selected channel is displayed.
While the results are displayed, click  to change the processing parameter.

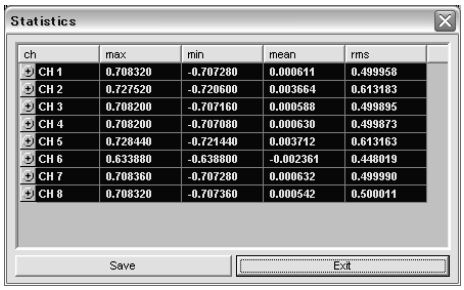
5. By intersecting the cursors at the left and top edges of the window, the value of the plotted data can be read. When the mouse cursor is moved to the left/top edge of the window's graph display area, the pointer will change to <⇔>. Left-click the cursor line with the mouse and drag it to the position you want to read. The coordinate position of the cursor line is displayed at the lower left-hand side of the window.
The cursor can be moved to that position when right-clicked.

6. To close the X-Y graph display window, click [X] at the top right of that window.

5.3 Displaying Statistical Data

Displays the maximum, minimum, average and effective values of each displayed part's data channel.

1. Click  in the toolbar.



2. <Statistics> is displayed.

3. Clicking [Save] will output displayed statistical data as a csv file.

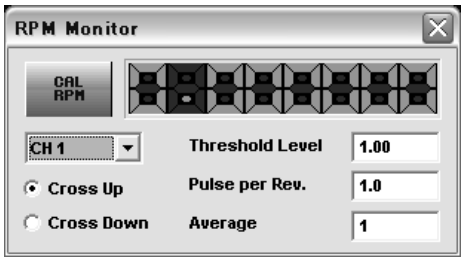
4. Click [Exit] to close the display.

5.4 Displaying the RPM Value

Select any data channel to display RPM calculation data of the cursor points.

- This function cannot be used when large capacity data is displayed in a single window. This function can be used when the time length of the waveform display is shortened.

1. Click  in the toolbar.



2. The <RPM Monitor> dialog is displayed.

Item	Description
CAL RPM	Click to perform RPM conversion.
(Channel selection)	Selects the channel to display RPM
Cross Up	Recognizes a rising waveform as a rotating pulse.
Cross Down	Recognizes a falling waveform as a rotating pulse.
Threshold Level	Determines the levels to recognize rising/falling waveforms as a rotating pulse.
Pulse per Rev.	Sets the number of pulses per rotation.
Average	Sets the number of pulses to perform averaging.

3. Click [CAL RPM] to calculate the RPM of current C1 cursor position data and display it. The target data range of RPM calculations is data within the display area.
When the C1 cursor position passes the C2 cursor in the time axis, the RPM of the C2 cursor position data is calculated and displayed.

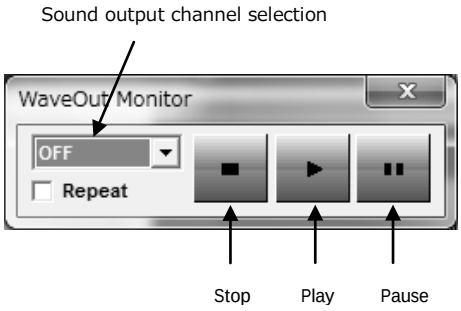
4. Drag and move the C1 cursor with the mouse and read the RPM data for each position.

5. Click  in the toolbar again to close the display.

5.5 Reproducing the PC Sound Output

Any 1ch of data or sound memo can be output as sound (WaveOut) from a PC.

1. Click  in the toolbar.



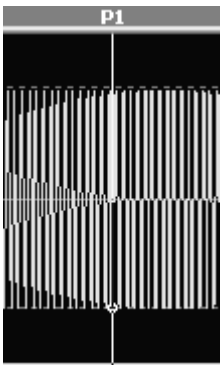
2. The <WaveOut Monitor> dialog is displayed.

Item	Description
(Channel selection)	Select any 1ch of data, a sound memo or OFF.
Repeat	Repeats the checked display section. (Turns OFF once only)
Stop button	Stops reproduction.
Play button	Starts reproduction.
Pause button	Pauses/restarts reproduction.

3. Controls sound output reproduction with the Stop/Play/Pause button.

The current position is displayed by the P1 cursor during reproduction.

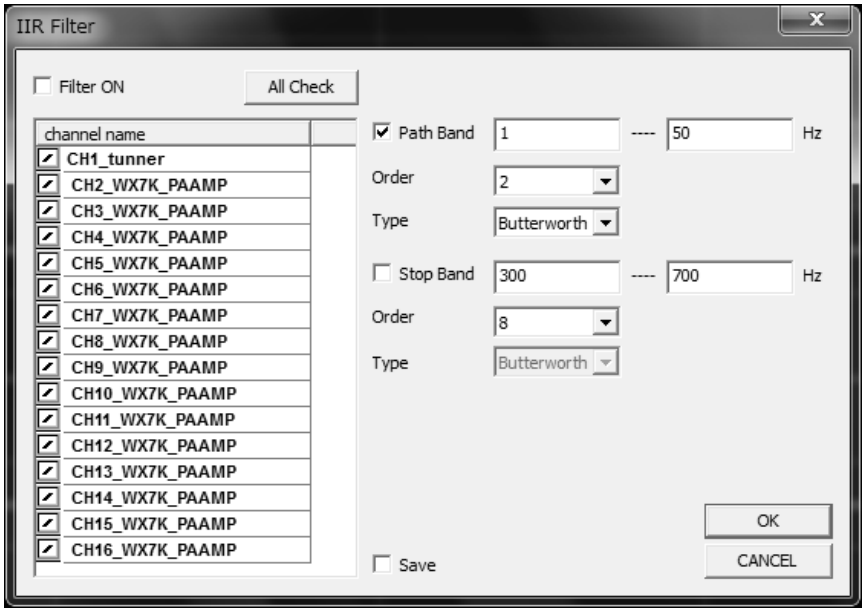
The physical value of the current position is displayed on the right per channel.



