User's
Manual

SMARTDAC+™

SMARTDAC+ STANDARD
Universal Viewer
User's Manual

YOKOGAWA
Yokogawa Electric Corporation

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Introduction

This manual explains how to use Universal Viewer. To ensure correct use, please read this manual thoroughly before beginning operation.
For details on the functions related to SMARTDAC+ series options, see also the manual for the options.

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Software Product: SMARTDAC+ STANDARD Universal Viewer

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SMARTDAC+ STANDARD Universal Viewer

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How to Use This Manual

Structure of the Manual

This manual contains five chapters.

Chapter	Title and Description
1	**Before Using the Product** Gives an overview of Universal Viewer and explains the PC system requirements for the software.
2	**Basic Operation** Explains common data file operations, such as how to start the software, how to open data files, and how to connect to data files.
3	**Displaying and Converting Data** Explains how to set display conditions of data files and how to convert data into Excel and ASCII formats.
4	**Saving and Printing Data** Explains how to save data display conditions and how to print data.
5	**Troubleshooting** Lists error messages and explains how to deal with them.

Scope of This Manual

This manual does not explain the basic operations of your PC's operating system. For this information, read the Windows user's guide or related materials.

Conventions Used in This Manual

Unit

K	Denotes 1024. Example: 768K (file size)
k	Denotes 1000.

Notes

	Improper handling or use can lead to injury to the user or damage to the instrument. This symbol appears on the instrument to indicate that the user must refer to the user's manual for special instructions. The same symbol appears in the corresponding place in the user's manual to identify those instructions. In the manual, the symbol is used in conjunction with the word "WARNING" or "CAUTION."
WARNING	Calls attention to actions or conditions that could cause serious or fatal injury to the user, and precautions that can be taken to prevent such occurrences.
CAUTION	Calls attention to actions or conditions that could cause light injury to the user or cause damage to the instrument or user's data, and precautions that can be taken to prevent such occurrences.
Note	Calls attention to information that is important for the proper operation of the instrument.

Reference Item

▶	Reference to related operation or explanation is indicated after this mark. Example: ▶ section 4.1

Conventions Used in the Procedural Explanations

Bold characters	Indicates character strings that appear on the screen. Example: **Voltage**
Procedure	Carry out the procedure according to the step numbers. All procedures are written under the assumption that you are starting operation at the beginning of the procedure, so you may not need to carry out all the steps in a procedure when you are changing the settings.
Explanation	The explanation section describes limitations and related information about the operation.

Images

The images used in this manual may differ from those that actually appear in the software. Such differences do not affect the procedural explanation.

Products That This Manual Covers*

Product	Version
SMARTDAC+ STANDARD Universal Viewer	Up to R3.18.xx

* For the types of files that can be displayed, see **section 1.1.1, "Files That Can Be Displayed and Their Extensions".**

Revision history

Edition	Explanation
1	New edition
2	Modified for version R1.02.xx. Added descriptions for the GX10, GP10, and GP20 data file display and for search data file linking. Improvements to descriptions.
3	Modified for version R2.01.xx. Added descriptions for the SMARTDAC+ GX/GP release number 2 and Data Logging Software GA10 release number 1. <Support Information>: Display condition files (.vdx), linking files (.ldx), and display templates created using old versions of Universal Viewer are supported.
4	Modified for version R2.02.xx. Added descriptions for the SMARTDAC+ GM release number 1. Improvements to descriptions.
5	Modified for version R2.03.xx. Feature additions (text comment line and the like).
6	Modified for version R2.04.xx. μR10000/μR20000: Added descriptions on how data files saved to SD memory cards (/EM1 option) are displayed. Feature additions (enhancements to file searching and the like)
7	Modified for version R2.05.xx. Added descriptions on how data files of the SMARTDAC+ GM advanced security function (/AS option) are displayed. Added descriptions for the function that allows waveforms to be simultaneously turned on and off on the waveform display window. Improvements to descriptions.
8	Modified for version R2.06.xx. Added descriptions for the SMARTDAC+ GX/GP/GM release number 3. Improvements to descriptions.
9	Modified for version R2.08.xx. Added descriptions for the SMARTDAC+ GA10 release number 3. <Support Information>: Expansion to the number of tags (Max. 4000) of GA10 is supported.
10	Modified for version R2.09.xx. Feature addition (switching the time zone for displaying GX/GP/GM and GA10 data files). Improvements to descriptions.
11	Modified for version R3.01.xx. Added descriptions for SMARTDAC+ GX/GP/GM release number 4 (dual interval measurement mode, control, etc.). Addition of a function that displays data from different files in the same window with separate time axes (superimposed display). Improvements to descriptions.
12	Modified for version R3.02.xx. Modified to accommodate the displaying and printing of data files and report files recorded with DAQLOGGER and DAQ32Plus/DAQ32. Improvement to the area for printing the cursor value dialog box in the superimposed display. Added descriptions for a function that shows and hides the time axis grid.
13	Modified for version R3.03.xx. Printout setup for multiple groups was added. Improvement was made to save the display condition file for the data file opened in the GA10 file list page in the GA10 server folder. In addition, improvement was made to make the file link target folder the GA10 server folder for Link Previous File, Link Next File, and Link All Files.
14	Modified for version R3.04.xx. Added descriptions for an improvement that allows the font size and legend position to be adjusted in waveform display printing.
15	Modified for version R3.05.xx. Added descriptions for the SMARTDAC+ GX/GP/GM release number 4 (version R4.02 (calibration correction of communication channels)).
16	Modified for version R3.06.xx. "Show/Hide" was added to the statistics dialog box.
17	Modified for version R3.07.xx. Added descriptions for the SMARTDAC+ GX/GP/GM release number 4 (version R4.06).
18	Modified for version R3.08.xx. Added descriptions for the SMARTDAC+ GX/GP/GM release number 4 (version R4.07). Added descriptions for the SMARTDAC+ GA10 release number R3.06). Added descriptions for new functions (filter for the operation log list, saving and printing of statistics results, displaying of the data file being recorded on the GA10). Other improvements.
19	Modified for version R3.09.xx. Added descriptions for the SMARTDAC+ GA10 release number R3.07).
20	Modified for version R3.10.xx. Added descriptions for the SMARTDAC+ GA10 release number R3.08). Added descriptions for new functions (Make a Learning Model, Reflect a Learning Model to the GA10, AI Analyzer). Other improvements.
21	Modified for version R3.11.xx. Support for the SMARTDAC+ GX/GP/GM release number 4 (version R4.09) (Wireless data retrieval). Support for the SMARTDAC+ GX70SM Enhanced data backup function (/DB option).
22	Modified for version R3.12.xx. Support for the SMARTDAC+ GX/GP/GM release number 5 (equipment/quality early warning detection). Added descriptions for new functions (supports Y-axis scale display dense grid)
23	Modified for version R3.13.xx. Added descriptions for the SMARTDAC+ GA10 release number R4.01. Added descriptions for new functions (Enlarged screen text size, added ±10 group feed button in group tab).
24	Modified for version R3.14.xx. Added descriptions for the SMARTDAC+ GA10 release number R4.02. Other improvements.

Edition	Explanation
25	Modified for version R3.15.xx. Support for the SMARTDAC+ GX/GP/GM release number 5 (version R5.03) (Cross realm authentication function). Other improvements.
26	Modified for version R3.16.xx. Added descriptions for new functions (Enlarged menu bar text size, Input License).
27	Modified for version R3.17.xx. Support for the SMARTDAC+ GX/GP/GM release number 5 (version R5.04) (math function extension).
28	Modified for version R3.18.xx. Added descriptions for the SMARTDAC+ GA10 release number R4.06.

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Contents

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1.1 Overview of Universal Viewer

This manual describes Universal Viewer.
You can use Universal Viewer to display on screen and print the following types of data that is generated by recorders.
- Display data files
- Event data files
- TLOG data files
- Report files (including hourly, daily, monthly, batch, and daily-custom, and free reports)
- Manual sampled data files
- Integration report file (GA10)
- Demand monitor file (GA10)

Multiple data files can be displayed simultaneously in separate windows. You can link and convert data files that are displayed.

You can include signatures (approval information) in display data files and event data files created with a recorder using the advanced security function[1] or with a DX100P/DX200P.

1 The /AS option on the GX/GP/GM, the /AS1 option on the DX1000/DX2000, etc.

1.1.1 Files That Can Be Displayed and Their Extensions

The table below shows the types and extensions of files that Universal Viewer can display.

On the tables of each device, the columns show the device's data file types, and the rows the Universal Viewer's display types (menus).
A dash indicates that the combination of the device's data file and display does not exist.

Depending on the model and the model firmware version, older versions of Universal Viewer may not be able to display data files. Update Universal Viewer to the latest version. For the procedure, see **section 1.1.4**.

GX10, GX20, GP10, GP20 [1], GM10 [2]

Display Type \ File Type (Extension)		Display Data File		Event Data File		Report Data File	Manual Sampled Data File
		*.GDS	*.GSD[3]	*.GEV	*.GSE[3]	*.GRE	*.GMN
Waveform Display		Yes		Yes		—	—
Digital Display		Yes		Yes		—	—
Circular Display		Yes		Yes		—	—
List Display	Alarm List	Yes		Yes		—	—
	Mark List	Yes		Yes		—	—
	Image Mark List	Yes		Yes		—	—
	Event List	—		—		—	—
	Control Alarm List [4]	Yes	—	Yes	—	—	—
	Control Mode List [4]	Yes	—	Yes	—		
	Operation Log List	—	Yes	—	Yes	—	—
TLOG Display		—		—		—	—
Report Display		—		—		Yes	—
Manual Sample Display		—		—		—	Yes

1 GX/GP release number 2 is supported by Universal Viewer R2.01 and later.

2 GM10 is supported by Universal Viewer R2.02 and later.

3 /AS option. Supported on Universal Viewer R2.01 and later for the GX/GP and R2.05 and later for the GM10.

4 Displayed for data files acquired by a GX/GP/GM with a PID control module installed. Supported by Universal Viewer R3.01 and later.

GA10

(Supported by Universal Viewer R2.01 and later.)

File Type (Extension) / Display Type		Display Data File	Integration Report Data File[1]	Deman Monitor Data File[1]
		*.dld	*.GRI	*.DRE
Waveform Display		Yes	—	—
Digital Display		Yes	—	—
Circular Display		Yes	—	—
List Display	Alarm List	Yes	—	—
	Mark List	Yes	—	—
	Image Mark List	—	—	—
	Event List	—	—	—
	Control Mode List	—	—	—
	Operation Log List	—	—	—
TLOG Display		—	—	—
Report Display		—	—	—
Manual Sample Display		—	—	—
Integratin Graph Display		—	Yes	—
Demand Monitor Display [2]		—	—	Yes

1 Supported by Universal Viewer R3.08 and later.

2 The displayed content is equivalent to that of the report display.

DX1000, DX1000N, DX1000T, DX2000, DX2000T, MV1000, MV2000, FX1000, FW1000

File Type (Extension) / Display Type		Display Data File		Event Data File		Report File	Manual Sampled Data File
		*.DAD	*.DSD[1]	*.DAE	*.DSE[1]	*.DAR	*.DAM
Waveform Display		Yes		Yes		—	—
Digital Display		Yes		Yes		—	—
Circular Display		Yes		Yes		—	—
List Display	Alarm List	Yes		Yes		—	—
	Mark List	Yes		Yes		—	—
	Image Mark List	—		—		—	—
	Event List	—		—		—	—
	Control Mode List	—		—		—	—
	Operation Log List	—	Yes	—	Yes	—	—
TLOG Display		—		—		—	—
Report Display		—		—		Yes	—
Manual Sample Display		—		—		—	Yes

1 /AS1 option

DX100P, DX200P

File Type (Extension) / Display Type		Display Data File	Event Data File	TLOG Data File	Report File	Manual Sampled Data File
		*.dbd	*.dbe	*.dtg	*.dhr, *.ddr, *.dwr, *.dmr	*.dmn
Waveform Display		Yes	Yes	—	—	—
Digital Display		Yes	Yes	—	—	—
Circular Display		Yes	Yes	—	—	—
List Display	Alarm List	Yes	Yes	—	—	—
	Mark List	Yes	Yes	—	—	—
	Image Mark List	—	—	—	—	—
	Event List	—	—	—	—	—
	Control Mode List	—	—	—	—	—
	Operation Log List	Yes	Yes	—	—	—
TLOG Display		—	—	Yes	—	—
Report Display		—	—	—	Yes	—
Manual Sample Display		—	—	—	—	Yes

CX1000, CX2000

File Type (Extension) / Display Type		Display Data File	Event Data File	TLOG Data File	Report File	Manual Sampled Data File
		*.cds	*.cev	*.dtg	*.dhr, *.ddr, *.dwr, *.dmr	*.dmn
Waveform Display		Yes	Yes	—	—	—
Digital Display		Yes	Yes	—	—	—
Circular Display		Yes	Yes	—	—	—
List Display	Alarm List	Yes	Yes	—	—	—
	Mark List	Yes	Yes	—	—	—
	Image Mark List	—	—	—	—	—
	Event List	Yes	Yes	—	—	—
	Control Mode List	Yes	Yes	—	—	—
	Operation Log List	—	—	—	—	—
TLOG Display		—	—	Yes	—	—
Report Display		—	—	—	Yes	—
Manual Sample Display		—	—	—	—	Yes

DX100, DX200, MV100, MV200, AX100, FX100

File Type (Extension) / Display Type		Display Data File	Event Data File	TLOG Data File	Report File	Manual Sampled Data File
		*.dds	*.dev	*.dtg	*.dhr, *.ddr, *.dwr, *.dmr	*.dmn
Waveform Display		Yes	Yes	—	—	—
Digital Display		Yes	Yes	—	—	—
Circular Display		Yes	Yes	—	—	—
List Display	Alarm List	Yes	Yes	—	—	—
	Mark List	Yes	Yes	—	—	—
	Image Mark List	—	—	—	—	—
	Event List	—	—	—	—	—
	Control Mode List	—	—	—	—	—
	Operation Log List	—	—	—	—	—
TLOG Display		—	—	Yes	—	—
Report Display		—	—	—	Yes	—
Manual Sample Display		—	—	—	—	Yes

µR10000 and µR20000 with the SD memory card (/EM1 option)

(Supported by Universal Viewer R2.04 and later.)

Display Type \ File Type (Extension)		Event Data File
		*.RXE [1]
Waveform Display		Yes
Digital Display		Yes
Circular Display		Yes
List Display	Alarm List	Yes
	Mark List	Yes
	Image Mark List	—
	Event List	—
	Control Mode List	—
	Operation Log List	—
TLOG Display		—
Report Display		—
Manual Sample Display		—

1 Measured data saved to an SD memory card (/EM1 option) on a µR10000 or µR20000.

DAQLOGGER

(Supported by Universal Viewer R3.02 and later.)

File Type (Extension) / Display Type		Display Data File	Report File
		*.mld	*.rbi
Waveform Display		Yes	—
Digital Display		Yes	—
Circular Display		Yes	—
List Display	Alarm List	Yes	—
	Mark List	Yes	—
	Image Mark List	—	—
	Event List	—	—
	Control Mode List	—	—
	Operation Log List	—	—
TLOG Display		—	—
Report Display		—	Yes
Manual Sample Display		—	—

.mld: Data file created by the logger function of DAQLOGGER.
.rbi: Report file in binary format created by the report software of DAQLOGGER.

DAQ32Plus/DAQ32

(Supported by Universal Viewer R3.02 and later.)

File Type (Extension) / Display Type		Display Data File	Report File
		*.daq	*.rbi
Waveform Display		Yes	—
Digital Display		Yes	—
Circular Display		Yes	—
List Display	Alarm List	Yes	—
	Mark List	Yes	—
	Image Mark List	—	—
	Event List	—	—
	Control Mode List	—	—
	Operation Log List	—	—
TLOG Display		—	—
Report Display		—	Yes
Manual Sample Display		—	—

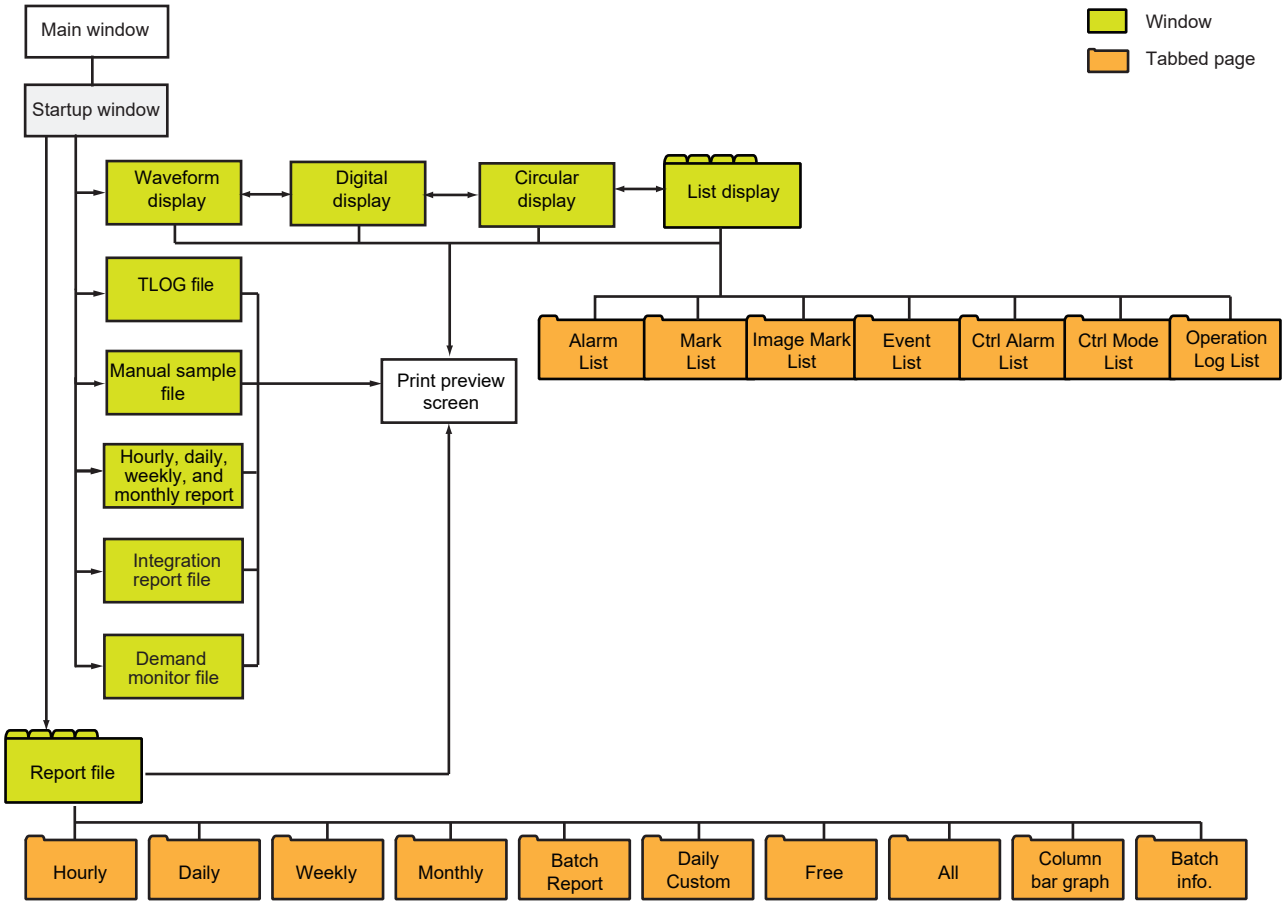
.daq: Data file created by the logger function of DAQ32 Plus R9 or later.
.rbi: Report file created by a DC100 (DR series with a report option) or report file created by the DAQ32 Plus logger.

Note

Data files created by a logger earlier than DAQ32 Plus R9 (.bfd or .Y** extension) cannot be displayed.

1.1.2 Screen Transition and Displayed Contents

The figure below shows screen transitions from the main window.
→ indicates that a new window will open, and ↔ indicates that you can move between windows.
The window that opens when you open a data file varies depending on the data type and display format.



The table below lists the different screens of Universal Viewer and what they are used for.

Window and Tab Names		Displayed Content and Format
Waveform display window		Displays data as waveforms
Circular display window		Displays data as waveforms on a circular chart
Digital display window		Displays data using digital (numeric) values
List display window	Alarm List tabbed page	Displays changes in the alarm status of recording
	Mark List tabbed page	Displays mark information that is attached to data
	Image Mark List tabbed page	Displays freehand message information that is attached to data
	Event List tabbed page	Displays information on events that occurred during recording
	Ctrl Alarm List tabbed page	Displays changes in the control alarm status of memory sampling
	Ctrl Status List tabbed page	Displays control operations that were performed during recording
	Operation Log List tabbed page	Displays operation log information in data files
TLOG file display window		Displays data in TLOG data files using digital values
Hourly, daily, weekly, and monthly report file display window		Displays data in hourly, daily, weekly, and monthly data files using digital values
Integration data display window		Displays data in integration report data files using integration bar, Integration trend

Continued on the next page

Window and Tab Names		Displayed Content and Format
Demand monitor display window		Displays demand monitor data
Report file display window	Hourly report tabbed page	Displays hourly report data in tabular format
	Daily report tabbed page	Displays daily report data in tabular format
	Weekly report tabbed page	Displays weekly report data in tabular format
	Monthly report tabbed page	Displays monthly report data in tabular format
	Batch report tabbed page	Displays batch report data in tabular format
	Daily-custom tabbed page	Displays daily-custom report data in tabular format
	Free tabbed page	Displays free data in report files
	All display tabbed page	Displays all data in report files in tabular format
	Column bar tabbed page	Displays data in report files in stacked bar graph format
	Batch information tabbed page	Displays the batch information in the batch report file
Manual sampled file display window		Displays data in manual sampled data files using digital values
Print preview screen		Displays a print preview of the data in the active window

Note

Report files are displayed in either the report file display window or the hourly, daily, weekly, and monthly report file display window depending on the recorder that generated the files.

1.1.3 Menu and Icons

Startup Menu

Menu			Explanation
File			
	Open		Opens a data file
	Search Open		Opens a data file from the search results
	Integration Data Open		Opens an integration data file
	Specify Template		Specifies a template
	Use Template		Uses a template when opening a file
	Print Setup		Sets printer options
	(Recent files)		A list of files used recently
	Exit		Closes the viewer and prompts to save the file display conditions.
View			
	Style ▶	Light	Displays the screen using a light style
		Dark	Displays the screen using a dark style
	Date Format ▶	YY/MM/DD	Displays the date in year/month/day format
		MM/DD/YY	Displays the date in year/day/month format
		DD/MM/YY	Displays the date in day/month/year format
		DD.MM.YY(S)	Displays the date in day.month.year format
		DD-MM-YY(H)	Displays the date in day-month-year format
	Month Display Form.(1) ▶	Digit(D)	Displays the month in digit format
		Character(C)	Displays the month in character format
	Decimal Point ▶	Dot	Displays decimal points with a period
		Comma	Displays decimal points with a comma
	Time Zone(U) ▶	Data	Displays time using the time zone of the data file
		PC	Displays time using the time zone of the PC
	Tool Bar		Shows or hides the tool bar
	Search Bar		Shows or hides the search bar
	Superimposed Disply Bar(J)		Shows or hides the superimposed disply bar
	Status Bar		Shows or hides the status bar
	Font Size ▶	Normal	Displays in normal size
		Large	Displays in large size (four times normal)
	Language ▶	English Japanese Simplified Chinese Traditional Chinese French German Russian Korean	Switches the language (menu commands are displayed using the original language)
Help			
	User's Manual		Opens the user's manual using Adobe Reader
	About...		Displays program information, version number and copyright
	Input License		Not used
	Update		Opens a website for updating Universal Viewer

*1 The menu type and enabled/disabled states vary depending on the window. This menu is the default menu that appears when Universal Viewer is started.

Menu That Appears When Waveforms Are Displayed

Menu		Explanation
File		
	Open	Opens a data file
	Serach Open	Opens a data file from the search results
	Integration Data Open	Opens a integration data file
	Close	Closes the opened file
	Save Display Setting	Saves the display settings (display conditions) of the opened file
	Specify Template	Specifies a template
	Use Template	Uses a template when opening a file
	Save Template	Saves the display settings (display conditions) to the template
	Link Previous File	Links the previous file and displays the result
	Link Next File	Links the next file and displays the result
	Link All Files	Links all files and displays the result
	Link Dual Interval Waveform	Links all files acquired in dual interval measurement mode and displays the result
	Print	Prints the opened file
	Print Preview	Displays a print preview
	Print Settings	Set the print method
	Pring Setup...	Set the printer options
	(Recent files)	A list of files used recently
	Exit	Closes the viewer and prompts to save the file display conditions.
Edit		
	Copy	Copies the selected range to the clipboard
	Select All	Selects all data
	Create Cursor	Clears cursors
	Search Alarm ▶ Right move cursor A	Moves cursor A to the alarm change point on the right side
	Search Alarm ▶ Left move cursor A	Moves cursor A to the alarm change point on the left side
	Search Alarm ▶ Right move cursor B	Moves cursor B to the alarm change point on the right side
	Search Alarm ▶ Left move cursor B	Moves cursor B to the alarm change point on the left side
	Search Mark ▶ Right move cursor A	Moves cursor A to the mark on the right side
	Search Mark ▶ Left move cursor A	Moves cursor A to the mark on the left side
	Search Mark ▶ Right move cursor B	Moves cursor B to the mark on the right side
	Search Mark ▶ Left move cursor B	Moves cursor B to the mark on the left side
	Append Mark	Adds a mark at the cursor position
	Delete Mark	Deletes marks in the selected area
	Reset mark	Resets marks to their initial conditions
	Append Mark Note	Adds a mark note at the cursor position
	Delete Mark Note	Deletes mark notes in the selected area
	Append text comment line	Adds a comment by specifying the time range with the cursor
	Delete text comment line	Deletes comments in the time range specified by the cursor

Menu			Explanation
TimeAxis			
	Absolute Time		Displays time using data timestamps
	Relative Time		Displays relative time from the first data entry
	All		Displays all data
	Grid(S)		Shows or hides the grid.
	Standard Grid		Displays using Standard Grid
	Dense Grid		Displays using Dense Grid1
	Dense Grid2(R)		Displays using Dense Grid2
	Dense Grid3		Displays using Dense Grid3
	Dense Grid4		Displays using Dense Grid4
	Zoom In		Zooms in on the cursor area
	Zoom Out		Zooms out from the cursor area
Y-Axis			
	Full Zone		Sets Y-axis to Full Zone
	Slide Zone		Sets Y-axis to Slide Zone
	Auto Zone		Sets Y-axis to Auto Zone
	Free Zone		Sets Y-axis to Free Zone
	Standard Grid		Displays using Standard Grid
	Dense Grid1		Displays using Dense Grid1
	Dense Grid2		Displays using Dense Grid2
	Dense Grid3		Displays using Dense Grid3
	Dense Grid4		Displays using Dense Grid4
	Y-Axis scale ▶	Fixed to standard grid	Display a scale that is fixed to the standard grid
		Linked to dense grid	Display a scale linked to a dense grid display
	Clip		Clips waveforms
View			
	Display Group Setting...		Configure display group settings
	Logging Waveform Display (H)		Displays the logging waveform by updating to the latest data
	Alarm		Shows or hides alarms
	Channel Name ▶	Channel	Displays channels with channel numbers
		Tag No	Displays channels with tag numbers
		Tag Comment	Displays channels with tag comments
	Loop(N) ▶	Loop Number	Displays loop names with loop numbers
		Tag No	Displays loop names with tag numbers
		Tag Comment	Displays loop names with tag comments
	Pattern(B) ▶	Pattern Name	Displays pattern names with user-defined names
		Pattern Number	Displays pattern names with pattern numbers
	2 Value ▶	Digits	Displays the scale value of 2-value channels numerically
		Label	Displays the scale value of 2-value channels with labels
	TRIG Mark		Displays a mark indicating the trigger position in the file
	Mark Note ▶	Normal	Displays all mark notes at normal size
		Compact	Displays all mark notes at reduced size
	Image Mark(X) ▶	Normal	Displays all image marks at normal size
		Compact	Displays all image marks at reduced size
	Image Mark Size ▶	Small	Displays image marks in small size

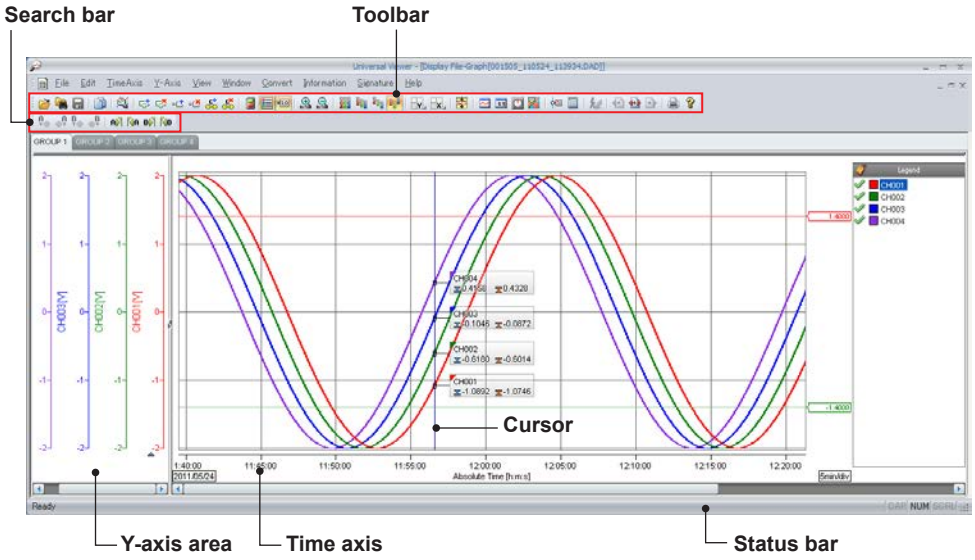
Menu			Explanation
		Normal	Displays image marks in normal size
		Large	Displays image marks in large size
	Line Thick ▶	Normal	Draws waveforms with normal lines
		Middle	Draws waveforms with middle lines
		Thick	Draws waveforms with thick lines
	Legend		Shows or hides the legend
	Legend Mode ▶	Channel	Displays the legend in channel mode
		Axis	Displays the legend in axis mode
	Cursor Value		Shows or hides cursor values
	Cursor Transparency ▶	Transparent	Displays cursor values with transparent background
		Opaque	Displays cursor values with opaque background
	Style ▶	Light	Displays the screen using a light style
		Dark	Displays the screen using a dark style
	Date Format ▶	YY/MM/DD(Y)	Displays the date in year/month/day format
		MM/DD/YY(M)	Displays the date in year/day/month format
		DD/MM/YY(D)	Displays the date in day/month/year format
		DD.MM.YY(S)	Displays the date in day.month.year format
		DD-MM-YY(H)	Displays the date in day-month-year format
	Month Display Form. ▶	Digit(D)	Displays the month in digit format
		Character(C)	Displays the month in character format
	Decimal Point ▶	Dot	Displays decimal points with a period
		Comma	Displays decimal points with a comma
	Time Zone ▶	Data	Displays time using the time zone of the data file
		PC	Displays time using the time zone of the PC
	Tool Bar		Shows or hides the tool bar
	Search Bar		Shows or hides the search bar
	Superimposed Disply Bar(J)		Shows or hides the superimposed disply bar
	Stasus Bar		Shows or hides the status bar
	Font Size ▶	Normal	Displays in normal size
		Large	Displays in large size (four times normal)
	Language ▶	English Japanese Simplified Chinese Traditional Chinese French German Russian Korean	Switches the language (menu commands are displayed using the original language)
Window			
	Cascade		Cascades windows
	Tile		Tiles windows
	Arrange Icons		Arranges icons at the bottom of the window
	Graph		Opens a waveform display window
	Sheet		Opens a sheet display window
	Circular		Opens a circular display window
	List		Opens a list display window

Menu		Explanation
	Superimposed Display	Opens a superimposed display window
	Control	Displays the value at the cursor position
	Statistics	Calculates the section specified with cursors
	File Configuration	Displays the file configuration of the displayed data
Convert		
	Data To...	Converts data
	Alarm To...	Converts alarm information data
	Mark To...	Converts mark information data
	Image Mark To...	Converts image mark information data
	Event To...	Converts event information data
	Ctrl Mode To...	Converts control mode information data
	Ctrl Alarm To...	Converts control alarm information data
	Operation Log To...	Converts log information data
	Statistics to...	Converts statistics data
AI Function *3		
	Make a Learning Model	Displays the Make a Learning Model dialog
	AI Analyzer	Displays the AI Analyzer dialog
Information		
	About Document...	Displays file information
	Setting information	Displays the setting information of the data acquisition device
Sigature		
	Apply Signature...	Applies signature to the data file
Help		
	User's Manual	Opens the user's manual using Adobe Reader
	About..	Displays program information, version number and copyright
	Input License	Not used
	Update	Opens a website for updating Universal Viewer

*2 The menu type and enabled/disabled states vary depending on the window. This menu appears on the waveform display window (except the superimposed display).

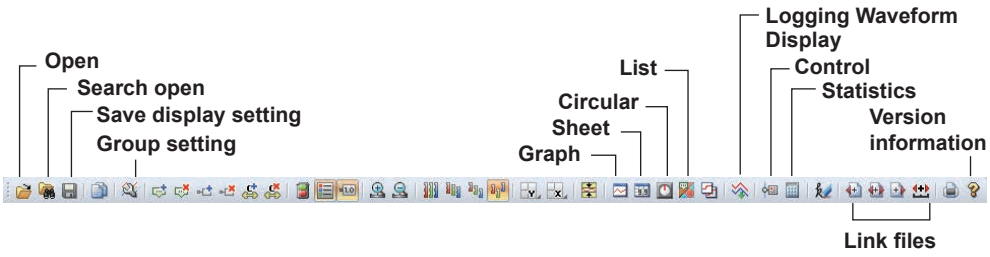
*3 Enabled when the following conditions are all met:
- GA10 is installed on the PC.
- The event data file is open.
- The displayed screen (waveform display or digital) is active.

Example of a Window Showing Waveform Data



The commands that correspond to the buttons on the toolbar, search bar, and superimposed display toolbar are described on the subsequent pages. The buttons on the toolbar correspond to the commands in the menus. If the window does not have certain menus, the corresponding buttons on the toolbar are disabled.

Toolbar



Button	Menu	Button	Menu
	File—Open		Y Axis—Auto Zone
	File—Search Open		Y Axis—Free Zone
	File—Save Display Setting		Y Axis—Standard Grid(Dense Grid 1 to 4 from pull-down)
	Edit—Copy		Time Axis—Standard Grid(Dense Grid 1 to 4 from pull-down)
	View—Display Group Setting		Y Axis—Clip
	View—Logging Waveform Display		Window—Graph
	Edit—Append Mark		Window—Sheet
	Edit—Delete Mark		Window—Circular
	Edit—Append Mark Note		Window—List
	Edit—Erase		Window—Superimposed Display
	Edit—Append text comment line		Window—Control
	Edit—Delete text comment line		Window—Statistics
	View—Alarm		Signature—Apply Signature
	View—Legend		File—Link Previous File
	View—Cursor Value		File—Link All Files
	Time Axis—Zoom in		File—Link Next File
	Time Axis—Zoom out		File—Print
	Y Axis—Full Zone		Help—About
	Y Axis—Slide Zone		

	AI Function—Make a Learning Model		AI Function—AI Analyzer

Search Bar

Button	Menu	Button	Menu
	Edit—Search Alarm—Right move cursor A		Edit—Search Mark—Right move cursor A
	Edit—Search Alarm—Left move cursor A		Edit—Search Mark—Left move cursor A
	Edit—Search Alarm—Right move cursor B		Edit—Search Mark—Right move cursor B
	Edit—Search Alarm—Left move cursor B		Edit—Search Mark—Left move cursor B

Superimposed Display Toolbar

Button	Menu	Button	Menu
	Edit—Group Assignment		TimeAxis—Align with First Data
	TimeAxis—Display Mode—Synchronous Mode		TimeAxis—Align with Time
	TimeAxis—Display Mode—Individual Mode		

When you move the cursor over a toolbar or search bar button, a tooltip will appear.
You can move, show, and hide bars as you would other standard Windows toolbars.
If, on the View menu, you click Tool Bar, A/M Search Bar, or Status Bar and turn on the command, the corresponding bar appears.
If you turn off the command, the bar disappears.

1.1.4 Installation and Version Updating

Download the latest installer from YOKOGAWA's website to install and update the software. From the Help menu, you can view the software version information and access the link to the website. Besides, before installing the software, check that your PC is not infected by a virus.

Note

There are two types of Universal Viewer: standalone installer and GA10 installer. These two types can be installed and used on the same computer even if they have different versions, but if you show data files with the old version, the display conditions and the template content may not be reflected in the display. We recommend showing data files using the latest version.

1.2 PC System Requirements

1.2.1 Hardware

PC

Item		Description
CPU	Windows 10	Intel Core2 Duo E6300 or faster x64 or x86 processor.
	Windows 11	Intel Cure i5 or faster, and 8th generation or later Intel processor.
Main memory	Windows 10	2 GB or more
	Windows 11	8 GB or mkore
Hard disk	Windows 10	100 MB or more free space (depending on the amount of data, you may need more memory)
	Windows 11	64 GB or more free space
Display		A video card that is recommended for the OS and a display that is supported by the OS.
Mouse		A mouse compatible with the OS
Keyboard		A keyboard compatible with the OS
Communication port		An Ethernet port compatible with the OS. The TCP/IP protocol must also be installed.
Printer		A printer compatible with the OS. A printer driver that is recommended for the OS.

1.2.2 Operating System

OS [1]	Edition	Service Pack	32-bit/64-bit
Windows 10	Home		32-bit edition and 64-bit edition
	Pro		32-bit edition and 64-bit edition
	Enterprise		32-bit edition and 64-bit edition
	Enterprise LTSB		32-bit edition and 64-bit edition
	Enterprise LTSC		32-bit edition and 64-bit edition
Windows 11	Home		64-bit edition
	Pro		64-bit edition
	Enterprise		64-bit edition

1 Yokogawa will also stop supporting OSs that Microsoft Corporation no longer supports.

Note

- To set the PC time zone, open Date and Time in Control Panel. However, do not change the PC time zone while Universal Viewer is running. If you do, it may affect the results of file searches based on date and time.
- By setting the PC to the same time zone (including DST) as that used for recording on the recorder, you can view data with the same time as when the data was recorded.
- If your region has daylight saving time, select the Automatically adjust clock for Daylight Saving Time check box.
- Do not use the time zone setting in autoexec.bat of Windows. If a time zone command such as “TZ=GTM0) exists in autoexec.bat, disable it by typing REM in front.
- This software cannot handle data dated after year 2037.
- You can select the format of dates displayed on the software, but when entering dates, you must use the “year/month/day) format.
- Supported OS languages are English, Japanese, simplified Chinese, traditional Chinese, French, German, Russian, Korean and Itarian. However, make sure to use the same language for the recorder (which recorded the data), this software, and OS.
- If you want to start Hardware Configurator from this software and view the operation log information, install Hardware Configurator in the same folder as this software.
  ▶ **“2.4.2 Displaying Setting Information”on page 2-22**
  “3.6.2 Starting the Hardware Configurator and Viewing Operation Logs”on page 3-66
- If you view large linked data files, processing speed may decrease depending on the CPU and RAM.
- If the PC resumes from hibernation, you may not be able to expand the viewer window. If this occurs, restart the viewer.
- Do not print more than 36500 pages at once from the PC.

- On 32-bit editions (x86), the maximum number of supported channels when displaying 32 million points is as shown in the table below.

Data Type	Channel Type	Maximum Number of Supported Channels
Display data	Math channel	4
	Measurement channel	8
Event data	Math channel	8
	Measurement channel	12

1.2.3 Other Requirements

Converting Data to Excel Format

This software can convert data to the format that can be handled by the Excel below.
Microsoft Office Excel 2016, 2019, 2021, or Office 365

Microsoft runtime and packages

If you are using R3.10.01 or later, you need the following Microsoft runtime and packages:
- Microsoft .NET 8.0 or later
- Microsoft Visual C++ 2015-2019 Redistributable

They are automatically installed when you run the installer for R3.14.01 or later, so you do not need to prepare anything in advance.

Viewing User's Manual

To view the user's manual of this software, you need to use Adobe Reader 7 or later.

1.2.4 Security Measures

To deal with security threats, we recommend that you take security measures.
- Apply restrictions to PC network connections.
  We recommend that you use an isolated network.
- Manage external media properly.
  Prevent malware intrusion through external media, unauthorized file operations on external media, and information leakage due to misplacement.
- Set a strong password and manage it properly.
  Use a password that is at least eight characters in length, and include three types of characters from uppercase letters, lowercase letters, numbers, and symbols. Change the password regularly.
- Install antivirus software.
  This software has been verified to work on a PC running McAfee VirusScan Enterprise Ver. 4.8.0.887.

Blank

2.1 Starting and Closing Universal Viewer

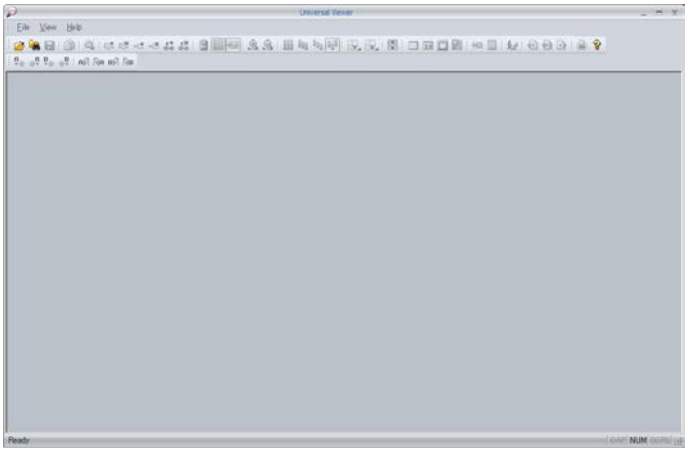
2.1.1 Starting Universal Viewer

Procedure

1. On the taskbar, click **Start**, **All Programs**, **SMARTDAC+ STANDARD** [1], and then **Viewer**.

   1 If you are using Universal Viewer on Data Logging Software GA10, click SMARTDAC+ Data Logging Software and then Viewer.

   Universal Viewer starts. (No data is displayed initially.)



On Windows, you can associate data files to Universal Viewer so that when you double-click a data file, the file opens in Universal Viewer.

2.1.2 Setting General Display Options

Changing the Style

To change the screen color, on the **View** menu, click **Style** and then **Light** or **Dark**. The default setting is **Light**.

The style cannot be changed in some windows and dialog boxes.

Changing the Date Format

You can change the date display format to one of the five types below. To do so, on the **View** menu, click **Date Format**.

