User's Manual

DXA120
DAQSTANDARD for DXAdvanced

YOKOGAWA
Yokogawa Electric Corporation

IM 04L41B01-61E
3rd Edition

Foreword

Thank you for purchasing the DAQSTANDARD (model name: DXA120).
This manual explains how to use the software on Windows 2000 and Windows XP. Please read this manual carefully before operating the software to ensure its correct use. After you have read this manual, keep it in a safe place where it can be referred to anytime a question arises.

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How to Use This Manual

Structure of the Manual

This manual consists of the following five chapters and index.

Chapter	Title	Content
1	Before using the DAQSTANDARD	Explains the PC system environment required for use of the DAQSTANDARD. Also explains how to install it.
2	Functions of Launcher	Explains Launcher which is used to start the utility programs. Also explains how to set communications between the DX1000/DX2000 and your computer.
3	Configuring the DX1000/DX2000	Explains how to set measurement conditions of the DX1000/DX2000.
4	Displaying Data with the Data Viewer	Explains how to display data stored in the hard disk etc. Also explains how to convert data to various data formats such as ASCII.
5	Troubleshooting	Gives a list of error messages and corrective measures.
Index		Gives a list of important terms used in this manual.

Range of Explanation in this Manual

This manual does not provide a description of basic operations of Windows 2000 and Windows XP. For such descriptions, refer to the Windows User's Guide etc.

Conventions Used in This Manual

- **Unit**
  K ..... Indicates "1024". (Example: 100 KB)

- **Menus, commands, dialog boxes and buttons**
  Enclosed in [ ].

- **Note**
  Provides useful information regarding operation of the software.

DX's Version and Software's Revision Described in This Manual

Item	Described in This Manual
DX1000 and DX1000N	Up to the firmware's version 2.0x.
DX2000	Up to the firmware's version 2.0x.
DAQSTANDARD for DXAdvanced	Up to the revision 7.21.

Contents

1.1 Overview of the DAQSTANDARD

The DAQSTANDARD consists of the following three utility programs.

- Launcher
- Hardware Configurator
- Data Viewer

Launcher

Launcher is provided to start the last two utility programs. It also allows you to set communication conditions between the DX1000/DX2000 and this DAQSTANDARD. Launcher and Data Viewer will be automatically registered to the Start menu of Windows when the DAQSTANDARD is installed.

Hardware Configurator

Allows you to set the DX1000/DX2000 hardware (measurement/math channels, display method etc.). It also allows transfer of the setup data to the DX1000/DX2000 and saving it to the personal computer's hard disk. Setup data can be set by the following three methods.

- Receiving the setup data from the DX1000/DX2000 currently connected to the PC
- Loading existing setup data
- By configuring a system

Data Viewer

Displays the following four types of data generated by the DX1000/DX2000 and prints them. The data can be displayed graphically or digitally.

- Display data file (.dad)
- Event data file (.dae)
- Report data file (.dar)
- Manual sample data file (.dam)

Note

If you want to open a single Data Viewer, select [Program] - [DAQSTANDARD] - [Viewer].

1.2 Required PC System Environment

Hardware

Personal Computer

A computer which runs on Windows 2000 or Windows XP, and is equipped with Pentium ll 333 MHz or higher (Pentium III 600 MHz or higher is recommended).

Main Memory

Free disk space of 32 MB or more (generally, 128 MB or more recommended, though the computer performance depends on the graphics board). However, some application programs may require more memory. Also, memory requirements depended on the OS.

Hard Disk

A free space of 100 MB or more.

CD-ROM Drive

To be used for installing the software.

Mouse

A mouse supported by Windows.

Monitor

A monitor supported by Windows, Resolution: 800 × 600 dots or higher, Number of colors: 32 K or more (A monitor with 1024 × 768 dots or more and 65536 colors or more is recommended)

Interface Port

An RS-232 port or an Ethernet port supported by the OS.

Printer

A printer supported by Windows is required. An appropriate printer driver is also required.

Operating System (OS)

Windows 2000 or Windows XP.

Note

- The time zone can be set in [Date/Time] which can be opened from [Control Panel].
- If daylight saving time is used, mark the check box of “Automatically adjust clock for daylight saving changes”.
- The time zone should not be set using the autoexec.bat file. If “TZ=GTM0” is set in the file, specify “rem” to disable it.
- Data created in 2038 or later cannot be handled.
- The font “Courier New” needs to be installed on your personal computer.

1.3 Installing the DAQSTANDARD

The DAQSTANDARD is provided by a CD-ROM. To install the software, an appropriate serial number needs to be entered. The serial number is indicated on the CD.

Operating Method

1. Start Windows. Log onto Windows as an administrator.
2. Insert the CD into the CD-ROM drive of the computer.
3. The installation program starts automatically. Follow the instructions on the screen to proceed with the installation.

   If the installation program does not start automatically when you insert the CD-ROM into the CD-ROM drive, use the following procedure to start it.

4. In [My Computer], double-click the CD-ROM icon.
5. Double-click the setup.exe file in the root directory. Installation starts. Follow the instructions on the screen to complete the installation.