4. Click  in the toolbar again to close the display.

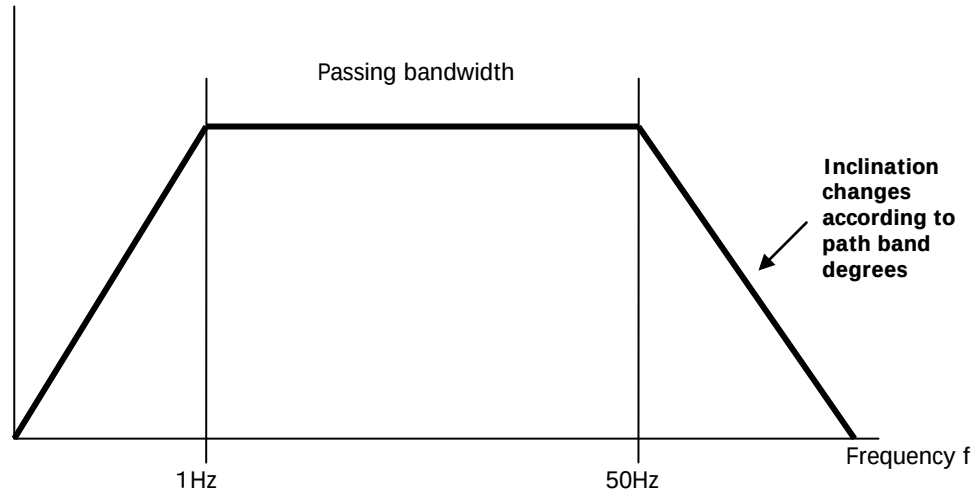
5.6 Applying the IIR Filter

Click  in the toolbar to display the below dialog.

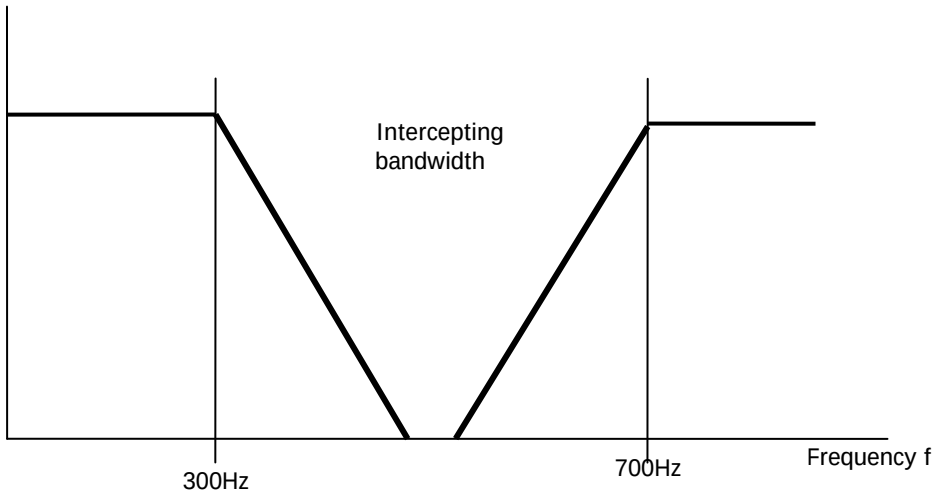


Item	Description
Filter ON	Filter operation can be executed when checked
All Check	Channel ALL Check／ALL Uncheck
Channel name list	Selects to execute the filter operation per channel.
Path Band	Path band filter (not a simple path band - combination of high path and low paths) The frequency lower limit is 0 or less → low path only The frequency upper limit is sampling frequency/2 or more → high path only Functions when checked
Order	Path band filter degrees (1 to 8, primary step)
Type	Butterworth/vessel
Stop Band	Stop band filter Functions when checked
Order	Stop band filter degrees (2 to 8, secondary step)
Type	Butterworth fixed
Save	Functions when checked Press OK button and then select file → output TAFFmat file

Path Band image



Stop Band image



- When the waveform display is shown in places apart from the top, it may take some time for the waveform to stabilize because the pre-domain operation has not been performed.
  (The waveform will be slightly distorted).
- When displaying a large volume of data, the filter will turn OFF.
- The operation results will be reflected in the FFT, X-Y and statistical operation.

Note:

TEAC CORPORATION
1-47 Ochiai, Tama-shi, Tokyo 206-8530, Japan
E-mail: tic_cs@teac.co.jp