- YY/MM/DD
- MM/DD/YY
- DD/MM/YY
- DD.MM.YY
- DD-MM-YY

Changing the Month Display Format

You can change the month display format from the following. To do so, on the **View** menu, click **Month Display Form**.

- Digit (Example: “10” for October)
- Character (Example: “OCT” for October)

Decimal Point

To change the decimal point character in Universal Viewer, on the **View** menu, click **Decimal Point**.

Tool Bar, Search Bar, and Status Bar

To show or hide the bars, on the View menu, click **Tool Bar**, **Search Bar**, or **Status Bar**.

Tool bar and Search bar : ▶ page 1-14

Language

You can change the Universal Viewer's user interface language by clicking **Language** under the **View** menu.

Note

- Before changing the Universal Viewer language, close all files that are open.
- Make sure to use the same language for the recorder (which recorded the data), this software, and OS.

2.1.3 Closing Universal Viewer

Procedure

1. On the **File** menu, click **Exit**. Or, click the **×** button.
   If you have changed the settings, the message "Save changes to *file name*.***?" appears.

To save the settings, click **Yes**. Otherwise, click **No**.

2.2 Opening a Data File

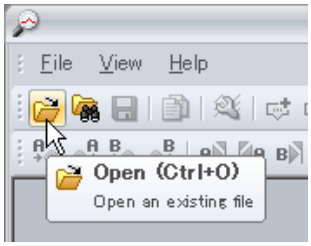
On Universal Viewer, you can use any of the following methods to open a data file.
- Specify a file name and open the data file
- Drag a data file to open it
- Open a data file from search results

2.2.1 Specifying a File Name and Opening the Data File

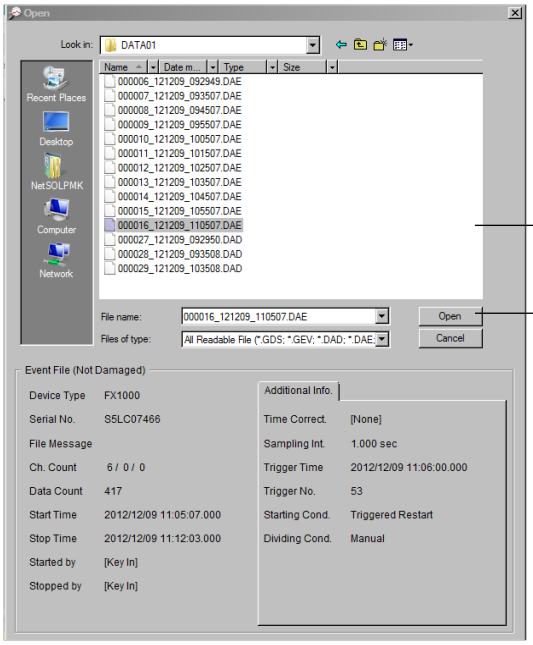
In the Open dialog box, specify the file name, and open the data file.

Procedure

1 On the **File** menu, click **Open**. Or, click **Open** on the toolbar.



The Open dialog box appears.



Select the data file to display.

Click here. The file will open.

2 In the dialog box, select the file you want to open, and click **Open**. Or, double-click the file.

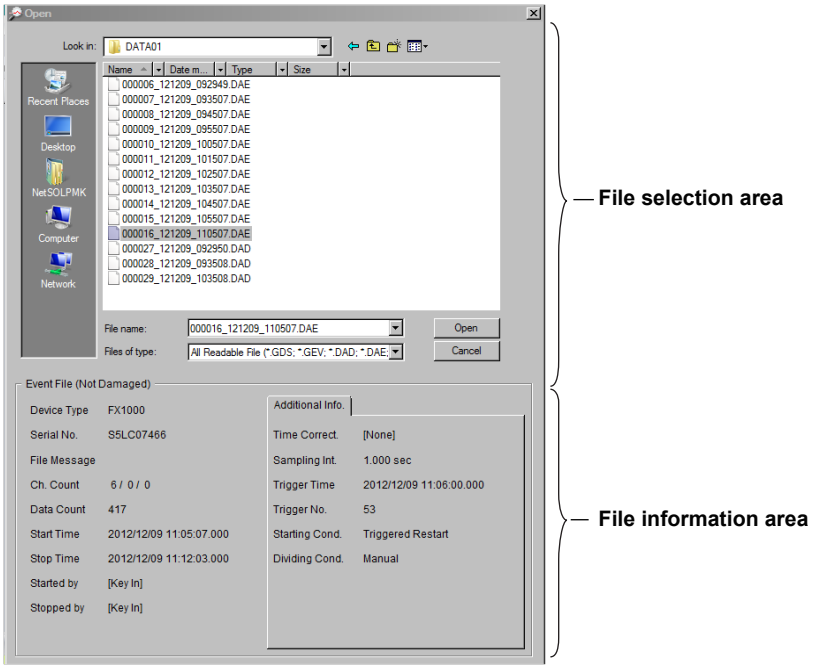
The data appears in the window.

Note

- Link information files (.ldx extension) and display condition files (.vdx extension) of Universal Viewer cannot be opened by themselves. To display files using the conditions saved in a condition file, the “original data file” must be present in the same folder as the condition file.
- A superimposed display condition file (.ovd extension) can be double-clicked to reproduce the superimposed display.

Explanation

The Open dialog box consists of the file selection area (top half) and the file information display area (bottom half).



File Selection Area

The file selection area has the same structure as a standard Windows open dialog box. The available data file options are shown below.

Option	Description
All Readable File (*.GSD; *.GSE; *.GDS; *.GEV; *.dld; *.DAD; *.DAE; *.DBD; *.DBE; *.DSD; *.DSE; *.dds; *.dev; *.cds; *.cev; *.RXE; *.mld; *.daq; *.dtg; *.ldx; *.GRE; *.d?r; *.GMN; *.DAM; *.dmn; *.rbi; *.GRI; *.DRE)	Displays all loadable files
Display File (*.GSD; *.GDS; *.DAD; *.DBD; *.DSD; *.dds; *.cds)	Displays only display data files
Event File (*.GSE; *.GEV; *.dld; *.DAE; *.DBE; *.DSE; *.dev; *.cev, *.RXE; *.mld; *.daq;)	Displays only event data files
Logger File (*.dld; *.mld; *.daq;)	Displays only Logger data files
TLOG File (*.dtg)	Displays only TLOG data files
Link File (*.ldx)	Displays only connection information data files
Report File (*.GRE; *.d?r; *.rbi; *.GRI; *.DRE)	Displays report files or hourly, daily, weekly, monthly data files, Integration data files (/WH) and demand monitor data files (/WH)
Manual Sample File (*.GMN; *.DAM; *.dmn)	Displays only manual sampled data files
Superimposed Display File (*.ovd)	Displays only superimposed display condition files
All File (*.*)	Displays all files in the folder

File Information Area

The file information display area shows information about the selected file. You can also view the detailed information of the data file in the File Information dialog box.

▶ Viewing Data File Information (**section 2.4**)

Note

- The information displayed in the information display area of the Open dialog box varies depending on the data file type.
- If you type a file name, the file information will not be displayed.

2.2.2 Dragging a Data File to Open It

You can open a data file by dragging the file to the Universal Viewer window.

Procedure

1. From the desktop or Explorer, drag the data file that you want to view in the main window.

   The data appears in the window.

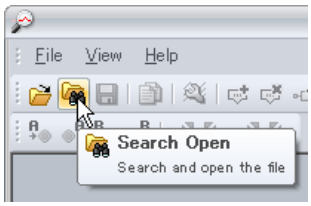
2.2.3 Opening a Data File from Search Results

In the Search Open dialog box, search for the data file, and open it.
You can specify the following search conditions.

- Search by time period
- Seach by mark (message)
- Search by channel number, tag number, or tag comment
- Search by batch name
- Search by batch comment
- Search by batch text
- Search by signin status

Procedure

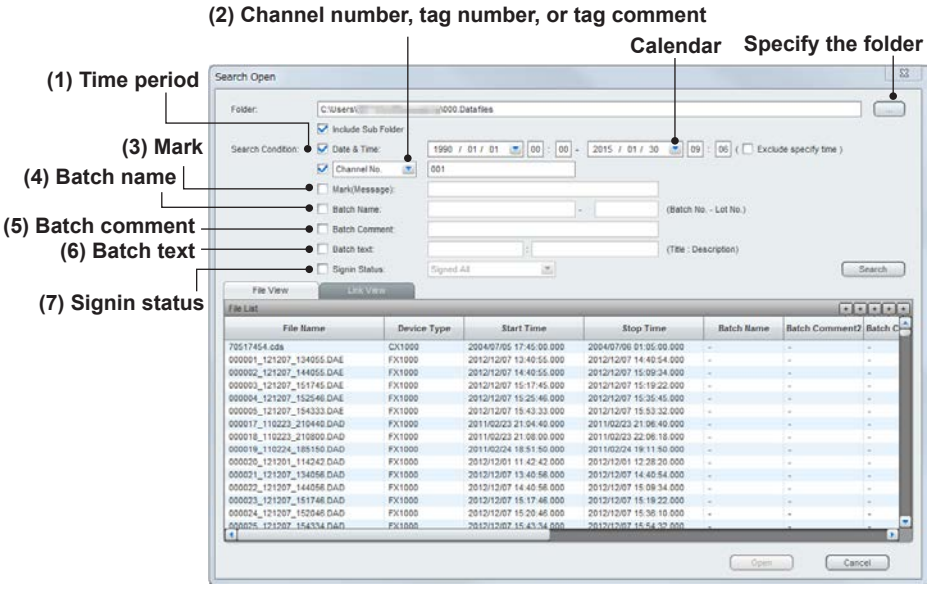
1. On the **File** menu, click **Search Open**. Or, click **Search Open** on the toolbar.



The Search Open dialog box appears.

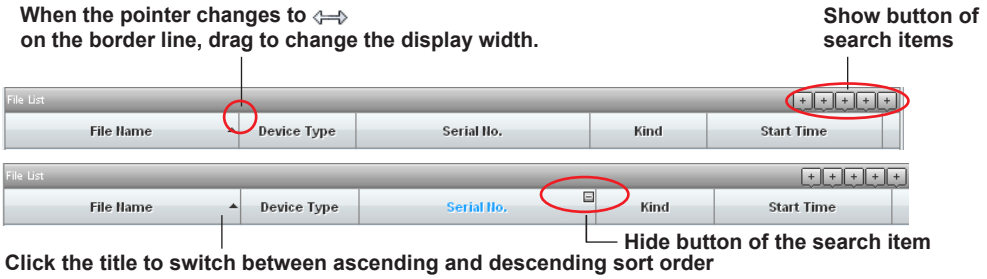
2. Specify the search conditions (1 to 7), and click **Search**.

   For details on search conditions 1 to 7, see **"Search Conditions" on page 2-12**.



On the File View tabbed page and Link View tabbed page, search results are displayed in respective groups (in groups of files and linked files).
If there is no folder in the search range, the error "No such folder" will appear.

3 If you want to adjust the search result display, carry out the following operation.



- Move the cursor over a display button to show the item title in a tooltip. Click the button to display the corresponding search results.
- If you move the cursor over a title, a hide button appears. Click it to hide the item. You cannot hide the File Name.
- If you click an item title, a sort icon will appear. Click it to change the sort order between ascending and descending.

4 From the search results, double-click the file you want to open; or select the file, and click **Open**.

The data appears in the window.

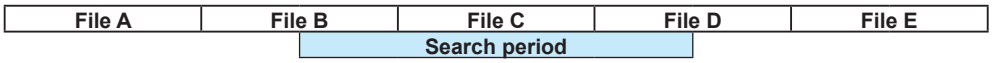
Explanation

Search Conditions

(1) Searching by Time Period

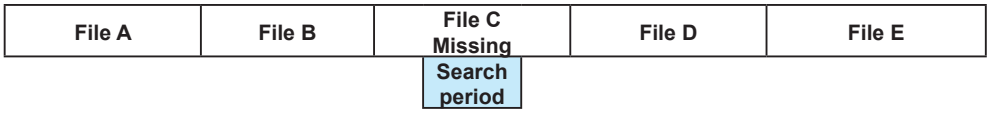
You can specify a search period to perform the search.
You can specify dates by clicking the arrow and using the calendar that appears or selecting and entering the numbers directly.
The selectable range is from “1990/01/01 00:00” to “2037/12/31 23:59.”
When you specify a period, if any section of a file overlaps with the search period, the file appears in the search results. For details on the search operation when the Exclude specified time check box is selected, see example 5.
Below are several examples for different search periods.

Example 1. When consecutive data files A to E all exist



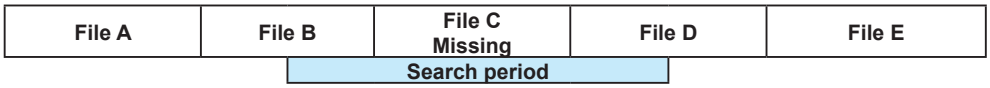
Files B, C, and D will appear on the file view tabbed page.
If the files are linked, files A to E are detected as a single unit and displayed on the link view tabbed page.

Example 2. When a portion of the linked files does not exist and the search period is within that portion



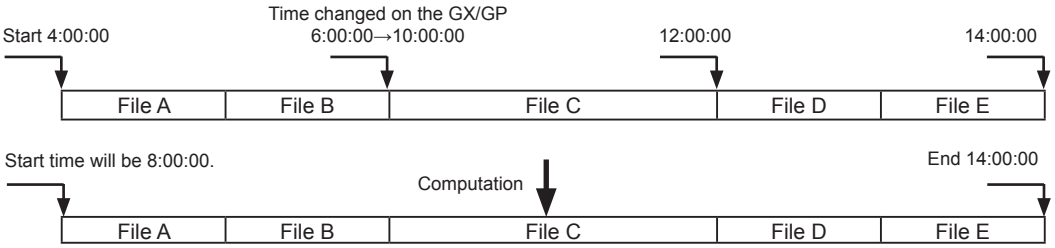
No files are displayed on the file view tabbed page.
If the data files are linked, no file links are displayed on the link view tabbed page.
However, in the case of a batch file, files A to E are detected as a single unit and displayed on the link view tabbed page.

Example 3. When a portion of the linked files does not exist and the search period includes that portion



Files B and D, which overlap the search period, are displayed on the file view tabbed page. If the files are linked, the unit consisting of files A and B and the unit consisting of files D and E are displayed on the link view tabbed page. In the case of a batch file, files A to E are detected as a single unit and displayed on the link view tabbed page.

Example 4. If the time was changed in the middle of recording



If the time on the recorder was changed during recording, the timestamps of data entries are calculated in reference to the last data entry position. As shown above, if the time is changed from 6:00:00 to 10:00:00, the original timestamps from 4:00:00 to 6:00:00 are assumed to be 8:00:00 to 10:00:00. These timestamps are used in the search, so if you set the search period as 5:00:00 to 6:00:00, nothing will be detected. If you set the search period as 8:00:00 to 9:00:00, files will be detected and displayed on the link view tabbed page.

Example 5. If the Exclude specified time check box is selected

If you specify a time range from 8:00 to 10:00, a file whose stop time is 8:00 or a file whose start time is 10:00 is not included in the search result.

(2) Searching by Channel Number, Tag Number, or Tag Comment

From the list box, select Channel No., Tag No., or Tag Comment, and then enter the character string you want to search for. Data files that contain the string will be displayed in the search results.
You cannot specify a character string that includes a space.

(3) Searching by Mark (Message)

Select the Mark (Message) check box, and enter the character string you want to search for. The first 70 characters of the string are valid. The search string is not case sensitive. Spaces, even if entered, are ignored. When a search is executed, data files in which the search string is included are displayed. Only the marks that have been entered on the recorder (the device that created the file) can be searched. Marks added on the viewer are not searched.

(4) Searching by Batch Name

Select the Batch Name check box, and enter the batch number and lot number.
You can also search by specifying only the batch number or only the lot number. If you select the check box and leave both the batch number and lot number blank, data files that include batch information will be displayed in the search results.

(5) Searching by Batch Comment

Select the Batch Comment check box, and enter the search character string. The first 96 characters of the string are valid. Spaces, even if entered, are ignored.
When a search is executed, data files in which the search string is included in batch comments 1, 2, or 3 are displayed. The search result displays columns for batch comments 1, 2, and 3.

(6) Searching by Batch Text

Select the Batch Text check box, and enter the search character string. The first 23 characters of the title and 96 characters of the description are valid. Spaces, even if entered, are ignored. The search string is not case sensitive.

Note

You can view batch information and batch text by selecting **About Document** from the **Information** menu. ▶ **section 2.4.1, "Displaying File Information"**

(7) Searching by Signin Status

Of the data files that include signature information, data files with the selected signin statuses are searched. From the list, select the signin status you want to search for.
The available options and their descriptions are shown below.

Option	Description
1No sig.	Files without Signature 1
2No sig.	Files without Signature 2
3No sig.	Files without Signature 3
None signed	Files without Signature 1, Signature 2, or Signature 3
Signed	Files with Signature 1, Signature 2, or Signature 3
Signed All	Files with Signature 1, Signature 2, and Signature 3

When the search is performed in units of file links, file links whose last file meets the search conditions are detected.

Displaying Search Results

In the Search Open dialog box, search results are displayed on two tabbed pages.

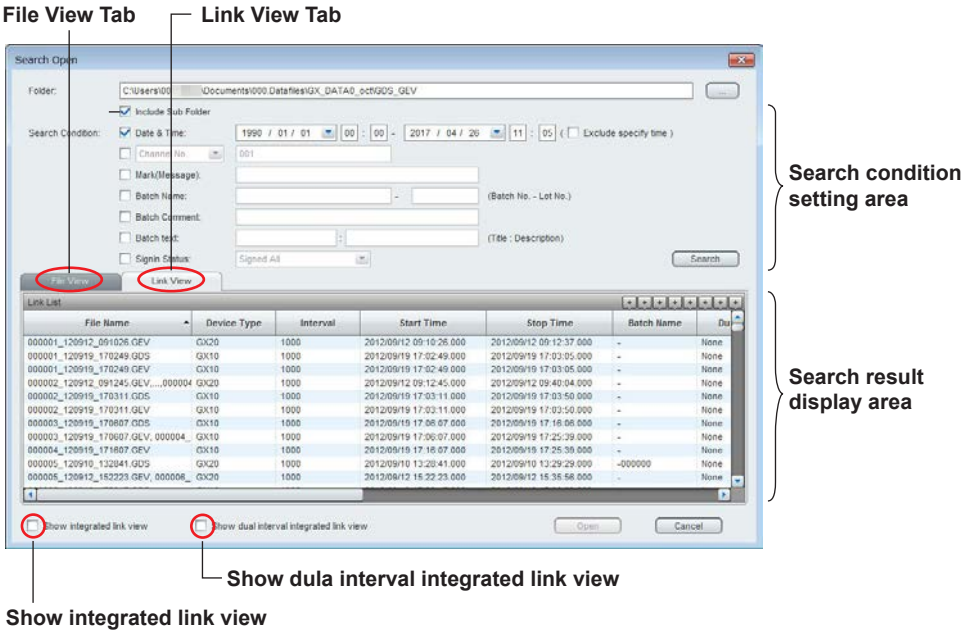
File View Tabbed Page

Search results are displayed at the file level.

Link View Tabbed Page

Search results are displayed at the file link level.* Files are searched separately, and then linkable files are linked and displayed.

*: A “file link” means a set of data files that are linked and treated as one unit.



- If you select Show integrated link view, files are linked first, then search conditions are applied, and the result is displayed.
- If you select Show dual interval integrated link view, files measured in dual interval mode are also linked and displayed.

Note

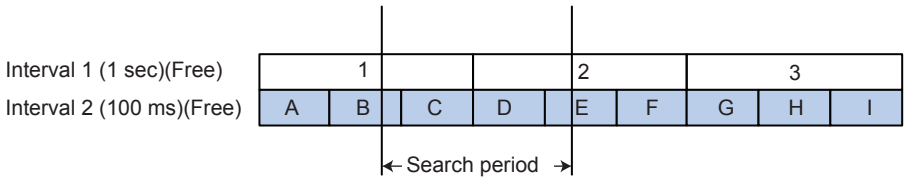
- Show integrated link view and Show dual interval integrated link view can be turned on and off separately.
- Files can be linked only within the same folder.
- There are three types of data files measured in dual interval measurement mode depending on the combination of the recording mode: Free+Free, Free+Trigger, and Trigger+Trigger. This software can only recognize Free+Free files as “file pairs measured in dual interval measurement mode.

Search Results of Show Dual Interval Waveform Integrated Link View

If you select Show dual interval integrated link view, data files acquired in dual interval measurement mode are linked and displayed.

Here we assume the following files are searched and show examples of displayed results.

- Files 1 to 3 acquired at interval 1 and files A to I acquired at interval 2 are in the same folder.
- The search range is between files 1 and 2.



- The number of data points in files and start and end times are as shown in the following table.

File Name	Interval	Data Count	Start Time	Stop Time
1.GSD,..,3.GSD	1sec	10800	2015/12/25 10:00:00	2015/12/25 13:00:00
A.GSD,…,I.GSD	100msec	108000	2015/12/25 10:00:00	2015/12/25 13:00:00

When Show dual interval waveform integrated link view is set to off

The search result list is displayed as follows:

File Name	Data Count	Interval	Start Time	Stop Time
1.GSD,..,2.GSD	7200	1sec	2015/12/25 10:00:00	2015/12/25 12:00:00
B.GSD,..,E.GSD	48000	100msec	2015/12/25 10:20:00	2015/12/25 11:40:00

When Show dual interval waveform integrated link view is set to on

Files 1 and 2 from interval 1 and files B to E from interval 2 are paired. Search results are consolidated and displayed in a single row. In this example, the search start time is the start time of file 1 and the search end time the end time of file 2.

File Name	Data Count	Interval	Start Time	Stop Time
1.GSD,…/B.GSD,…	—	1sec/100msec	2015/12/25/ 10:00:00	2015/12/25 12:00:00

If you double-click this list and display it, files 1 and 2 are linked, files B to files E are linked, and they are displayed as waveforms in separate windows.

When Show dual interval waveform integrated link view and Show integrated link view are both set to on

If Show integrated link view is also selected at the same time, the search result is displayed as follows:

File Name	Data Count	Interval	Start Time	Stop Time
1.GSD,…/A.GSD,…	—	1sec/100msec	2015/12/25 12:00:00	2015/12/25 13:00:00

If you double-click this list and display it, files 1 and 3 are linked, files A to files I are linked, and they are displayed as waveforms in separate windows..

The table below shows the displayed search result items and their details. Descriptions in brackets are the displayed contents when Show dual interval waveform integrated link view is selected.

Display Item		Display Details	Description
File Name		File name including the extension. [File name with the beginning of the interval 1 file name and the beginning of the interval 2 file name concatenated]	For linked files in dual interval measurement mode, the file names are displayed as follows: 1.GSD,.../2.GSD,...
Model		Model that sampled the data	
Serial No [1]		Serial number of the instrument that sampled the data	
Type [1]		Display or event	Data file type
Interval		Interval [Interval 1, Interval 2]	
Process Type [1 3]		Batch, Continuous, —	Recording process A dash is displayed if there is no information.
Data Count [1]		Data count	The number of data entries from the first data entry of the first file to the last data entry of the last file. This includes power-failure data entries and missing-file data entries. However, data entries of missing files at the front and end are not counted.
Start Time		Data start time	Displays the time of the first data entry of the first file. [Displays the earlier of the start times of interval 1 and interval 2]
Stop Time		Data stop time	Displays the time of the last data entry of the last file. [Displays the later of the end times of interval 1 and interval 2]
Batch Name		Batch name	A dash is displayed if there is no batch information. [Displays the batch name if the batch names are the same or a dash if they are not]
Batch Comment [1]		Batch comments 1, 2, and 3 that include the specified character string are displayed	
Status [1]		Data file status (normal or error)	If the file is corrupt or the data is erroneous, an error is displayed. [Displays an error if either interval file is in error]
Duplicate [2]		Yes or no	Displays whether there are duplicate files. [Displays “Yes” if either interval file has duplicate files]
File Missing [2]		Yes or no	Displays whether there are missing files in the batch. [Displays “Yes” if either interval file has missing files]
Signin Status	Signature 1 Signature 2 Signature 3	No sig., pass, fail, or “—” [—]	No sig.: Not signed. Pass: Signature result is pass. Fail: Signature result is fail. —: No signature information
	Sig. 1 User Name Sig. 2 User Name Sig. 3 User Name	User name, or “—” [—]	Displays the user name if already signed. Displays a dash if there is no signature information.

1 Not displayed by default.
2 Displayed only on the link view tabbed page.
3 In GX/GP, “Process Type” is called “Sign in type,” and “Continuous” is called “File.”
4 Dual interval measurement mode and advanced security function cannot be used simultaneously. As such, dual interval files do not contain signature information.

Note

- If a time change occurs in a data file, it may not appear in the search results. For details, see “**Search Conditions” on page 2-11**.
- Linking selected files: ▶ **“2.3 Linking Data Files”**

Displaying Consecutive Data That Exceeds 32 Million Points

Universal Viewer cannot display consecutive data that exceeds 32 million points (e.g., a data file sampled at 1 second intervals over one year) in the same window.
If you open such data from the search results, the data is automatically divided according to the following conditions and displayed in multiple windows.

- The first division contains data from the first file up to the file that results in a number of points as close as possible to, but not exceeding, 32 million points. The number of data points in this calculation includes those of missing files and those during power-failure periods.
- In the first division, when the 32 millionth point falls on a power-failure period, the end of the file before the file containing this power-failure period will be the break point.
- In the second division, the file or the missing file following the first division will be used as the first file in the division. From this point, the above rule is applied repeatedly.

Note

- The divided pieces of data are displayed in order from the last piece.
- If there is not enough RAM on the PC, a portion of the data may not be displayed.

2.3 Linking Data Files

Files that have been divided by recorders' auto-save feature or due to power failures can be linked for display. * There are two ways to link files. One is to use the menu bar or toolbar. The other is to use the File Configuration dialog box.

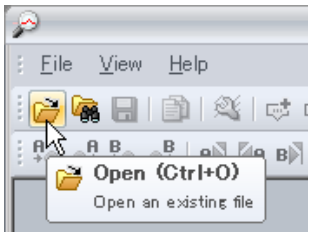
*: Files whose recording was stopped cannot be linked.

2.3.1 Linking Files Using the Menu or Toolbar

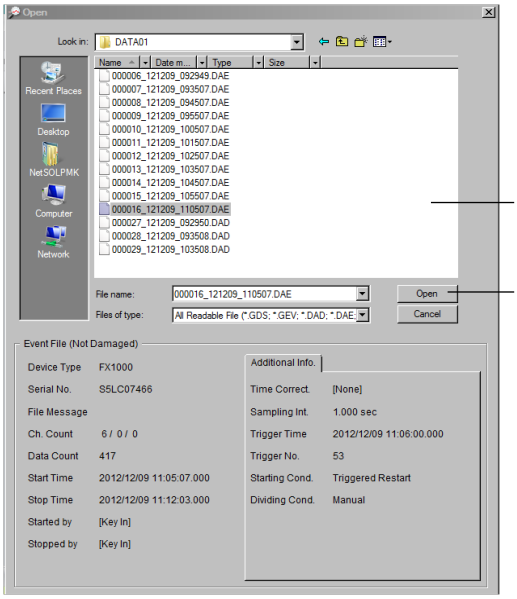
You can use menu commands or buttons on the toolbar to link data files.
Only the files in the same directory can be linked.

Procedure

1 On the **File** menu, click **Open**. Or, click **Open** on the toolbar.



The Open dialog box appears.

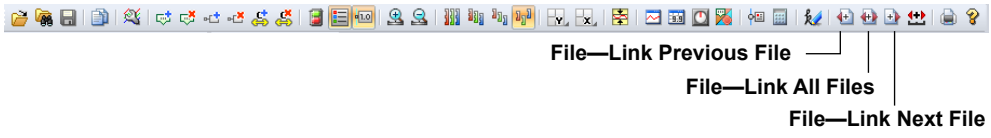


2 In the dialog box, select the first data file that you want to link, and click **Open**.
Or, double-click the file.

The data appears in the window.

3 From the **File** menu, click **Link Previous File**, **Link Next File**, or **Link All Files**. Or, on the toolbar, click on one of the following buttons.

Link Previous File: Links the file before the currently displayed file
Link All Files: Links all the files before and after the currently displayed file
Link Next File: Links the file after the currently displayed file



The files will be linked together.

Link Dual Interval Waveform

Paired data files with different intervals using the dual interval measurement mode (GX/GP/GM) can be linked with all previous and subsequent files and displayed in two windows. The second window is displayed using the display format of the file displayed earlier (waveform, digital, circular, or list).

Procedure

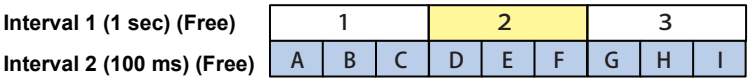
1 Select the first data file that you want to link, and click Open. Or, double-click the file.
The data appears in the window.

2 On the File menu, click Link dual interval waveform. Or, click the  button.
A separate window opens, and the files of the other half of the pair are displayed.
The files are displayed in the same format as the first file (file opened earlier).

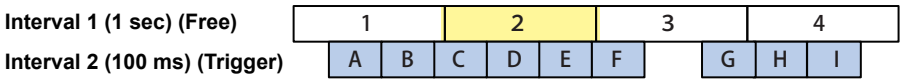
Explanation

There are three types of data files measured in dual interval measurement mode depending on the combination of the recording mode: Free+Free, Free+Trigger, and Trigger+Trigger. This software can only recognize Free+Free files as “dual interval file pairs.”
Link dual interval waveform is described using the following three examples. We assume the first data file is file 2 of interval 1.

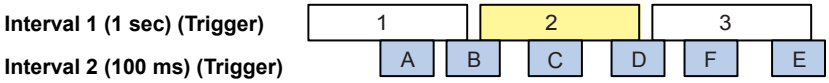
1. Files 1 to 3 and also files A to I are linked and displayed in separate windows. Even if any of the files from A to I is missing, the files are linked and displayed.



2. Files 1 to 4 are linked, but because “Free+Trigger” was used to acquire data, files A to F and G to I are not considered the other half of the pair and are not displayed.



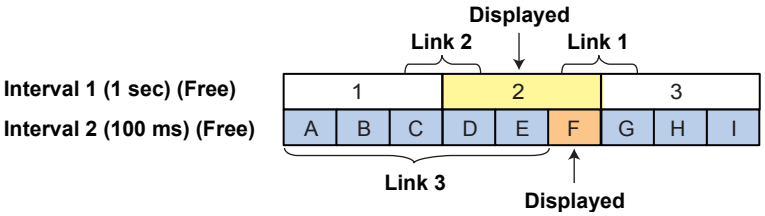
3. Because there are no files that can link to file 2, no files are linked. And because “Trigger+Trigger” was used to acquire data, the files of the other half are not displayed either.



When Link All files or Link dual interval waveform is in use, files before the first file are linked with the following precedence.

- File after the start file to the last file are linked.
- File before the start file to the last file are linked.
- When Link dual interval waveform is in use, files in the other half of the pair are linked from the beginning to end. However, if a file in the group of files in the other half is already displayed, the display ends before that file. (See 4 on the next page.)

4. When file 2 and file F are open, if Link dual interval waveform is performed from file 2, file 3 and then file 1 are linked. Then, files A to E of the other half of the pair are linked, file F, which is already displayed, is activated, and the link operation ends.



2.3.2 Linking Files from a Dialog Box

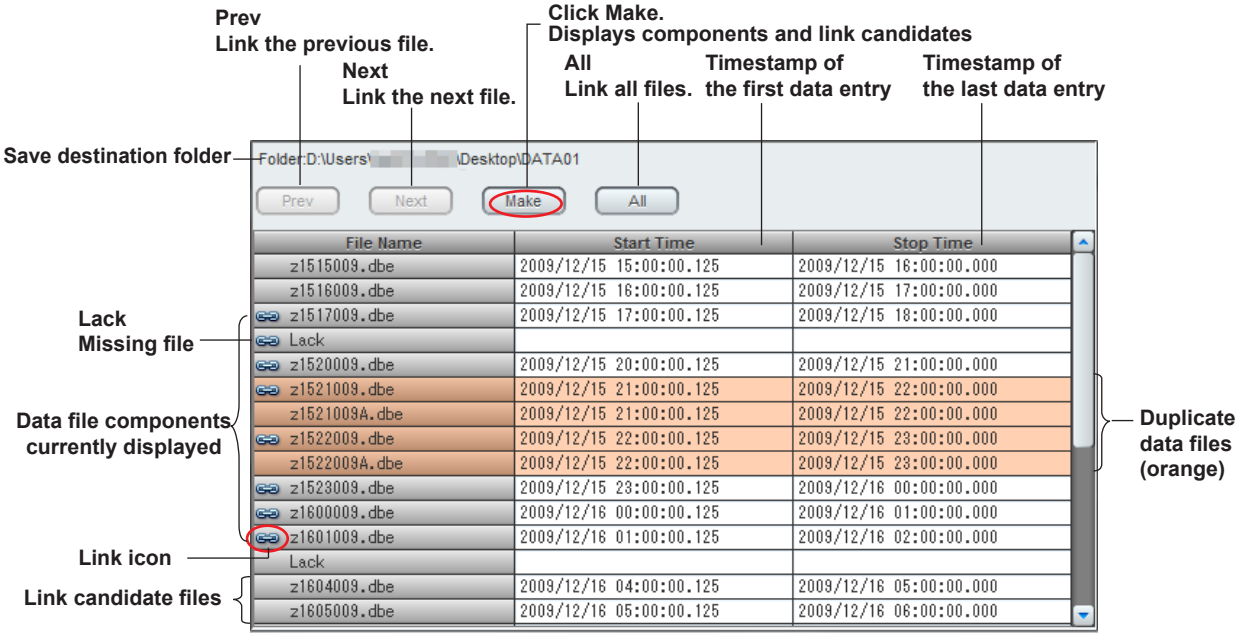
You can link data files using the File Configuration dialog box.
You can link previous and subsequent data files while looking at the status of the displayed data file.
If a file is displayed via GA10, the display target file configuration is the data folder on the server side. Files on the GA10 server side are downloaded to a temporary folder and displayed, but the folder is deleted when the viewer is closed.

Procedure

1 Open the first file that you want to link.

From the **Window** menu, click **File Configuration**.

The File Configuration dialog box appears.
Link icons are displayed next to the files that comprise the data file that is currently displayed.



2. Click **Make**.

The link candidate files is displayed.

3 Click **Prev**, **Next**, or **All** to link the appropriate files.

Prev: Links the previous file
Next: Links the next file
All: Links all files

The relevant files will be linked together.

Explanation

The File Configuration dialog box shows the folder containing active data files and the information of those files.

File Configuration

The background of the names of active data files is gray, and link icons are shown next to the names.

Duplicate Data Files

You can identify duplicate data files in the same folder (files with different names that contain the same data).
The background of the names of duplicate data files is orange.

Missing Data Files

You can identify which data files are missing from the set of data files that is currently displayed.
The names of missing data files are indicated as “Lack,” and the background is gray.
Information about how many files make up a missing section is not displayed.
Information about missing data files before and after the set of data files that is currently displayed is not displayed.

Candidate Data Files for Linking

Candidate data files that can be linked to the set of data files that is currently displayed are displayed. The background of the names of candidate data files is gray. Link icons are not displayed.
Candidate files are those that meet the following conditions.

- The data file is a component of a single recording data file that is also composed of the data files that are currently displayed.*
- There will be no missing data when the data file is linked.
- The recording data file is in the same folder as the data files that are currently displayed.

*: A single recording data file is composed of data files that are created through one recording session (from recording start to recording stop). Files whose recording was stopped cannot be linked.

Linking Data Files

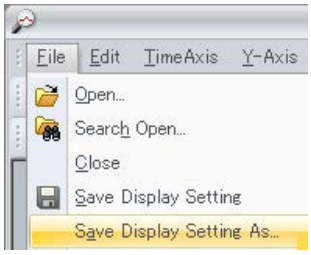
You can link data files by linking the previous file, linking the next file, or linking all files.
When you link the previous file, the file containing data before the active data is linked.
When you link the next file, the file containing data after the active data is linked. When you link all files, all candidate data files are linked.

2.3.3 Saving Link Information Files

You can save the link information of the linked data files that are currently shown.

Procedure

1. After linking data files in the File Configuration dialog box, from the **File** menu, click **Save Display Setting As**.



A Save As dialog box appears.

2. Click **Save**.

The link information file is saved in the same folder as the individual files.
The file name will be the original file name with the .ldx extension. You can also specify a different name to save the file.

Note

- Files with the .ldx extensions contain link information and display conditions. To open the files again in a linked condition, the original data files must be in the same folder as the link information file.
- If there are missing files in the middle of a batch data file, you cannot save the link information file.
- To save the link information file, use the Save Display Setting As command. Using Save Display Setting will not save the link information file (*.ldx).
- For details on saving display conditions, see **section 4.1, "Saving Display Conditions"**.

2.4 Viewing Data File Information

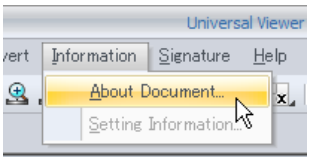
You can view information on active data files by selecting **About Document** from the **Information** menu. You can also specify the header information that is printed.

▶ "4.3 Printing" on page 4-6

2.4.1 Displaying File Information

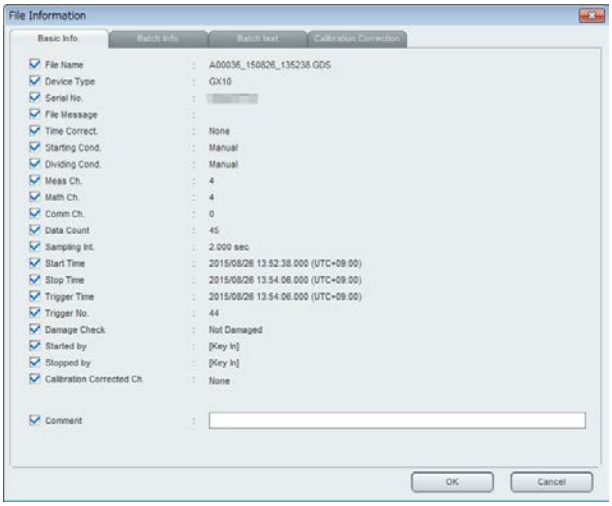
Procedure

1 On the **Information** menu, click **About Document...**.



The Basic Information tabbed page of the File Information dialog box appears.

Display Data File or Event Data File

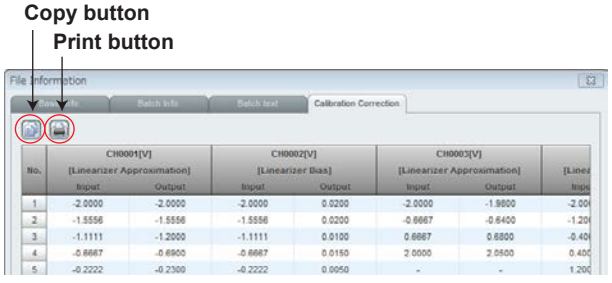


Copying Calibration Correction Settings to the Clipboard

This operation is performed on the Calibration Correction tab.

2 Click the Copy button.

The settings on the Calibration Correction tabbed page are copied to the Clipboard in text format. You can paste it to another application and use it.



Printing the Calibration Correction Settings

This operation is performed on the Calibration Correction tab.

3 Click the Print button.

The settings on the Calibration Correction tabbed page are printed.

Explanation

The File Information dialog box consists of multiple tabbed pages.
The following tabbed pages appear only when there is information to be displayed.

- Batch Info. tabbed page
- Batch text tabbed page
- Signature Info. tabbed page
- File Comment tabbed page
- Calibration Correction tabbed page

On each tabbed page, items that do not have information to display are hidden, and subsequent items are shifted up.
On each tabbed page, items whose check boxes are selected will be used as headers in printouts.

Items on the Basic Information Tabbed Page

Item	Description	
File Name	File name	
Process Type [1]	Process type during recording (batch, continuous)	
Device Type	Model that sampled the data	
Serial No.	Serial number of the instrument that sampled the data	
File Message	File message that was added during recording	
Time Correction	Whether the time was corrected during recording	
Starting Cond.	Start conditions for recording (manual, restart after blackout, auto, triggered restart, running, over write, FPGA error, CPU error, unknown)	
Dividing Cond.	End conditions for recording (manual, black out, auto, triggered stop, running, data count, interrupted, FPGA error, CPU error, unknown)	
Meas Ch.	Number of measurement channels on the instrument that sampled data	
Math Ch.	Number of math channels on the instrument that sampled data	
Ctrl Ch.	Number of control channels on the instrument that sampled data	
Ext. Ch.	Number of extension channels on the instrument that sampled data	
Comm Ch.	Number of communication channels on the instrument that sampled data	
Data Count	Data count	
Sample Int.	Sample interval (s)	
Start Time	Start time of recording	For data files recorded on the GX/GP/GM/GA10, time zone information is shown in parentheses.
Stop Time	Stop time of recording	
Triggered Time	Time of trigger	
Trigger No.	A relative number of the data at the triggered time in reference to the first data entry of the first file (if there are missing files in the middle of a batch file, the data entries in the missing sections are counted)	
Damage Check	Data file status (normal, error)	
Internal Data	Whether there is data that was saved through key operation (yes, no)	
Calibration Corrected Ch.(Note)	Names of channels on which calibration correction was performed	
Started by	User that started recording, or the started condition. (See the table on the next page.)	
Stopped by	User that stopped recording, or the stopped condition. (See the table on the next page.)	
Comment	Comment for printouts (up to 128 characters)	

1 In GX/GP/GM, “Process Type” is called “Sign in type,” and “Continuous” is called “File.”

Note

- In case the active data file is made by GX10, GX20, GP10, or GP20 (those of firmware version 1.xx), the information for the Calibration Corrected Ch. is not displayed. We recommend that you update the recorder firmware to the latest version.
- Items on the Basic Information are not always displayed depending on the recorder model or the information the file includes.
- For data files recorded by DAQLOGGER or DAQ32Plus/DAQ32, “Start Cond” and “Dividing Cond” are displayed as “—” and “Started by” and “Stopped by” as “None.”