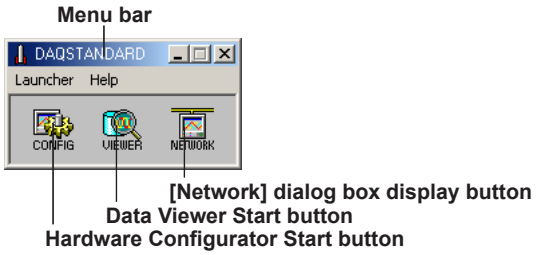
Note

- Before starting installation, make sure that all the resident programs such as anti-virus programs are exited.
- When installation is complete, Launcher and Data Viewer will be registered to the Start menu.
- To re-install the software, first uninstall it, then re-install it.
- To uninstall the software, follow the procedure given below.
  1. In the [Control Panel], double-click [Add/Remove Programs]. The [Add/Remove Programs Properties] dialog box will appear. From the list, select [DAQSTANDARD] and uninstall it.
  2. If necessary, back up the following files to another directory.
     - Setup data file (*.pdl) saved under the directory where the DAQSTANDARD has been installed
  3. From Windows Explore, delete all the files (data files and subdirectories) created after installation as well as the directory where the software was installed.

1.4 Starting/Exiting the Utility Software

Starting

1. From the Start menu, select [Programs] - [DAQSTANDARD] - [Launcher].
   Launcher starts, and the following window appears.



   After installing the software, when you first start it, the [Network] dialog box appears. For details about the setting method, see section 2.3, “Setting the Communication Method”. If the DX1000/DX2000 is not turned ON or connected when the communicaiotns settings are completed, the [Network] dialog box opens.

2. Click the start button of the desired utility, or select the desired utility from the Launcher menu. [Hardware Configurator], [Data Viewer], and [Network Configuration] appear on the [Launcher] menu.

Note

- Once Hardware Configurator, Data Viewer or [Network] dialog box has started, the corresponding start button will be disabled until it is exited.
- If you want to open a single Data Viewer, select [Program] - [DAQSTANDARD] - [Viewer].
- Once Hardware Configurator has started, it is not possible to open the [Network] dialog box.
- Once the [Network] dialog box is opened, it is not possible to start Hardware Configurator and Data Viewer.

Exiting

To exit Hardware Configurator or Data Viewer, select [File] - [Exit], or click the [X] button.
To exit the [Network] dialog box, click [OK], [Cancel] or [X] button.
To exit Launcher, select [Launcher] - [Exit], or click the [X] button.

Note

- Before exiting Launcher, make sure that all the utilities are exited.
- When Launcher is exited, the DAQSTANDARD will also be exited.

2.1 Functions of Launcher

The utilities of the DAQSTANDARD can be started from Launcher.

Starting

From the Start menu, select [Programs] - [DAQSTANDARD] - [Launcher].
Launcher starts, and the following window appears. If communications have not been set, the [Network] dialog box appears. Hardware Configurator (CONFIG), Data Viewer (VIEWER) and [Network] dialog box (NETWORK) can be started from Launcher.

Description of Each Button

The following three tool buttons are available.

CONFIG	Hardware Configurator Start button. Used to start Hardware Configurator. Once Hardware Configurator has started, this button will be disabled.
VIEWER	Data Viewer Start button. Used to start Data Viewer. Once Data Viewer has started, this button will be disabled.
NETWORK	[Network] Dialog Box Display button. Used to open the [Network] dialog box to set communication conditions. Once Hardware Configurator has started, this button will be disabled.

Description of Each Menu

The following two menus are available.

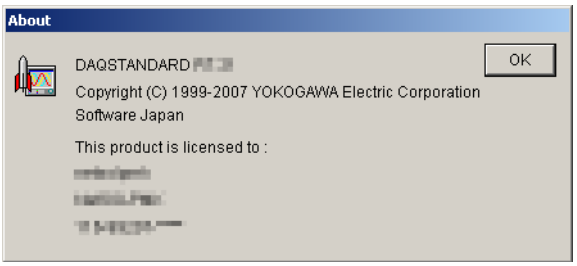
Launcher	Hardware Configurator	Same as the CONFIG button
	Data Viewer	Same as the VIEWER button
	Network Configuration	Same as the NETWORK button
Help	About	Displays the version number of Launcher.

2.2 Displaying the Version Information

To confirm the version of the DAQSTANDARD, open the [About] dialog box.

Operating Method

1. From the menu bar of Launcher, select [Help] - [About].
The [About] dialog box appears.



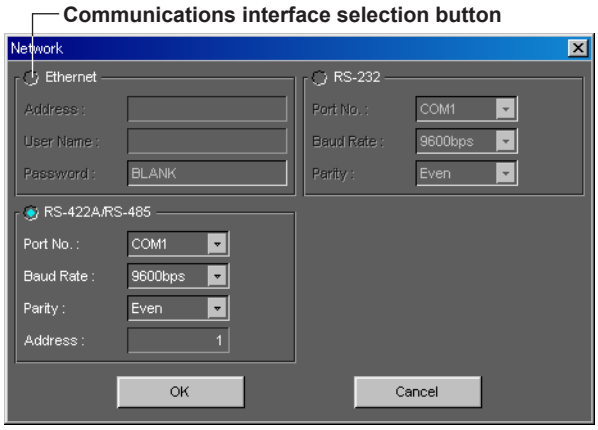
2. To close the dialog box, click [OK].

2.3 Setting the Communication Method

Set the communications interface and parameters according to the connection between your PC and the FX.

Operating Method

1. Click the CONFIG button of Launcher, or select [Launcher] - [Network Configuration] from the menu bar.
   The [Network] dialog box appears. Ethernet or serial interface (RS-232 or RS-422A/RS-485) can be used.



2. Select the desired network type. The color of the selected network turns blue.
3. Set each communication parameter.
4. When all the communication parameters are set, click [OK]. To cancel the settings, click [Cancel].
   The dialog box closes, and the settings are applied to enable communications. (If communications are in progress, the dialog box closes and communications are re-started.)

Description of Each Communication Parameter

Ethernet

Address: Specify the IP address or host name.
User Name: Specify the user name.
Password: Specify the password of the user name.

Serial Interface (RS-232 or RS-422A/RS-485)

Port No.: Specify the port no. (COM1 to COM9) to be used.
Baud Rate: Specify the baud rate (2400 to 38400).
Parity: Specify the parity check (None, Odd or Even).
Address: Specify the address (for RS-422A/RS-485 only)

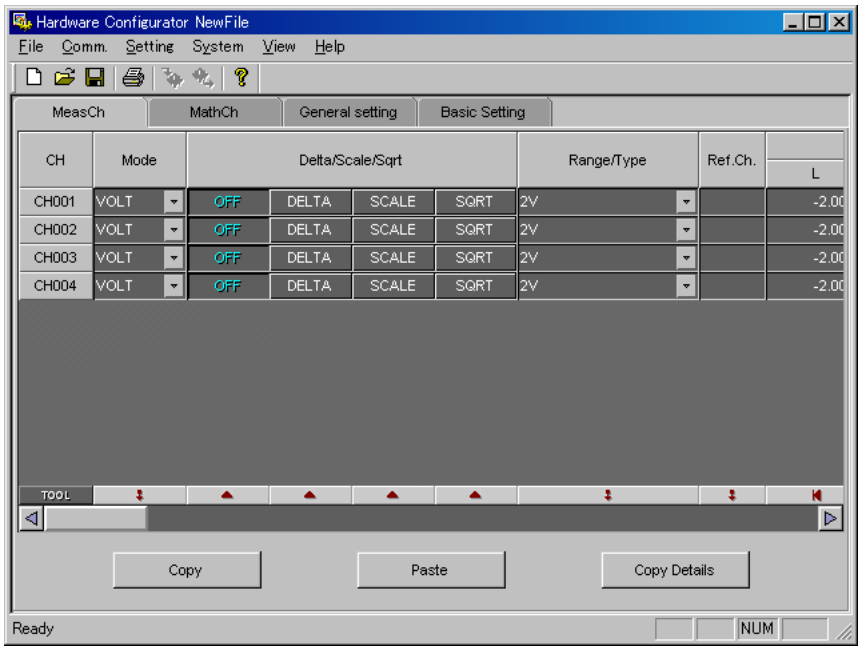
3.1 Starting the Harware Configurator

The Hardware Configurator can transmit and receive the setup data, change the setup data, and create new setup data. **The setting screen may differ from your actual screen.**

Starting the Hardware Configurator

1. Click the [CONFIG] button in the Launcher window.

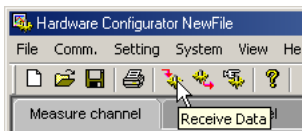
The DX1000/DX2000 setting screen in displayed.

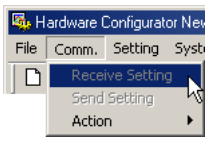


To Load Setup Data from the DX1000/DX2000

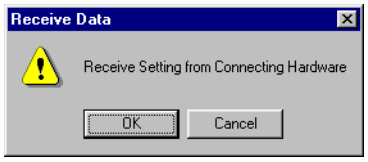
Before performing the following procedure, please make sure that the communication method and parameters are correct. (For details, see section 2.3, “Setting the Communication Method.”)

1. Click the [Receive Data] button, or choose [Comm.] - [Receive Setting] from the menu bar.





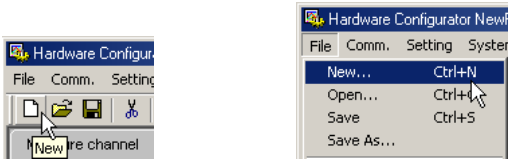
The [Receive Data] dialog box opens.



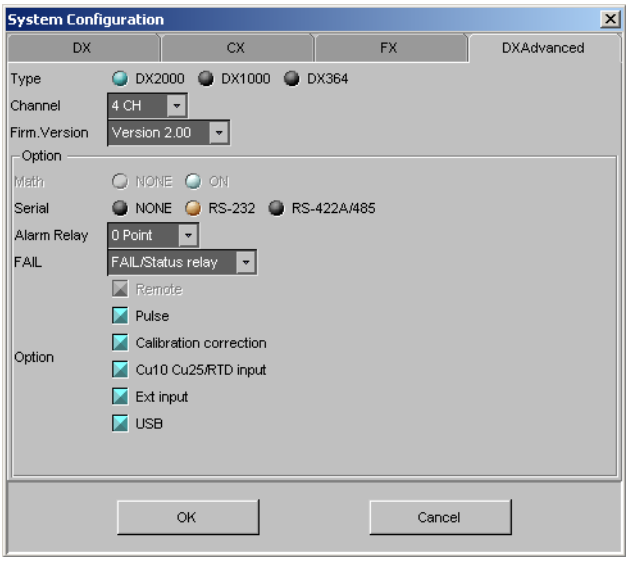
2. Click the [OK] button.
   Receiving starts.