Items and Descriptions of Start by and Stopped by

Item	Description
Key In	Start or stop through key operation (touch operation) on the main unit
Remote In	Start or stop through remote control
Comm. In	Start or stop using a communication command
Event In	Start or stop through event action
System In	Start or stop through auto control
Serial In	Start or stop through control via serial communication
EXTERNAL	Start or stop through Modbus or other control
WEB	Start or stop through the Web application
Data Count	Stop according to the specified data count
Running	Power failure, auto save, end of sampling
Username	The name of the logged-in user that performed start or stop
None	None
Unknown	Input other than above
None	Data files recorded by DAQLOGGER or DAQ32Plus/DAQ32

Items on the Batch Info. Tabbed Page

Item	Description
Batch No.	Batch number
Lot No.	Lot number
Comment 1	The user who entered comment 1, the time when it was entered, and the content. If the device that sampled the data is a µR10000 or µR20000, “Start Printout1” is displayed. If start printout is not assigned, “End Printout1” is displayed. If neither is assigned, nothing is displayed.
Comment 2	The user who entered comment 2, the time when it was entered, and the content If the device that sampled the data is a µR10000 or µR20000, “Start Printout2” is displayed. If start printout is not assigned, “End Printout2” is displayed. If neither is assigned, nothing is displayed.
Comment 3	The user who entered comment 3, the time when it was entered, and the content If the device that sampled the data is a µR10000 or µR20000, “Start Printout3” is displayed. If start printout is not assigned, “End Printout3” is displayed. If neither is assigned, nothing is displayed.

Items on the Batch text Tabbed Page

Item	Description
Title	Title string of the batch text If the device that sampled the data is a µR10000 or µR20000, “Start Printout1” to “Start Printout5” are displayed for Title1 to Title5. And, “End Printout1” to “End Printout5” are displayed for Title6 to Title10.
Description	String of the batch text description If the device that sampled the data is a µR10000 or µR20000, “Start Printout1” to “Start Printout5” are displayed for Batch Text1 to Batch Text5. “End Printout1” to “End Printout5” are displayed for Batch Text6 to Batch Text10. If neither is assigned, nothing is displayed.

Items on the Signature Info. Tabbed Page

Item*	Description
Signature 1	The signing time of signature 1, user that signed, and signing result (no sig., pass, fail)
Signature1Comment	Comment at time of signature 1
Signature 2	The time of signature of signature 2, user that signed, and sign result (no sig., pass, fail)
Signature 2 Comment	Comment attached to the signature of signature 2
Signature 3	The time of signature of signature 3, user that signed, and sign result (no sig., pass, fail)
Signature 3 Comment	Comment attached to the signature of signature 3

* If sign in titles are specified on the recorder, they are displayed instead of “Signature 1,” “Signature 2,” or “Signature 3” for the files created on the GX/GP.

Items on the Calibration Correction Tabbed Page

The calibration modes and calibration values of all channels that are using calibration correction are displayed.

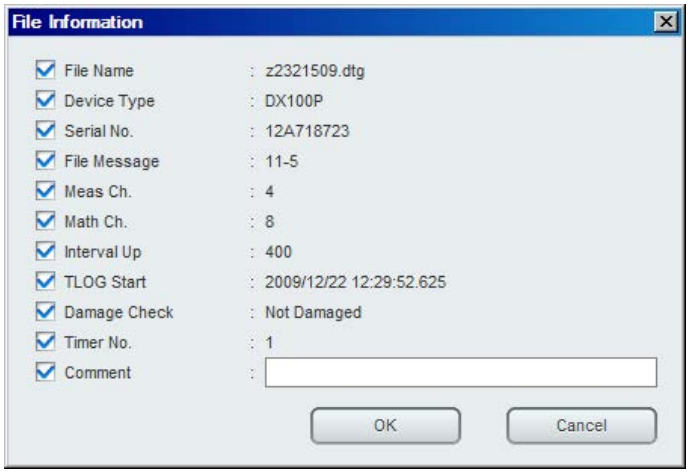
Mode	Displayed value
Linearizer approximation	Input values, Ouput values
Linearizer bias	
Correction factor	Uncorrected value, Instrument correction factor, Sensor correction factor

Items on the File Comment Tabbed Page

Comment titles and strings are displayed for data files. Comments 1 to 8 in data files created by Data Logging Software GA10 (*.dld) and those created by DAQLOGGER (*.mld) are displayed.
A File Comment tab is not displayed for data files created by DAQ32Plus/DAQ32.

TLOG File Information Dialog Box

If the data file is a TLOG file, the TLOG File Information dialog box appears.



The following items are displayed. Use the check boxes in front of the items to specify the items you want to print.

Item	Description
File Name	File name
Device Type	Model that sampled the data
Serial No.	Serial number of the instrument that sampled the data
File Message	File message that was added during memory sampling
Meas Ch.	Measurement channels on the instrument that sampled data
Math Ch.	Math channels on the instrument that sampled data
Interval Up	Data sampling count of the data file
TLOG Start	Start time of memory sampling
Damage Check	Data file status (normal, error)
Timer No.	Timer numbers displayed on active tabbed pages on the TLOG file display window
Comment	Comment for printouts (up to 128 characters)

2.4.2 Displaying Setting Information

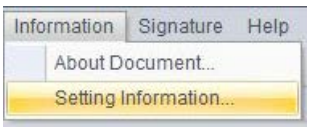
Selecting Setting Information from the Information menu starts Hardware Configurator from this software* and displays the setting information of the data file that is displayed. The following example is for a GX/GP/GM data file.

* A Hardware Configurator that supports the data file must be installed in advance. The setting information that is used during data acquisition can be displayed for display data files and event data files that use the advanced security function (/AS option). (See Note.)
Related item: **section 3.6.2, "Starting the Hardware Configurator and Viewing Operation Logs"**

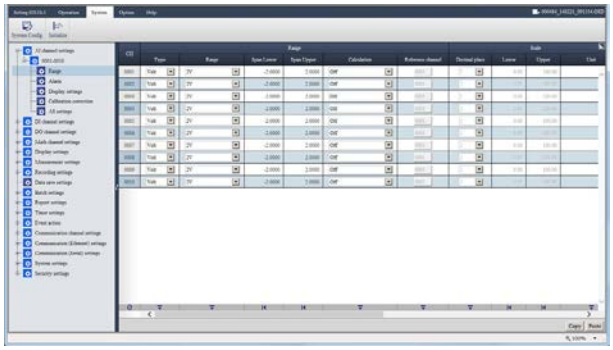
Procedure

1. Display the data file in the window.

2. On the **Information** menu, click **Setting Information...**.



SMARTDAC+ Hardware Configurator starts and displays the device settings.



Note

- Hardware Configurator is a software application for creating setup data for the recorder. If the application is not installed in the same PC as Universal Viewer, the Setting Information command cannot be used.
- The appropriate Hardware Configurator varies depending on the device that collected the data.

Model	Hardware Configurator	File Type (Extension)
GX10, GX20, GP10, GP20, GM10 with the /AS option (*.GSD, *.GSE)	SMARTDAC+ STANDARD Hardware Configurator	*.GSD, *.GSE
DX1000, DX2000 with the /AS1 option (*.DSD, *.DSE)	DXA120 DAQSTANDARD Hardware Configurator	*.DSD, *.DSE
DX100P, DX200P (*.dbd, *.dbe)	DXA120 DAQSTANDARD DX-P Hardware Configurator	*.dbd, *.dbe

  Install DXA120 DAQSTANDARD Hardware Configurator in the same folder as Universal Viewer. To specify the installation folder, set Setup Type to Custom. Universal Viewer is installed in the following default folder.
  System drive: \Program Files\Yokogawa Electric Corporation\SMARTDAC+ STANDARD Universal Viewer\
- For details on how to use Hardware Configurator, see the relevant user's manual.

2.5 Signing Data Files

2.5.1 Applicable Models and Files

You can include signatures (approval information) in the following files.

Model	Data File Name Extension
GX10, GX20, GP10, GP20, GM10	*.GSD, *.GSE
DX1000, DX1000N, DX1000T, DX2000, DX2000T	*.DSD, *.DSE
DX100P, DX200P	*.dbd, *.dbe

2.5.2 Operation Overview

You can sign data files by performing the following three steps.
Step 1. Check the data
Step 2. Log in to the data files
Step 3. Sign the data files

Data File Type and Signing

There are two types of data files: batch data and continuous data.
Batch data refers to data recorded with Process Type set to Batch.
You can collectively sign all the data files that have been saved from the start to the end of recording.
Continuous data refers to data recorded with Process type set to Continuous. You sign each data file.

* In GX/GP/GM, “Process Type” is called “Sign in type,” and “Continuous” is called “File.”

Checking the Data

First, you need to open the data files and check their content. For batch data, you need to open all component data files and check them. For continuous data, you need to open the data file you want to sign. You can also sign multiple consecutive data files simultaneously.

Logging In to the Data Files

Log in to the data files using the user information contained in the data files. If you are using the password management function, log in using the user information registered on the KDC server.

User Invalidation due to Login Failure

If you fail to log in the specified number of times, the user account is invalidated. You cannot sign using an invalidated user. If you close the login dialog box before the user is invalidated, the number of failures is reset.

Note

You can sign a unit of data when:
- You are logging in as a user with signature privileges.
- The data has not already been signed in the same place.
  * A signature with the same privilege can only be attached once. You cannot overwrite a signature.

2.5.3 Signing In

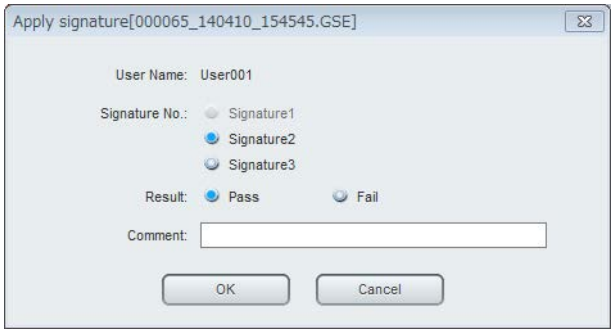
Procedure

1. On the **Sign in** menu, click **Sign in**. Or, click the corresponding button on the toolbar.
   The Signature dialog box opens.

2. Fill in the **User Name**, **User ID**, and **Password** boxes, and click **OK**.

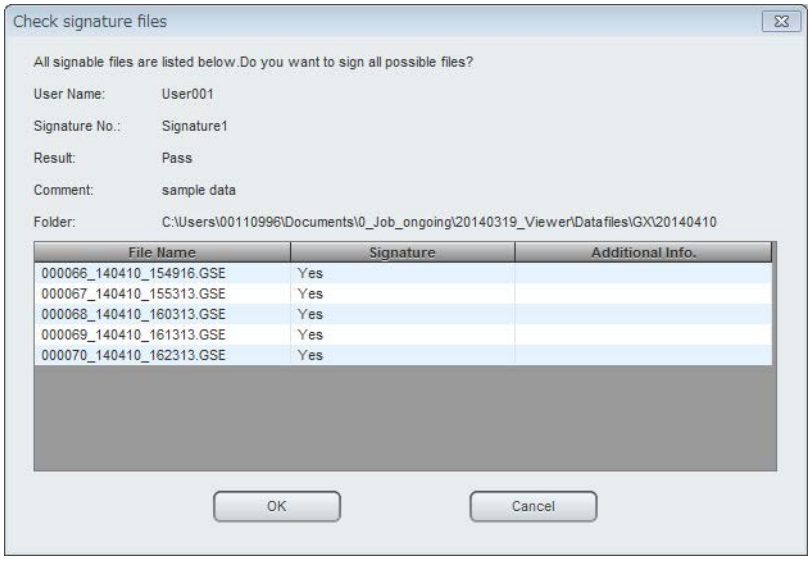
An Apply signature dialog box opens.

3. Select **Signature No.** and **Result**, and fill in the **Comment** box (up to 32 characters). Click **OK**.



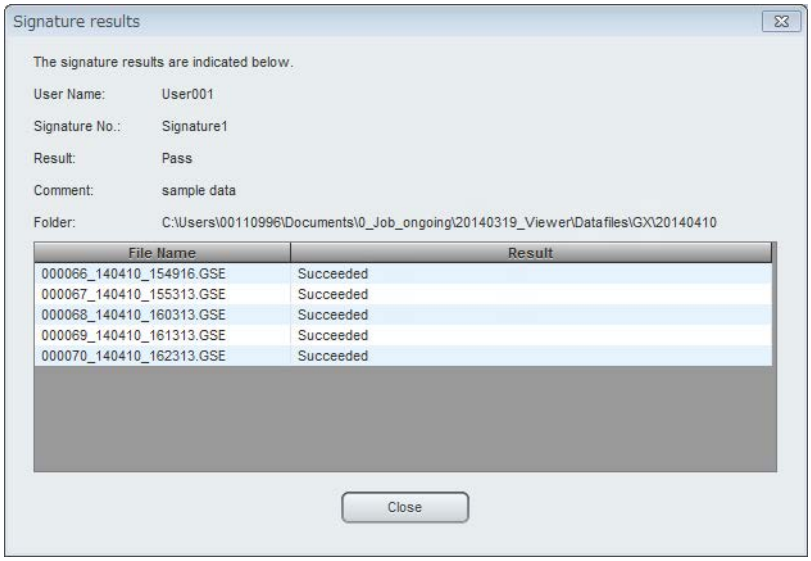
If the target file is a single file
A confirmation dialog box appears. Click **OK**. The Apply signature dialog box closes. You are finished.

If multiple files have been signed collectively
A Check signature files dialog box opens. Proceed to step 4.



4 Check the signature information in the Check signature files dialog box, and click **OK**.

The Apply signature and Check signature files dialog boxes close, and a Signature results dialog box opens.



5 Click **Close**.

The Signature results dialog box closes.

Blank

3.1 Displaying Waveforms

You can display data sampled on different channels of a recorder as waveforms on graphs that display time on the horizontal axis and values on the vertical axis (Y-axis).

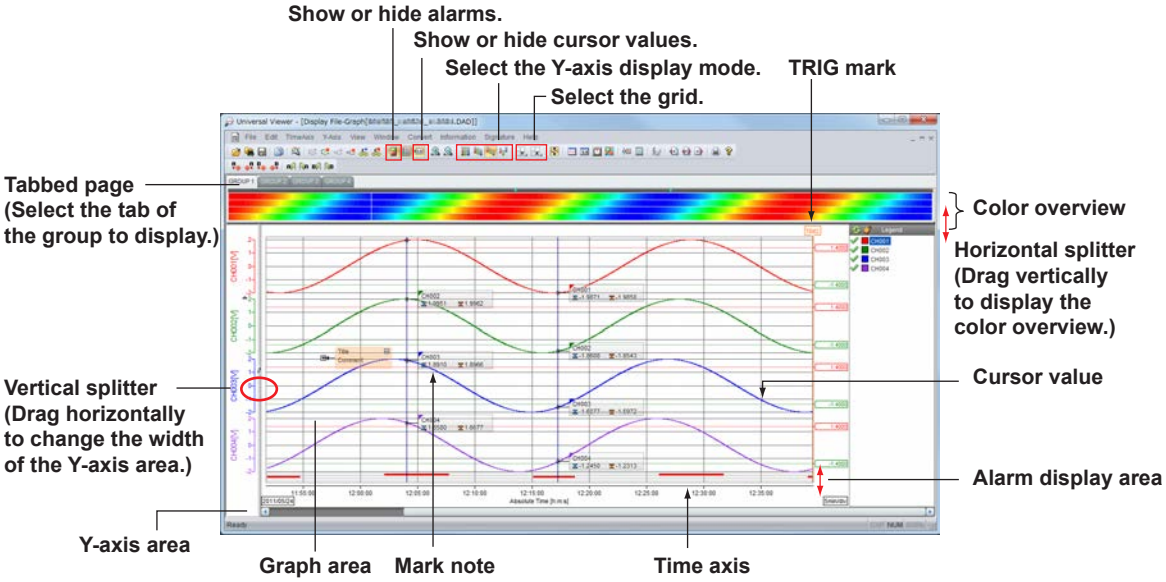
3.1.1 Waveform Display Window

When you open a display data file and an event data file, the data is first displayed as waveforms. To open a window that you closed before, follow the procedure below.

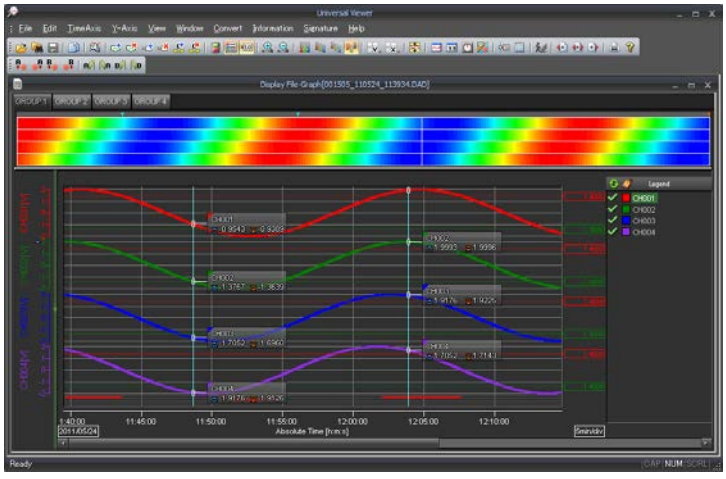
Procedure

1 To open the waveform display window, on the **Window** menu, click **Graph**. Or, click the **Graph** button.

Waveforms will appear.

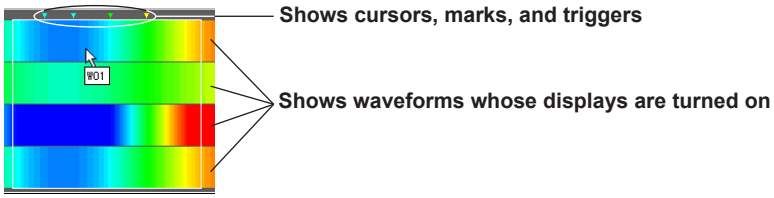


Waveform display example (light style)



Waveform display example (dark style)

Color Overview Display



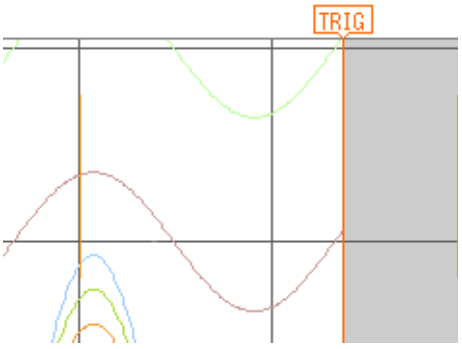
The color overview display shows the measured values of the entire data source using different colors. Values between the minimum and maximum values of the scale are mapped to 50 different colors, and measured values are displayed using these colors.
For display data, the maximum and minimum values are displayed, respectively, in the top row and bottom row in the space allotted for the waveform. For event data, instantaneous data is displayed in a single row.
If you move the cursor over a color bar, the waveform number will appear. If you click or drag the color bar, the corresponding section of the waveform appears in the waveform display area.

Note

By default, the color overview is hidden.
To show it, drag the horizontal splitter at the top of the tabbed page down.

TRIG Mark Display

The trigger mark indicating the trigger position in the data file is displayed as TRIG.You can show or hide the TRIG mark by selecting **TRIG Mark** from the **View** menu.

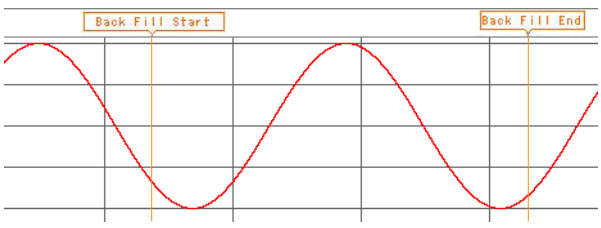


Note

Marks (messages, triggers) that are saved in the data file are displayed in orange. Marks and mark lines that you add with Universal Viewer are displayed in green.

Backfill Mark Display

If backfill took place in a data file acquired with Data Logging Software GA10, marks are displayed to indicate the backfill. “Backfill Start” is displayed at the start point, and ”Backfill End” is displayed at the end point.

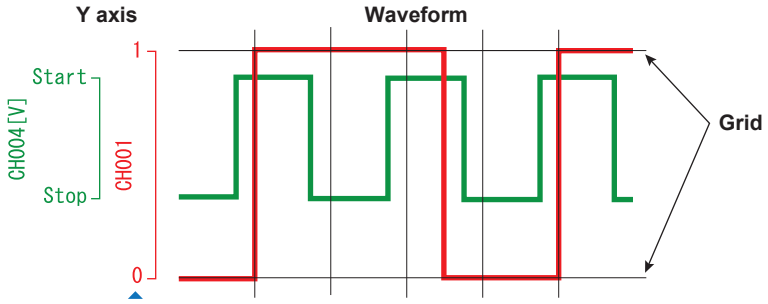


2-Value Channel Display

For input that takes on two values, such as OFF and ON or 0 and 1, setting the Y-axis type to 2 Value* is convenient.
Hereafter, a channel whose Y-axis type is set to 2 Value will be referred to as a 2-value channel.

* This is set in **"3.1.2 Setting Display Group Details" on page 3-4**.

- The waveform is displayed using a rectangular wave.
- 2-value scales and values are displayed on the Y-axis. You can set the scale display to Digits or Label. See **"Changing the 2-Value Channel Scale".**
- 2-value grid lines are displayed on the waveform. You cannot set trip lines.
- You cannot expand, reduce, or move the scale (see **"3.1.5 Setting the Y-Axis" on page 3-14**).



3.1.2 Setting Display Group Details

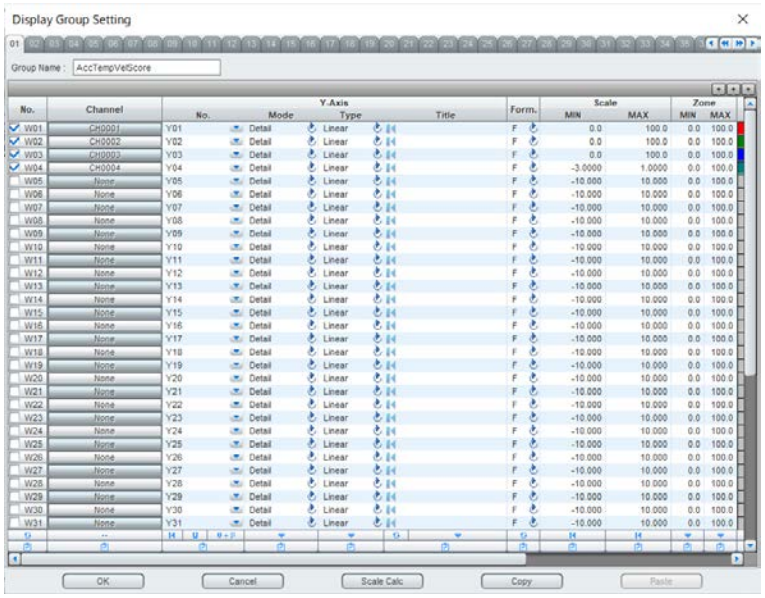
To assign channel data to waveforms, use the Display Group Setting dialog box. This dialog box enables you to set channel groups and how to display the window.*

* The items that you set in this dialog box apply to the tabbed pages of the waveform display, digital display, and circular display. They also apply to the data display of the respective windows. For details on the display locations that these settings apply to, see the note on page 3-9.

Procedure

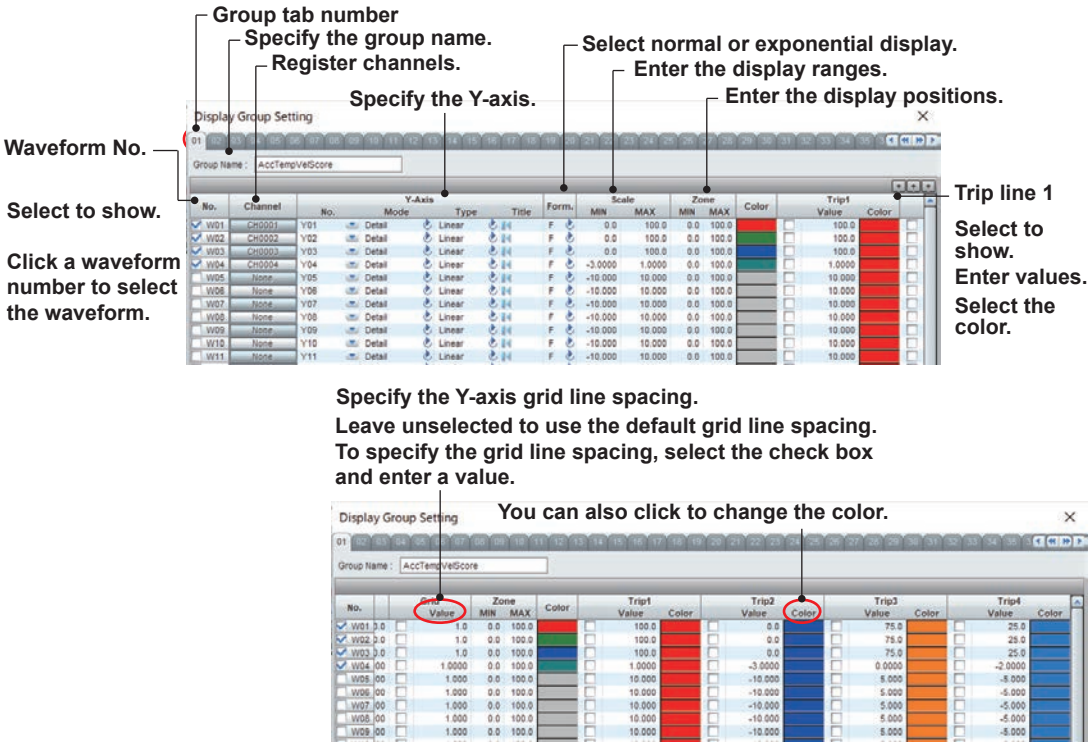
1 To configure display group settings, on the **View** menu, click **Display Group Setting**. Or, click the **Display Group Setting** button.

The Display Group Setting dialog box appears.



2 Click the tab of the group you want to configure.

3 Edit the setup data as necessary. (For details on each setting, see the explanation.)



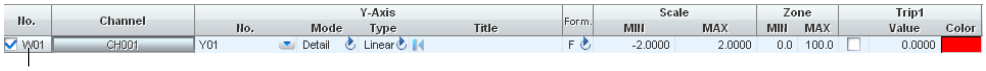
4 Click **OK** at the bottom of the dialog box to apply the settings to the display.

Note

The setup data that first appears in the dialog box are those that were used on the recorder when the data was sampled. If you want to apply the setup data that you edited the next time you open the data file, be sure to save the setup when you close the file.

Explanation

The Display Group Setting dialog box consists of multiple tabbed pages.
The spreadsheet on each tabbed page shows the settings of each waveform in rows and the setup items in columns.



Waveform number

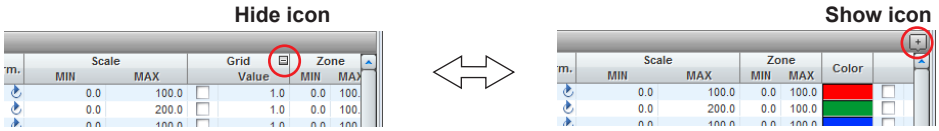
In this dialog box, you can edit the setup data in the following ways.

- Set each setup item individually.
- Specify a range of items and set them at once
- Copy setup data between waveforms

To set multiple items at once or to copy setup data, you must use the action bar of the dialog box. For these procedures, see the later half of this section.

This section explains how to set each setup item individually.

Showing and Hiding Columns



If you move the pointer over a column title, a hide icon appears. Click it to hide the column. When you hide a column, a show icon will appear in the upper right of the page. Click this icon to show the hidden columns.

Changing the Active Display Group

When you open a data file, you can set which group to display in front. Click the group tab No. that you want to display in front, and click **OK**.

Assigning Display Group Names

Enter the display group name in the **Group Name** box, and click **OK**.
The name is applied to the title of the display group tab of the window.

For each waveform, you can set the items shown in the following table.

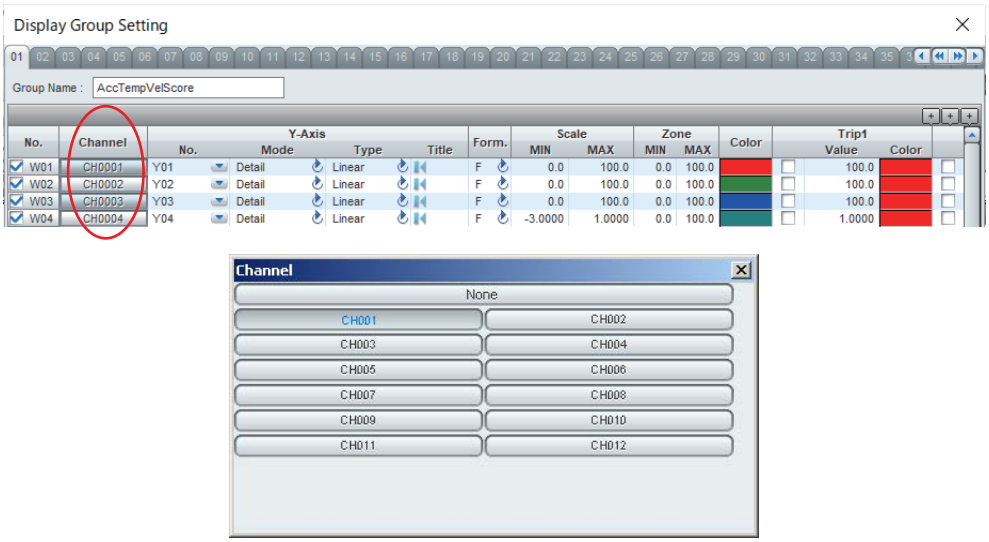
Item	Description
No.	Show or hide each waveform
Channel	Channel to assign to the waveform
Y-axis No.	Y-axis to share between waveforms
Y-axis Mode	Display mode (detail, compact)
Y-axis Type	Scale display (Linear, Log (logarithmic), 2 Value)
Y-axis Title	Title
Form.	Display format for Y-axis scale values and data (Normal, Exponential)
Scale MIN	Minimum value on the Y-axis scale
Scale MAX	Maximum value on the Y-axis scale
Zone MIN	Lower limit position for Y-axis display
Zone MAX	Upper limit position for Y-axis display
Trip 1 to 4 usage	Whether to use trip 1 , 2, 3 and 4.
Trip 1 to 4 Values	Values of Trip 1 to Trip 4
Trip 1 to 4 Colors	Colors of Trip 1 to Trip 4
Grid line spacing usage	Whether to set the grid line spacing
Grid Value	Value to use for grid line spacing
Color	Waveform display color

Turning Waveform Displays On and Off

To display a waveform, select the waveform number check box. To hide it, clear the check box. Click **OK** to apply the setting to the d”splay window.

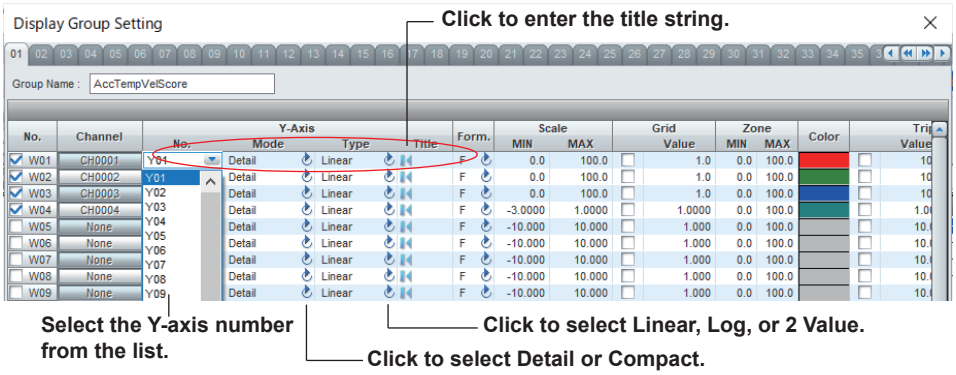
Registering Channels

You can assign channels to waveforms.
Click the channel cell of a waveform that you want to edit. The Channel dialog box opens.



Select the channel to assign to the waveform. The result is applied to the Display Group Setting dialog box. To not assign a channel, select **None**.

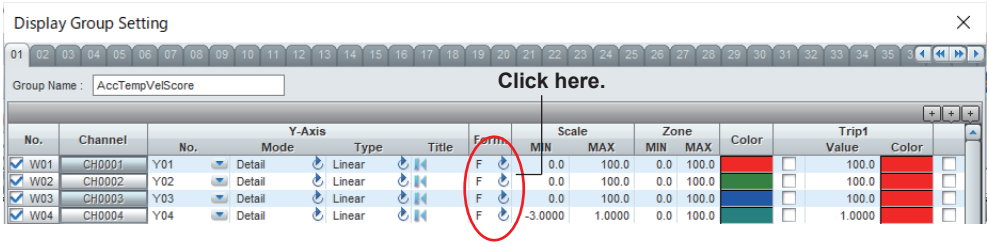
Specifying the Y-Axis (No., display mode, type, and title)



- No.
  You can specify the Y-axis to share between waveforms.
  If a Y-axis was shared among multiple waveforms, consistency in their reference will be checked.
  For example, if waveform A is using the Y-axis of waveform B, and waveform B uses the Y-axis of C, waveform A is changed automatically to use the Y-axis of C.
- Mode
  Set the Y-axis display to **Detail** or **Compact**. In Compact mode, scale values are not displayed.

- Type
  Set the type of scale to assign to the Y-axis to **Linear**, **Log**, or **2 Value**.
- Title
  Enter a title of your choosing. Up to 30 characters can be displayed. If you do not specify the title, the channel number, tag number, or tag comment assigned to the waveform is used as its default title.

Specifying the Value Display Format



Click the appropriate icon in the **Form.** column to select **F** (normal) or **E** (exponential).
The scale and trip values in the same line will be displayed in the specified format.
In exponential display, the grid line spacing value is invalid.
When you click the **OK** button, the values displayed in the window (Y-axis scale, cursor value, and trip value) will be changed to the specified display format.

Specifying the Display Range (Scale)

Click the scale value display area to enter values.
The input range and decimal place are as follows.

- Minimum and maximum values
  When the Y-axis scale is linear: -1E16 to 1E16.
  When the Y-axis scale is log: 1E-16 to 1E16.
- Decimal place of values
  When the Y-axis value display is F (normal): Decimal place that was used when the data was sampled
  When the Y-axis value display is E (exponential): Fixed to 4 digits

Specifying the Display Position (Zone)

You can set the waveform display position by setting the upper and lower boundaries as percentages of the waveform display area. The lower edge of the waveform display area is 0%, and the upper edge is 100%. Click the zone display area to enter values.
The input ranges are as follows:

- Lower boundary: 0 to 99%
- Upper boundary: 1 to 100%
- Decimal place: Fixed at 1

Trip 1 to 4

You can set up to four trip lines for each waveform. Only the trip lines of the active waveform are displayed on the waveform display screen. Select the check boxes for the trip lines you want to display. Click the value display area to enter values. You can also specify colors.
In the waveform display window, you can drag trip lines to change their positions.
Trip cannot be specified for channels whose Y-axis Type is set to 2 Value.

Specifying the Y-Axis Grid Line Spacing

You can display Y-axis grid lines at the specified spacing.
Select the grid line spacing check box. (If unselected, the default grid line spacing will be used.) Click the value display area to enter values. Click **OK** to display the Y-axis grid lines at the specified spacing.
This cannot be specified for channels whose Y-axis Type is set to 2 Value.

Note

When you specify the Y-axis grid line spacing in the Display Group Setting dialog box, the Y-axis grid setting on the menu and toolbar will be voided.

Specifying Waveform Colors

You can assign colors to waveforms. To assign a color, click the appropriate color cell to display the Color Setting dialog box. Select from the basic colors available. To assign a custom color, click Define Custom Colors in the dialog box. The procedure is the same as that for the standard Windows color setting dialog box.

Note

The items in the tabbed pages of the Display Group Setting dialog box apply to the tabbed pages of the waveform display, digital display, and circular display. The table below shows the setup operations that affect and the results that are applied to these tabbed pages. When each operation is performed, the displays marked as “Yes” are affected.

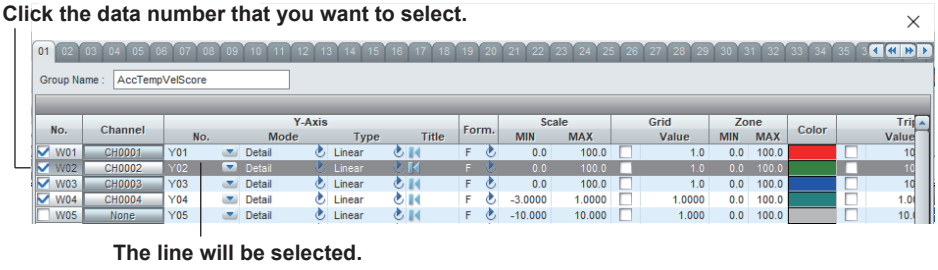
Setup Operation	Displays Affected by the Operation			
	Waveform Display	Circular Display	Digital Display	Cursor Value Display
Change the active display group	Yes	Yes	Yes	Yes
Edit the display group name (tab title name)	Yes	Yes	Yes	Yes
Turn waveform displays on and off	Yes	Yes	Yes	Yes
Register channels (assign channels to waveforms)	Yes	Yes	Yes	Yes
Specify the Y-axis to share between waveforms	Yes	Yes		
Set the Y-axis display mode (detail or compact)	Yes	Yes		
Set the Y-axis scale type (linear or logarithmic)	Yes	Yes		
Edit the Y-axis title	Yes	Yes		
Set the display format of waveform values (normal or exponential)	Yes	Yes	Yes	Yes
Set the Y-axis scale range	Yes	Yes		
Specify the Y-axis display position (zone)	Yes	Yes		
Display trip lines	Yes	Yes		
Specify the Y-Axis grid line spacing	Yes	Yes		
Specify waveform colors	Yes	Yes	Yes	Yes

Collectively Edit Setup Data

You can select a range of setup data of several waveforms and use the action bar to collectively edit the data. In the example below, W02 to W04 will be set to the same Y-axis at once.

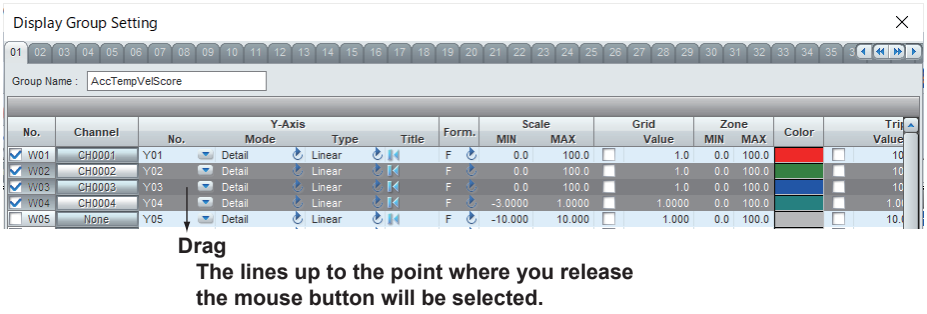
Procedure

1 Click the line (waveform number) that you want to select.
The position that you clicked will be the starting line.



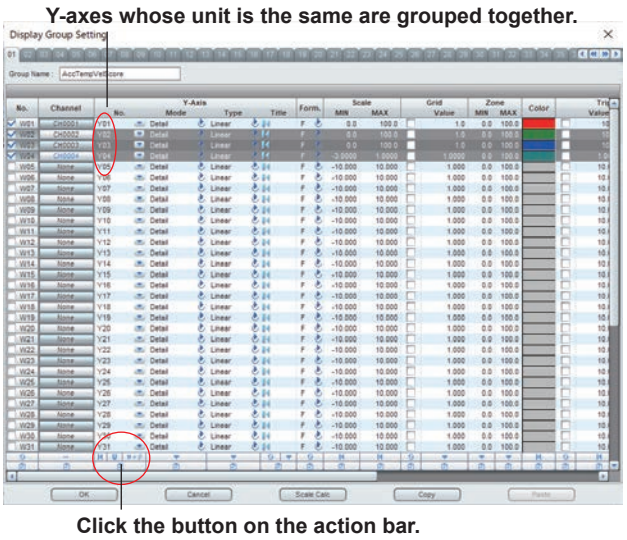
In this example, the W02 line is selected.

2 Drag the cursor to W04, and release the mouse button.



W02 to W04 are selected.

3 On the action bar, click **Grouping** U.



W02 to W04 are set to the same Y-axis, namely Y2.

Explanation

To collectively edit setup data, you must select the target setup data and then click a button on the action bar, which is at the bottom of the window. The result varies depending on the type of button you press on the action bar.

Button Type	Result
	Switch the check box state between selected and unselected
	Assign consecutive channel numbers by taking the first waveform in the selected range to be the reference
	Reset the value to default
	Group channels that have the same unit and assign the same Y-axis within each group
	Group channels that have the same unit and scale and assign the same Y-axis within each group
	ythe value of the first waveform in the selected range to the other waveforms
	Switch between selected and unselected for items to be pasted when copying between waveforms The items are normally selected (pasted). Clicking one of these buttons causes the corresponding item to become unselected and will not be pasted.

In addition to dragging the cursor to select the setup data of multiple waveforms (step 2 in the procedure), the following methods are available.

- Using the **Shift** key
  After selecting the starting line, hold down the Shift key, and click the ending line.
- Selecting All Lines
  Click **No.** (the title) to select all setup data.

Copying Data between Waveforms

You can copy setup data by using the Copy and Paste buttons at the bottom of the window. Select a range of setup data to copy, and click **Copy**. Select a range of setup data to paste to, and click **Paste** to paste the copied contents.
You can also select which items to paste using the copy flag icon  .
When you copy, if a Y-axis number does not exist in the options of a paste destination, the Y-axis number specific to the waveform at the paste destination will be used.

Automatically Calculating Scale Values

The software can automatically calculate the display range values for multiple data sources. To do so, select the range of setup data that you want to edit, and click **Scale Calc** at the bottom of the window.
The scale values will be set to the maximum and minimum values in the measured data of the channel assigned to each waveform.

3.1.3 Setting the Time Axis

Selecting Absolute or Relative Time Display

You can switch the time axis display between absolute time and relative time.
To switch, use the **TimeAxis** menu.

- Absolute Time — Displays the date and displays the time axis using data timestamps (e.g., h:m:s: 18:26:59).
- Relative Time — Displays the time axis using times in reference to the first data entry (e.g., DAY h:m:s: 00:00:53).

Switching the Time Zone

You can change the time zone for displaying time by clicking Time Zone on the View menu. This menu command is valid only when data from the GX/GP/GM or Data Logging Software GA10 is displayed. The available time zone options are shown below.

- Data: Time is displayed using the time zone of the data file. (Default value)
- PC: Time is displayed using the time zone of the PC displaying the data.

The time zone selected here also applies to printing.