Creating Setup Data by Configuring a New System

1. Click the [New] button, or choose [File] - [New] from the menu bar.



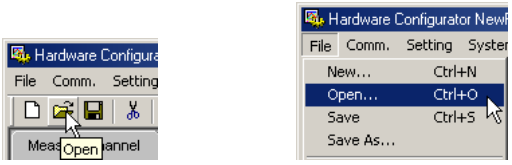
The [System Configuration] dialog box opens.



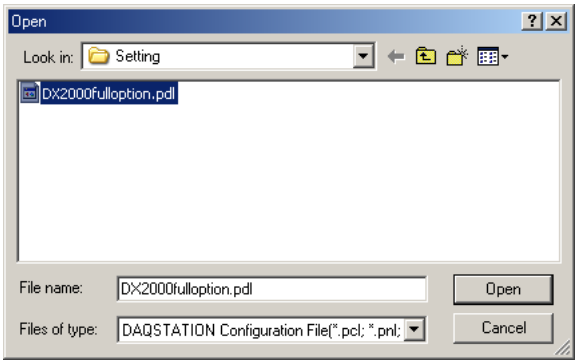
2. Enter all settings on the [DX Advanced] tab, then click the [OK] button. The DX1000/DX2000 setting screen in displayed.

Loading Preexisting Setup Data

1. Click the [Open] button, or choose [File] - [Open] from the menu bar.



The [Open] dialog box is displayed.



2. Select a setup data file (with the .PDL extension).

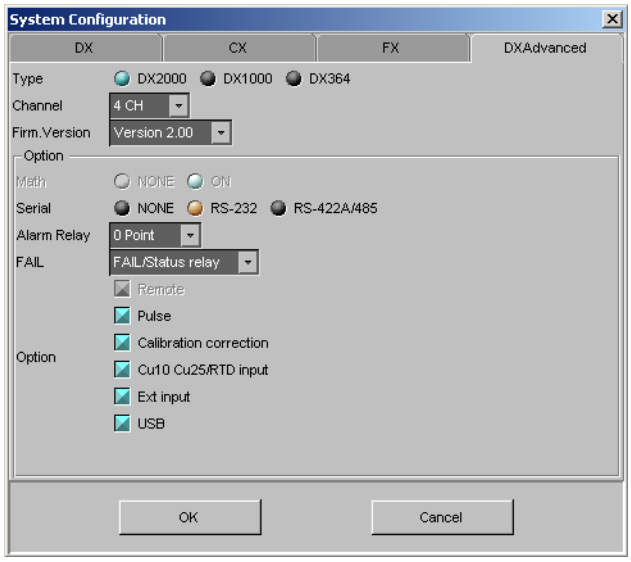
3.2 Setting and Checking the System Configuration and Initializing Settup Data

Changing/Checking the System Configuration

You can create new hardware configuration files, or open existing configuration files and then check the system configuration or change the configuration according to the specifications of the connected DX1000/DX2000.
Normally, a system is set up according to the specifications of the DX1000/DX2000 to be set up.

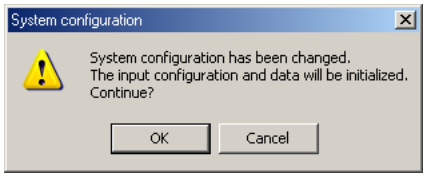
1. Choose [System] - [System Configuration] from the menu bar.

The [System Configuration] dialog box opens.



2. Change the various settings according to the DX1000/DX2000 that you will connect to (blue and brown items are selected, gray items are cleared).
The settings in the Option group differ depending on the model and options of the instrument.
For example, for the DX1000, or for the DX2000 with eight channels or fewer, the external function item cannot be selected. If [Pulse] is selected (blue), the [Math] and [Remote] items are disabled.

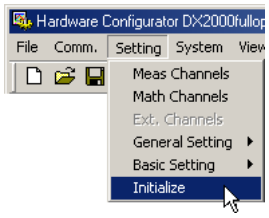
3. After changing the configuration and clicking the [OK] button, the message, “System configuration has been changed.
The input configuration and data will be initialized. Continue?” appears.



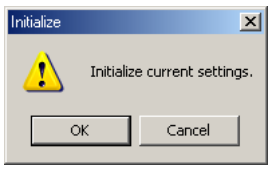
4. Click the [OK] button to initialize the data.

Initializing the Setup Data

1. Choose [Setting] - [Initialize] from the menu bar.



The [Initialize] dialog box opens.