All Display

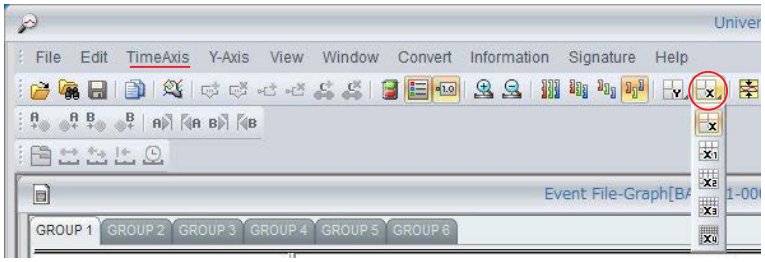
If you select **All** from the **TimeAxis** menu, the time axis is expanded or reduced so that all the data is displayed.

Grid Display

You can show or hide the grid by clicking **Grid** on the **TimeAxis** menu. The grid is hidden when there is no check mark next to **Grid**.

Changing the Grid Density (X-axis)

Select a density from the **TimeAxis** menu, or click the corresponding button on the toolbar. You can select the grid line density from five levels.



Zooming in on or out of the Time Axis

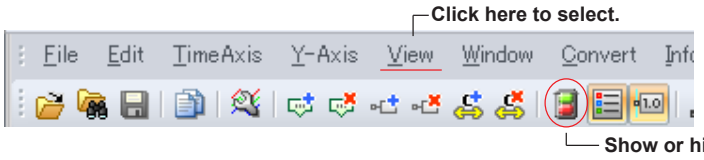
You can zoom in on or out of the area around the cursor.
If there is no cursor, zooming is performed in reference to the left edge of the displayed waveform.
Use the **TimeAxis** menu, or click the corresponding buttons on the toolbar.

3.1.4 Displaying and Searching for Alarms

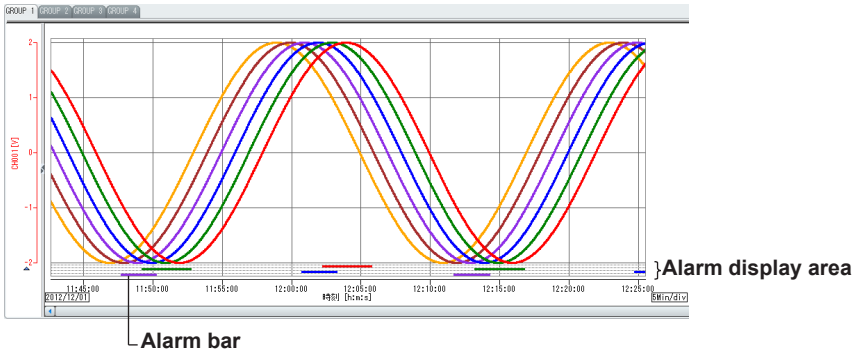
Turning the Alarm Display On and Off

Procedure

1 On the **View** menu, click **Alarm**. Or, click the corresponding button on the toolbar.



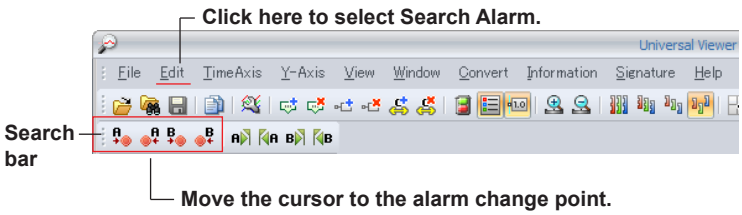
Alarm bars appear in the alarm display area.



Alarm bars are displayed in order from the top: alarm 1, alarm 2, alarm 3, and alarm 4. When alarm bars overlap, alarm bars are displayed from the front with the following precedence: the active waveform, waveforms with the same Y-axis as the active waveform, and waveforms in the same display group with smaller waveform numbers.

Searching Alarms

You can search for alarms and move the cursor to the found positions.
On the **Edit** menu, click **Search Alarm**. Or, click the corresponding button on the toolbar.
The cursor moves in accordance with the selected command.

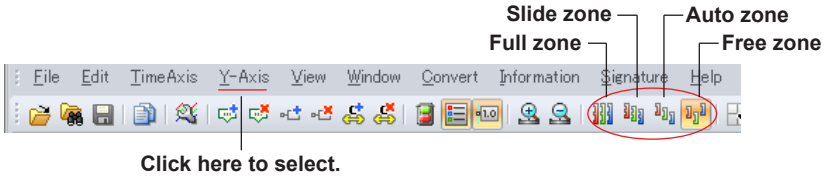


A list of alarm information can be viewed on the Alarm To tabbed page.
For details on the Alarm To tabbed page, see **section 3.4**.

3.1.5 Setting the Y-Axis

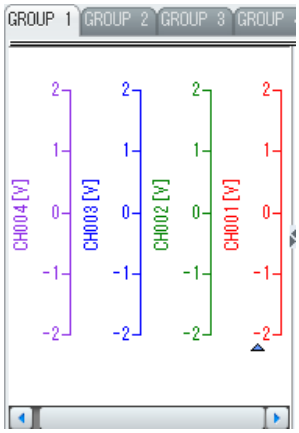
Switching Waveform Display Zones

Use the **Y-Axis** menu, or click the corresponding buttons on the toolbar.

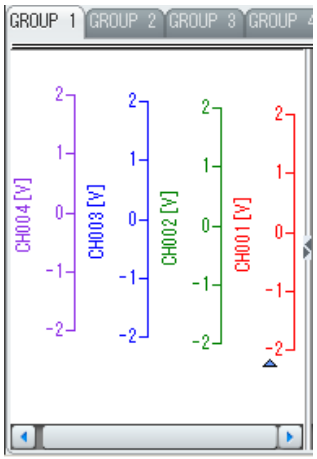


- Full Zone: Displays all waveforms over a full zone
- Slide Zone: Displays each waveform cascaded from the top to the bottom of the waveform display area

Full zone

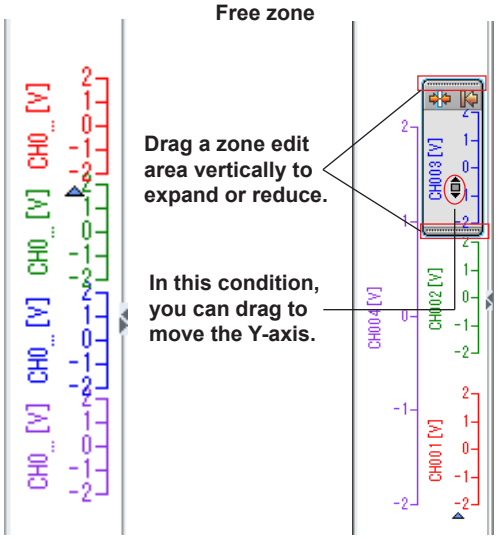


Slide zone

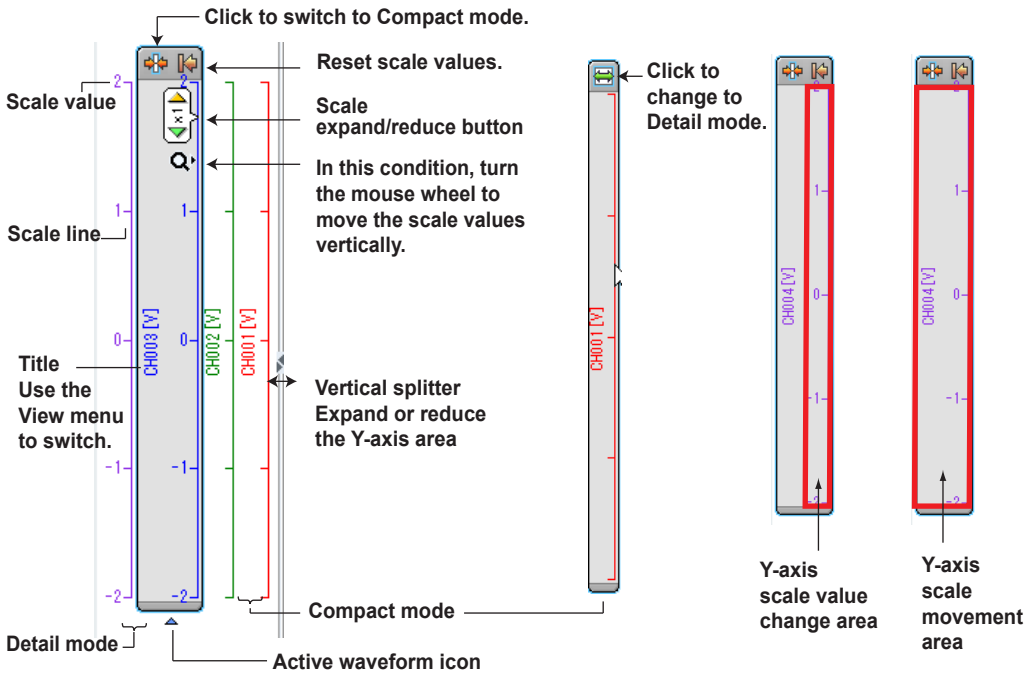


- Auto Zone: Divides the waveform display area into equally spaced zones in accordance with the number of displayed waveforms and displays the waveforms
- Free Zone: Displays waveforms in user-specified zones
  You can change the size of zones in Free Zone mode by manually adjusting the Y-axis in the window.
  Drag a zone edit area (the top or bottom boundary of a zone) to expand or reduce its Y-axis. Place the cursor over a zone so that its shape changes and drag to move the Y-axis to the desired position. You can move Y-axes only in Free Zone mode.

Auto zone **Free zone**



When you move the cursor into the Y-axis area, the Y-axis becomes editable, as shown in the figure below.



Compact Mode and Detail Mode

There are two Y-axis styles: compact mode and detail mode. You can switch between the two by clicking the icon at the top of the Y-axis area. In compact mode, scale values are hidden, narrowing the width of the Y-axis.

Expanding and Reducing a Y-Axis Scale

When you move the cursor into the scale value edit area, the cursor changes as shown in the figure.
Clicking in this condition shows a scale expand/reduce button.
Click an arrow or spin the mouse wheel to expand or reduce the scale.
This operation cannot be performed for channels whose Y-axis Type is set to 2 Value.

Scrolling a Y-axis Scale

When you move the cursor into the scale edit area, the cursor changes as shown in the figure.
Spinning the mouse wheel in this condition causes the Y-axis scale to scroll, maintaining the difference between the upper and lower limits of the scale.
The scale values will take on the values at the new position.
This operation cannot be performed for channels whose Y-axis Type is set to 2 Value.

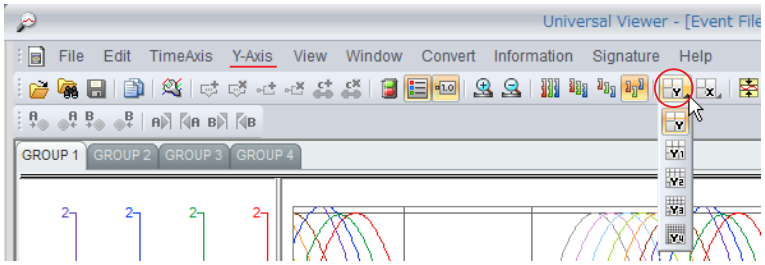
Changing the Active Y-Axis

In the Y-axis area, click a Y-axis to activate it.
The active waveform icon moves below the new active Y-axis.
When a Y-axis is shared among multiple waveforms, the waveform with the smallest number in the display group will become the active waveform.

Switching Y-Axis Titles

On the **View** menu, click **Channel**, **Tag No.**, or **Tag Comment** to change the type of character string used for Y-axis titles.

Changing the Grid Display (Y-axis)



Select a density from the **Y-Axis** menu, or click the corresponding button on the toolbar.
To change the density of the grid lines on the time axis (X-axis), select a density from the **TimeAxis** menu, or click the corresponding button on the toolbar. You can select the grid line density from five levels.
The density of the Y-axis grid lines are not applied to channels whose Y-axis Type is set to 2 Value.

Note

In the following situations, only the grid lines that correspond to the scale lines on the Y-axis are displayed.

- If you specified the grid line spacing in the Display Group Setting dialog box
- When the Y-axis scale is set to exponential display

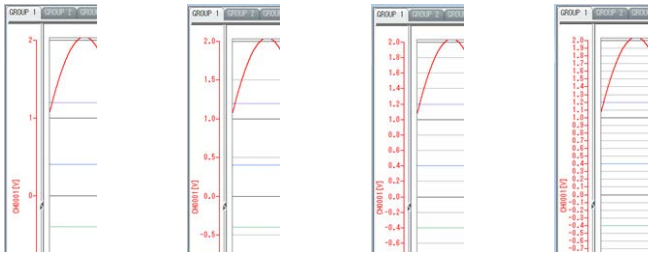
In addition, how the Y-axis grid is displayed varies depending on the Y-axis zone mode as follows:

- In Full Zone or Slide Zone mode, the grid lines for the Y-axis of the active waveform are displayed.
- In Auto Zone mode, the grid lines for all the displayed Y-axes are displayed.
- In Free Zone mode, the grid lines for the Y-axis of the active waveform are displayed. If there are other Y-axes above or below, the grid lines for those axes are also displayed.

Change the Y-axis scale display

Select **Y-axis** - **Y-axis scale display** - **Link to dense grid** from the menu.
The scale appears according to the density of the grid. However, the dense grid 3 and dense grid 4 scale displays are the same. The Y-axis scale settings are enabled for waveform display, circular display, and superimposed display.

Example of the Y-axis scale display



Standard Grid | Dense Grid1 | Dense Grid2 | Dense Grid3 Dense Grid4

Note

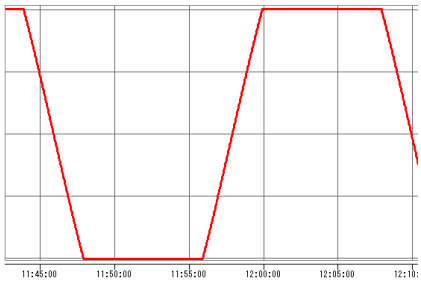
When the Y-axis scale is set to the **Link to dense grid**, the Y-axis scale will match the specified dense grid (1 to 4) even if the Y-axis scale interval is specified in the Display Group Settings dialog box.

Waveform Display Limit (Clip)

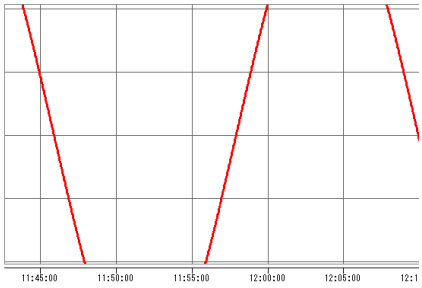
On the **Y-Axis** menu, click **Clip**. Or, click the corresponding button on the toolbar.

When you apply the waveform display limit, the Y-axis display range is limited to the minimum and maximum values that you specified using Scale in Display Group Setting. Measured values that are less than the minimum value of the scale are set to the minimum value, and values that are greater than the maximum value are set to the maximum value.

Example when display limit is applied



Example when display limit is not applied



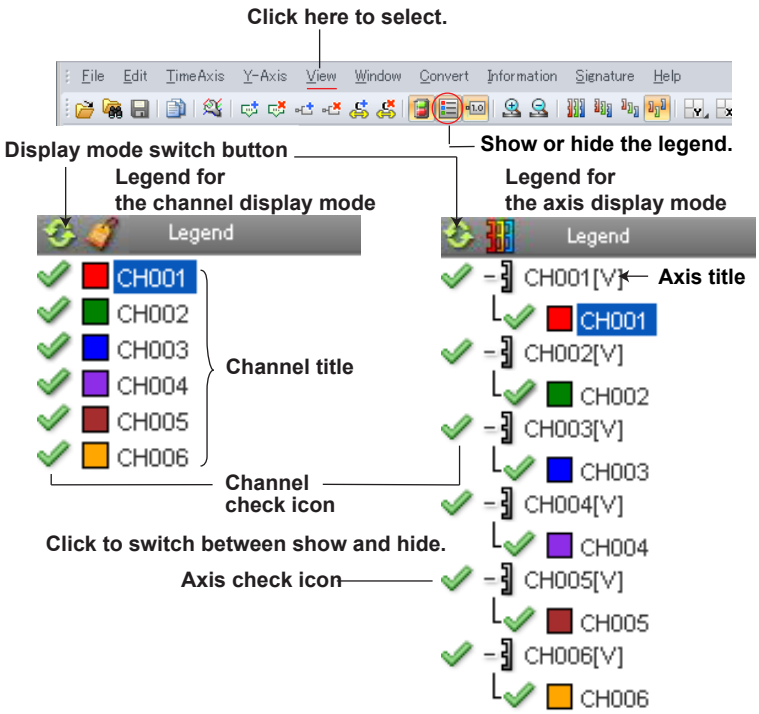
Changing the 2-Value Channel Scale

On the **View** menu, click **2 Value** and select **Digits** or **Label**.
If Digits is selected, “0” and “1” are displayed on the scale. If Label is selected, the label set on the recorder is displayed on the scale (if a label is not set, “0” and “1” are displayed). This setting applies to all windows.

3.1.6 Operations That You Can Perform from the Legend

Switching the Legend Display

To hide or show the legend, use the **View** menu, or click the corresponding button on the toolbar. The legend has two display modes: channel and axis. You can switch between the two by using the button in the top left of the legend.



Simultaneous Waveform On/Off

You can simultaneously show and hide waveforms and axes by clicking the Simultaneous Waveform On/Off icon. If there is any waveform that is hidden, all waveforms and axes will be shown. If all waveforms are shown, they will be hidden.

Channel Mode

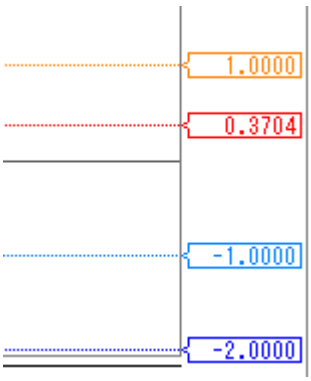
Only the waveforms that are assigned to channels in the active display group are displayed. Click a green check icon to hide the corresponding waveform data. If the Y-axis is not shared with other waveform data, it will also be hidden. Click a light-green check icon (hidden state) to show the corresponding waveform data.

Axis Mode

Only the waveforms that are assigned to channels in the active display group are displayed. Waveforms are displayed in groups that use the same Y-axes. Click an axis check icon to hide all waveform data that share the axis.

3.1.7 Moving Trip Lines

You can drag trip lines to change their positions.
Clicking a trip line value changes the color of the frame and the characters to black. You can drag in this condition to move the trip line to the desired position. The trip line value will take on the value at the new position.

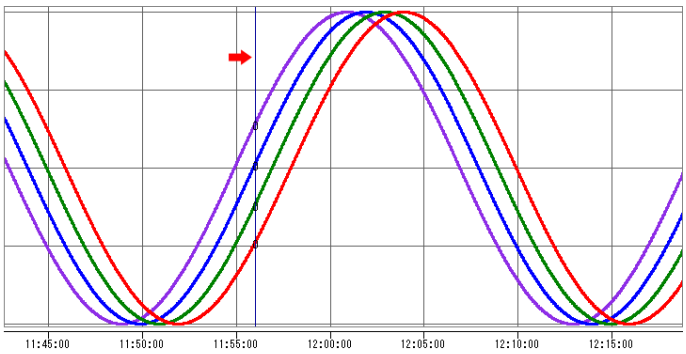


3.1.8 Setting Cursors

Specifying Cursors

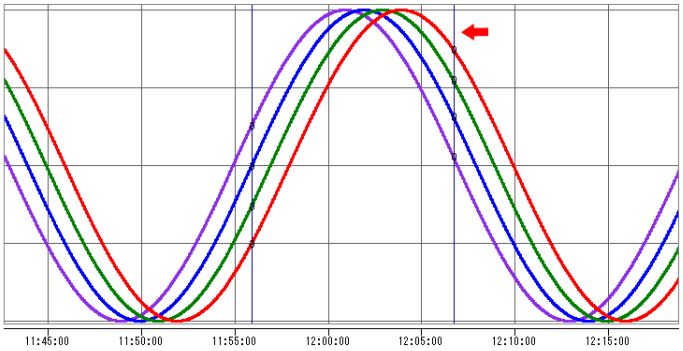
Procedure

1. Click a location in the graph area.



Cursor A appears.

2. Drag the cursor and release the mouse button.



Cursor B appears at the released position. The cursor positions will be set to the closest data positions.

Note

To position Cursor B outside the displayed data range, drag the cursor outside the graph area on the left or right. The displayed data will scroll toward the cursor.

Selecting All Data Points

On the **Edit** menu, click **Select All**. Cursor A will move to the beginning of the data, and cursor B to the end.

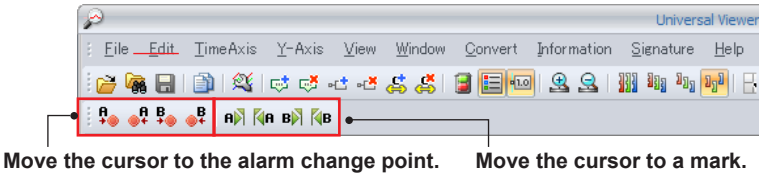
Clearing Cursors

On the **Edit** menu, click **Erase Cursor**.

Moving Cursors by Searching

You can search for alarm transition points or mark positions and move the cursors to the found positions.
On the **Edit** menu, click **Search Alarm** or **Search Mark**, and select the position. Or, click the corresponding button on the toolbar.

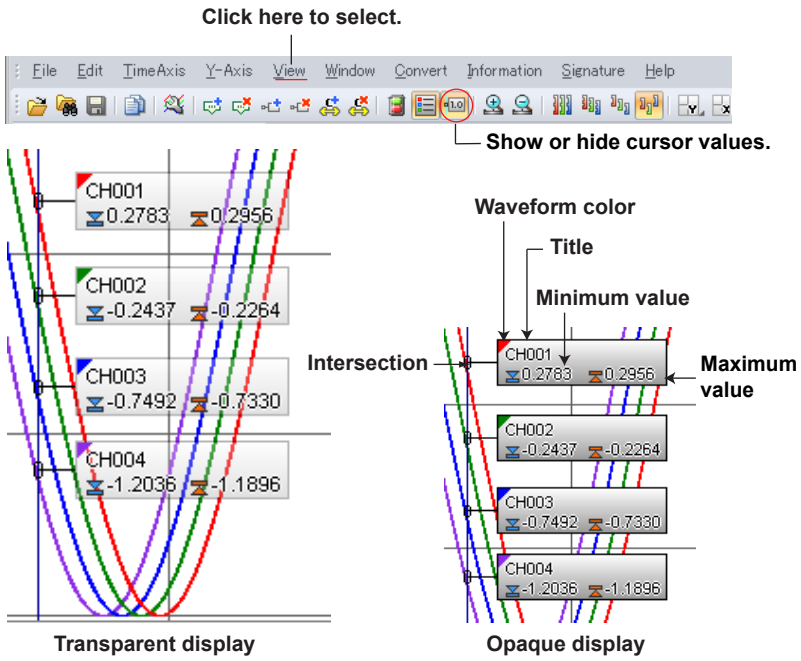
▶ Searching for alarms and marks (**"3.4 Displaying a List of Alarms, Marks, and Image Marks" on page 3-46**)



Showing and Hiding Cursor Values in the Graph Area

Procedure

1 On the **View** menu, click **Cursor Value**. Or, click the corresponding button on the toolbar.



Cursor values will appear.
Remove the check mark to hide them.

2 On the **View** menu, click **Cursor Transparency** to select the transparency to use.

Explanation

- Cursor values are usually displayed to the right of the intersection between a cursor and a waveform.
  If they cannot be displayed to the right or they overlap the cursor on the right, they are displayed to the left of the intersection. If they cannot be displayed to the left either, they are not displayed.
- If a cursor is at a skip, error, undetermined, or power-failure data position, values are not displayed.
- If the cursor values of multiple channels overlap with each other, the values of only the front-most cursor are displayed. Cursor values are displayed with the following precedence: the active waveform, waveforms with the same Y-axis as the active waveform, and waveforms with small waveform numbers.
- If the data file is an event data file, instantaneous values are displayed.

Note

If you set, clear, or reset cursors or markers in the waveform display window, the result of the operation is reflected in the circular and digital display windows.

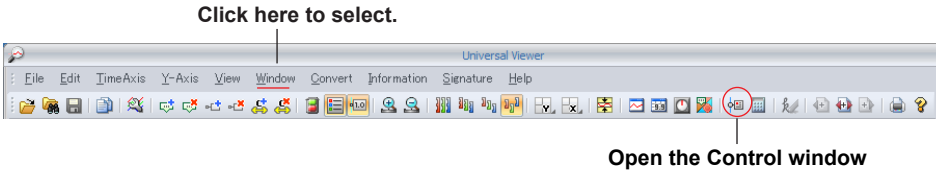
3.1.9 Displaying Cursor Values and Statistics

Control

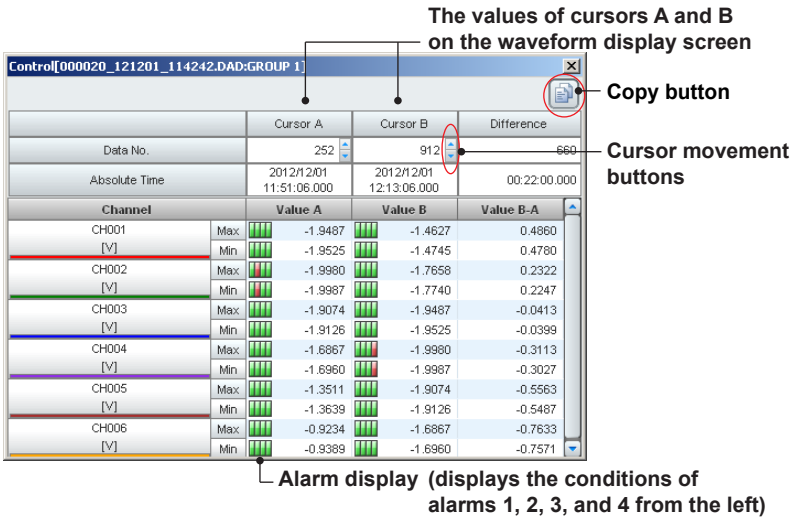
The Control dialog box shows values at cursor positions and value differences between cursors. You can also move cursor positions, show alarm information, and copy data to the clipboard.

Procedure

1 On the **Window** menu, click **Control**. Or, click the corresponding button on the toolbar.



The Control dialog box appears.



Explanation

The Control dialog box lists the waveform display window's cursor A and B values and their differences. Clicking a cursor movement button changes the cursor A and B position values and the cursor positions. When the alarm display is on, alarm conditions are displayed. Alarms that are activated are displayed in red, and those that are not are displayed in green. Clicking the Copy button copies the contents of the Control dialog box to the clipboard. You can paste the contents to a tab separated text file or to an Excel spreadsheet.

Digital Value Display of Error Data

Error data is displayed in the following manner.

Display	Description
+OVER	Measured or math data is over the positive limit.
-OVER	Measured or math data is below the negative limit.
SKIP	Skip data
LACK	Calculation error or missing data
INVALID	Invalid data
BURNOUT	Burnout data
ILLEGAL	Illegal data
Nothing	Data during a power-failure period or if data could not be acquired due to some communication error.

Note

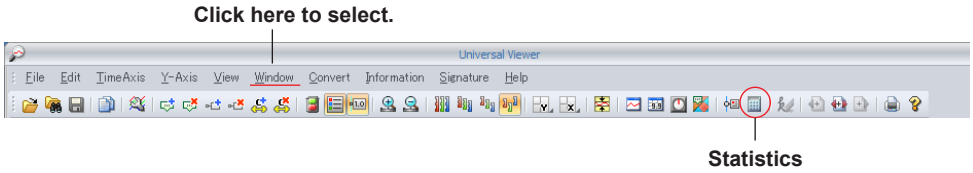
If no cursors are displayed in the waveform display window, the Cursor Value area will be blank. Differences between cursors will be indicated as "INVALID."

Statistics

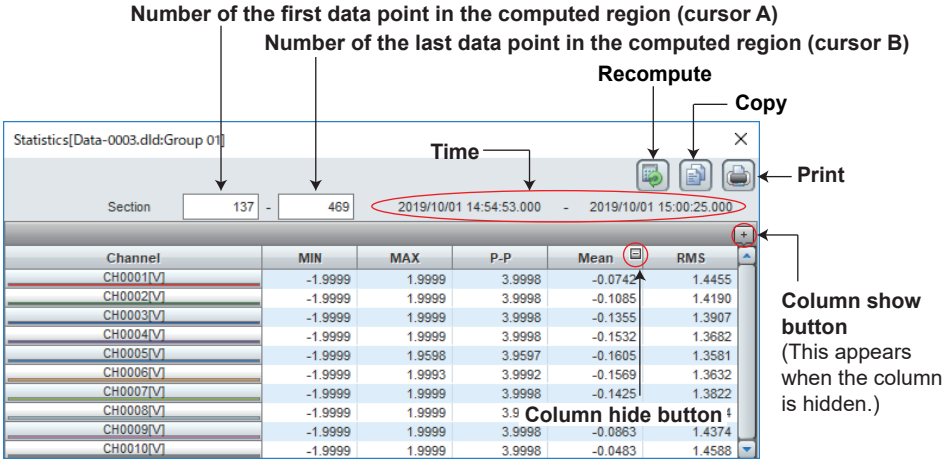
The Statistics dialog box shows calculated results for values between the cursors.
You can move cursor positions, update calculation results, copy data to the clipboard, and printing.

Procedure

1 On the **Window** menu, click **Statistics**. Or, click the corresponding button on the toolbar.



The Statistics dialog box appears.



Explanation

The minimum, maximum, P-P, mean, and rms values for each waveform in the range specified by cursors A and B are calculated and displayed. (In the default conditions of the statistics display, all data values are selected.)
Clicking the Copy button copies the contents of the Statistics dialog box to the clipboard. You can paste the contents to a tab separated text file or to an Excel spreadsheet.
Clicking the Print button prints the statistics.

Showing or Hiding Columns

When you move the cursor over a column title, a hide button appears. Clicking the hide button hides the target column. To show a column, click the show button.

Note

- Calculated results are not synchronized to the cursor positions or waveform group. If you change the cursor A or B position or the display group, click **Re-calc.** to update the calculated results.
- The formula for calculating the rms value is as follows:

$$\mathbf{RMS} = \sqrt{\frac{1}{n}\sum_{k=0}^{n-1}(x_k)^2}$$

n : Number of data
x_k : value

- When the number of channel data points exceeds 100,000, a progress bar will be displayed. If you click Cancel while computation is in progress, computation stops, and only the statistics of the channels whose computation has been completed are displayed.

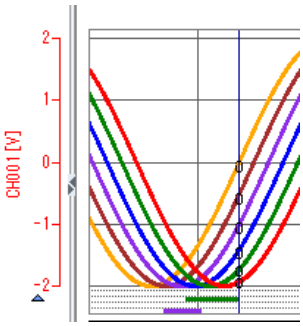
3.1.10 Adding, Editing, and Deleting Marks

Adding a Mark

You can add a mark when cursors A and B are at the same position.

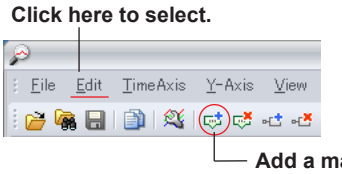
Procedure

1 Click the position where you want to add a mark.



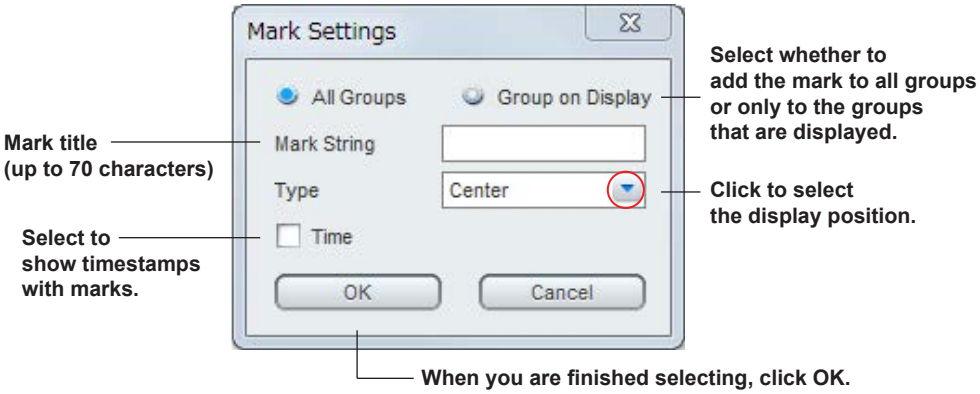
Cursor A appears.

2 On the **Edit** menu, click **Append Mark**. Or, click the corresponding button on the toolbar.



The Mark Settings box appears.

3 Edit the mark information.



Click **OK** to add a position mark at cursor A.

Note

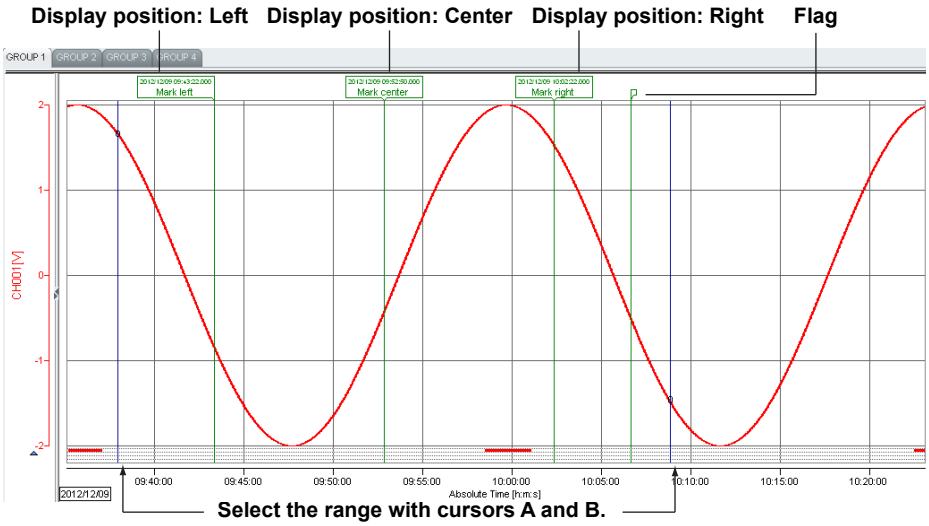
- The time display shows absolute times or relative times from the first data point, depending on the time axis setting. If you set Type to flag, no time information is displayed.
- To change an existing mark, double-click the mark to open the Mark Settings dialog box. Then, follow the steps from step 3 to edit it.
- You can only change the display position and time display for marks that were added during recording.
- Marks and mark lines that you add with Universal Viewer are displayed in green.

Deleting Marks

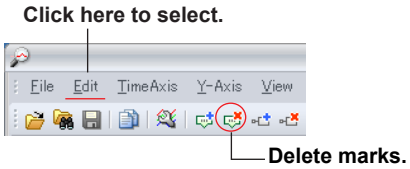
Marks added on a recorder with the advanced security function or a DX100P/DX200P cannot be deleted.

Procedure

1 Specify cursors A and B so that the marks you want to delete fall between the cursors.



2 On the **Edit** menu, click **Delete Mark**. Or, click the corresponding button on the toolbar.



All the marks within the cursor range (including those at the cursor positions) are deleted.

Resetting the Marker Display

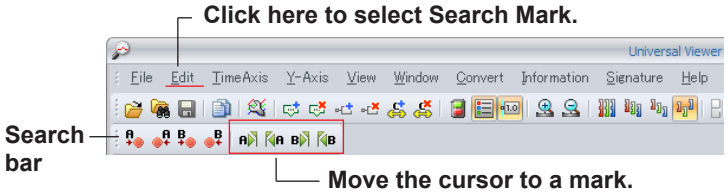
On the **Edit** menu, click **Reset Mark** to delete all marks. Marks (messages and triggers) saved in data files are not deleted.

Note

If you select Delete Mark from the menu, the marks between cursors A and B, the marks at the cursor positions, and the marks saved in the data file are cleared from the display. If you reset the marks, only the marks saved in the data file are displayed.

Searching for Marks

You can search for mark positions and move the cursors to the found positions.
On the **Edit** menu, click **Search Mark**, and select a position. Or, click the corresponding button on the toolbar.



▶ Searching for alarms and marks (**section 3.4**)

Changing the Display Order of Marks

If multiple marks overlap and you want to change their display order, hold down the Shift key and click a mark. Each time you click, the mark switches between being displayed in front and back.

3.1.11 Adding, Editing, and Deleting Mark Notes

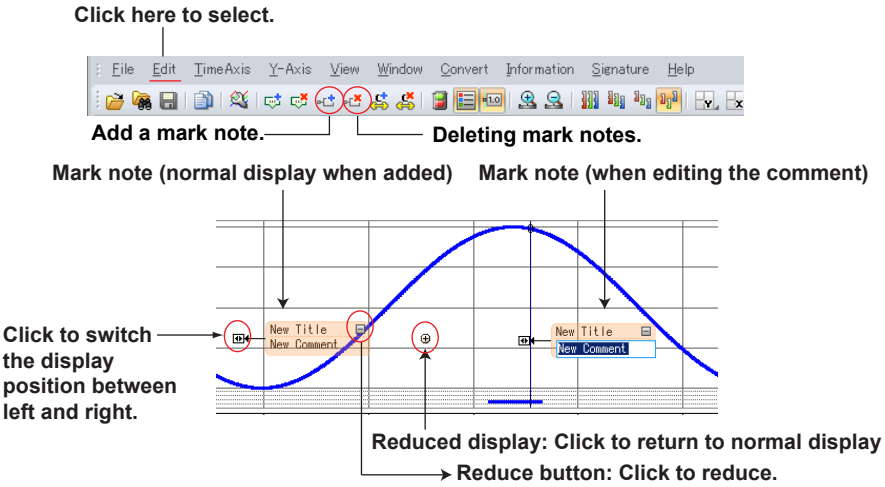
Adding a Mark Note

You can add mark notes to any position you like in the waveform display window.
For each mark note, you can enter a title and comment.

Procedure

1. Click the position where you want to add a mark note.
   Cursor A appears.

2. On the **Edit** menu, click **Append Mark Note**. Or, click the corresponding button on the toolbar.
   A mark note is added to the cursor A position.



3. Double-click the title area of the mark note or the comment area.
   The cursor blinks, and you can enter characters.

4. After you enter the characters, click anywhere outside the current text area.
   The characters are applied.

Note

- You can enter up to 60 characters for titles and 250 characters for comments. If the characters do not fit in a display area, the overflowing characters are replaced with an ellipsis.
- To edit an existing mark note, follow steps 3 and 4.

Switching Display Positions

Clicking the button shown in the figure will switch the display position of the corresponding mark note between left and right.
Clicking the compact button changes normal display to compact display.
Mark notes are displayed in order from the back as they are created. This order cannot be changed.

Moving a Mark Note

To move a mark note up and down, drag it in the desired direction. To move it to the opposite side of the cursor position, drag it in the desired direction.

Deleting Mark Notes

Specify cursors A and B so that the mark notes you want to delete fall between the cursors.
On the **Edit** menu, click **Erase Mark Note**. Or, click the corresponding button on the toolbar.

3.1.12 Displaying, Copying, and Printing Image Marks (Freehand messages)

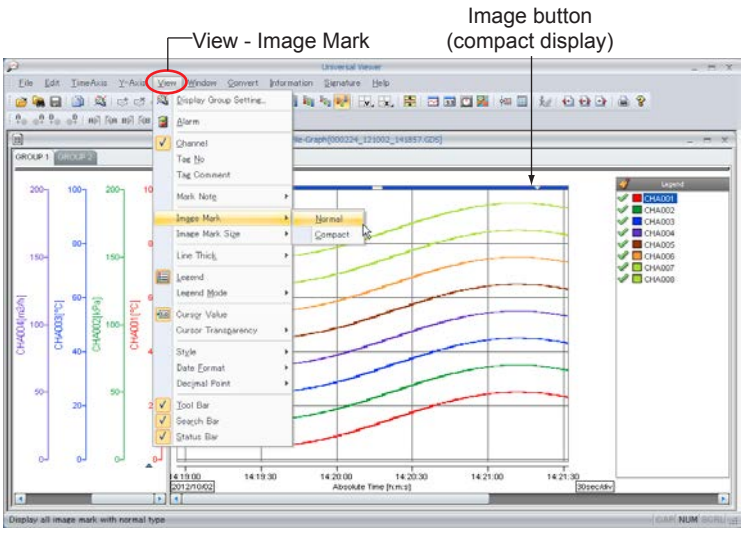
You can display freehand messages in a data file and copy them to the clipboard or print them. In the following explanation, freehand messages are referred to as image marks.

Displaying Image Marks

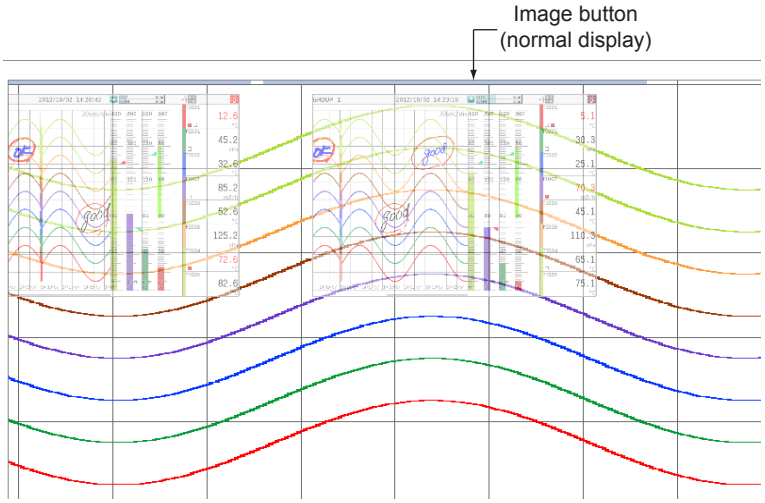
You can set the image mark display mode to Normal or Compact. When set to Compact, only the image buttons are displayed. You can change the size of displayed image marks.

Procedure

1. If the data file contains image marks, marks (, image buttons) that indicate them are displayed at the top area of the waveform display. Click an image button.
   The image mark appears.
   Or, on the **View** menu, click **Image Mark** and then **Normal**.
   All image marks in the waveform display area are displayed.



The image mark appears, and the image button color changes.

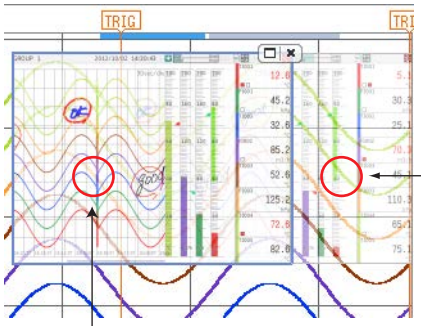


2 To change the display size, on the **View** menu, click **Image Mark Size** and then the appropriate size. You can set the display size to **Small**, **Normal**, or **Large**.
The display size of all image marks in the waveform display area will change.

Note

- Image marks are displayed semi transparently.
- Moving the cursor over an image mark or image button highlights the image mark.

3 When image marks are overlapped, you can change the display order of image marks as follows.
Click the image button or image mark to move the image mark to the front; or hold down the Shift key and click to move it to the back.



4 To close all image marks, on the **View** menu, click **Image Mark** and then **Compact**.
To close an individual image mark, click the × button in the upper right of the image mark.
The image mark will close.

Explanation

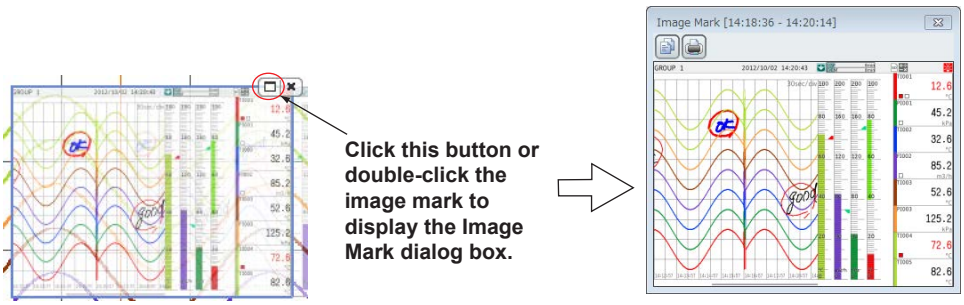
The table below describes the different display conditions.

Image Button	Status
	Compact display. Only the image button is displayed.
	Normal display. Image mark is displayed semi transparently.
	Highlight display. The close button is displayed.
	Image Mark dialog box is displayed.

Copying Image Marks to the Clipboard

Procedure

1. Move the cursor over an image mark, and click the button (▭) in the upper right. Or, double-click the image mark.
   An Image Mark dialog box opens.



2. Click the copy button (📋) in the upper left.
   The image mark is copied to the clipboard.

3. Click the × button to close the Image Mark dialog box.

Printing Image Marks

Procedure

1. In the Image Mark dialog box, click the print button (🖨) in the upper left.
   A Print dialog box appears.

2. Specify the print settings, and click **OK**.
   The image mark is printed.

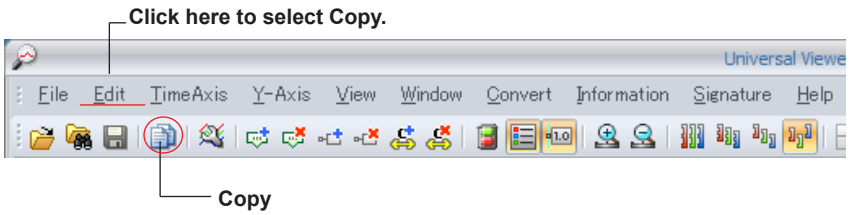
3. Click the × button to close the Image Mark dialog box.

3.1.13 Changing the Waveform Thickness

Select the waveform thickness from three options (Normal, Middle, and Thick).
On the **View** menu, click **Line Thick**, and select the thickness you want.

3.1.14 Copying Waveforms

You can copy the screen image of the waveform display window to the clipboard.
On the **Edit** menu, click **Copy**. Or, click the corresponding button on the toolbar.



Note

The window screen image can also be copied in the circular display window.
You can paste the image copied to the clipboard to another application for use.

3.1.15 Appending a Comment to a Time Range (Text comment line)

You can add comments by specifying a time range. These comments are called *text comments*.

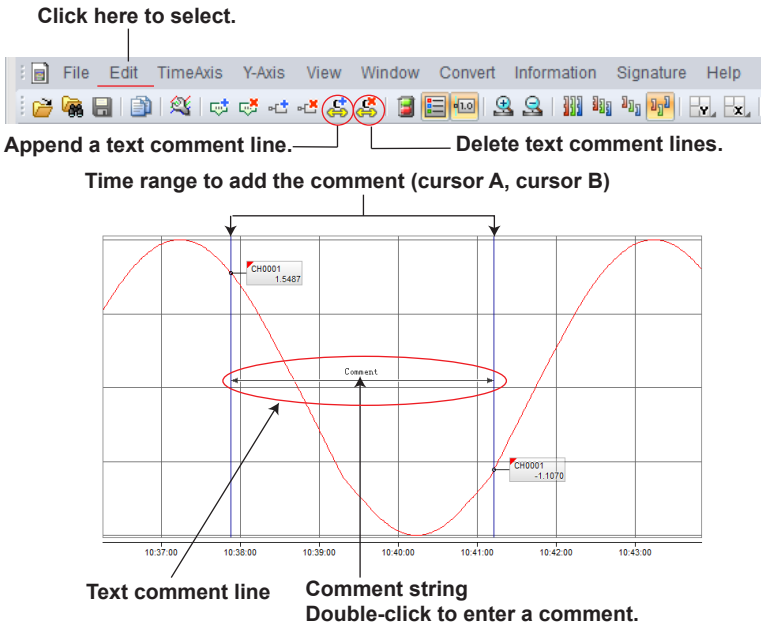
Appending a Text Comment Line

Text comment lines are added only to the active display group.

Procedure

1. Drag the cursor on the waveform display window to specify the time range to add a comment.
   Cursors A and B appear.

2. On the **Edit** menu, click **Append text comment line**. Or, click the corresponding button on the toolbar.
   The text comment line appears.



3. Double-click the comment string area, and enter a comment.
   Up to 50 characters can be entered.
   Click outside the comment string area to confirm the entered comment.

Editing a Text Comment Line

Procedure

1. When the pointer changes to ⇕ near the horizontal line indicating the range, drag the pointer in the Y-axis direction.
   The text comment line will move in the Y-axis direction.

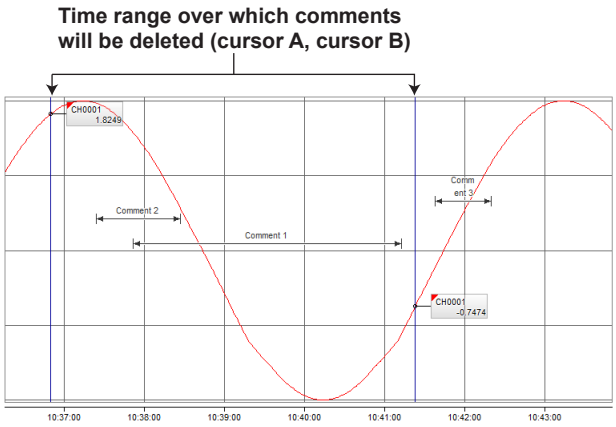
2. When the pointer changes to ⇔ near an arrow indicating the range, drag the pointer in the time axis direction.
   The time range will be expanded or reduced.

3. Double click the comment.
   You will be able to edit the comment.

Deleting Text Comment Lines

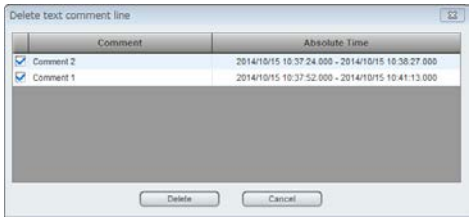
Procedure

1. Drag the cursor on the waveform display window so that text comment lines that you want to delete is encompassed.
   Cursors A and B appear. Text comment lines will be deleted if any portion of the lines is between the cursors.



2. On the **Edit** menu, click **Delete text comment line**. Or, click the corresponding button on the toolbar.
   If the specified range contains a single text comment line, the line is deleted.
   If the specified range contains several text comment lines, a Delete text comment line dialog box appears.

3. In the **Delete text comment line** dialog box, check that the check boxes for the text comment lines that you want to delete are selected. Clear the check boxes from those you do not want to delete.



4. Click **Delete**.
   The text comment lines are deleted, and the Delete text comment line dialog box closes.

3.1.16 Displaying Waveforms Using Superimposed Display

The superimposed display function can be used to display data from different files in the same window with separate time axes. You can move data at the file level or move the data together by changing the display mode of the time axis. You can also scroll the time axes separately to compare waveforms from different files.

Procedure

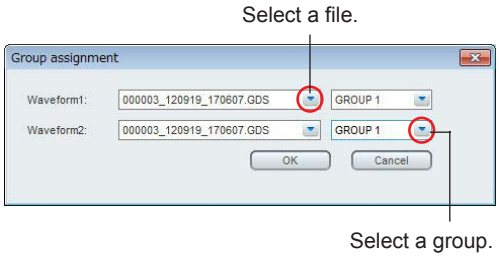
To use superimposed display, you need to assign the data you want to view to the Waveform1 and Waveform2 groups.

1 Open the original data files you want to display superimposed.

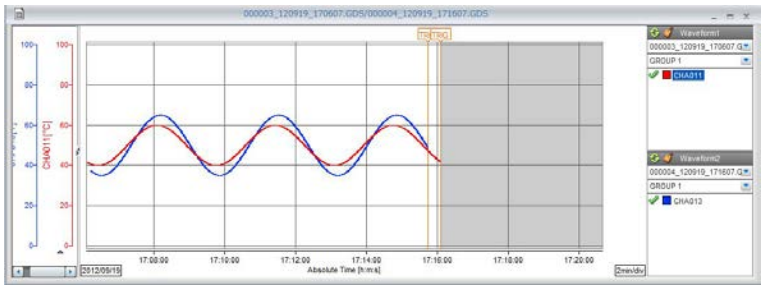
2 On the Window menu, click Superimposed display. Or, click the button.
The superimposed display start window appears.

3 Make group assignments. On the Edit menu, click Group assignment. Or, click the button.
An Group assignment dialog box appears.

4 Assign files and groups to Waveform1 and Waveform2.
This assignment can also be carried out using Legend on the superimposed display window. For details, see the following pages.



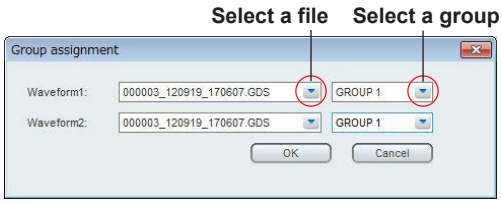
5 Click OK.
The superimposed display window of Waveform1 and Waveform2 appears.



Group Assignment

The two groups (Waveform1 and Waveform2) of the superimposed display can be assigned from the Group assignment dialog box or Legend on the start window. Select the files and groups for Waveform1 and Waveform2.
Up to 50 channels can be assigned to Waveform1 and Waveform2. Y-axes with the display turned on are all displayed. There are no limitations to group assignments. The same group from the same file can be assigned. To change an assigned group, you can change it in the same manner as when you make assignments.

Assign from the dialog box



Assign from Legend of the start window

Illustration of when the first waveform is assigned using Legend.

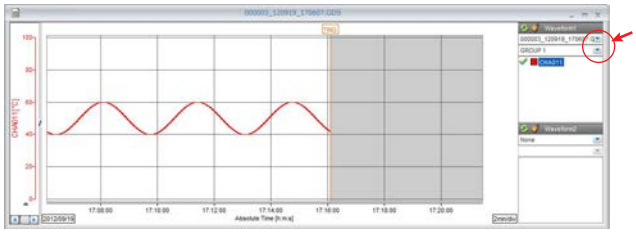
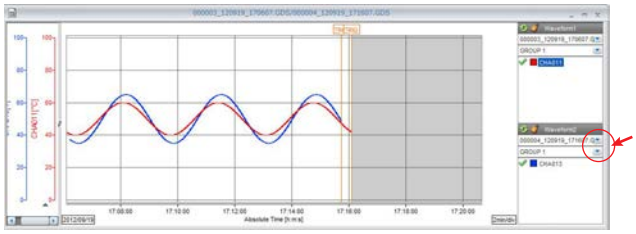


Illustration of when the second waveform is assigned.



Item Name	Description	Initial Value	Note
Waveform1: Waveform name	Select the file of Waveform1. Names of the displayed waveforms and None are displayed in a list.	None	If there is no file being displayed, you cannot specify the file.
Waveform1: Group name	Decide on the group name of the file selected for Waveform1. Select the group name from the displayed list.	Group displayed currently from the selected file	If Waveform1 is set to None, you cannot specify the group name.
Waveform2: Waveform name	Select the file of Waveform1. Names of the displayed waveforms and None are displayed in a list.	None	If there is no file being displayed, you cannot specify the file.
Waveform2: Group name	Decide on the group name of the file selected for Waveform2. Select the group name from the displayed list.	Group displayed currently from the selected file	If Waveform2 is set to None, you cannot specify the group name.

Continued on the next page

Item Name	Description	Initial Value	Note
OK	Click to show the superimposed display of the groups of the specified files.	--	This button appears in the dialog box.
Cancel	Closes the dialog box.	--	Same as above

Waveform Display Positions

In superimposed display, waveforms are displayed using the time axis and display settings of the waveform assigned first. When you assign the second waveform and the two sets of data have the same timestamp, that timestamp is displayed superimposed. If they do not, the location displayed on each trend display are displayed.
During this process, the display location and the magnification of the time axis of the waveform assigned first do not change.

Display Settings

For the following display settings (Display Group Setting on the View menu), the settings in the assignment source file are reflected. If you change the settings of the original file, the settings also change accordingly on the superimposed display. You cannot change the individual displays on the superimposed display window.

Item Name	Description
No.	Show or hide each waveform
Channel	Channel to assign to the waveform
Y-axis No.	Y-axis to share between waveforms
Y-axis Mode	Display mode (detail, compact)
Y-axis Type	Scale display (Linear, Log (logarithmic), 2 Value)
Y-axis Title	Title
Form.	Display format for Y-axis scale values and data (Normal, Exponential)
Scale MIN	Minimum value on the Y-axis scale
Scale MAX	Maximum value on the Y-axis scale
Zone MIN	Lower limit position for Y-axis display
Zone MAX	Upper limit position for Y-axis display
Trip 1 to 4 usage	Whether to use trip 1 , 2, 3 and 4
Trip 1 to 4 Values	Values of Trip 1 to Trip 4
Trip 1 to 4 Colors	Colors of Trip 1 to Trip 4

Time Axis

When two groups are assigned in superimposed display, the time axis is displayed using the magnification of the group assigned first.
For example, if Waveform2 is assigned first from the two waveforms below, the time axis of the superimposed display is set to 1 month/div.

Waveform 1: 10 min/div
Waveform 2: 1 month/div

Even if the assignment of Waveform2 is changed to a 10 msec/div group later, the display will remain at 1 month/div.

Related item: ▶ “Display mode” on next page.

Y-Axis

The only available Y-axis display zones in superimposed display are Full Zone and Free Zone.

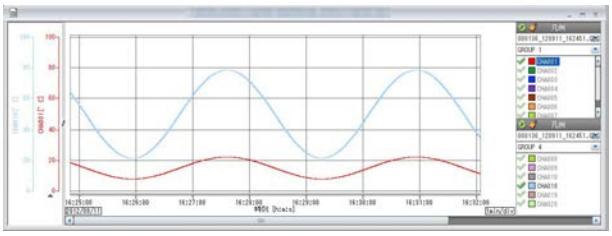
Legend

The setting operation of items other than the group assignment function is the same as that of normal display.

Display Mode

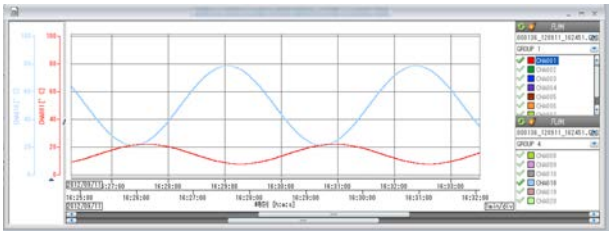
There are two time axis display modes in superimposed display: Synchronous mode and Individual mode.
The default mode is Synchronous mode. The mode can be switched from the Time Axis menu or the corresponding button on the superimposed display toolbar. (If two waveforms are not assigned, only Synchronous mode is available.)

Synchronous Mode (Initial mode)
TimeAxis menu —Display Mode — Synchronous Mode



In Synchronous mode, the time axes are moved simultaneously while retaining the differences in the time axes of the two superimposed groups. Only the time axis of Waveform1 is displayed even when Waveform1 and Waveform2 are assigned. If only Waveform1 or Waveform2 is assigned, the time axis of the assigned group is displayed. If a group is assigned or changed and the data of Waveform1 and the data of Waveform2 contain the same timestamp (such as data acquired in dual interval measurement mode), the timestamps are aligned. If they do not, the location displayed on each trend display are displayed. The time axis magnification is set to the magnification of the group already assigned.

Individual Mode
TimeAxis menu —Display Mode — Individual Mode



In Individual mode, the waveforms of the two superimposed groups are displayed using individual time axes. The time axis and scroll bar are displayed separately for Waveform1 and Waveform2. The scroll bar of Waveform1 only moves the waveform of Waveform1, and the same holds true for Waveform2.

- Align with First Data

  If you click Align with first data in Individual mode, the first data points of Waveform1 and Waveform2 are aligned.

- Align with Time

  If you click Align with time in Individual mode, the data timestamps of Waveform1 and Waveform2 are aligned and displayed. However, if the same timestamp does not exist in the data ranges of Waveform1 and Waveform2, the Align with time button is unavailable.

Cursor

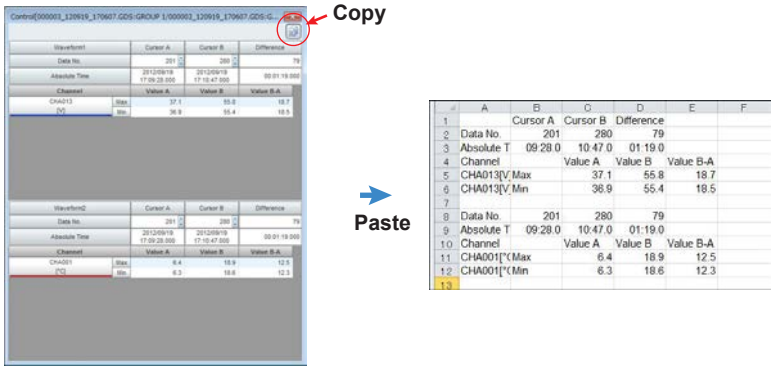
Cursors can be placed on time axes that have Waveform1 or Waveform2 data. Circles are displayed at timestamps where data exists. In Individual mode, if you scroll the time axis, cursors are cleared.

Cursor Value

Cursor values are displayed at timestamps where data exists (a circle is displayed above the cursor).

Cursor Value Dialog

In the cursor value dialog box of superimposed display, the cursor values of Waveform1 and Waveform2 are displayed in top and bottom halves. Values are displayed only if data exists at the corresponding timestamp. Cursor values cannot be moved at the data number level.



	A	B	C	D	E	F
1		Cursor A	Cursor B	Difference		
2	Data No.	201	280	79		
3	Absolute T	09:28.0	10:47.0	01:19.0		
4	Channel		Value A	Value B	Value B-A	
5	CHA013[V Max		37.1	55.8	18.7	
6	CHA013[V Min		36.9	55.4	18.5	
7						
8	Data No.	201	280	79		
9	Absolute T	09:28.0	10:47.0	01:19.0		
10	Channel		Value A	Value B	Value B-A	
11	CHA001[*(Max		6.4	18.9	12.5	
12	CHA001[*(Min		6.3	18.6	12.3	
13						

When cursor values are copied from the cursor value dialog box, the data is copied with a row inserted between Waveform1 and Waveform2 as shown in the figure.

Mark

In superimposed display, marks created in the original assigned file are displayed, but you cannot edit them or add new ones.

Mark Note

In superimposed display, mark notes created in the original assigned file are displayed, but you cannot edit them or add new ones.
You cannot switch between normal display and compact display of mark notes either.

Image Mark

Image marks are not displayed in superimposed display.

Text Comment

Text comments created in the original assigned file are displayed, but you cannot edit them or add new ones.

Waveform Being Logged

If a waveform being logged is assigned, the waveform is updated to the latest data in sync with the waveform display window and displayed.

Note

- You cannot convert data from the superimposed display.
- For saving the display conditions of superimposed display, see**"4.1.2 Saving the Display Conditions of Superimposed Display" on page 4-2.**

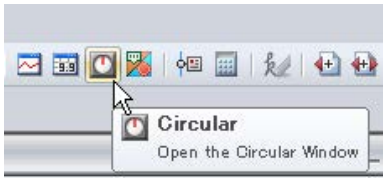
3.2 Displaying Waveforms on a Circular Chart

You can display data sampled on different channels of a recorder as waveforms on a circular chart.

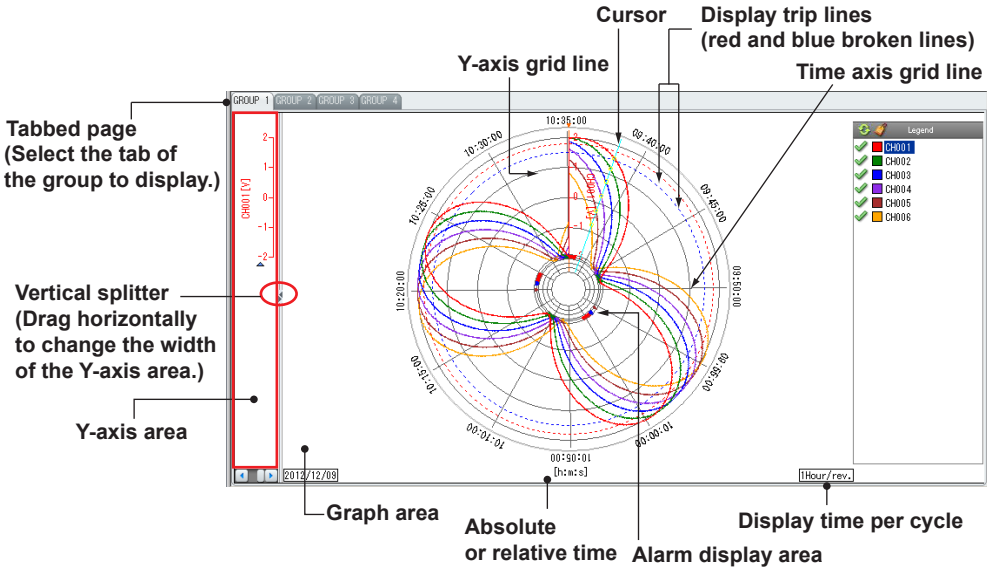
3.2.1 Circular Display Window

Procedure

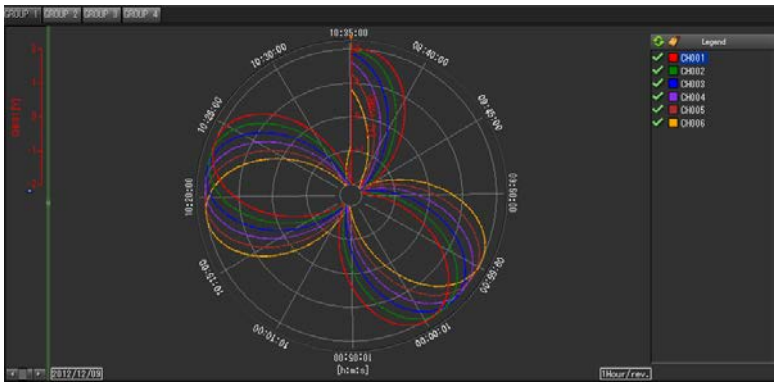
1 To open the circular display window, on the **Window** menu, click **Circular**. Or, click the **Circular** button.



The circular chart appears.



Circular display example (light style)



Circular display example (dark style)

This section explains display setting operations that are different from the waveform display window.

3.2.2 Setting Display Group Details

To set channel groups and how to display waveforms, use the Display Group Setting dialog box. In the circular display, the following items in the dialog box are different from the waveform display.

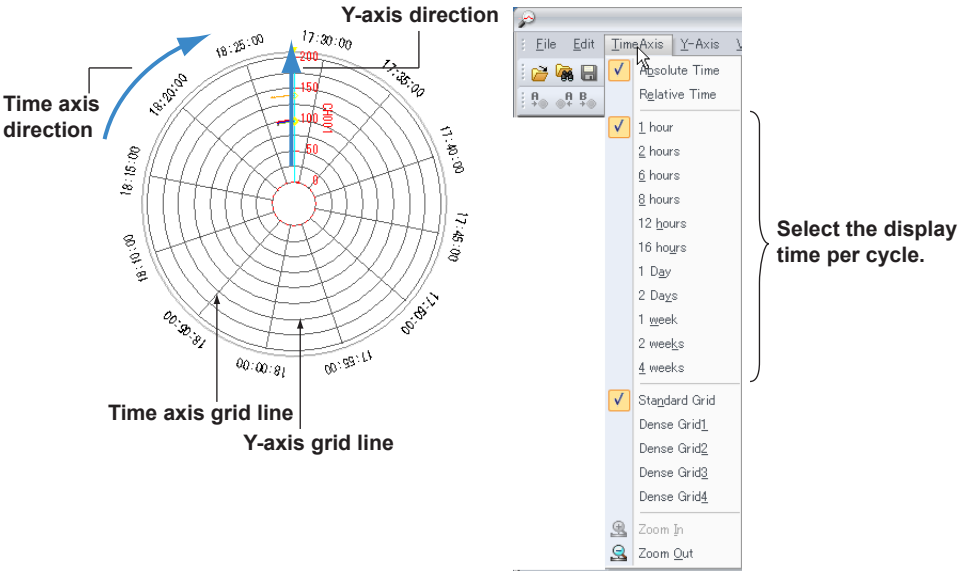
Trip Lines

You cannot drag trip lines to the circular display.
You can change trip line positions by changing the corresponding values in the Display Group Setting dialog box.

▶ Setting display group details (**section 3.1.2**)

3.2.3 Setting the Time Axis

Use the **TimeAxis** menu to set the X-axis.
In the circular display, the Y-axis spans from the center of the circle to its perimeter, and the X-axis runs along the perimeter, as shown in the figure below.



Changing the Display Cycle

To change the display cycle (the length of time per cycle), select the cycle that you want to display from the **TimeAxis** menu.

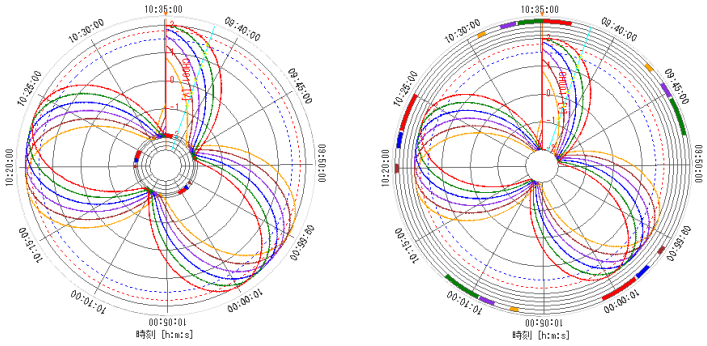
Switching the Time Zone

If data from the GX/GP/GM or Data Logging Software GA10 is displayed, you can change the time zone for displaying the time by clicking Time Zone on the View menu.

For details: ▶ **" Switching the Time Zone" on page 3-12**

3.2.4 Displaying Alarms

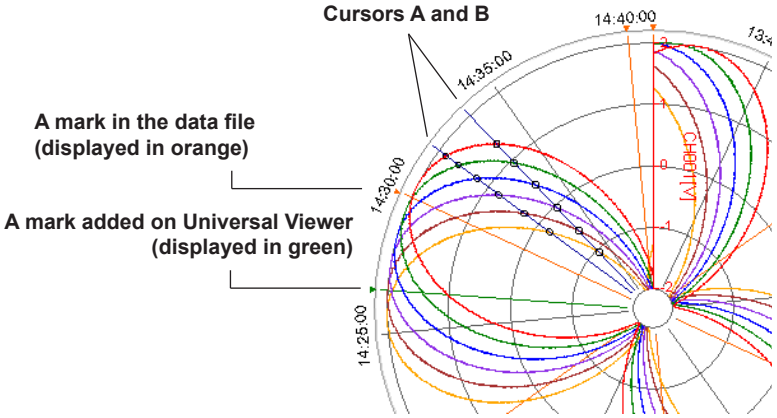
You can select where to display alarms: on the inside or the outside.
On the **View** menu, click **Alarm Inside** or **Alarm Outside**.
Alarms 1, 2, 3, and 4 are displayed in ascending order from the outside to the inside of the circular display.



Alarm inside **Alarm outside**

3.2.5 Displaying Cursors and Marks

- The way to specify cursors in the circular display window is the same as in the waveform display window. Click a location in the graph area to display cursor A. Drag the cursor and release it at a different location to display cursor B. However, you cannot place cursor B outside the current display range.
- The way to add, delete, and reset marks in the circular display window is the same as in the waveform display window. A mark on a circular display is shown with a pointer and line (see the figure below).



Note

If you set, clear, or reset items in the circular display window, the result of the operation is reflected in the other displays.

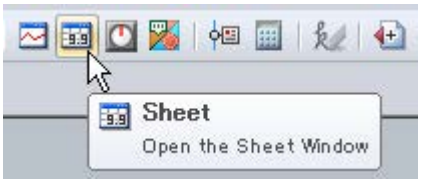
3.3 Displaying Digital Values

You can display data sampled on different channels of a recorder in a spreadsheet, with data entries arranged by their timestamps.

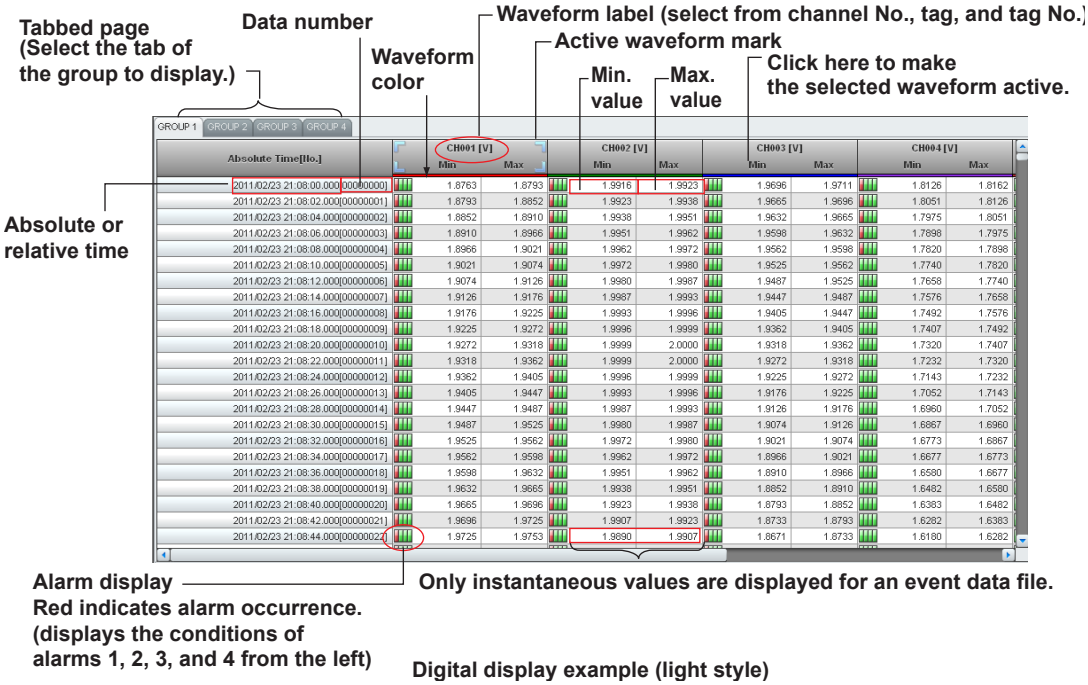
3.3.1 Digital Display Window

Procedure

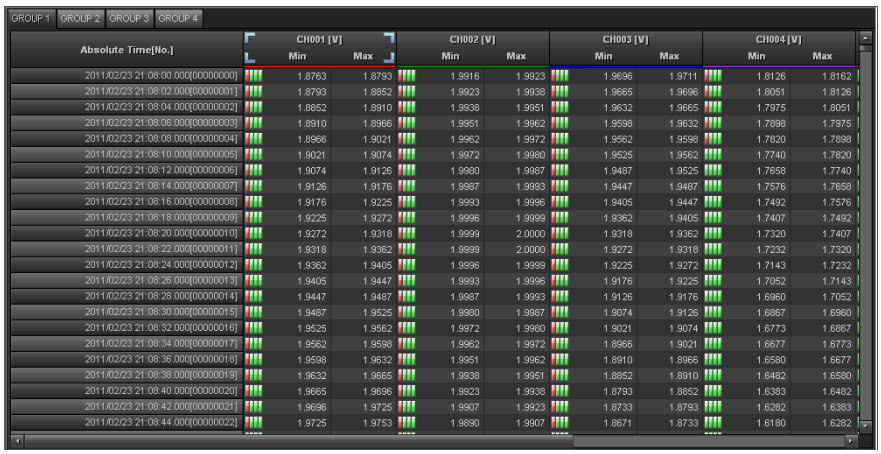
1. To open the digital display window, on the **Window** menu, click **Sheet**. Or, click the **Sheet** button on the toolbar.



Digital values will appear.

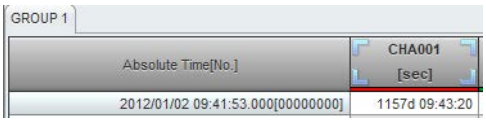


Digital display example (light style)



Digital display example (dark style)

Channels using the elapsed time calculation function's time format mode are displayed in time format mode.



Example of time format

3.3.2 Setting Display Group Details

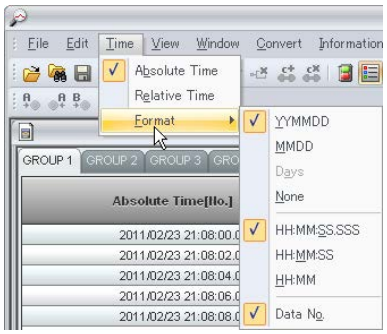
The settings in the Display Group Setting dialog box that affect the digital display are as follows:

- Active display group
- Display group name (tab title name)
- Waveform display on/off state
- Channels (assignment of channels to waveforms)
- Display format of values related to waveforms (Y-axis scale, cursor values, and trip line values)
- Waveform colors

▶ Setting display group details (**section 3.1.2**)

3.3.3 Setting the Time Axis

On the **Time** menu, click **Absolute Time** or **Relative Time**. Then, on the **Time** menu, click **Format**, and select the display format. Clear the **Data No.** check box to hide it.



Switching the Time Zone

If data from the GX/GP/GM or Data Logging Software GA10 is displayed, you can change the time zone for displaying the time by clicking Time Zone on the View menu.

For details: ▶ **" Switching the Time Zone" on page 3-12**

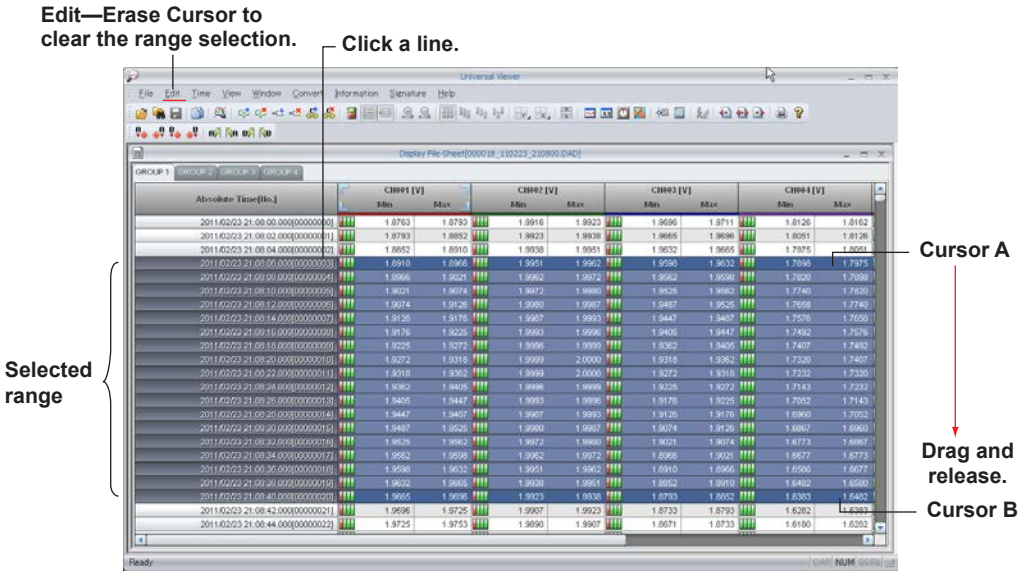
3.3.4 Setting Cursors

To specify cursors on the digital display window, select lines in the spreadsheet.

Procedure

1. Click the line where you want to set a cursor.
   The line is selected, and cursor A is set.

2. Drag the cursor to the line where you want to set cursor B, and release the mouse button.
   The line where you release the mouse button will be the cursor B position.



3. To clear the cursors, on the **Edit** menu, click **Erase Cursor**.
   The range selection will be released.

Note

You can use the keys below to move the display range.

- Press the UP ARROW key to scroll a line up and the DOWN ARROW key to scroll a line down.
- Press the PAGE UP key to show the previous page and the PAGE DOWN key to show the next page.
- Press the RIGHT ARROW key or LEFT ARROW key, respectively, to move one channel to the right or left.

Selecting All Data Points

On the **Edit** menu, click **Select All** to move cursor A to the beginning of the data and cursor B to the end of the data.

Copying Data

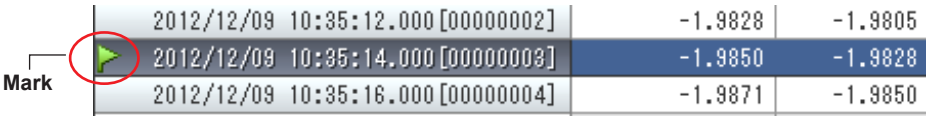
On the **Edit** menu, click **Copy** to copy the data between cursors A and B.

3.3.5 Adding a Mark

In this window, click a line to add a mark.
For details, see **"3.1.10 Adding, Editing, and Deleting Marks" on page 3-24.**

Procedure

1. Click the line where you want to add a mark.
   Cursor A is set.
2. On the **Edit** menu, click **Append Mark**. Or, click the corresponding button on the toolbar.
   The Mark Settings box appears.
3. Edit the mark information, and click **OK**.
   A mark is added to the cursor A line.



Note

If you set, clear, or reset cursors or markers in the digital display window, the result of the operation is reflected in the other displays.

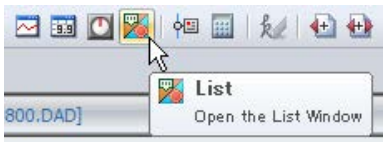
3.4 Displaying a List of Alarms, Marks, and Image Marks

When a display data file or event data file is open, you can view information related to alarms, marks, image marks, events, control operations, and operation log entries in list form.
To convert and save this information, see **"3.10 Converting Data" on page 3-75.**

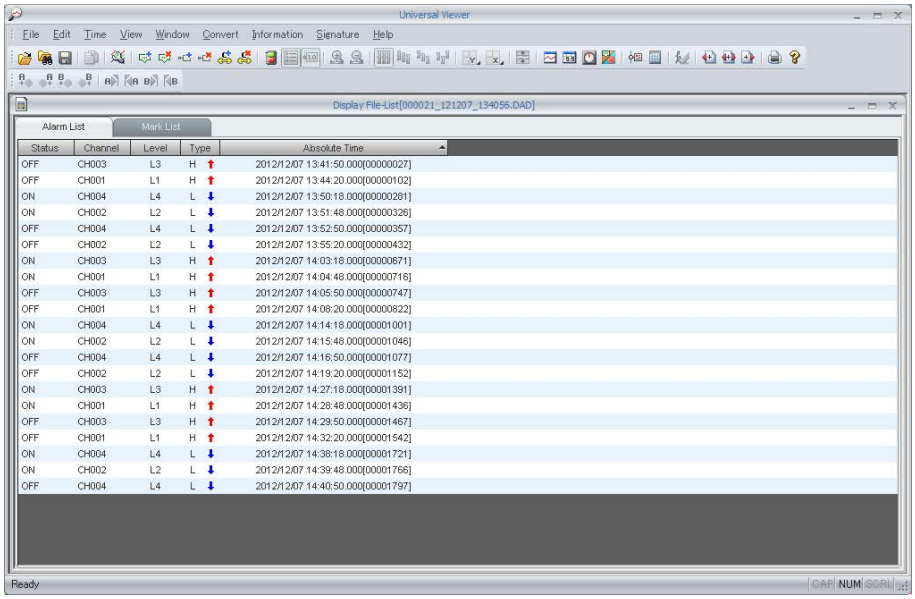
3.4.1 List display window

Procedure

1 To open the list display window, on the **Window** menu, click **List**. Or, click the **List** button on the toolbar.



The List window opens.



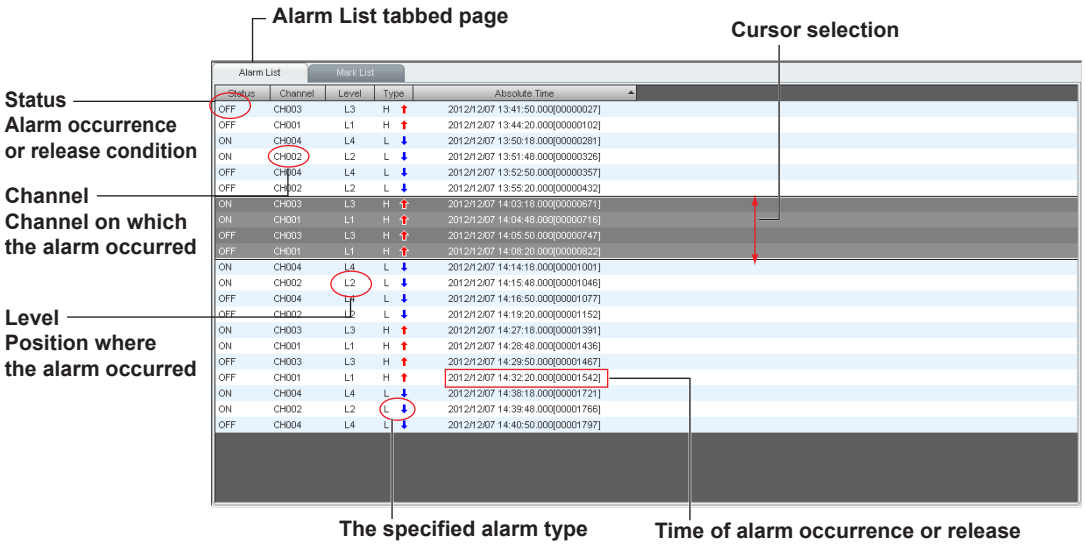
The List window consists of the following tabbed pages.