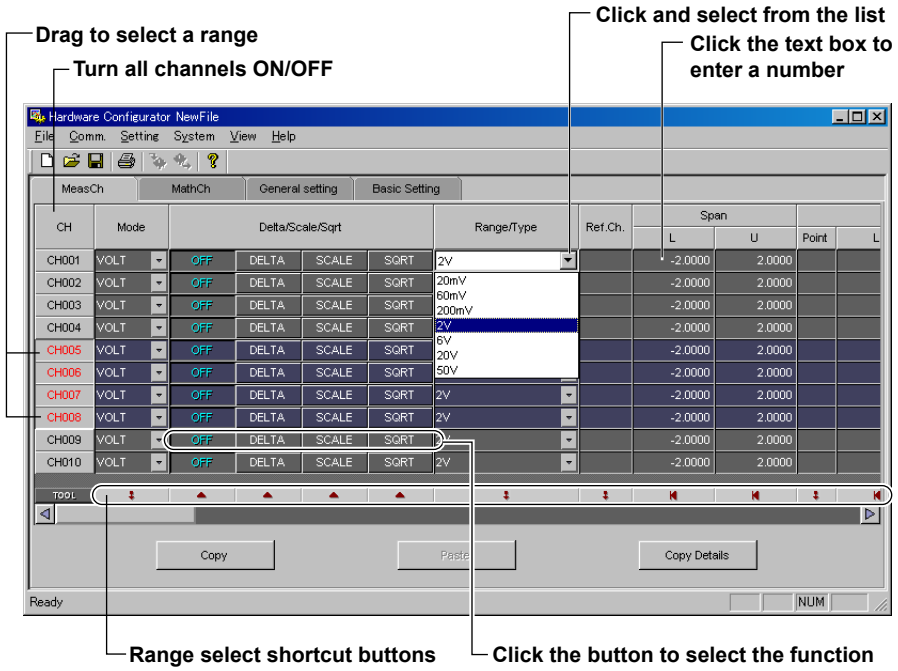


2. Click the [OK] button to initialize the current settings.
The changed settings are restored to the condition when they were newly created.

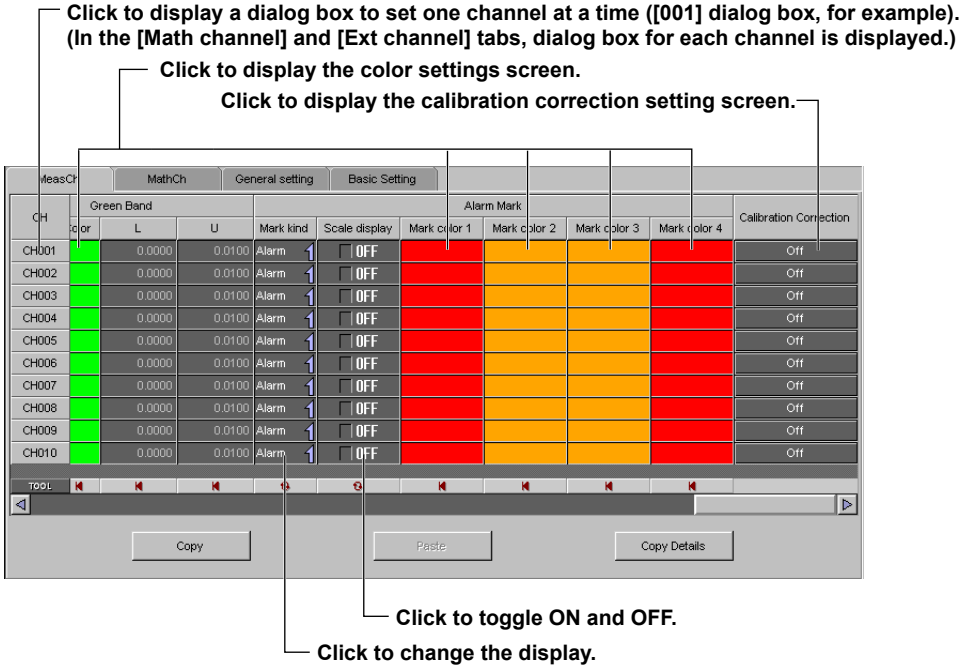
3.3 Setting the Measurement Channels, Ext. Channels