- Alarm List
- Mark List
- Image Mark List
- Event List
- Ctrl Alarm List
- Ctrl Status List
- Operation Log List

The Alarm List and Mark List tabbed pages are always displayed, but whether the other tabbed pages are displayed depends on the model and feature of the recorder that sampled the data.
For details on the Event List and Ctrl Status List tabbed pages, see **section 3.5**. For details on the Operation Log List tabbed page, see **section 3.6**.

▶ Files that can be displayed and their extensions (**section 1.1.1**)

3.4.2 Alarm List



The Alarm List tabbed page lists the alarm information (changes in the alarm status during recording) in the data file. The table below describes the displayed items.

Status

Display	Description
ON	Alarm occurrence
OFF	Alarm release
ACK	Alarm ACK operation

Level

Display	Description
L1	Alarm 1
L2	Alarm 2
L3	Alarm 3
L4	Alarm 4
ALL	Alarms 1 to 4

Alarm Type

Display	Description
OFF	Alarm off
H	high limit alarm
L	low limit alarm
dH	Difference high limit alarm
dL	Difference low limit alarm
RH	High limit on rate-of-change alarm
RL	Low limit on rate-of-change alarm
tH	Delay high limit alarm
tL	Delay low limit alarm
F	Profile high limit alarm
f	Profile low limit alarm
PVH	Measurement high limit alarm
PVL	Measurement low limit alarm
DVH	Deviation high limit alarm
DVL	Deviation low limit alarm
DVO	Deviation out limit alarm
DVI	Deviation in limit alarm
SPH	Setting high limit alarm
SPL	Setting low limit alarm
OTH	Output high limit alarm
OTL	Output low limit alarm

Continued on the next page

Display	Description
ETC	Other CX alarm
D	Data loss alarm
???	Other non-CX alarm
???	Alarm Ack [ALL](when all alarms are acknowledged)

Procedure

Sorting Data

On the Alarm List tabbed page, click a title item to sort the list by the item.
The first time you click, the list is sorted in ascending order; the second time you click, in descending order.

Copying Data

Specify the cursor range. Click a line to select cursor A and drag to cursor B. (The method is the same as in the digital display window.)
On the **Edit** menu, click **Copy** to copy the data between cursors A and B to the clipboard. The status, channel, level, type, and time information is copied. For the type, only the character string is copied. The data numbers in the Time column are not copied.

In addition to the operations above, you can specify the following settings on the Alarm List tabbed page.

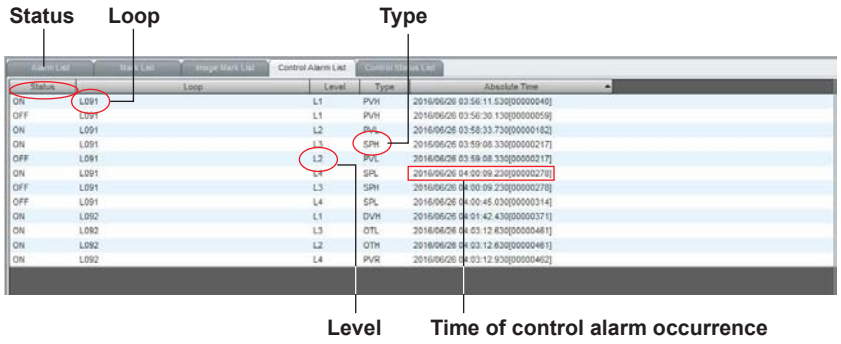
- Switch the channel string (View menu)
- Switch between absolute and relative time (Time Axis menu)
- Switch the time display format (Time Axis menu)
- Switch the time zone (View menu, GX/GP/GM and GA10 data only.)
- Show or hide data numbers (Time Axis menu)
- Search for alarms (Edit menu or search bar)
- Clear cursors (Edit menu)
- Select all data (Edit menu)
- Add marks (Edit menu or toolbar)
- Delete marks (Edit menu or toolbar)
- Reset marks (Edit menu)
- Search for marks (Edit menu or search bar)

Note

If you set, clear, or reset items in the Alarm List tabbed page, the result of the operation is reflected in the other displays.

3.4.3 Control Alarm List

Control Alarm List tabbed page lists the control alarm information in the data file acquired using the GX/GP/GM (PID control module). The table below describes the displayed items.



Status

Display	Description
ON	Alarm occurrence
OFF	Alarm release
ACK	Alarm ACK operation

Loop

Display	Description
L001 to L652	Loop number This changes to tag number or tag string depending on the display format in the menu.

Level

Display	Description
L1	Alarm 1
L2	Alarm 2
L3	Alarm 3
L4	Alarm 4
ALL	Alarms 1 to 4

Type

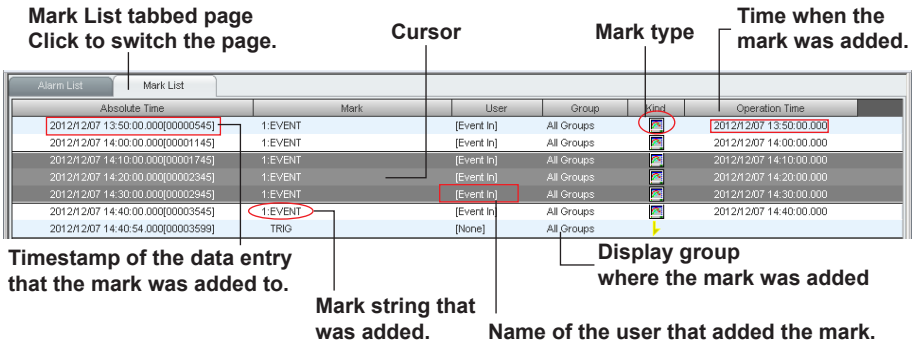
Only character strings are displayed. Icons are not displayed.

Display	Description
OFF	Alarm off
PVH	PV high limit alarm
PVL	PV low limit alarm
SPH	SP high limit alarm
SPL	SP low limit alarm
DVH	Deviation high limit alarm
DVL	Deviation low limit alarm
DVO	Deviation out limit alarm
DVI	Deviation in limit alarm
OTH	Output high limit alarm
OTL	Output low limit alarm
PVR	PV velocity

Absolute Time

Display	Description
yyyy/mm/dd hh:mm:ss.[Memory sample number]	Time of control alarm occurrence. Example: 2017/02/10 17:43:33.000[00000240]

3.4.4 Mark List



The Mark List tabbed page lists mark information (marks added during recording and marks added on Universal Viewer) in the data file. The displayed items are described below.

Mark

If the mark string is too long and does not fit in the display area, the overflowing characters are replaced with an ellipsis.

User

Display	Description
Key In	Input through key operation (touch operation) on the main unit
Remote In	Input through remote control
Comm. In	Input using a communication command
Event In	Input through event action
Serial In	Input through control via serial communication
System In	Input through auto control
EXTERNAL	Input through Modbus or other control
WEB	Input through the Web application
Username	The name of the logged-in user that performed the operation
None	None
Unknown	Input other than above

Group

Display	Description
All Groups	Mark that applies to all groups
Group a, Group b, Group c, etc.	Displays the applicable group number*

* When the applicable group is one group: Group a
When the applicable groups are multiple groups: Group a, Group b, Group c

- a, b, c: Group numbers The number of digits is not fixed. The numbers are shown in ascending order.
- If the group string is too long and does not fit in the display area, the overflowing characters are replaced with an ellipsis.

Type

Display	Description
	Trigger position
	Message created on the recorder and saved in the data file
	Mark added on Universal Viewer
	Mark added on the data logging software GA10

Note

Marks cannot be added during recording to data recorded by DAQLOGGER or DAQ32Plus/DAQ32. As such, only the trigger positions are displayed when the data file is opened.

Procedure

Copying Data

Specify the cursor range. Click a line to select cursor A and drag to cursor B. (The method is the same as in the digital display window or the Alarm List tabbed page.)
On the **Edit** menu, click **Copy** to copy the information between cursors A and B to the clipboard. However, the icons under the mark Type column are changed to the following character strings.

Display	Recorder Model That Created the Data File	String That Is Copied
	—	TRIG
	DX100, DX200	DX
	MV100, MV200	MV
	CX1000, CX2000	CX
	DX100P, DX200P	DXP
	FX100	FX
	DX1000, DX2000	DX-Adv.
	DX364	DX-Adv.
	MV1000, MV2000	MV-Adv.
	FX1000	FX-Adv.
	FW1000	FW-Adv.
	AX100	AX
	GX10, GX20	GX
	GP10, GP20	GP
	GM10	GM
	µR10000 or µR20000 with the /EM1 option	µR
	—	Viewer
	Data Logging Software GA10	PC Soft

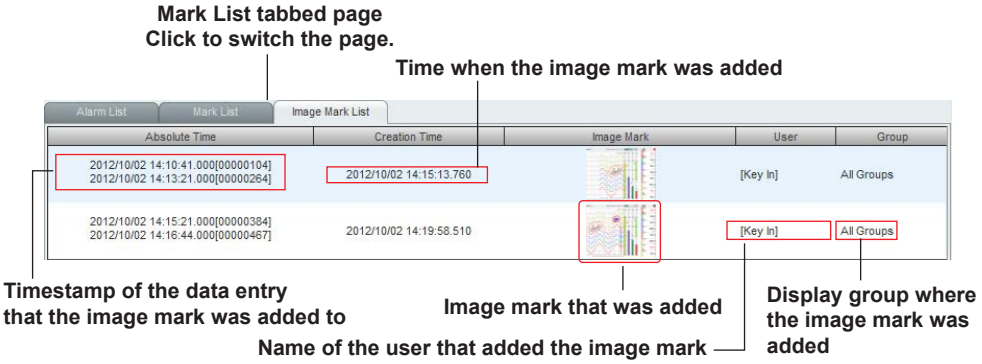
In addition to the operations above, you can specify the following settings on the Mark List tabbed page.

- Switch between absolute and relative time (Time Axis menu)
- Switch the time display format (Time Axis menu)
- Switch the time zone (View menu, GX/GP/GM and GA10 data only.)
- Show or hide data numbers (Time Axis menu)
- Search for alarms (Edit menu or search bar)
- Clear cursors (Edit menu)
- Select all data (Edit menu)
- Add marks (Edit menu or toolbar)
- Delete marks (Edit menu or toolbar)
- Reset marks (Edit menu)
- Search for marks (Edit menu or search bar)

Note

If you set, clear, or reset items in the Mark List tabbed page, the result of the operation is reflected in the other displays.

3.4.5 Image Mark List



The Image Mark List tabbed page lists image mark information (freehand messages added during recording) in the data file. The displayed items are described below.

Image Mark

Reduced image marks are displayed.

User

Display	Description
Key In	Input through key operation (touch operation) on the main unit
Remote In	Input through remote control
Comm. In	Input using a communication command
Event In	Input through event action
Serial In	Input through control via serial communication
System In	Input through auto control
Username	The name of the logged-in user that performed the operation
None	None
Unknown	Input other than above

Group

See the description for the Mark list tabbed page.

Procedure

Copying Data

The procedure is the same as that for the Mark list tabbed page. Images of freehand messages are not printed.

Image Mark Dialog Box

Double-click a line to open the Image Mark dialog box. You can copy or print the image mark from the Image Mark dialog box. For the operating procedure, see **"3.1.12 Displaying, Copying, and Printing Image Marks (Freehand messages)" on page 3-29.**

In addition to the operations above, you can specify the following settings on the Image Mark List tabbed page.

- Switch between absolute and relative time (Time Axis menu)
- Switch the time display format (Time Axis menu)
- Switch the time zone (View menu, GX/GP/GM and GA10 data only.)
- Show or hide data numbers (Time Axis menu)
- Specify cursors
- Clear cursors (Edit menu)
- Select all data (Edit menu)
- Delete marks (Edit menu or toolbar)

Note

If you set, clear, or reset items in the Image Mark List tabbed page, the result of the operation is reflected in the other displays.

3.5 Listing Event Information and Control Modes

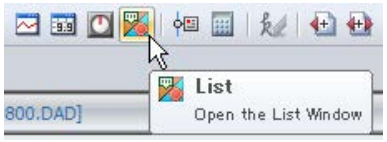
You can display event information and control mode information for display data files and event data files whose data has been sampled on the GX/GP/GM (PID control module) or the CX1000 or CX2000.
These two sets of information are displayed on the Event List tabbed page and Ctrl Status List tabbed page in the alarm/mark display window (**section 3.4**).

3.5.1 Event List

The Event List tabbed page lists events that occurred during memory sampling.

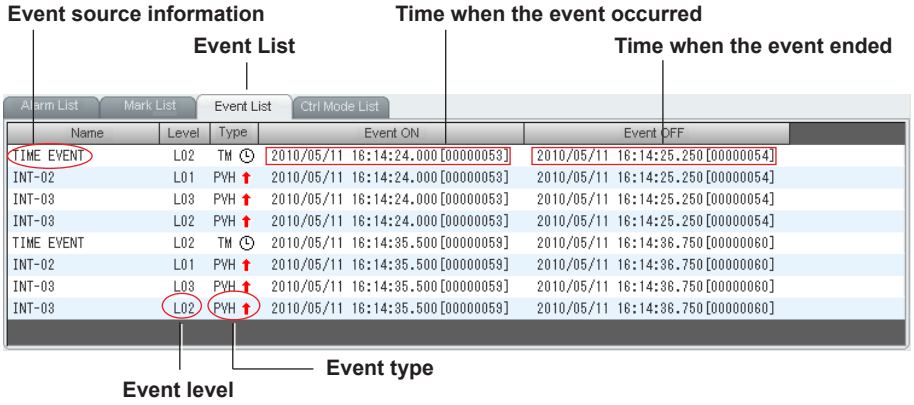
Procedure

1. To open the list display window, on the **Window** menu, click **List**. Or, click the **List** button on the toolbar.



The List window opens

2. Click the **Event List** tab.



Sorting Data

On the Event List tabbed page, click a title item to sort the list by that item.
The first time you click, the list is sorted in ascending order; the second time you click in descending order.
The table below shows the ascending sort rule.

Title	Ascending Display Order
Name	Time event, PV event. PV events are sorted by the displayed character strings.
Level	Ascending order from L01 to L16
Type	Off, time event, measurement high limit, measurement low limit, deviation high limit, deviation low limit, deviation out limit, deviation in limit, setting high limit, setting low limit, output high limit, output low limit
Event ON	Ascending order by event on time, space
Event OFF	Ascending order by event off time, space

Copying Data

Specify the cursor range. Click a line to select cursor A and drag to cursor B.
On the **Edit** menu, click **Copy** to copy the data between cursors A and B to the clipboard. The name, level, type, event ON, and event OFF information is copied. For the type, only the character string is copied. The data numbers in the Time column are not copied.

In addition to the operations above, you can specify the following settings on the Event List tabbed page.

- Switch between absolute and relative time (Time Axis menu)
- Switch the time display format (Time Axis menu)
- Show or hide data numbers (Time Axis menu)
- Search for alarms (Edit menu or search bar)
- Clear cursors (Edit menu)
- Select all data (Edit menu)
- Add marks (Edit menu or toolbar)
- Delete marks (Edit menu or toolbar)
- Reset marks (Edit menu)
- Search for marks (Edit menu or search bar)

Explanation

The items on the Event List tabbed page and their descriptions are provided below.

Name

Display	Event Type	Tag Number Available?	Loop Type	Description
TIME EVENT	Time event			TIME EVENT
[TagNo]	PV event	Yes		Tag number string
INT- [LoopNo]		No	Internal	INT-[loop number]
EXT- [LoopNo]			External	EXT-[loop number]

Loop numbers are displayed in two digits. A zero is inserted in the tens digit for numbers less than 10.

Level

Displays L01 to L16.

Type

Display	Description
OFF	Event off or event setting release
TM	Time event
PVH	Measurement high limit
PVL	Measurement low limit
DVH	Deviation high limit
DVL	Deviation low limit
DVO	Deviation out limit
DVI	Deviation in limit
SPH	Setting high limit
SPL	Setting low limit
OTH	Output high limit
OTL	Output low limit
???	Displayed in cases other than the above

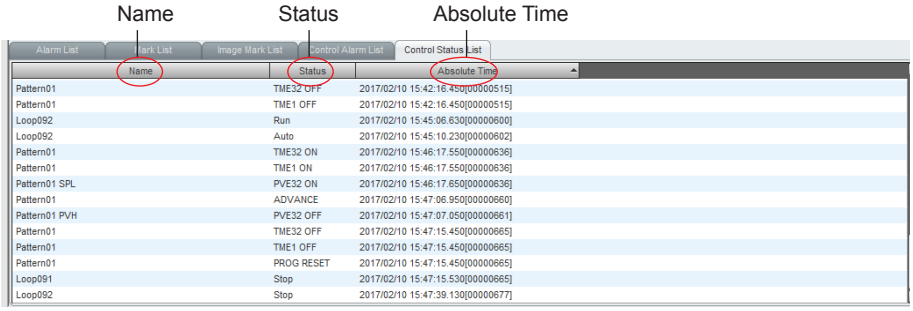
Event ON and Event OFF

Displays the time an event occurred and the time the event was released in the specified format.

3.5.2 Ctrl Status List

The Ctrl Status List tabbed page displays control mode information.
The method to show this page is the same as that for the Event List tabbed page. On the **Window** menu, click **List** and then the **Ctrl Status List** tab.

Data Display Example on the GX/GP/GM (with the PID control module)



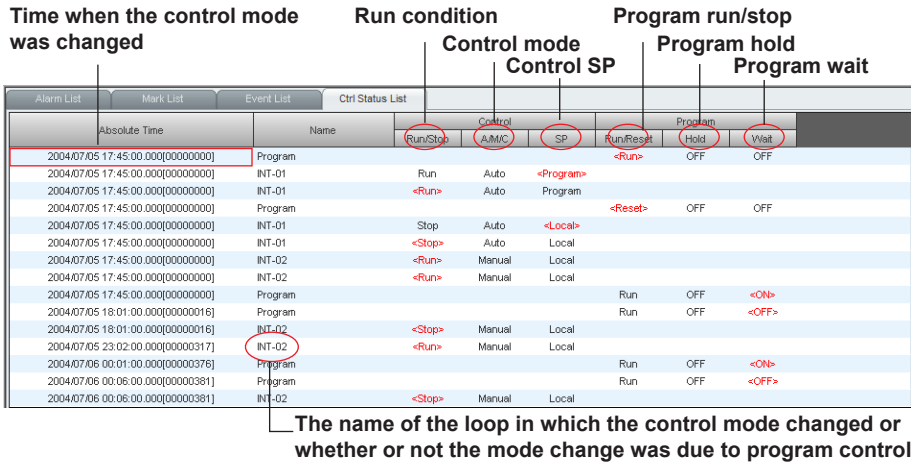
Explanation

The following table shows the contents displayed in the Ctrl Status List on the GX/GP/GM (with the PID control module).

Name	Status	Absolute Time
Loop number [1]	LOCAL	Time of control status occurrence.
	REMOTE	
	PROGRAM	
	AUTO	
	MANUAL	
	CASCADE	
	RUN	
	STOP	
	AT [PID Number] ON	
	AT [R] ON	
	AT OFF	
	STAND-BY ON	
	STAND-BY OFF	
Pattern number [2]	PROG RUN	
	RESET	
	HOLD ON	
	HOLD OFF	
	WAIT ON	
	WAIT OFF	
	ADVANCE	
Pattern number, Loop number, Type [3] Example: Pattern 0 Loop 092DVO	PVE [PV event number] ON [4] PVE [PV event number] OFF	
Pattern number	TIME [TIME event number] ON [5] TIME [PV event number] OFF	

1 Loop name on the View menu can be used to switch between Loop number, Tag No., and Tag string.
2 Pattern on the View menu can be used to switch between Pattern number and Pattern name.
3 For Type, the control alarm type on page 3-48 is displayed.
4 PV event number is a number between 1 to 32.
5 TIME event number is a number between 1 to 32.

Display Example of a CX1000/CX2000 Data File



Explanation

The items on the Ctrl Mode To tabbed page and their descriptions are provided below.

Time

Time when the control mode was changed The display format is the same as that of the windows and tabbed pages of other list formats.

Name

The name of the loop in which the control mode changed or whether or not the mode change was due to program control
If the event is a control mode change, the display format varies depending on whether there is tag information.
If the event is program control, “Program” is displayed.

Display	Control Type	Tag Number Available?	Loop Type	Description
Programs	Program control			
[TagNo]	Control mode	Yes		Tag number string
INT- [LoopNo]		No	Internal	INT-[loop number]
EXT- [LoopNo]			External	EXT-[loop number]

Ctrl—Run/Stop

Nothing is displayed for program control.

Display	Description
Run	Running
Stop	Stopped
Red characters enclosed in angle brackets.	Indicates that the state has changed.
Black characters not enclosed in angle brackets.	Indicates that the state has not changed.

Ctrl—A/M/C

Indicates auto, manual, or cascade control mode.
The meaning of the character color and the angle brackets are as described above.

Ctrl—SP

Indicates whether the SP value is in remote, local, or program mode.
The meaning of the character color and the angle brackets are as described above.

Display	Description
Local	Indicates local mode.
Remote	Indicates remote mode.
Program	Indicates program mode.

Program—Run/Stop

Nothing is displayed for control mode.

Display	Description
Run	Program control is running.
Stop	Program control is stopped.
Red characters enclosed in angle brackets.	Indicates that the program condition has changed.
Black characters not enclosed in angle brackets.	Indicates that the program condition has not changed.

Program—Hold

Indicates program control hold and release condition.
The meaning of the character color and the angle brackets are as described above. Nothing is displayed for control mode.

Display	Description
ON	Indicates program control hold.
OFF	Indicates program control hold release.

Program—Wait

Indicates program control wait and release condition.
The meaning of the character color and the angle brackets are as described above. Nothing is displayed for control mode.

Display	Description
ON	Indicates program control hold.
OFF	Indicates program control hold release.

Copying Data

Specify the cursor range (row range). Select cursor A (row), and drag to cursor B (row). On the **Edit** menu, click **Copy** to copy the data between cursors A and B to the clipboard. The time; name; ycontrol mode; control's A, M, or C; control SP; program mode; program hold; and program wait information is copied. However, data numbers in the time column are not copied. On the **Edit** menu, click **Erase Cursor** to clear the cursor range (row selection).

Converting Data

The event information in the data file that is currently displayed can be converted and saved in Excel or ASCII format. On the **Convert** menu, click **Ctrl Mode To** to open the Ctrl Mode To dialog box. Set the conditions for converting and saving the file in this dialog box.

▶ Converting data (**section 3.10**)

In addition to the operations above, you can specify the following settings on the Ctrl Mode To tabbed page.

- Switch between absolute and relative time (Time Axis menu)
- Switch the time display format (Time Axis menu)
- Show or hide data numbers (Time Axis menu)
- Search for alarms (Edit menu or search bar)
- Clear cursors (Edit menu)
- Select all data (Edit menu)
- Add marks (Edit menu or toolbar)
- Delete marks (Edit menu or toolbar)
- Reset marks (Edit menu)
- Search for marks (Edit menu or search bar)

3.6 Listing the Operation Log (DX100P/DX200P, DX1000/DX2000 with the /AS1 option, or GX10/GX20/GP10/GP20/GM10 with the /AS option)

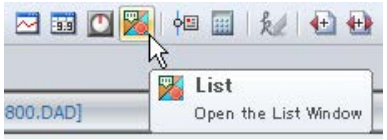
You can display operation logs of display data files and event data files that have been sampled on the DX100P; DX200P; DX1000, DX1000N, DX1000T, DX2000, or DX2000T with the /AS1 option; or the GX10, GX20, GP10, GP20 or GM10 with the /AS option. Operation logs are displayed on the Operation Log List tabbed page in the List window (**section 3.4**). The file name extension is .GSD, .DSD, or .dbd (display data files) or .GSE, .DSE, .dbe (event data files).

3.6.1 Operation Log List

The Operation Log List tabbed page lists operation log information in data files.

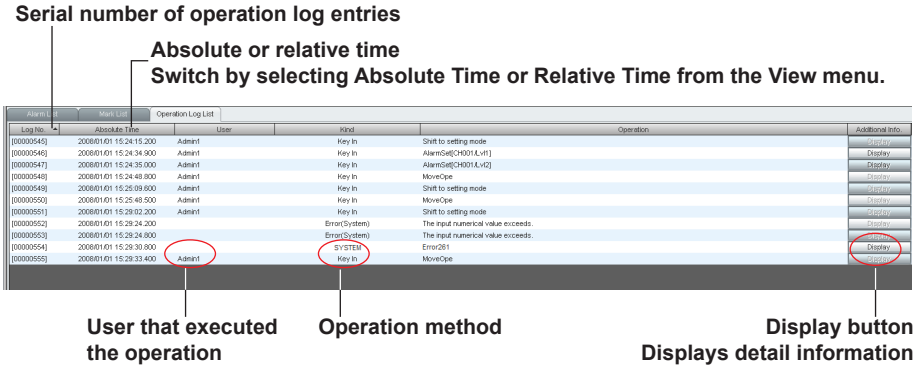
Procedure

1 To open the list display window, on the **Window** menu, click **List**. Or, click the **List** button on the toolbar.



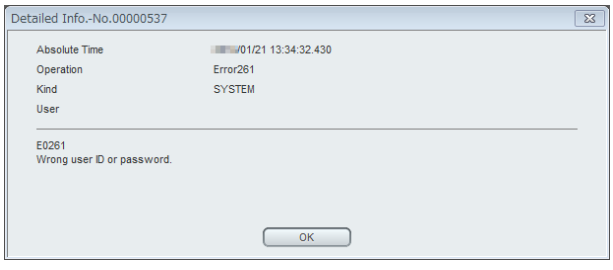
The List window opens.

2 Click the **Operation Log List** tab.



For log entries that have detail information, the **Display** button is enabled.

3. Click **Display**.



The Detailed Info. dialog box appears.

Note

If there are log entries of setting changes on the recorder that sampled the data, such entries are emphasized with text shadowing.
For these entries, you can start the configuration software from Universal Viewer to check all the settings of the recorder after the change. For instructions on how to start the configuration software, see **section 3.6.2.**

You can also perform the following operations on the Operation Log List tabbed page.

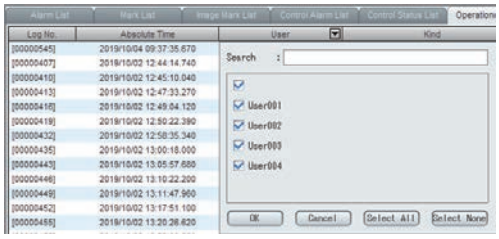
- Switch between absolute and relative time (Time Axis menu)
- Switch the time display format (Time Axis menu)
- Select all data (Edit menu)
- Reset marks (Edit menu)
- Sort data (Clicking on a title item)
- Filtering data (User, Kind, Operation)
- Copy data (Edit menu)

Filter Function

You can apply filters to the user, kind, and operation items.
The selected items are hidden from the list.

1 Click the filtering icon ( ) of each title.
A filtering dialog box appears.

2 Select the check boxes for the items you want filtered, and click OK.



Filtered items are hidden from display.

Converting Data

The operation log information in the data file that is currently displayed can be converted and saved in Excel or ASCII format. On the **Convert** menu, click **Operation Log To** to open the Operation Log List dialog box. Set the conditions for converting and saving the file in this dialog box.

Converting data: ▶ **section 3.10**

Explanation

The items on the Operation Log List tabbed page and their descriptions are provided below.

Log No.

Serial number of operation log entries

Time

Time when the operation took place

User

Displays the user name

Kind

Displays the type of information according to the recorder product
In case of an error or alarm, “Error” or “Alarm” appears followed by the type of error or alarm in parentheses. For example, if an error occurred when a key was pressed, “Error(Key In)” appears. If an alarm occurred when a key was pressed, “Alarm(Key In)” appears.

Device Type	DX100P/DX200P	DX1000/DX1000N/DX2000 with the /AS1 option
Display	Key In	Key In
	Remote In	Remote In
	User Key In.	Comm. In
	Comm. In	Event
	PC Software	System
	Meas. Srv.(Monitor)	PC Software
	FTP Server	Warning
	Test Srv.(Setting)	Error
	Test Srv.(Monitor)	Unknown
	Serial Comm.	
	Auto	
	Warning	
	Error	
	Unknown	

Device Type	GX10/GX20/GM10 with the /AS option	
Display	OPERATE	Touch operation on the recorder (including operations by barcode input)
	REMOTE	Input by remote control
	COMMU	Input via communication (including operations through Web application)
	ACTION	Operations by event-action function
	SYSTEM	Operation conducted by the recorder automatically
	SERIAL	Operation via serial communication
	EXTERNAL	Operation via Modbus, etc.
	WEB	Operation via the Web apllication
	PC	User is locked because of wrong operation on the PC.

Operation

The type of operation that took place is displayed. Operations vary depending on the model. The table below shows the operations that are displayed on the Operation Log List tabbed page.

List of Operations by Model

DX100P, DX200P

Operation	What Appears on the Screen (Bold words are displayed on the screen. Non-bold words are explanations.)
Login	**Login**
Logout	**Logout**
Invalid password	**Password refused**
Memory start	**Start memory**
Memory stop	**Stop memory**
Alarm acknowledgment	**Alarm ACK**
Message	**Message**
Manual sample	**Manual sample**
Trigger	**Trig**
Start computation	**Start Math function**
Stops computation	**Stop Math function**
Reset computation	**Reset Math data**
Computation dropout acknowledgment	**No Math data ACK**
Snapshot	**Snapshot**
Start mail	**Start mail**
Stop mail	**Stop mail**
Save display data	**Save Display Data**
Save event data	**Save Event Data**
Load display data	**Load Display Data**
Load event data	**Load Event Data**
Change settings	**Change configuration** [setting file sequence number]
Before time change	**Before time change**
Before time adjustment	**Before time adjust**
After time adjustment or change	**After change(adjust) time**
Power failure	**Power failure occurs**
Recovery after power failure	**Restart after Black Out**
Load login information	**Load login information**
Execute clear 1	**Clear 1**
Execute clear 2	**Clear 2**
Execute clear 3	**Clear 3**
Set batch number	**Set batch number**
Set lot number	**Set lot number**
Invalid password	**Password refused**
Save system mode configuration	**Save configuration (system mode)**
Save engineering mode configuration	**Save configuration (engineering mode)**
Load system mode configuration	**Load configuration (system mode)**
Load engineering mode configuration	**Load configuration (engineering mode)**
Change system mode configuration	**Change configuration** [setting file sequence number] **(system mode)**
Change engineering mode configuration	**Change configuration** [setting file sequence number] **(engineering mode)**
Change the engineering mode and system mode configurations	**Change configuration** [setting file sequence number] **(system mode & engineering mode)**
Change login information configuration	**Change configuration** [setting file sequence number] **(Login information)**
Change the system mode configuration and settings related to user registration	**Change configuration** [setting file sequence number] **(system mode & Login information)**
Login to A/D calibration mode	**Login(A/D calibration mode)**
Execute A/D calibration	**Execute A/D calibration**
Acknowledge unauthorized access	**Set user refused ACK**
Change password	**Change Password**
ConctClose	**ConctClose**
Upload file	**File Upload**
Download file	**File Download**
Change the number of calibration correction points	**Input calibration point change** (**CH** Channel number:previous number of points->new number of points)
Change the calibration correction value	**Set Point is changed** (**CH** Channel number **No.**Calibrated point**:**Value)

Operation	What Appears on the Screen (Bold words are displayed on the screen. Non-bold words are explanations.)
Reset computation	**Reset Math data (CH Channel number)**
Start gradual time adjustment	**Start of time adjustment** [Difference from the time to change to (+/-, minutes, seconds, milliseconds, microseconds)]
Adjust time using SNTP	**Time adjustment by the SNTP server.**
Switch in or out of daylight saving time	**Summer or winter time change.**
Save data from internal memory	**Manual data save to removable media.**
Change the engineering mode configuration and settings related to user registration	**Change configuration** [setting file sequence number] **(engineering mode & Login information)**
Change the engineering mode and system mode configuration and settings related to user registration	**Change configuration** [setting file sequence number] **(all)**

DX1000/DX1000N/DX1000T/DX2000/DX2000T Models with Release Number 4 and the /AS1 Option

Operation	What Appears on the Screen (Bold words are displayed on the screen. Non-bold words are explanations.)
A/D calibration mode	**A/D calibration mode**
A/D calibration	**A/D calibration**
Power off	**Power off**
Power on	**Power on**
Login	**Login**
Logout	**Logout**
Invalid user	**Invalid user**
Change password	**Change Password**
Acknowledge unauthorized access	**Unauthorized access ACK**
Start memory	**Start memory** (when the batch group number is invalid)
	Start memory [Batch group number] (when the batch group number is valid)
Stop memory	**Stop memory** (when the batch group number is invalid)
	Stop memory [Batch group number] (when the batch group number is valid)
Acknowledge alarm	**Alarm Ack** [ALL] (when all alarms are acknowledged)
	Alarm Ack [CH Channel number/Lvl Alarm level](when not all alarms are acknowledged)
Reset alarm display	**Alarm Display Reset**
Message	**Message** (when the batch group number is invalid)
	Message [Batch group number] (when the batch group number is valid)
Manual sample	**Manual Sample**
Start computation	**Start Math function**
Stop computation	**Stop Math function**
Reset computation	**Reset Math data** (when the batch group number is invalid)
	Reset Math data [Batch group number] (when the batch group number is valid)
Acknowledge computation data dropout	**No Math data ACK**
Snapshot	**Snapshot**
Start mail	**Start mail**
Stop mail	**Stop mail**
Save display data	**Save Display Data** (when the batch group number is invalid)
	Save Display Data [Batch group number] (when the batch group number is valid)
Save event data	**Save Event Data** (when the batch group number is invalid)
	Save Event Data [Batch group number] (when the batch group number is valid)
Manual data save to removable media.	**Manual data save to removable media.**
New time after time change or adjustment	**New time after time change or adjustment**
Change time	**Time Correction**
Start time adjustment	**Time adjustment start** [Difference from the time to change to (the text in the data file is displayed)]
Stop time adjustment	**Time adjustment stop**
Change time using SNTP	**Time adjustment by the SNTP server.**

Operation	What Appears on the Screen (Bold words are displayed on the screen. Non-bold words are explanations.)
Switch in or out of daylight saving time	**Switch between normal and daylight saving time**
Set batch number	**Set batch number** (when the batch group number is invalid)
	Set batch number [Batch group number] (when the batch group number is valid)
Set lot number	**Set lot number** (when the batch group number is invalid)
	Set lot number [Batch group number] (when the batch group number is valid)
Writing to a batch text field	**Writing to batch text field** (when the batch group number is invalid)
	Writing to batch text field [Batch group number] (when the batch group number is valid)
Second display update rate	**Second display update rate**
Standard display update rate	**Standard display update rate**
Modbus client manual recovery	**Modbus client manual recovery**
Modbus master manual recovery	**Modbus master manual recovery**
Reset timer	**Timer Reset** [ALL] (when all timers are reset)
	Timer Reset [Timer number](when not all timers are reset)
Reset the match time timer	**Match time timer reset** [Timer number]
Switch on the event level switch	**Event level switch on** [Switch number]
Switch off the event level switch	**Event level switch off** [Switch number]
Event edge switch	**Event edge switch** [Switch number]
Change to setting mode	**Change to setting mode**
Change to basic setting mode	**Change to basic setting mode**
Change to operation mode	**MoveOpe**
Write to a communication input channel	**Writing to communication input channel**[CH Channel number and set value (the text in the data file is displayed)]
Execute Modbus client exchange	**Modbus client exchange execution**[CMD Channel number and set value (the text in the data file is displayed)]
Execute Modbus master exchange	**Modbus master exchange execution**[CMD Channel number and set value (the text in the data file is displayed)]
Save settings in setting mode	**Settings saved in setting mode**
Load settings in setting mode	**Settings loaded in setting mode**
Load settings in basic setting mode	**Settings loaded in basic setting mode**
Clear 1	**Clear 1**
Clear 2	**Clear 2**
Clear 3	**Clear 3**
Clear 4	**Clear 4**
Calibration correction complete	**Input calibration finished**
Calibration correction period expiry	**Due date for the next input calibration is over**
Change setting mode settings	**Change configuration [**setting file sequence number**](Set mode)**
Change basic setting mode settings	**Change configuration [**setting file sequence number**](Basic setting mode)**
Change settings related to user registration	**Change configuration [**setting file sequence number**](Login information)**
Change setting mode settings and basic setting mode settings	**Change configuration [**setting file sequence number**](Basic setting mode & Set mode)**
Change the setting mode settings and settings related to user registration	**Change configuration [**setting file sequence number**](Set mode & Login information)**
Change the basic setting mode settings and settings related to user registration	**Change configuration [**setting file sequence number**](Basic setting mode & Login information)**
Change settings [No] (all)	**Change configuration [**setting file sequence number**](all)**
Set an alarm	**AlarmSet [**CH Channel number/Lvl Alarm level**]**
Change a calibration correction point.	**Input calibration point change [**CH Channel number/Pt Calibration point**]**
Change a calibration correction value.	**Input calibration value change [**CH Channel number/Pt Calibration point**]**
Sets an alarm delay	**AlmDlaySet [**CH Channel number**]**
Select a message	**Set message [**Message number**]**
Set the data save destination folder	**FolderSet**

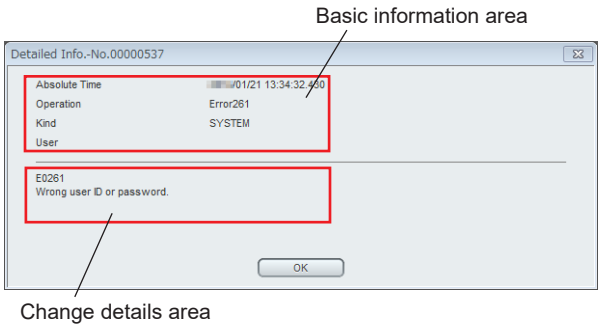
GX10/GX20/GP10/GP20/GM10 Models with the /AS Option

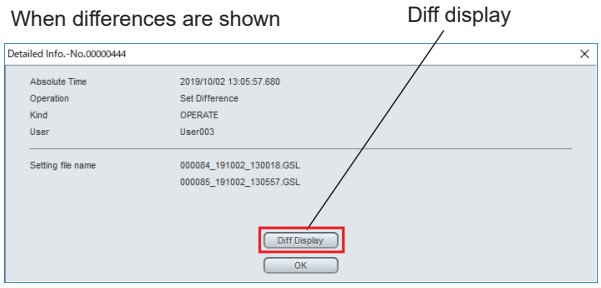
Operation	What Appears on the Screen (Bold words are displayed on the screen. Non-bold words are explanations.)
Error	**Error [**ErrorNo**]**
A/D calibration	**ExecA/DCal**
Power off	**PowerOff**
Power on	**PowerOn**
Login	**Login**
Logout	**Logout**
User invalidation	**UserLocked**
Password change	**ChgPasswd**
Mode change	**ChgMode**
Time change	**ChgTime**
New time	**NewTime**
Time adjustment start	**TRevStart**
Time adjustment stop	**TRevEnd**
SNTP time change	**SetSNTPtime**
Daylight saving time start	**DSTStart**
Daylight saving time end	**DSTEnd**
Unauthorized access acknowledge	**UserLockedACK**
Alarm acknowledge	**AlarmACK**
Message writing	**Message [**MessageNo**]** (Preset messages)
	MessageF [MessageNo**]** (Free messages)
	MessageHnd (Freehand messages)
Recording start	**Record Start**
Recording stop	**Record Stop**
Manual sample	**ManualSample**
Math start	**MathStart**
Math stop	**MathStop**
Math reset	**MathRST**
Computation data dropout acknowledgment	**MathACK**
Mail start	**MailStart**
Mail stop	**MailStop**
Modbus manual recovery	**RefModbus**
Display data save	**SaveDisp**
Event data save	**SaveEvent**
Manual data save	**ManualSave**
Snapshot	**Snapshot**
Batch number setting	**SetBatchNo**
Lot number setting	**SetLotNo**
Batch text field setting	**SetTextField**
Display update rate change	ChgRate
Timer reset	**TimerRST [***All***]** (When all timers are specified.) **TimerRST [***Timer No.***]** (When a single timer is specified.) **TimerRST [***Timer No.1, Timer No.2,...***]** (When multiple timers are specified.)
Match time timer reset	**MTimerRST [***All***]** (When all timers are specified.) **MTimerRST [***Timer No.***]** (When a single timer is specified.) **MTimerRST [***Timer No.1, Timer No.2...***]** (When multiple timers are specified.)
Communication channel writing (GX/GP operation only)	**WriteComm**
DO channel writing (for manual operation)	**WriteDO**
SW writing (for manual operation) (GX/GP, communication, serial)	**WriteSW**
Report save	**SaveReport**
Scale image save	**SaveScale**
Custom display save	**SaveCustom**
Certificate save	**SaveCert**
Parameter save	**SaveParameter**
All settings save	**SaveAll**
Report load	**LoadReport**

Operation	What Appears on the Screen (Bold words are displayed on the screen. Non-bold words are explanations.)
Scale image load	**LoadScale**
Custom display load	**LoadCustom**
Parameter load	**LoadParameter**
Certificate load	**LoadCert**
All settings load	**LoadAll**
Key creation	**GeneKeyDone**
Key creation	**GeneKeyCancel**
Key creation	**GeneKeyStart**
Installation of certificate	**InstallServCert**
Certificate creation	**CreateCert**
Touch screen adjustment	**ExecTouchCal**
initialization	**Initialize**
Sign in	**Sign In**
Key lock enabled	**LockHardwareKey**
Key lock released	**UnlockHardwareKey**
Bluetooth On	**BluetoothOn**
Bluetooth Off	**BluetoothOff**
Clear Bluetooth connection list	**ClearBTCnctList**
Fixed IP address mode	**FixedIPAddressMode**
Collectively storing unsaved data	**SaveManual**
Setting change	**SetParameter**
Alarm setting change	**SetAlarm**
Alarm delay setting change	**SetAlmDelay**
Calibration correction/set point change	**SetCCModePnt**
Calibration correction value change	**SetCCValue**
Save directory change	**SetDirectory**
Recipient address change	**SetRecipient**
Source address change	**SetSender**
Subject change	**SetSubject**
Login change	**SetLogin**
Module update	**UpdateModule**
Module disconnection	**RemoveModule**
Modules installed	**AttachModule**
Module information	**InfoModule**
Module activation	**ApplyModule**
Reconfiguration	**ConfigModule**
Updating	**UpdateWeb**
SLMP recovery	**RefSLMP**
Multi batch change	**MultiBatch**
Expiration	**Expiration**
Schedule setting	**SetSchedule [***Number***]** (The number is two-digit number.)
Calibration factor setting	**SetCFactor**
Analog output retransmission	**AO re-Trans**
Analog manual output	**AOManual**
Module calibration	**CalModule**
Iindividual setting initialize	**Indv Init [recording channel settings, display group settings]**
SetComment	**SetComment**
SetDiff	**SetDiff**
Save predictive detection model	**SavePredictModel**
Load predictive detection model	**LoadPredictModel**
Waiting predictive detection model load	**WaitPredictModel**
Save profile trend	**SaveProfile**
Load profile trend	**LoadProfile**
Predictive detection section start	**PredictionStart**
Predictive detection section stop	**PredictionStop**
HOLD profile trend On	**ProfileHoldOn**
HOLD profile trend Off	**ProfileHoldOff**
Section setting for prediction	**SetPredictSect**
Elapsed time start	**ETCNTStartxx** (xx is 01 to 50)
Elapsed time stop	**ETCNTStopxx** (xx is 01 to 50)
Elapsed time reset	**ETCNTResetxx** (xx is 01 to 50)
Individual math reset	**MathResetAxxx** (Axxx is the math channel)

Detail Information

When detailed information, such as error occurrence and setting changes, is available in the operation log, the **Display** button is enabled.
The button will not appear for DX100P or DX200P.
Clicking **Display** opens the Detailed Info. dialog box.





The following items are displayed in the basic information area. For the definitions of "Operation" and "Kind," see the previous list of operations by model.

- [Absolute Time] Time when the operation took place.
- [Operation] Operation that was executed.
- [Batch] Batch number (only when available.)
- [Kind] Operation method.
- [User] Name of the user that executed the operation.

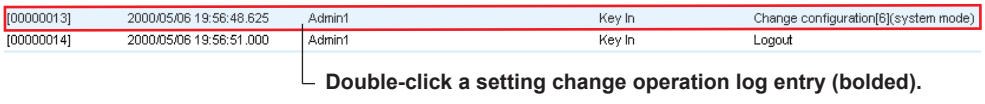
Specific details of changes, channel numbers, slot numbers, errors, and the like are displayed in the change details area.

When the operation is Set Difference, a Diff Display button appears.
When you click this button, Hardware Configurator starts, and the difference display appears. (Hardware Configurator must be installed to use the difference display.)

3.6.2 Starting the Hardware Configurator and Viewing Operation Logs

Procedure

1 On the Operation Log List tabbed page, double-click an entry that is emphasized with text bolded (operation log entry of setting change).



Hardware Configurator starts and displays settings.

Explanation

You can use the configuration software to view all the settings of the recorder that took effect after changes were made.
The table below shows the types of operations in a log that enable you to start the configuration software.

Model	Display
DX100P, DX200P	Change settings [No]
	Change settings [No] (system mode)
	Change settings [No] (engineering mode)
	Change settings [No] (system and engineering modes)
	Change settings [No] (login information)
	Change settings [No] (system mode and login information)
	Change settings [No] (login information and engineering modes)
	Change settings [No] (all)
DX1000, DX1000N, DX1000T, DX2000, DX2000T with the /AS1 option	Change settings [No] (setting mode)
	Change settings [No] (basic setting mode)
	Change settings [No] (login information)
	Change settings [No] (basic setting mode and setting mode)
	Change settings [No] (login information and setting mode)
	Change settings [No] (basic setting mode and login information)
	Change settings [No] (all)
GX10, GX20, GP10, GP20, GM10 with the /AS option	Change settings
	SetDiff

Configuration changes to devices that have collected data are always saved in the setting data files of those devices. To start the configuration software from an operation log, you need the setting data file and the appropriate configuration software for the device (see the table below).

- Do not move the setting data file of a device from the folder containing the data file that is being displayed.
- Install Hardware Configurator in the same folder as Universal Viewer. To specify the installation folder, set Setup Type to Custom.
- Install DXA120 DAQSTANDARD Hardware Configurator in the same folder as Universal Viewer. To specify the installation folder, set Setup Type to Custom. Universal Viewer is installed in the following default folder.
  System drive: \Program Files\Yokogawa Electric Corporation\SMARTDAC+ STANDARD Universal Viewer\

Model	Hardware Configurator	Setting Data File (Extension)
DX100P, DX200P	DXA120 DAQSTANDARD DX-P Hardware Configurator	*.PPL
DX1000, DX2000 with the /AS1 option	DXA120 DAQSTANDARD Hardware Configurator	*.PEL
GX10, GX20, GP10, GP20, GM10 with the /AS option	SMARTDAC+ STANDARD Hardware Configurator	*.GSL

Note

Hardware Configurator will not start if:

- The entry you double-clicked is not a log of configuration changes.
- Hardware Configurator was not installed when you started Universal Viewer.
- Hardware Configurator is not installed when you double-click the list.
- The setting data file of the device is not in the same folder as the data file that is being displayed.

3.7 Displaying and Converting a TLOG File (CX1000/CX2000, DX100/DX200/DX200C, DX100P/DX200P, MV100/MV200 or FX100)

You can display TLOG files created by a CX1000/CX2000, DX100/DX200/DX200C, DX100P/DX200P, MV100/MV200 or FX100. TLOG files have .dtg extensions.

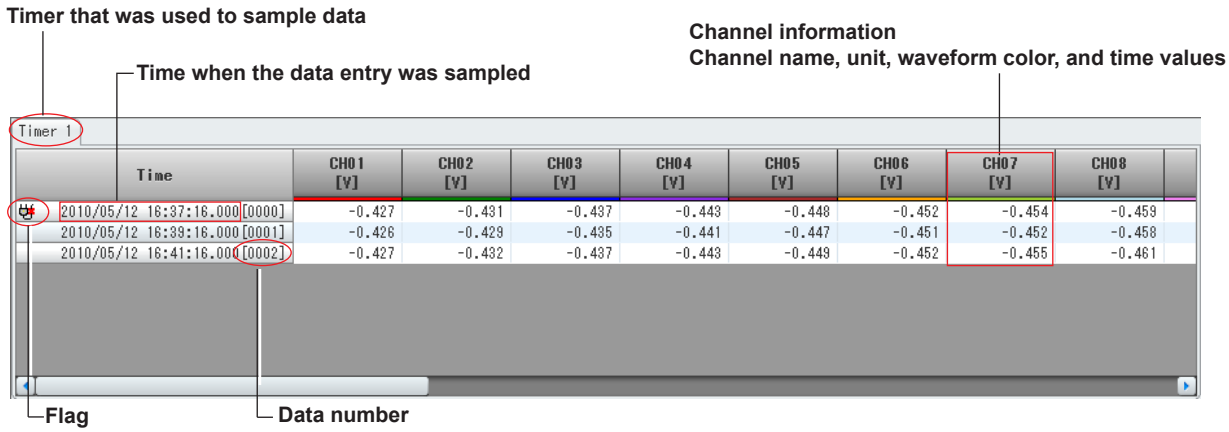
3.7.1 TLOG File Display Window

The TLOG file display window shows data of different timers collected during TLOG memory sampling. Digital values are grouped by timers and displayed on separate tabs.

Procedure

1 Open a TLOG file.

On the **File** menu, click **Open** to select the TLOG file you want to open. You can also click **Open** on the toolbar.
Data will appear.
Three timers can be used during TLOG memory sampling. The data of the timer with the smallest number is displayed on the front-most tab.



Explanation

Switching the Channel String

On the **View** menu, click **Channel** or **Tag No.** to select the display mode.

Switching the Time Display Format

On the **View** menu, click **Date** or **Time** to select the format.

Showing or Hiding Data Numbers

On the **View** menu, turn on **Data No.** to show data numbers after timestamps. Turn it off to hide them.

Showing or Hiding Flags

One the **View** menu, turn on **Flags** to show the following status information.

Display	Description
	Stopped TLOG computation.
	The recorder's date and time were changed during TLOG computation.
	Power failure occurred during TLOG computation.

If multiple flags are present, they are displayed overlapped with the following precedence from top to bottom: stop, time change, and power failure.

Displaying TLOG File Information

On the **Information** menu, click **About Document** to view information about the displayed TLOG file.

Viewing data file information: ▶ **section 2.4**

3.7.2 Converting a TLOG File

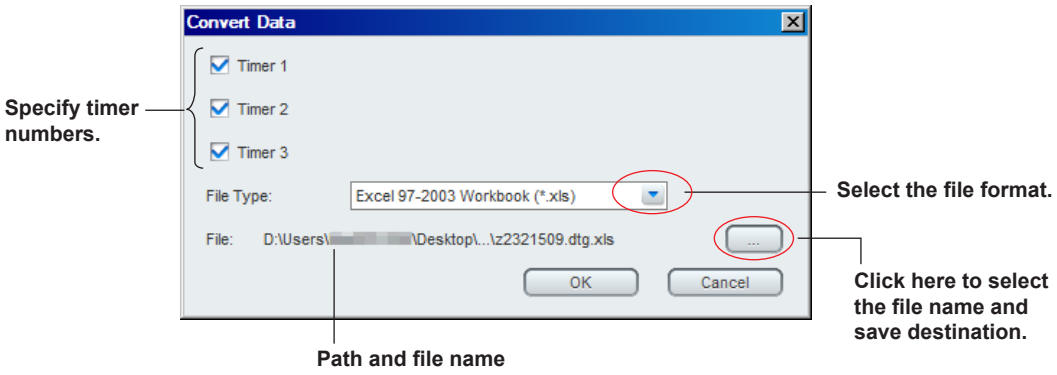
The sampled data in a TLOG data file can be converted and saved in Excel or ASCII format. Use the Convert Data dialog box to specify the settings for the data conversion.

Procedure

1. On the **Convert** menu, click **Convert Data**.
   The TLOG Convert Data dialog box appears.

2. Specify the settings for the file conversion.

   The sampled data is saved in groups of timers. Select which timer to convert the data of.



3. After you finish configuring the settings, click **OK**.
   The data will be converted.

3.8 Viewing Report Files

You can view data in report files as digital (numeric) values.

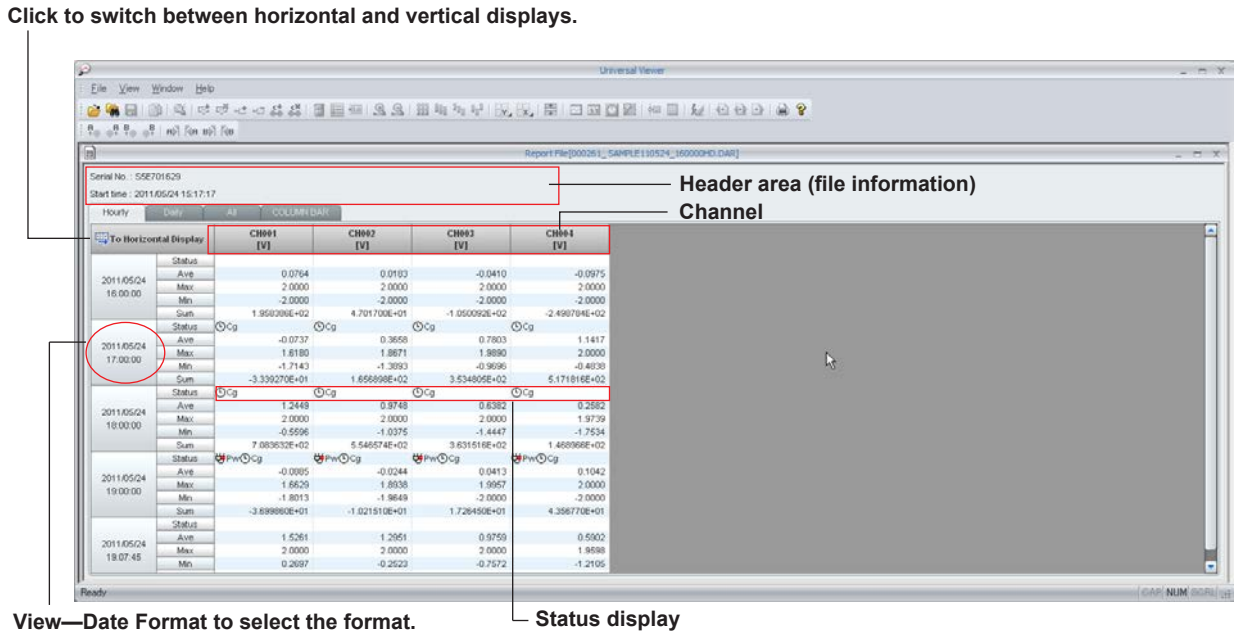
3.8.1 Report File Display Window

The report file display window displays data from files with .DAR or .GRE extensions.

Procedure

1. On the **File** menu, click **Open**. Or, click **Open** on the toolbar.
2. Select the report file that you want to display.

   The report will appear. The figure below is an example of a report file containing hourly and daily reports displayed in horizontal format.



Explanation

The report file display window consists of a header area and multiple tabbed pages described below. Data in a file are displayed in different tabbed pages according to their type.

Hourly tab	Displays hourly reports in the file in a spreadsheet
Daily tab	Displays daily reports in the file in a spreadsheet
Weekly tab	Displays weekly reports in the file.
Monthly tab	Displays monthly reports in the file in a spreadsheet
Batch Report tab	Displays batch reports in the file in a spreadsheet
Daily Custom tab	Displays custom daily report data in the file in a spreadsheet
Free tab	Displays free data in the file in a spreadsheet
All tab	Displays in a spreadsheet hourly, daily, weekly, monthly, batch, and custom-daily reports and free data.
Column Bar tab	Displays the sum of each tabbed page above in a stacked bar graph format.
Batch Info tab	Displays batch information when the file contains batch reports and batch information.

Note

Not all the tabbed pages are displayed, only those whose data is included in the report file.

You can perform the following operations on the report file display window.

Switching the Channel String

On the **View** menu, click **Channel**, **Tag No.** or **Tag Comment** to select the channel display mode. This also changes the channel names in the legend on the Column Bar tab.

Switching the Time Display Format

On the **View** menu, click **Date Format** to select the date format. This also changes the date format of the time axis on the Column Bar tab.

Switching the Sheet Display Direction

Click the horizontal/vertical display switch button to arrange the channels vertically (vertical display) or arrange the channels horizontally (horizontal display).

Sheet's Data Display Area

The data display area shows the following information.

Status

The events that occurred during the creation of the report are displayed using icons and text.

Display	Status	Description
Er	Error	A measurement or computation error occurred during the period over which the report was created. For reports (*.rbi) recorded by DAQLOGGER or DAQ32Plus/DAQ32, the following error data is simply displayed as "Er". Illegal, Invalid, Error, No Ch, Sp In, Unknown
Ov	Over	A range-over or computation overflow occurred during the period over which the report was created. For reports (*.rbi) recorded by DAQLOGGER or DAQ32Plus/DAQ32, the following error data is simply displayed as "Ov". +Over, -Over, Data Under, Data Over, Exp Under, Exp Over
Pw	Blackout	A power failure occurred during the period over which the report was created.
Cg	Time Correction	The time was changed during the period over which the report was created.
Bo	Burnout	A burn out occurred during the period over which the report was created.

Ave

The average value during the period over which the report was created.

Max

The maximum value during the period over which the report was created.

Min

The minimum value during the period over which the report was created.

Sum

The sum value during the period over which the report was created.

Inst

The instantaneous value when the report was created.

Total

The accumulated sum value during the period over which the report was created. This is displayed in reports (*.rbi) recorded by DAQLOGGER or DAQ32Plus/DAQ32.

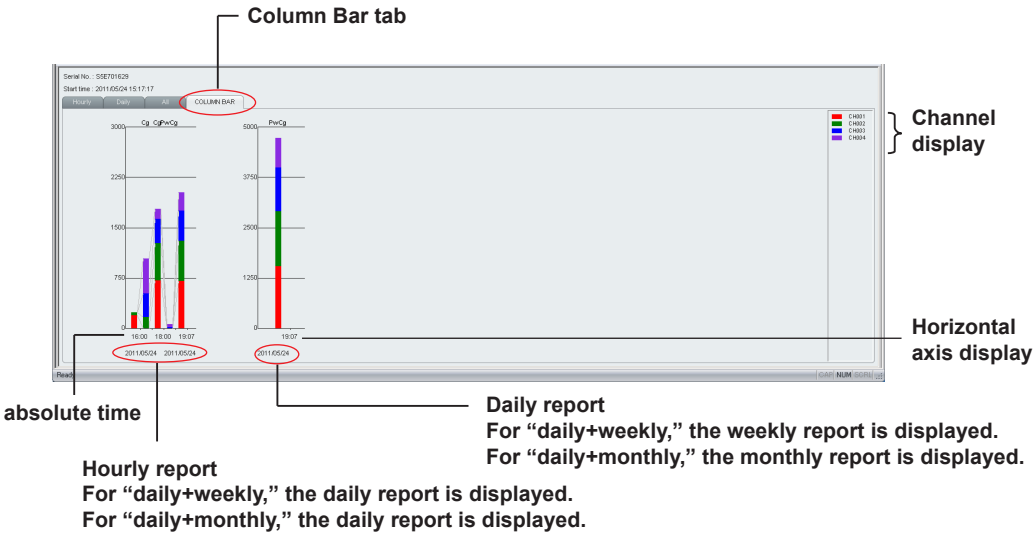
The Ave, Max, Min, Sum, Inst and Total values are displayed only if they had been specified in the report file creation settings.

Report Type (All tab)

On the All tabbed page, a summary of each tabbed page is displayed.
Therefore, the report type (hourly, daily, weekly, monthly, batch, custom-daily, or free) is shown next to the time display.

Stacked Bar Graph Display (Column Bar tab)

If the report data contains sum values, stacked bar graphs will be drawn on the Column Bar tabbed page. In reference to the first channel whose sum value is greater than or equal to zero, all channels whose unit is the same as the reference channel or all channels whose sum value is greater than or equal to zero are summed and displayed in a bar graph.
Column bar graphs and legends can be displayed for up to 60 channels.



The tabs are displayed from left to right in the following order: hourly, daily, weekly, monthly, batch, custom-daily, and free.

Note

- You cannot change the channel colors of bar graphs.
- The horizontal axis and the time display format vary depending on the file type. You cannot change them.
- All channels in the report file are displayed in a single window.
- Channels that contain errors, over-range, or negative values are not displayed.

Batch Information Display (Batch Info. tab)

When report data contains batch information, the following information is displayed on the Batch Info tab.

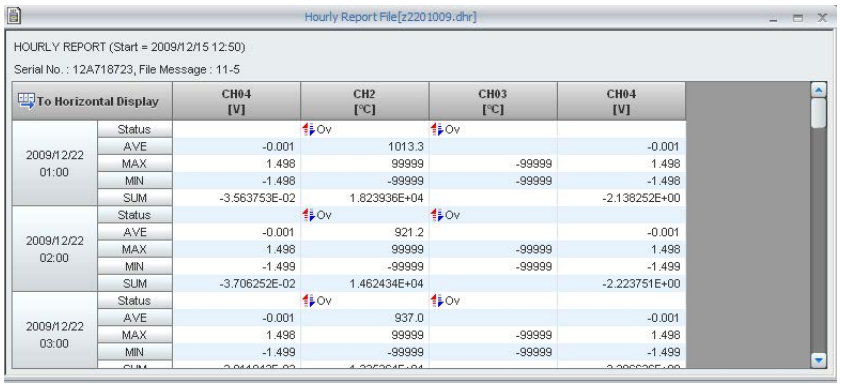
- [Batch No.]: Batch number in the file.
- [Lot No.]: Lot number in the file.
- [Comment1] to [Comment3]: Displays in order the time, user name, and comment of the data in the file.
- [Title]: Batch text title.
- [Description]: Batch text.

3.8.2 Hourly, Daily, Weekly, and Monthly Report File Display Window (CX1000/CX2000, DX100/DX200, DX100P/DX200P, MV100/MV200 or FX100)

The hourly, daily, weekly, and monthly report file display window displays data from report files with .dhr, .ddr, .dwr, and .dmr extensions.

Procedure

1. On the **File** menu, click **Open**. Or, click **Open** on the toolbar.
2. Select the report file that you want to display.
   Data will be displayed using digital values.



Explanation

The hourly, daily, weekly, and monthly report file display window displays the content of a report in a header and spreadsheet areas. The following items are displayed.

Display		Description	
Header area	HOURLY REPORT	Report type	Hourly report
	DAILY REPORT		Daily report
	WEEKLY REPORT		Weekly report
	MONTHLY REPORT		Monthly report
	Serial No.	Serial number	Serial number of the recorder
	File Message	File message	File header string specified on the recorder at the time the data file was created.
Spreadsheet area	CH [*number*] [*unit*]	Channel number Unit	
	Date and time		Format specified in time display
	Status	Status	Event that occurred during the creation of data
	AVE	Average value	
	MAX	Maximum value	
	MIN	Minimum value	
	SUM	Sum value	

Note

- The displayed information of Status is the same as that in the report file display window.
- You can switch the time display format and the spreadsheet display direction. The strings displayed for channels cannot be changed.

3.9 Viewing Manual Sampled Data Files

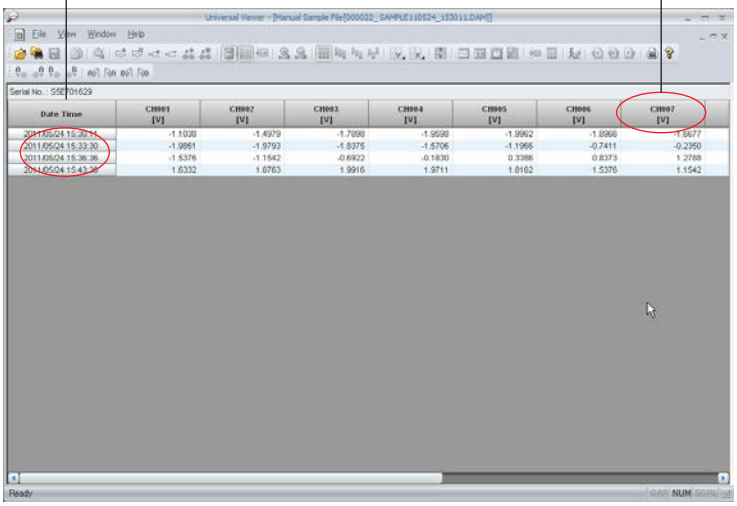
This section explains how to view data in manual sampled data files.

Procedure

1. On the **File** menu, click **Open**. Or, click **Open** on the toolbar.
2. Select a manual sampled data file.
   When you open the file, the corresponding data will appear. The figure below shows the window for files with .GMN and .DAM extensions.

Name and unit of the sampling channel
Use the View menu to select channel, tag No., or tag comment.

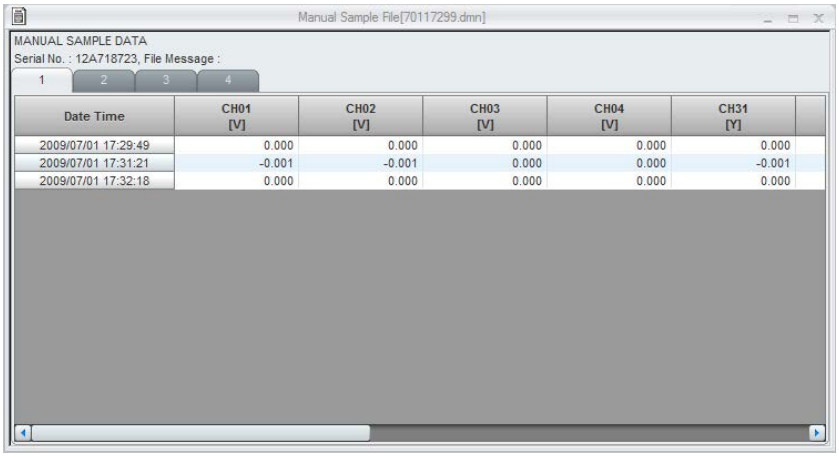
Date and time that the manual sample was taken.
View—Date Format to select the format.



Values at each timestamp

Manual Sampled Data Files with the .dmn Extension

In a display window showing the contents of a CX1000, CX2000, DX100, DX200, DX200C, MV100, MV200 or FX100manual sampled data file (.dmn extension), if the file contains data samples that were sampled under different conditions, they are displayed in separate tabs.



Note

- The strings displayed for channels cannot be changed.
- If any of the conditions below apply, another tabbed page will be added.
  Each time the measurement mode of a measurement channel is changed between SKIP and another mode
  Each time a measurement channel is switched between on and off
  Each time a channel unit is changed

3.10 Converting Data

You can convert measured data, alarms, and other additional information included in display, event data files, and statistics, integration report data to Excel or ASCII format and save them.

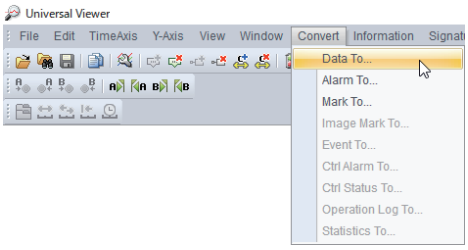
▶ Converting a TLOG file (**section 3.7.2**)

3.10.1 Converting Data

Use the Convert Data dialog box to specify the settings for converting the displayed data.

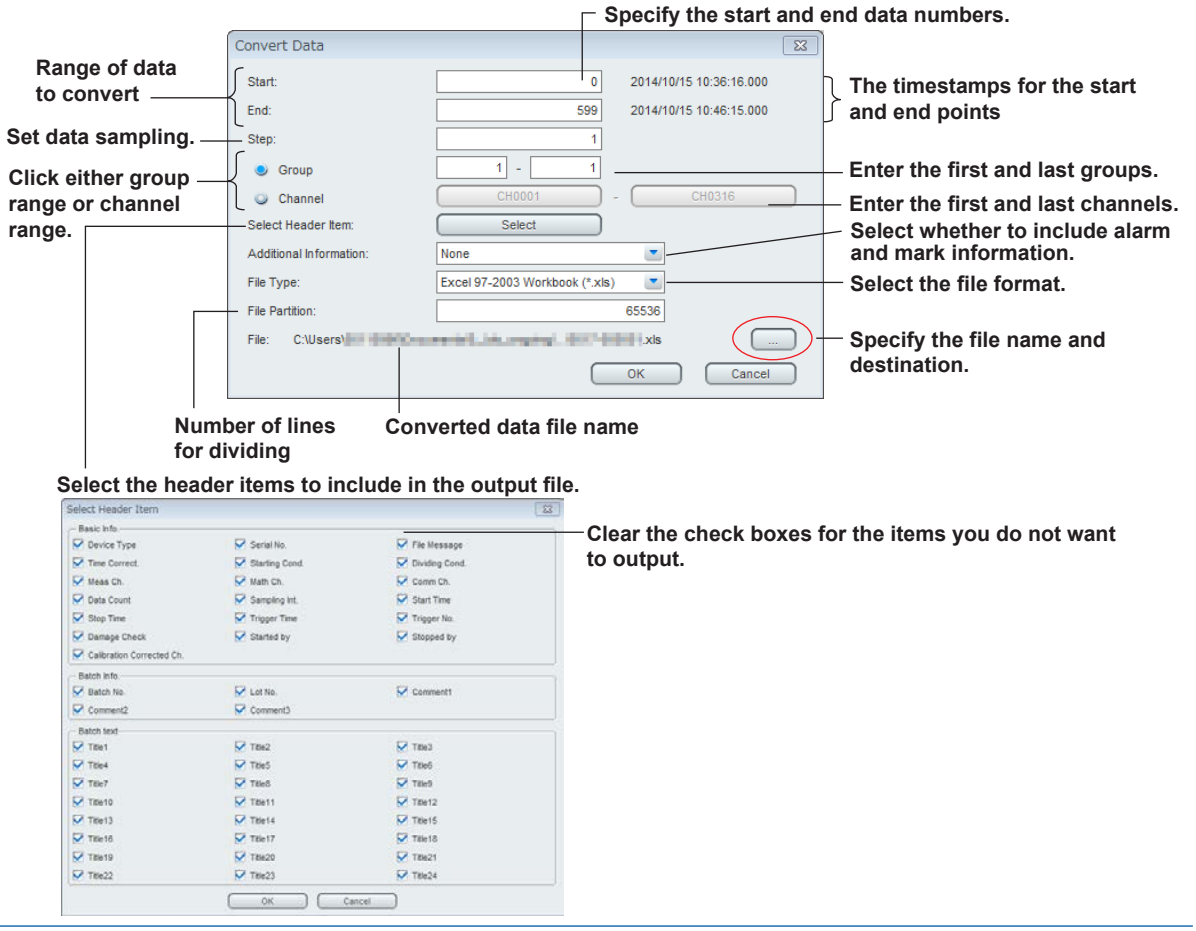
Procedure

1. In the window, display the file that you want to convert and save.
   Note: You cannot convert data from the superimposed display.
2. On the **Convert** menu, click **Data To**.



The Convert Data dialog box appears.

3. Specify the settings for the file conversion.



4 After you finish configuring the settings, click **OK**.

The data will be converted.

Explanation

Start and End Points

Specify the range of data to convert.
The range specified by cursors A and B are assigned, respectively, to the start and end points. If you have not set cursors A and B or have cleared them, the start point data number will be set to zero, and the end point data number will be set to one less than the total number of data points.

Step

To keep the data after the conversion from becoming too large, you can sample data.
You can specify sampling in steps. To convert all the data in the specified range, set the step number to 1.

Group or Channel

If you select Group, enter the range of groups to convert.
If you select Channel, enter the range of channels to convert.

Additional Information

You can select whether to include alarm and mark information in the conversion.
The available options vary depending on whether you selected Group or Channel, described above.

Group or Channel		Additional Information Options
Group	The first group and the last group are the same.	None, With Alarm/Message
	The first group and the last group are different.	None, With Alarm
Channel		None, With Alarm

Data File Type

Number of Lines per File

File Type	Number of Lines per File Input Range	File Name Extension
Excel97 to 2003 Workbook	10000 to 65536	xls
Excel Workbook	10000 to 1048576	xlsx
ASCII File	—	txt

Note

If the amount of data to be converted or the number of channels is large, the number of lines per file may become smaller than the above input range.

Specifying the File Name and Save Destination

Click the "..." button to change the save destination or the name of the file to save the converted data. The Change the file name dialog box appears. Select the save destination, then click **OK**.

The table below shows the default settings.

Setup Item	Default Value
Start point	Cursor A position or zero
End point	Cursor B position or the last data number of the data set
Number of steps	1
Group or Channel	Group
First group number	Currently displayed group
Last group number	Currently displayed group
First channel number	Minimum channel number in the data file
Last channel number	Maximum channel number in the data file
Additional information	None
File Type	Excel 97-2003 Workbook (*.xls)
Number of lines for dividing	65536
Converted data file name (Note)	File name shown in the window

Note

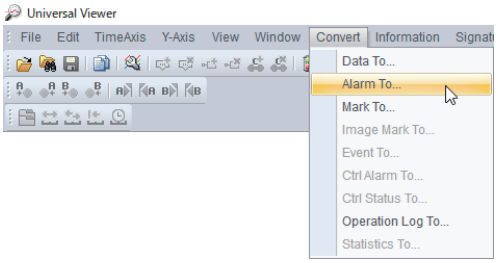
- The converted data file name will vary depending on whether the file includes batch information. If a batch number or lot number is specified, the default file name will include the number.
- Do not specify the external storage medium as the save destination because it will take a long period of time to save the file.
- Do not specify the root directory as the save destination.
- Make sure you have enough disk space at the destination.
- Specify the output destination so that the length of the converted file path does not exceed the limit (218 characters).

3.10.2 Converting Alarm, Mark, Image Mark, Event, Control Mode, and Operation Log Information, and Statistics

Additional information (alarm, mark, image mark, event, control mode, and operation log) in the displayed data file, and statistics can be converted and saved separately.
The example below shows how to convert alarm information.

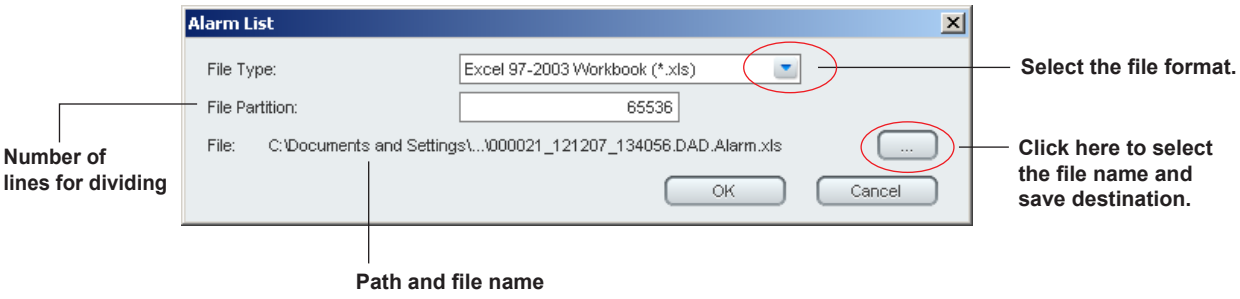
Procedure

1. In the window, display the file that you want to convert and save the information of.
2. On the **Convert** menu, click **Alarm To**.



The Alarm To dialog box appears.

3. Specify the settings for the file conversion.



4. After you finish configuring the settings, click **OK**.

   The data will be converted.

Explanation

Alarm, mark, image mark, event, control mode, and operation log information in display data files and event data files can be converted and saved separately.
On the **Convert** menu, select the information that you want to save. Then, in the dialog box that appears, configure the settings for the data conversion. The procedure and settings are the same for all types of information.

Output File Type and the Number of Lines per File

File Type	Number of Lines per File Input Range	File Name Extension
Excel97 to 2003 Workbook	10000 to 65536	xls
Excel Workbook	10000 to 1048576	xlsx
ASCII File	—	txt

Note

If you want to list the information in the window, you can use the Alarm/Mark window. For displaying a list of alarms, marks, or image marks, see **section 3.4**. For displaying a list of events or control modes, see **section 3.5**. For displaying a list of operation log entries, see **section 3.6**.

Conversion Examples

Excel File

	B	C	D	E	F	G	H	I	J	K
1	Ch.	Tag No.	TagComment	Level	Type	No.	Date	Time	Sec.	
2	CH003			L3	H	27	2012/12/07	13:41:50	0.000	
3	CH001			L1	H	102	2012/12/07	13:44:20	0.000	
4	CH004			L4	L	281	2012/12/07	13:50:18	0.000	
5	CH002			L2	L	326	2012/12/07	13:51:48	0.000	
6	CH004			L4	L	357	2012/12/07	13:52:50	0.000	
7	CH002			L2	L	432	2012/12/07	13:55:20	0.000	
8	CH003			L3	H	671	2012/12/07	14:03:18	0.000	
9	CH001			L1	H	716	2012/12/07	14:04:48	0.000	
10	CH003			L3	H	747	2012/12/07	14:05:50	0.000	
11	CH001			L1	H	822	2012/12/07	14:08:20	0.000	
12	CH004			L4	L	1001	2012/12/07	14:14:18	0.000	
13	CH002			L2	L	1046	2012/12/07	14:15:48	0.000	
14	CH004			L4	L	1077	2012/12/07	14:16:50	0.000	
15	CH002			L2	L	1152	2012/12/07	14:19:20	0.000	
16	CH003			L3	H	1391	2012/12/07	14:27:18	0.000	
17	CH001			L1	H	1436	2012/12/07	14:28:48	0.000	
18	CH003			L3	H	1467	2012/12/07	14:29:50	0.000	
19	CH001			L1	H	1542	2012/12/07	14:32:20	0.000	
20	CH004			L4	L	1721	2012/12/07	14:38:18	0.000	
21	CH002			L2	L	1766	2012/12/07	14:39:48	0.000	
22	CH004			L4	L	1797	2012/12/07	14:40:50	0.000	
23										

ASCII File

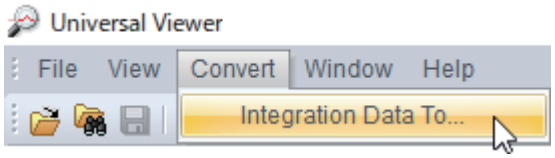
```
"Status","Ch.","Tag No.","TagComment","Level","Type","No.","Date","Time","Sec."
"OFF","CH003","","","L3","H",      27,"2012/12/07","13:41:50",    0.000
"OFF","CH001","","","L1","H",     102,"2012/12/07","13:44:20",    0.000
"ON","CH004","","","L4","L",      281,"2012/12/07","13:50:18",    0.000
"ON","CH002","","","L2","L",      326,"2012/12/07","13:51:48",    0.000
"OFF","CH004","","","L4","L",     357,"2012/12/07","13:52:50",    0.000
"OFF","CH002","","","L2","L",     432,"2012/12/07","13:55:20",    0.000
"ON","CH003","","","L3","H",      671,"2012/12/07","14:03:18",    0.000
"ON","CH001","","","L1","H",      716,"2012/12/07","14:04:48",    0.000
"OFF","CH003","","","L3","H",     747,"2012/12/07","14:05:50",    0.000
"OFF","CH001","","","L1","H",     822,"2012/12/07","14:08:20",    0.000
"ON","CH004","","","L4","L",     1001,"2012/12/07","14:14:18",    0.000
"ON","CH002","","","L2","L",     1046,"2012/12/07","14:15:48",    0.000
"OFF","CH004","","","L4","L",    1077,"2012/12/07","14:16:50",    0.000
"OFF","CH002","","","L2","L",    1152,"2012/12/07","14:19:20",    0.000
"ON","CH003","","","L3","H",     1391,"2012/12/07","14:27:18",    0.000
"ON","CH001","","","L1","H",     1436,"2012/12/07","14:28:48",    0.000
"OFF","CH003","","","L3","H",    1467,"2012/12/07","14:29:50",    0.000
"OFF","CH001","","","L1","H",    1542,"2012/12/07","14:32:20",    0.000
"ON","CH004","","","L4","L",     1721,"2012/12/07","14:38:18",    0.000
"ON","CH002","","","L2","L",     1766,"2012/12/07","14:39:48",    0.000
"OFF","CH004","","","L4","L",    1797,"2012/12/07","14:40:50",    0.000
```

3.10.3 Converting Intergration Report Data

You can convert and output the displayed integration report data to text or Excel format.
The output data range is the same as the screen display range.
The output value is a total value of all channels at a given timing in each group.
You cannot convert data from the the comparison of integration graphs displayed in two rows.

Procedure

1. In the window, display the file that you want to convert and save the information of.
2. On the **Convert** menu, click **Integration Data to**.



The data will be converted.

3.11 Displaying Intergration Graph, Demand Monitor

This section explains how to display the integration report data of the GA10 and GM10 and the demand monitor data of the GA10.

3.11.1 Displaying Intergration Graph

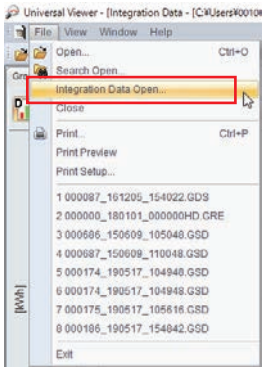
Integration report data can be displayed with integration bars or integration trends.

Note

With the GM10 integration report data, you can only open files of report kind “Hourly + Daily.”

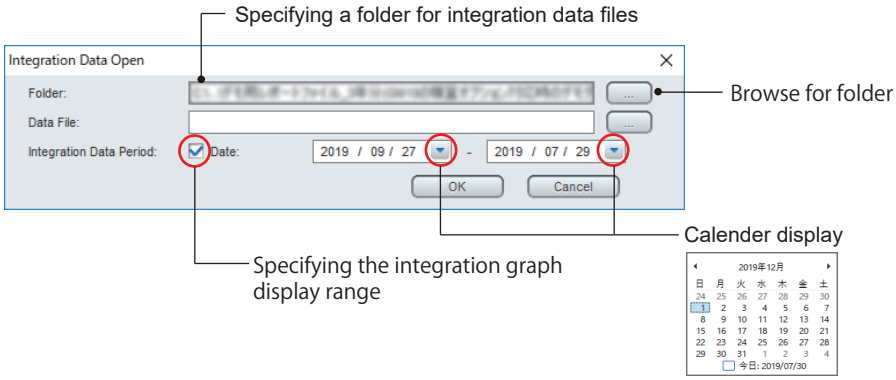
Procedure

1 On the **File** menu, click **Open**. Or, click **Open** on the toolbar.
The **Integration Data Open** dialog box appears.



2 In [Folder], specify the save destination for the report file whose data is to be displayed.

To specify a range of integration data, select the [Date] check box of [Summation Data Ran], and specify the start and end dates for an integration graph display.



Note

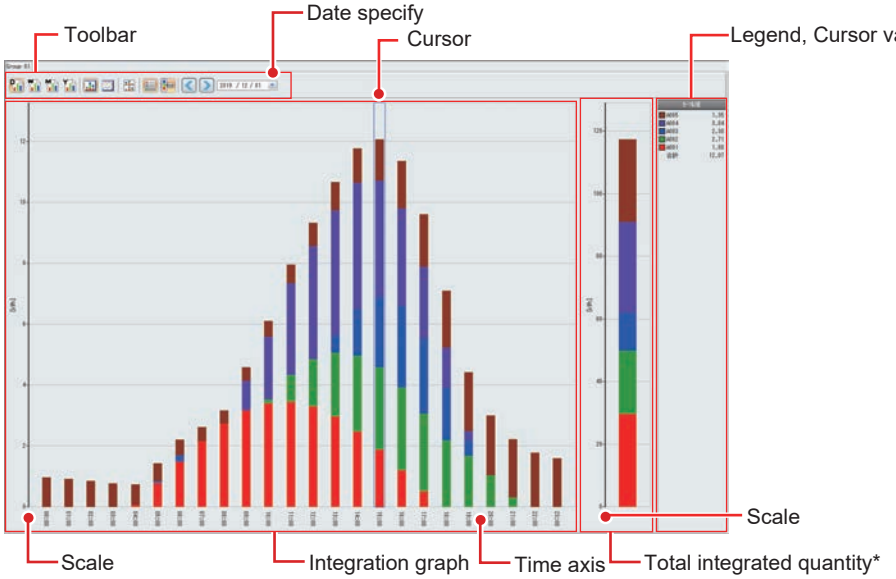
If you specify a recording data file for the device in [Data file], display settings such as groups can be displayed in the same condition as the screen of the device.