Setting Operation

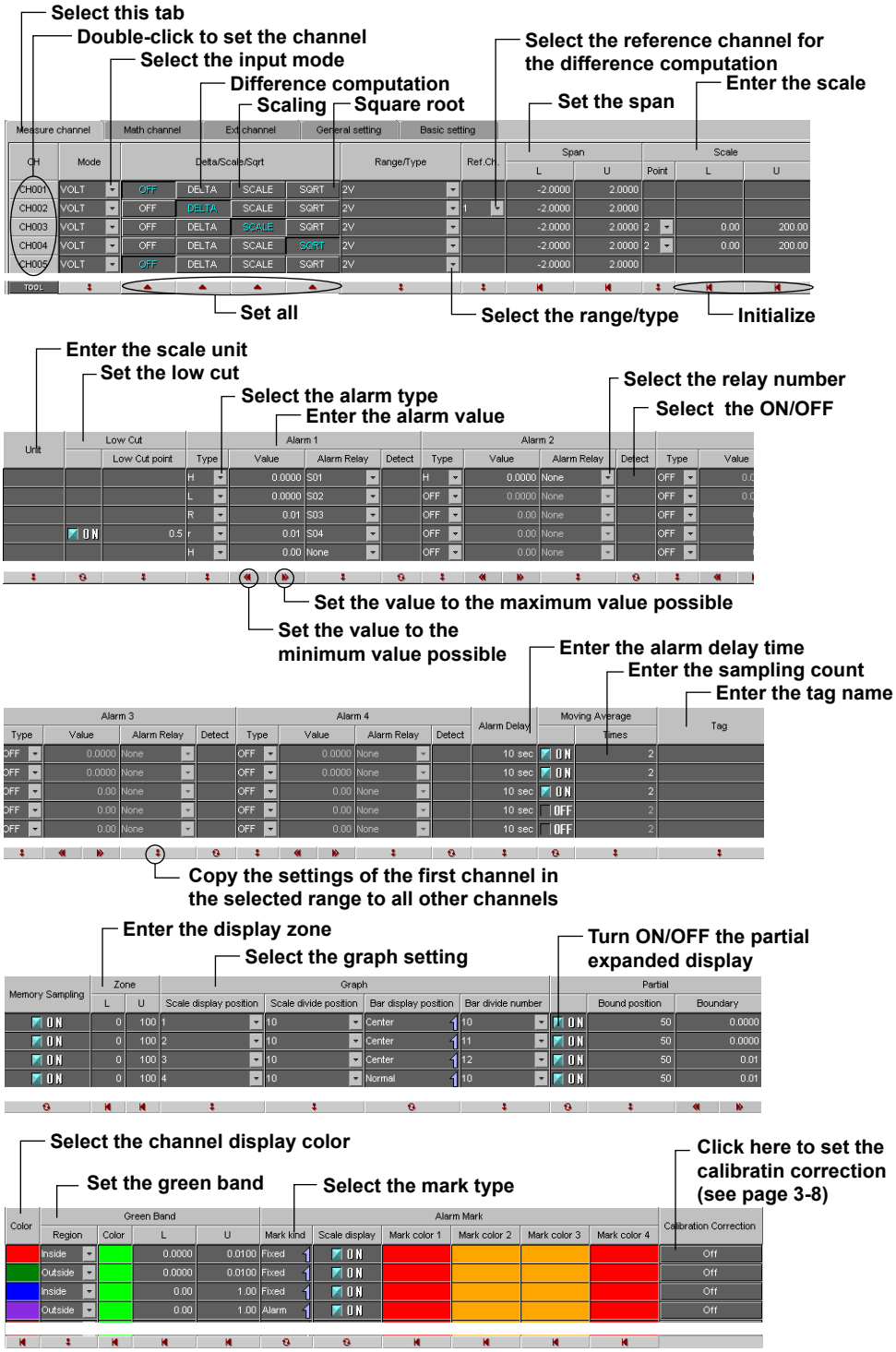
You can select a range of channels and set each item at once.



The range select shortcut buttons are effective on the channel range selected. If no channels are selected, the range select shortcut buttons are effective on all channels. For the function of each button, see next page.



Enter external input channel settings in the same manner as those of the measurement channel items. Also note that this measurement channel setting screen is only one example; your actual screen may vary.



Input Type (Mode and Range/Type)

Correspondence between difference computation, scaling, and square root computation ([DELTA], [SCALE], and [SQRT]) is as follows.

Mode	OFF	DELTA	SCALE	SQRT
SKIP	Yes	No	No	No
VOLT (voltage)	Yes	Yes	Yes	Yes
TC (thermocouple)	Yes	Yes	Yes	No
RTD (resistance temperature detector)	Yes	Yes	Yes	No
DI (voltage level/contact input)	Yes	Yes	Yes	No
1-5 V	No	No	Yes	No

The list for range/type changes depending on the above settings.

Span L, Span U

Input range. The selectable range is displayed on the screen.

Note

- You cannot set the same value to [Span L] and [Span U].
- When the [Mode] is [1-5V] or [Sqrt], [Span L] must be less than [Span U].

Linear Scaling (SCALE)

Converts the unit to obtain the measured value.

- **Scale L, Scale U**
  Input range after converting the unit. The selectable range is from –30000 to 30000.
- **Point**
  Set the number of digits to the right the decimal to four digits or less (0 to 4).

Note

- The DX converts the measured value to a value obtained by removing the decimal point from the value span specified by [Scale L] and [Scale U]. For example, if the scale setting is “–5 to 5,” the value is converted to a value within the span of “10”; if the scale setting is “–5.0 to 5.0,” the value is converted to a value within a span of “100.” In this case, the resolution of the value converted to a span of “10” is lower than the value converted to a span of “100.” To prevent the display from becoming rough, it is recommended that the scale be set so that this value is greater than 100.
- You cannot set the same value to [Scale L and [Scale U].
- When the [Mode] is [1-5V] or [Sqrt], [Scale L] must be less than [Scale U].

Difference Computation (DELTA)

Displays the difference between the input and the reference channel.
If difference computation is performed between channels that have different range and type settings, the decimal position of the computed result is set to that of the channel computing the difference. If the number of digits to the right of the decimal of the reference channel is greater than that of the channel computing the difference, the reference value below the least significant digit of the channel computing difference is rounded beforehand.

Ref. CH

The reference channel for difference computation.