3 When setting finished, click OK.
Intergration graph appears.

Screen Description

Integration Graph

Integration bar graph example

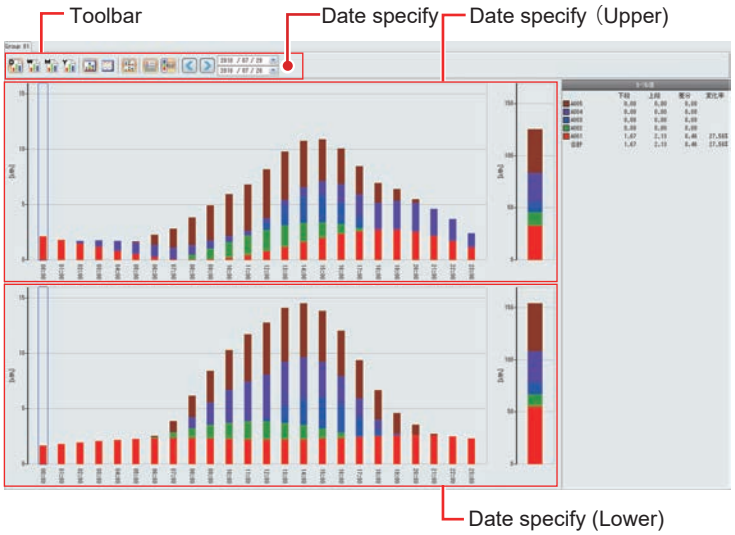


* The total integrated quantity is not displayed in the integration trend.

Item	Explanation
Toobar	The tool bar allows you to select a report type, switch a time display range, and turn on/off the legend/cursor value display.
Date specify	Specifies the date to display the integration graph.
Cursor	The cursor position is displayed.
Legend, Cursor value	A legend for each channel is displayed. For the data in the time display range selected with the cursor, the value for each channel and the total value are displayed. The legend and cursor value are fixed to the right edge of the display screen.
Integration graph	An integration bar graph or integration trend is displayed. Data is displayed in sequence starting from that of the first channel set in Channel set of Channel settings. The scale on the Y axis is automatically set from the total data values of the channels.
Total integrated quantity	The total integrated quantity for the channels is displayed. The total integrated quantity is not displayed in the integration trend.

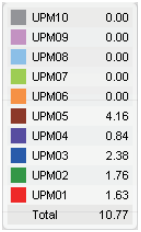
Displaying two graphs on top of each other

You can compare integration graphs of any dates.



Item	Explanation
Date specify (upper)	Specify the date of the integration graph to be displayed at the upper.
Date specify (lower)	Specify the date of the integration graph to be displayed at the lower.

Cursor Value Dislpay

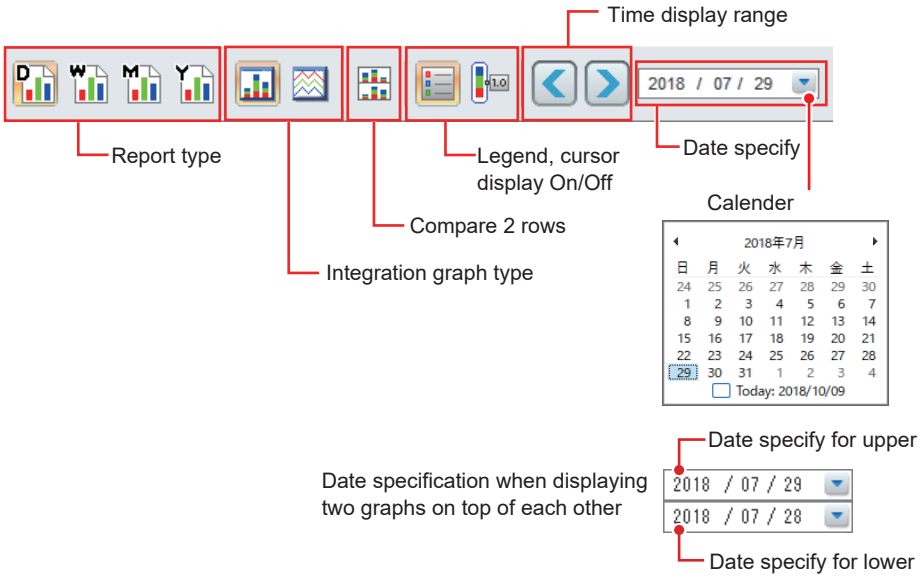
Display example	Explanation
	The value for each channel is displayed.

Compare Two Rows

Display example	Item	Explanation
	Lower	The value for each channel in the lower integration graph is displayed.
	Upper	The value for each channel in the upper integration graph is displayed.
	Diff	The difference of value for each channel between the upper and lower integration graph is calculated and displayed.
	Rate of change	The rate of change in value for each channel between the upper and lower integration graph is calculated and displayed.

	Lower	Upper	Diff	Rate of change
UPM10	0.00	0.00	+0.00	
UPM09	0.00	0.00	+0.00	
UPM08	0.00	0.00	+0.00	
UPM07	0.00	0.00	+0.00	
UPM06	0.00	0.00	+0.00	
UPM05	4.84	4.16	-0.67	-13.9%
UPM04	3.76	0.84	-2.92	-77.6%
UPM03	2.35	2.38	+0.02	+1.0%
UPM02	1.30	1.76	+0.46	+35.6%
UPM01	2.26	1.63	-0.64	-28.1%
Total	14.51	10.77	-3.74	-25.8%

Description of Toolbar



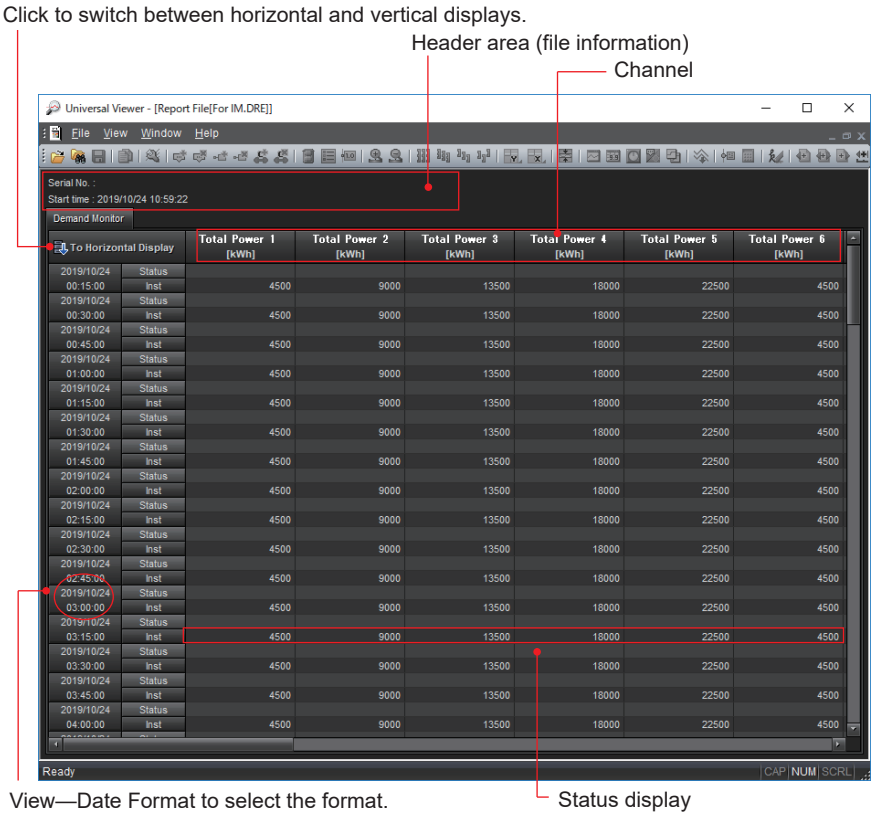
Item (button)	Explanation
Report type	Select the report type to be displayed from Daily Report, Weekly Report, Monthly Report, and Yearly Report.
Daily Report	An integration graph for one day is displayed.
Weekly Report	An integration graph for one week is displayed.
Monthly Report	An integration graph for one month is displayed.
Yearly Report	An integration graph for one year is displayed.
Integration graph type	Select the graph type for an integration graph to be displayed.
Integration bar graph	Displays the Integration bar graph.
Integration trend	Displays the Integration trend graph.
Compare 2 Rows	Displays the integration graphs of the specified dates in the top and bottom rows.
Legend, cursor display On/Off	Turns on / off the legend/cursor values display.
Legend Display On/Off	Turn on/off the legend display. Clicking this button each time switches between Show and Hide. Even when the legend display is turned off, if the cursor display is turned on, a legend is displayed.
Cursor Display On/Off	Turn on/off the cursor value display. Clicking this button each time switches between Show and Hide. For the data in the selected time display range, the value for each channel and the total value are displayed. When displaying two graphs on top of each other for comparison, the values indicating the difference and rate of change between the lower row and upper row are displayed.
Time display range	The current display can be switched to display the previous or subsequent time based on the time display range.
Go to Previous Report	The display range from the current display to the display for the previous time is displayed. Example: When the report type is Daily Report, the data of the previous day from the currently displayed day is displayed.
Go to Next Report	The display range from the current display to the display for the subsequent time is displayed. Example: When the report type is Daily Report, the data of the subsequent day from the currently displayed day is displayed.
Date specify	The integration graph of any date can be specified to be displayed.
Single column display 2018 / 07 / 29	Specify the date of the integration graph to be displayed.
Two-column display 2018 / 07 / 29 2018 / 07 / 28	Specify the respective dates of the integration graphs to be displayed in the upper/lower field.

3.11.2 Displaying Demand Monitor Data

The integration values during the demand monitor period can be displayed from the data in the demand monitor data file.

Procedure

1. On the **File** menu, click **Open**. Or, click **Open** on the toolbar.
2. Select the demand monitor data file that you want to display.
   Demand nonitor data appears.

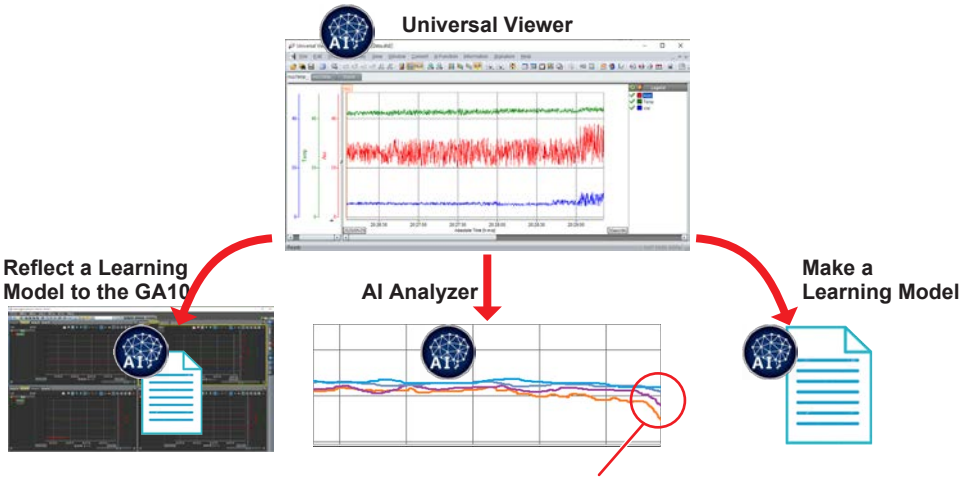


3.12 Integrating with the AI Function of GA10 (Only When Using GA10)

Universal Viewer has a function to integrate with the AI function of GA10.

- Use the recording data to create a learning model. (Make a Learning Model)
- Reflect the settings of the created learning model into the AI function of GA10. (Reflect a Learning Model to the GA10)
- When you are using the AI function in GA10, you can check the performance of the learning model in advance. (AI Analyzer)

You can only use these functions in Universal Viewer on a PC in which GA10 (R3.08.01 or later) has been installed. (1)
A PC that is using the free trial period (2) for GA10 is considered to have GA10 installed. Please use this free trial period if you want to try the AI function before you purchase GA10. For explanations on the functions and the usage methods, refer to “AI Analyzer Function” in GA10 User’s Manual (IM 04L65B01-01EN).



1: You can also use the AI function with the standalone installer version of Universal Viewer on PCs with GA10 installed. For information on the standalone installer version, refer to the Note in “1.1.4 Installing and Upgrading.”
2: For information on the free trial period of GA10, refer to “2.2 Installation” in GA10 User’s Manual (IM 04L65B01-01).

Blank

4.1 Saving Display Conditions

You can save the conditions for displaying data files and alarms that you have added on Universal Viewer as display condition files.

4.1.1 Saving a Display Condition File

If you save display conditions, the next time you open the same data file, the file will open using the saved display conditions.

Procedure

1. Open a data file, and set the display setting.
2. On the **File** menu, click **Save Display Setting**. Or, click **Save Display Setting** on the toolbar.
   A display condition file (.vdx extension) will be saved in the same folder as the displayed data file.

When the data file in step 1 is opened the next time, the same conditions are used to display the data. For saving the display conditions of superimposed display, see section 4.1.2.

Note

- Separate display condition files are created for display data files, event data files, and TLOG data files. The file name will be the same as the name of the data file but with a .vdx extension. The file will be saved in the same folder as the data file.
- Display condition files (.vdx extension) of Universal Viewer cannot be opened or displayed by themselves.
- When you close a data file, if the display conditions have been changed, a message “Save changes?” will appear. Clicking **Yes** overwrites the display condition file.
- Display condition files can be overwritten over and over again. You can also delete unneeded display condition files.

Explanation

The table below shows the display conditions that are saved to display condition files (.vdx extension).

Display Condition File of Display Data Files and Event Data Files

Conditions That Are Saved	
Time axis display mode (absolute or relative)	
Alarm display on/off	
Channel identification string mode (channel, tag No., or tag comment)	
Cursor A and B positions	
Color overview display on/off	Waveform display
Size of the color overview display area	Waveform display
Y-axis clip on/off	Waveform display
Cursor value display on/off	Waveform display
Cursor value display transparency	Waveform display
Image show/hide and size	Waveform display
Mark note information	Waveform display
Size of the Y-axis display area	Waveform and circular displays
Waveform thickness	Waveform and circular displays
Y-axis zone assignment	Waveform and circular displays
Y-axis grid line density	Waveform and circular displays
Legend display on/off	Waveform and circular displays
Legend display mode	Waveform and circular displays
Time axis grid display on/off	Waveform and circular displays
Time axis grid line density	Waveform and circular displays

Conditions That Are Saved	
Active waveform	
Active Y-axis	
Selected group	
Alarm display (inside or outside)	Circular display
Time axis circular display cycle	Circular display
Selected commands on the View menu of the digital display	Digital display
Print settings (Print Setup dialog box)	
File information item on/off and print comment	
Items specified in detailed settings (Display Group Setting dialog box)	
Mark information	
Text comment line	Waveform display

Display Condition File for TLOG Files

Conditions That Are Saved
Channel identification string mode (channel, tag No., or tag comment)
Date and time display settings
Data No. display on/off
Flag display on/off
TLOG file information item on/off and print comment
Timer number for TLOG file data conversion and file conversion format

4.1.2 Saving the Display Conditions of Superimposed Display

The display conditions of superimposed display (section 3.1.16, “Displaying Waveforms Using Superimposed Display,” on page 3-33) can be saved.

Procedure

1. Open the data files (Waveform1 and Waveform2), and set the superimposed display.
2. On the File menu, click Save Display Setting. Or, click  .
   A superimposed display condition file (.ovd extension) will be saved in the same folder as the Waveform1 data file. The name of the condition file will be the same as the Waveform1 name (Waveform2 name if Waveform1 is not specified).

Explanation

When you open a condition file created using step 2 above, the superimposed display is reproduced.
If you want to specify the save destination of the condition file or the file name, click Save Display Setting As on the File menu.
Unlike display condition files (.vdx extension) described in section 4.1.1, a superimposed display condition file (.ovd extension) itself can be opened to reproduce the superimposed display.

The table below shows the display conditions that are saved to superimposed display condition files (.ovd extension).

Conditions That Are Saved	
File directory	File directory in which Waveform1 and Waveform2 are saved.
File name	Names of all linked files of Waveform1 and Waveform2
Group	Group numbers assigned to Waveform1 and Waveform2
Position	Display position, Cursor positions
Time Axis	Absolute time/Relative time Grid display on/off Standard Grid/Dense Grid 1 to 4 Zoom Syncronous/Individual mode.
Y-Axis	Full Zone/Flee Zone Standard Grid/Dense Grid 1 to 4 Clip ON/OFF

Conditions That Are Saved	
Display	Alarm ON/OFF Channel/Tag No/Tag Comment Line Thick Legend ON/OFF Legend Mode Cursor Value ON/OFF Cursor Transparency

4.1.3 Display Condition Files and Precedence

The following types of display condition files are available for Universal Viewer.

Type	Extension	Procedure	Save Destination	Saved Information
Display condition file	.vdx	**Save Display Setting** on the **File** menu or **Save Display Setting** on the toolbar	Same folder as the data file	Display conditions only
Link settings file	.ldx	**Save Display Setting As** on the **File** menu	Specified location	Display conditions and file link information
Display template file	.tdx	**Save Template** on the **File** menu	Specified location	Display conditions excluding cursor data numbers, mark information, and mark note information
Superimposed display condition file	.ovd	**Save Display Setting** on the **File** menu or **Save Display Setting** on the toolbar	Specified location	Display conditions and file link information

When a data file is opened, the precedence of display condition files are as follows:

1. Display conditions included in the link settings file (.ldx)
2. Template file (*.tdx)
3. Display condition file (*.vdx)

The details of data file conditions are provided below.

For a Single Data File

- If there is no display condition file (.vdx) and a template file (.tdx) has not been applied, the file is displayed with default conditions.
- If there is a display condition file (.vdx), the file is displayed according to it, regardless of whether a template file (.tdx) is being used.

For Multiple Data Files (Linked files)

- If there is a link settings file (.ldx), and the data files are opened from it, the display conditions in it is applied, regardless of whether a template file (.tdx) is being used.
- If there is no display condition file (.vdx) for the first data file and a template file (.tdx) is not being used, the first file is displayed with default conditions.
- If there is no display condition file (.vdx) for the first data file and a template file (.tdx) is being used, the first file is displayed with the conditions of the template file.
  In this situation, if there is a display condition file (.vdx) for any of the subsequent data files, the mark information in it is applied.
- If there is a display condition file (.vdx) for the first data file, the file is displayed according to it, regardless of whether a template file (.tdx) is being used.
  In this situation, if there is a display condition file (.vdx) for any of the subsequent data files, the mark information in it is applied.

▶ Saving display template files (**section 4.2**)

4.2 Saving Display Templates

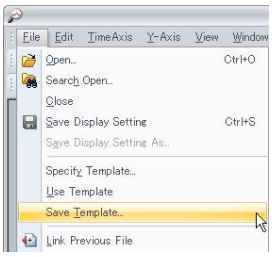
You can save display templates so that you can use them to display data files with the same conditions on Universal Viewer.

4.2.1 Saving a Display Template

Create a display template that you can use later to show display data files and event data files.

Procedure

1. Set the display conditions that you want to save as a template.
   On the **File** menu, click **Save Template**.



   A dialog box for saving the template appears.

2. Click **Save**.
   You can also specify the save destination and file name.
   A file with the .tdx extension will be saved.

Note

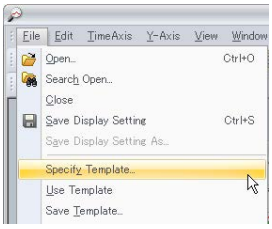
Display templates will not store file-specific information shown below.
- Cursor A and B data numbers
- Mark information
- Mark note information

4.2.2 Applying a Display Template

Specify a display template that you want to apply when showing display data files and event data files.

Procedure

1. On the **File** menu, click **Specify Template**.



   A dialog box for specifying the template appears.

2. Select the template you want to use, and click **Open**.
   The template has been specified.

Note

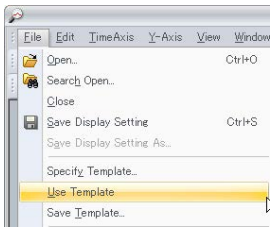
Specifying the template only selects the template file.
If you want to use it at all times, perform the procedure in “Using a Display Template” (next section).

4.2.3 Using a Display Template

Configure Universal Viewer so that the specified template is always used to show display data files and event data files.

Procedure

1. On the **File** menu, click **Use Template**.
   The command turns on, and the menu closes.



2. If you do not want to use a template, on the **File** menu, click **Use Template** again to turn off the command.

Note

Even when the Use Template command is turned on, if there is a display condition file (.vdx), the file will take precedence.

4.3 Printing

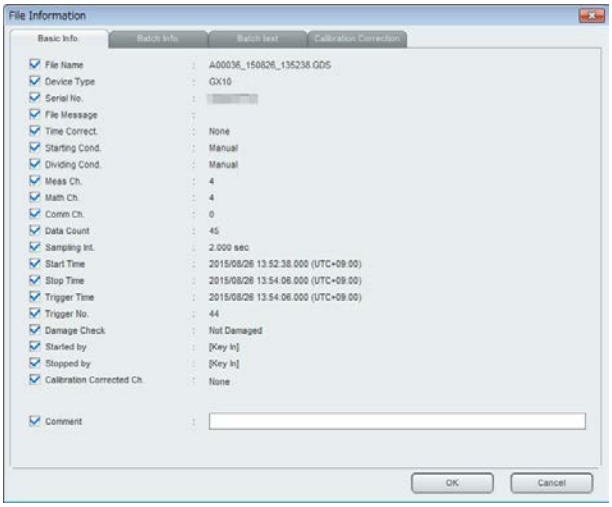
You can print display data files (with Statistics), event data files, manual sampled data files, TLOG files, report files, and lists.

4.3.1 Print Settings

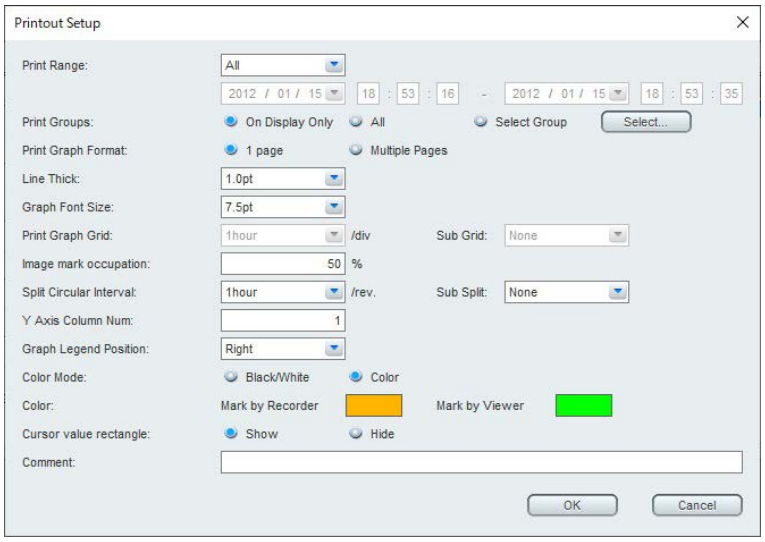
Specify what you want to print before printing.

Procedure

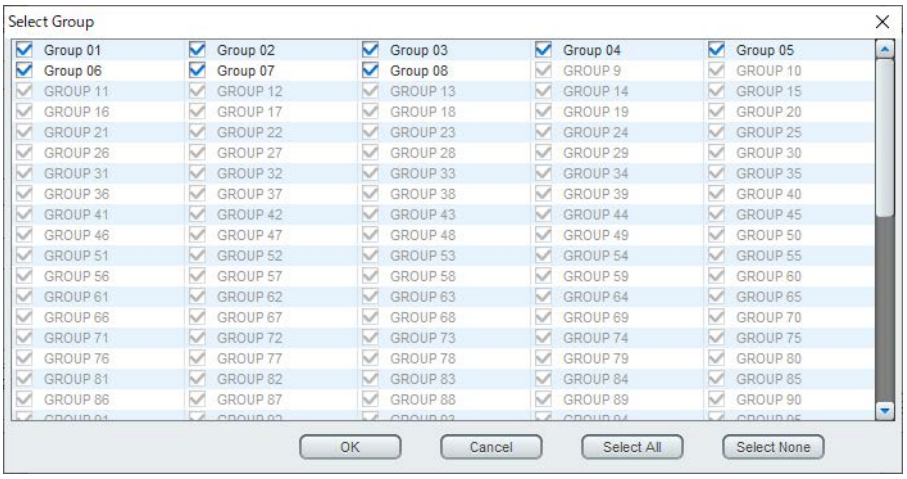
1. In the window, display the file that you want to print.
2. On the **Information** menu, click **About Document...**.
   The File Information dialog box appears.



3. Select the check boxes for the items that you want to print in the header.
   (You can enter up to 128 characters for the comment.)
4. On the **File** menu, click **Print Settings**.
   The Print Settings dialog box appears.



If you set Print Group to Select Group, a group selection dialog box appears.



5 Set the print conditions. (For details, see “Explanation” on the next page.)

6 On the **File** menu, click **Print**.
The data will be printed.

Note

- When printing a manual sampled data file or report file, steps 2 and 3 (header specification) are not available.
  Header information details: ▶ **section 2.4, “Viewing Data File Information”**
- When printing a manual sampled data file, TLOG file, or report file, steps 4 and 5 (print settings) are not available.

Explanation

Print Range

You can select the print range using one of the following three methods.

All: All displayed data (default)
Cursor: Between cursors A and B
Specify Time: Specified time range

- If you select **Specify Time**, enter the start and end times. The default value is the data range of the opened file. In superimposed display printing, the print range is the data range of Waveform1.
  Time range that can be specified: 1990/01/01 00:00:00 - 2037/12/31 23:59:59
- If you specify a time outside the displayed data range and print or preview the print, the message “The specified time of the print range exceeds the data range. OK?” appears. Select OK or Cancel.
- For Specify Time in superimposed display, use the time of Waveform1. If Waveform2 is superimposed on the superimposed display at Specify Time, Waveform2 will also be printed.
- If you select **Cursor** but there are no cursors, the start and end times of recording will be the range.
- When digital values are printed, if a statistics dialog box is displayed, the statistics are printed on the first page, and the digital values are printed on the following pages.
- The text size set in the Display menu does not apply to printing.

Print Groups

The print group setting is applied to the waveform, circular, and digital displays. If superimposed display is in use, this function is invalid.
If you select On Display Only, only the display group is printed.
If you select All, all valid groups are printed.
If you select Select Group, the groups selected in the group selection dialog box are printed.

Print Graph Format

You can select **1 page** to print the specified range in the waveform display on one page or **Multiple Pages** to print at fixed pitches. The default value is 1 page.
When **Multiple Pages** is selected, the times of the waveform graph grid are mapped to the fixed pitched scale lines and printed.

Line Thickness

Specify the line thickness to use in the waveform and circular displays. Select 0.25pt, 0.5pt, 1.0pt, 1.5pt, or 3.0pt. (The default value is 1.0pt.)

Waveform Font Size

You can specify the font size to use in the waveform display.
You can select 6pt, 7pt, 7.5pt, 8pt, 9pt, 10pt, 11pt, 12pt, 14pt, 16pt, or 20pt. (The default value is 7.5pt.)
It is applied to the Y-axis, time axis, marks, mark notes, text comments, trips, cursor values, and legend.

Print Graph Grid

Specify the grid line spacing and auxiliary grid lines to use during waveform display printing. Set **Print Graph Grid** first and then **Sub Grid**. The **Sub Grid** options vary depending on the **Print Graph Grid** setting.
Note that the grid cannot be specified if the aforementioned **Print Graph Format** is set to **1 page**. Printing is performed according to the time axis grid used on the waveform display screen. (If the time axis grid is hidden, it is not printed.)

The available options for Print Graph Grid and Sub Grid are shown in the following table.

Print Graph Grid options (/div)	Sub Grid options depending on the Print Graph Grid option					
3months	None	1month	15days	10days	5days	1day
1month		15days	10days	5days	1day	12hours
7days		1day	12hours	6hours	3hours	1hour
1day		12hours	6hours	3hours	1hour	30min
12hours		6hours	3hours	1hour	30min	10min
8hours		4hours	2hours	1hour	30min	10min
6hours		3hours	1hour	30min	10min	5min
4hours		2hours	1hour	30min	10min	5min
3hours		1hour	30min	10min	5min	2min
2hours		1hour	30min	10min	5min	2min
1hour		30min	10min	5min	2min	1min
30min		10min	5min	2min	1min	30sec
20min		10min	5min	2min	1min	30sec
10min		5min	2min	1min	30sec	10sec
5min		2min	1min	30sec	10sec	5sec
2min		1min	30sec	10sec	5sec	2sec
1min		30sec	10sec	5sec	2sec	1sec
30sec		10sec	5sec	2sec	1sec	500ms
20sec		10sec	5sec	2sec	1sec	500ms
10sec		5sec	2sec	1sec	500ms	200ms
5sec		2sec	1sec	500ms	200ms	100ms
2sec		1sec	500ms	200ms	100ms	50ms
1sec		500ms	200ms	100ms	50ms	20ms
500msec		200ms	100ms	50ms	20ms	10ms
200msec		100ms	50ms	20ms	10ms	5ms
100msec		50ms	20ms	10ms	5ms	2ms

Image mark occupation

Image marks are printed in the area where waveforms are printed. Specify the height of the image mark print area as a percentage of the height of the waveform print area in the range of 25 to 75%.

Split Circular Interval

Specify the cycle and time-axis auxiliary grid lines to use during circular display printing. Set **Split Circular Interval** first and then **Sub Split**. The **Sub Split** options vary depending on the **Split Circular Interval** setting. The available options for Split Circular Interval and Sub Split are shown in the following table.

Split Circular Interval options (/rev.)	Sub Split options depending on the Split Circular Interval option					
4weeks	None	12hours	6hours	3hours	1hour	30min
2weeks		12hours	6hours	3hours	1hour	30min
1week		12hours	6hours	3hours	1hour	30min
2days		2hours	1hour	30min	10min	5min
1day		1hour	30min	10min	5min	2min
16hours		1hour	30min	10min	5min	2min
12hours		30min	10min	5min	2min	1min
8hours		30min	10min	5min	2min	1min
6hours		10min	5min	2min	1min	30sec
2hours		5min	2min	1min	30sec	10sec
1hour		2min	1min	30sec	10sec	5sec

Y Axis Column Num

Specify the Y-axis scale to use during waveform or circular printing in terms of the number of columns. Specify to which column from the right of the Y-axis to print (including the active Y-axis). The range is 1 column (default value) to 50 columns. The columns of the active Y-axis are prioritized, and the Y-axis will be printed to the specified number of columns from the right.
For example, if you specify the number of columns to 1, only the active Y-axis will be printed. If you enter 3, the active Y-axis and the two Y-axes from the right are printed.

Waveform Legend Position

You can specify the legend position of the waveform display. You can select top, bottom, right, or left in the waveform display area. (The default value is right.)
When printing with the legend display mode set to axis mode, the legend position is fixed to the right.
If the legend position is set to top or bottom when a superimposed display is printed, the legends for waveform1 and waveform2 are displayed on the left or right.

Color Mode

Specify black and white print or color print. The default value is Color.

Print Color

You can specify different colors for the marks placed with the recorder and those placed with the software.

Cursor value rectangle

Specifies whether to display the cursor value rectangle (display/non-display) when printing the waveform display.

Comment

You can enter a print comment. The comment that you enter here is the same as that in the File Information dialog box described in step 2. Up to 128 characters are displayed.

The table below shows the relationship between the settings in the Print Settings dialog box and the different displays.

Setup Item	Display Window Type		
	Waveform display	Digital display	Circular display
Print Range	**Yes**	**Yes**	**Yes**
Print group	**Yes**	**Yes**	**Yes**
Print Graph Format	**Yes**		
Line Thickness	**Yes**		**Yes**
Waveform font size	**Yes**		
Print Graph Grid	**Yes**		
Image mark occupation	**Yes**		
Sub Grid	**Yes**		
Split Circular Interval			**Yes**
Sub Split			**Yes**
Y Axis Column Num	**Yes**		**Yes**
Waveform legend position	**Yes**		
Color Mode	**Yes**	**Yes**	**Yes**
Print Color	**Yes**	**Yes**	**Yes**
Cursor value rectangle	**Yes**		
Comment	**Yes**	**Yes**	**Yes**

Print Preview

You can preview the print layout.
To do so, on the **File** menu, click **Print Preview**.

4.3.2 Print Operation

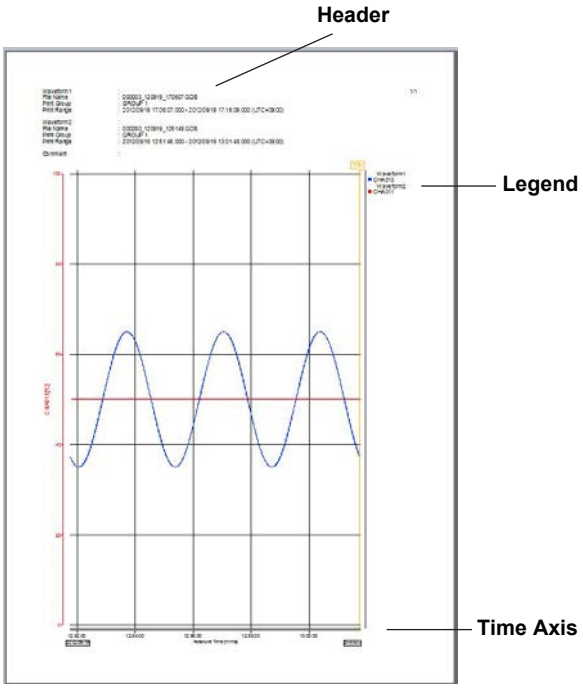
Procedure

1. In the window, display the list that you want to print.
2. On the **File** menu, click **Print**.
   For setting the print content, see the previous section.

   The Print dialog box appears.
3. Click **OK**.
   The displayed content will be printed.

4.3.3 Print Example (Superimposed display)

A print example of superimposed display (Individual mode) is shown below.



Time Axis

In Synchronous mode, only the time axis of Waveform1 is displayed. In Individual mode, time axes are displayed at the top and bottom, with the top being the time axis of Waveform1 and the bottom being that of Waveform2.

Header

The following information is printed when the corresponding item is selected in the About File dialog box for Waveform1 and Waveform2.

Legend

The legend is divided into top and bottom halves. The top half shows Waveform1 and the bottom half Waveform2.
If the number of displayed channels is large and the legends do not fit, the separation between Waveform1 and Waveform2 is set at the center, and the legends of channels that overflow are not printed.
If the legends do not fit using normal font, a smaller font is used.
The width of the legends are also adjusted according to the length of the character strings (width of the longest tag name to be printed). This also applies when printing normal waveforms.

Y-Axis

The number of columns that can be printed is 50 (from waveform number W01 of Waveform1).

Cursor Value Dialog

If the cursor value dialog box is displayed, it is printed at the bottom section of the header.

Blank

5.1 Troubleshooting

Messages

Code	Message	Description
3130	Do you want to sign this record?	This message appears to confirm whether you want to sign the record.
3131	Do you want to cancel?	Click OK to cancel the operation.
3136	The data file you are attempting to save is stored as a temporary file. Any changes you made will be lost. If you wish to make changes to the data file, please open the original data file directly from the Viewer software.	This message appears when you close a file displayed in the viewer from the GA10's Data files Page. To edit the display data on the viewer, first copy the relevant files to the local PC, start the viewer according to the following procedure, and edit and save the data. Start menu > All Programs > SMARTDAC+ Data Logging Software > Viewer
3142	Cannot learn because the specified period is short. Please set so that the number of data from the start to the end is 100 or more.	Set the learning period according to the navigation.
3143	You cannot study because the specified period is too long. Please set so that the number of data from the start to the end is 10000 or less.	Set the learning period according to the navigation.
3145	A learning model already exists in the target group. Do you want to overwrite?	When you were trying to reflect a learning model to GA10, it failed because the learning model to be overwritten was being used by another group in the target project. Run it again after stopping the use of the learning model for the other group, or convert the learning model into a file and upload it to the target project in GA10 as an external learning model.
3146	Cannot be executed because the target group is learning to detect discomfort.	Stop the anomaly detection of the target group in GA10, and restart it after the settings have been reflected.
3149	All data in the specified period is OFF, or there is an abnormal data channel. Set the corresponding channel to None in the display group setting on the viewer.	Set the display group on the Viewer according to the navigation. You do not need to change the display group of the recording source.

Warning Messages

Code	Message	Description or Cause	Corrective Action
1102	Converted data file will be overwritten. OK?	A file with the same name already exists at the save destination.	Rearrange the files so that there are no overlapping file names, or save with a different name.
3108	This file already exists. Replace existing file?	A file with the same name already exists at the save destination.	Rearrange the files so that there are no overlapping file names, or save with a different name.
3126	You cannot sign because the signature information of the files in the batch is inconsistent.	The signature information of the files in the batch is inconsistent.	Check the consistency in the file signature information. Contact the administrator if you cannot solve the problem.
3128	The file does not exist.	The file has been deleted or moved.	Refresh the file list, and check whether the file exists. Check the disk condition. Contact the administrator if you cannot solve the problem.
3129	Cannot link and display data because some of them have already been displayed.	A data file planned to be linked is already open, so it cannot be displayed.	Close such files, and try again.
3144	A learning model already exists in the target group. Do you want to overwrite?	An internal learning model already existed in the target group when you were trying to reflect a learning model to GA10.	If you want to save the learning model on GA10, cancel the operation, export the learning model on the GA10 screen, and save the file.
3147	The target group is in the process of determining discomfort. The learning model to be reflected will be applied from the next start of discomfort detection. Do you want to do it?	An internal learning model already existed in the target group when you were trying to reflect a learning model to GA10.	It is applied at the start of the next anomaly detection. If you want to determine the results of the anomaly detection using the reflected learning model, stop the anomaly detection of the target group and then restart it. If the learning model is not reflected, cancel the operation.

Code	Message	Description	Corrective Action
3151	It may take some time to process the AI function. Do you want to do it?	It may take time to make a learning model or for the AI analyzer to complete its analysis.	If it is not executed, cancel the operation.
3178	File status is abnormal.	The state of the opened data file is abnormal. The file may be corrupted or data may be abnormal.	Retrieve the data file from the recorder again.

Error Messages

Code	Message	Description	Corrective Action
201	Can't open. No YOKOGAWA binary file.	You are trying to open a file that is not in YOKOGAWA binary format.	Use compatible files.
203	There is no available data.	This message appears when there is no data in the file that you are trying to open.	Open a file containing data.
211	Can't write to file.	There is insufficient space in the directory, the file is being used by another program, or the file path is too long.	Check the free space in the directory. Check whether the file is being used by another program. If the file path is over the limit (218 characters), change to an output destination with a shorter file path.
212	Can't read file.	The file does not exist, or there is a problem with the file system, or the viewer is not the latest version. You may be trying to open a link information file (.ldx extension) without the original linked data files.	Check whether the file exists. Check whether the file system is normal. Check whether the file is one that can be displayed by the viewer. Also, update the viewer to the latest version. (**section 1.1.1**) To reproduce a display using a link information file (.ldx extension), check that all the original linked files are in the same folder.
213	Can't open file.	The file does not exist, or there is a problem with the file system.	Check whether the file exists. Check whether the file system is normal.
214	Insufficient disk capacity.	Not enough free space in the directory.	Secure enough free space.
215	No such file.	The specified file does not exist.	Specify a different file.
218	No such folder.	The specified folder does not exist.	Specify a different folder.
250	Failed to start Adobe Reader.	Adobe Reader is not installed.	Install it.
3109	This name's directory already exists.		Check the directory name.
3110	Can't overwrite to file.	There is insufficient space in the directory, or the file is being used by another program.	Check the free space in the directory. Check whether the file is being used by another program.
3111	Can't write to file.	There is insufficient space in the directory, or the file is being used by another program.	Check the free space in the directory. Check whether the file is being used by another program.
3115	Too many data.	The number of data entries in the files that are to be linked exceeds 32 million entries, so the files cannot be linked.	Decrease the number of files to link.
3118	CRC illegal!	The file may be corrupt.	Check the disk condition, and recover the file. Contact the administrator if you cannot solve the problem.
3119	Already signed	Already signed at the current user level.	Contact the administrator if you cannot solve the problem.
3120	Not registered user.	User name, user ID, or password entry is incorrect.	Check them, and try again. Contact the administrator if you cannot solve the problem.

Code	Message	Description	Corrective Action
3121	There is no signature no.	The user does not have signature privileges.	Check the signature privileges. Enter the correct user name, user ID, and password. If you fail to sign the specified number of times, you will be disabled. Log in as another user with the privileges and apply the signature. Contact the administrator if you cannot solve the problem. If all users are disabled, contact your nearest YOKOGAWA dealer to have your system serviced.
3122	%d times password input failure.	Processing terminated. %d is the number of failures.	
3123	%d times password input failure. The user will be disabled.	This user's privileges will be disabled. %d is the number of failures.	
3124	%s File is not found.	The setting data file could not be found.	Place the relevant setting file in the folder containing the data file.
3125	Cannot perform authentication. There is a problem with the KDC server.	Unable to connect to the KDC server or unable to authenticate because the KDC server setting has been changed. KDC authentication is also not possible if the time zone on the PC is changed while Universal Viewer is running. Authentication is not possible if there a time difference of 5 minutes or more between the PC and the KDC server. The receivable token size may have been exceeded. SMARTDAC+ can receive tokens of up to 64 KB.	Contact your administrator. Verify that the host account is registered on the server. Confirm that the maximum token size of the server is set to 64 KB or less.
3132	Failed to start Hardware Configurator.	Unable to start because Hardware Configurator is not available.	Install the Hardware Configurator.
3133	Insufficient sufficient memory to display all files.	Insufficient memory on the PC. This message appears when you open a file or link files.	Check the available memory on your PC. We recommend you increase the amount of memory or use a 64-bit OS and software.
3134	Preauthentication failed.	Unable to authenticate because an internal error occurred during pre-authentication.	Check if the password is correct.
3141	Unable to download file from the server.	Data files cannot be downloaded from the data folder of the GA10 server.	Check that communication is working properly, and try again.
3148	This function is not possible at this time.	This function is not possible at this time.	Check the explanation for each function.
3150	There is an analysis channel that has an analysis error. Check the status display of the AI analyzer.	There is an analysis channel that cannot be analyzed when you run the AI analyzer.	Check the status column of the AI analyzer according to the instructions of the navigation, and take the necessary steps to resolve it.
3152	Failed to reflect the learning model to the GA10.	The learning model cannot be reflected at this stage.	Try reflecting the learning model again. If you still receive an error, check whether the target project exists.
3153	The file is read-only.	The save destination of the learning model is read-only.	Change the setting so that it is not read-only.
3161	Cannot perform authentication. There is a problem with the KDC server. (Cross Realm)	Unable to connect to the KDC server or unable to authenticate because the KDC server setting has been changed. KDC authentication is also not possible if the time zone on the PC is changed while Universal Viewer is running. Authentication is not possible if there a time difference of 5 minutes or more between the PC and the KDC server. The receivable token size may have been exceeded. SMARTDAC+ can receive tokens of up to 64 KB.	Contact your administrator. Verify that the host account is registered on the server. Confirm that the maximum token size of the server is set to 64 KB or less.
3162	Preauthentication failed. (Cross Realm)	Unable to authenticate because an internal error occurred during pre-authentication.	Check if the password is correct.

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