Square Root

Computes and displays the square root of the input. This setting can be used only when the input mode is set to VOLT (voltage). As necessary, set the span, scale, and unit.

Unit

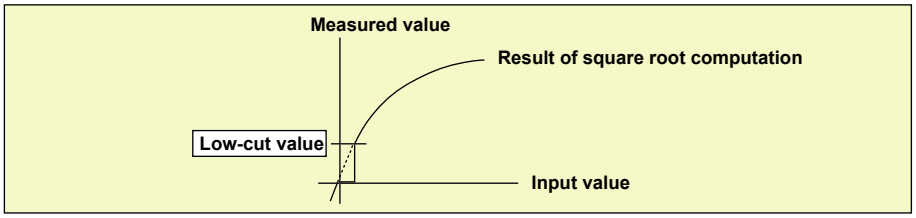
Enter the unit using up to six characters.

Low-cut (Can be set when the mode is 1-5V, and when the mode is VOLT with square root (SQRT) selected.)

Select [ON] to use the low-cut function.

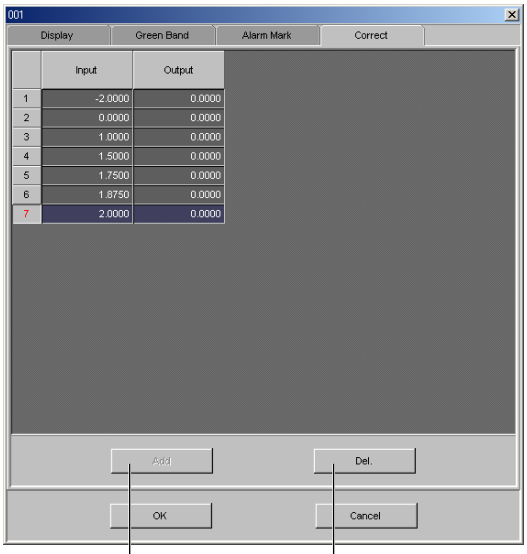
Low-cut value (Can be set when the mode is VOLT with square root (SQRT) selected.)

Set the low-cut value in the range of 0.0% to 5.0% of the input span.



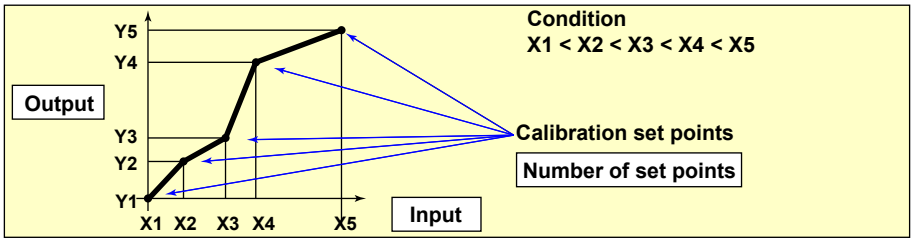
Calibration Correction

Set the input and output values for the calibration correction. The number of set points (including the start and end points) can be specified in the range 2 to 16.



Click to delete the selected row.

Click to add set points (rows) to the number of calibration set points.



Selectable Range of Input and Output Values

- **Channels on which linear scaling is specified**
  –30000 to 30000 (the decimal place is the same setting as the scale value)
- **Other channels**
  Value in the measurable range of the selected range
  Example: –2.0000 to 2.0000 for 2 V range

Alarm

Four alarms (Alarm 1 to 4) can be specified on each channel.

Type

Select H, L, h, l, R, r, T or t. The selectable alarms vary depending on the input mode and computation type. For details, see chapter 3 in the User's Manual IM04L41B01-01E or IM04L42B01-01E.

Alarm value

Alarm is generated using the specified value as the boundary. The selectable range of alarm values vary depending on the input mode and range.

Alarm delay

Set the alarm delay time to an integer between 1 and 3600 seconds.
Alarm is generated when the measured value stays above or below the specified alarm value for the specified time (delay period).

Note

DX1000/DX2000 specifications

- The alarm delay time takes on a value that is an integer multiple of the scan interval. For example, if the alarm delay time is set to 5 s when the scan interval is 2 s, the actual delay time is 6 s.
- The delay alarm has the following special operations.
- If the computation is stopped in a condition in which the computed value is exceeding the alarm setting when a delay alarm is set on a computation channel, the alarm is turned On after the specified period (delay period) elapses.
- The alarm detection operation is reset if a power failure occurs. The operation restarts after the power recovers.
- If the alarm setting of the delay high limit alarm is changed when an alarm is already activated and the input is greater than or equal to the new setting, the alarm continues. For all other cases, the alarm detection operation starts at the new setting. This is also true for the delay lower limit alarm.

Alarm Relay

To output relays, select the output relay number. Otherwise, select [None].

Detect

This can be selected when [Alarm No Logging] is turned [ON] under [Detail Setting] in the [Basic Setting] tab.
Select whether to show or hide the alarm indication when an alarm occurs. If set to [OFF], a signal is output to the alarm output relay or internal switch when an alarm occurs, but it is not indicated on the screen. The alarm is also not recorded in the alarm summary.

Moving Average

To use the moving average, select the sampling count [Times] (2 to 400).

Tag

Up to 16 characters can be entered for the tag.
You can use the tag name instead of the channel number to be displayed on the screen.
This can be selected when [Tag] is [Tag] under [Detail Setting] in the [Basic Setting] tab.

Memory Sampling

Turn [ON] (sample) or [OFF] (do not sample).

Display Zone (Zone L and U)

You can select the range of the screen in which the waveform of each channel is to be displayed.
Specify positions (%) on the display scale for the upper and lower limits.
The conditions for setting the zones are as follows:

- Range: 0% to 100%
  The lower limit L must be less than the upper limit
- The difference between the lower and upper limits is at least 5%.

Graph

For details, see section 5.7 in the User's Manual IM04L41B01-01E or IM04L42B01-01E.

Scale display position

Select the scale display position on the trend display from 1 to 10 for the DX2000 or from 1 to 6 for the DX1000. Select [OFF] if you do not wish to display the scale.

Scale divide position

Select the number of main scale marks on the trend display from 4 to 12 and C10.
C10: The scale is equally divided into 10 sections by main scale marks, and scale values are indicated at 0, 30, 50, 70, and 100% positions on the trend display.

Bar display position

Select [Normal], [Center], [Lower][1], or [Upper][1].

1 [Lower] and [Upper] can only be selected with DX main unit firmware version 2.0x or later.

Bar divide number

Select number of divisions of the scale on the bar graph display.

Partial (Partial Expanded Display)

Bound position (%)

Set the boundary for the partial expanded display. The range is from 1 to 99%.

Boundary

Set the value that is to be the boundary between the reduced section and the expanded section in the range of “minimum span value + 1 digit to maximum span value – 1 digit.” For channels that are set to scaling, the selectable range is “minimum scale value + 1 digit to maximum scale value – 1 digit.”

Example: Input range: –6 V to 6V. Bound position: 30. Boundary: 0
The –6 V to 0 V range is displayed in the 0% to 30% range, and the 0 V to 6 V range is displayed in the 30% to 100% range.

The conditions used to set the boundary vary depending on the measurement and computation channels as follows:

- Measurement channel
  When SCALE and SQRT are not used: Span L < boundary < span U
  When SCALE and SQRT are used: Scale L < boundary < scale U
- Computation channel
  Span L < boundary < span U

Note

For the DX1000/DX2000, this is when [Partial] is turned [ON] under [Detail Setting] in the [Basic Setting] tab.

Color (Display Color)

You can select the display color of each channel from 24 colors.

Green Band

Displays a specified section of the measurement range using a color band on the scale. This setting is common with the bar graph display.

Region (Band area)

Settings	Description
Inside	Displays the area inside using the color band.
Outside	Displays the area outside using the color band.
OFF	Disables the function.

Color

Set the display color.

L and U

Specify the display position. Set a value within the span or scale range.

L: Lower limit of the area.

U: Upper limit of the area.

Alarm Mark

Displays marks indicating the values of the high and low limit alarms, delay high and low limit alarms, and difference high and low limit alarms. This setting is common with the bar graph display.

Mark kind

Settings	Description
Alarm	Indicates green under normal conditions and red when an alarm is activated.
Fixed	Displays a fixed color.

Scale display

To display alarm point marks, select [ON].

Mark color

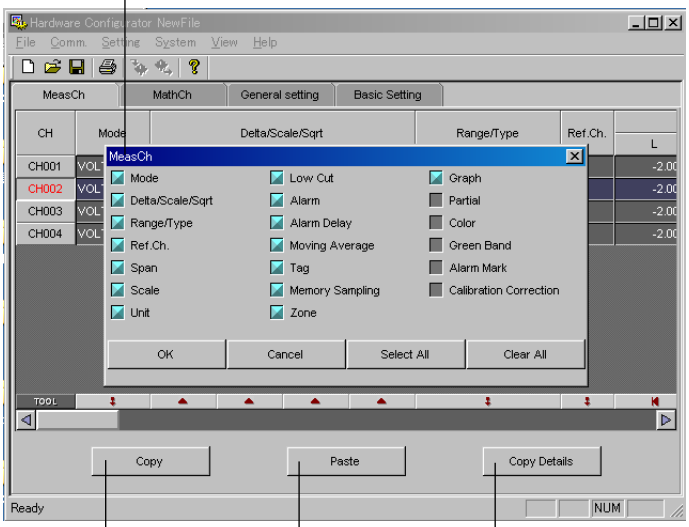
If the [Mark kind] is set to [Fixed], specify the color of the alarm point marks.

Copying and Pasting Setup Data

The items checked in [Copy Details] can be copied and pasted. Click the channel number to select the copy source or paste destination.

To select multiple channels to be copied, drag the channel number to specify the range to be copied. To select multiple paste destinations, select the range in a similar fashion.

Example of the selection screen of the setting item
This screen is displayed when clicking the [Copy Details] button
The setting item names of the channel setup screen appear.
Blue means selected, gray means cleared.



Click to display the screen for selecting setting items to copy, then select the desired items.

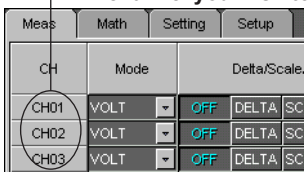
Paste the selected settings to the specified range.

Copy the selected settings of the specified range.

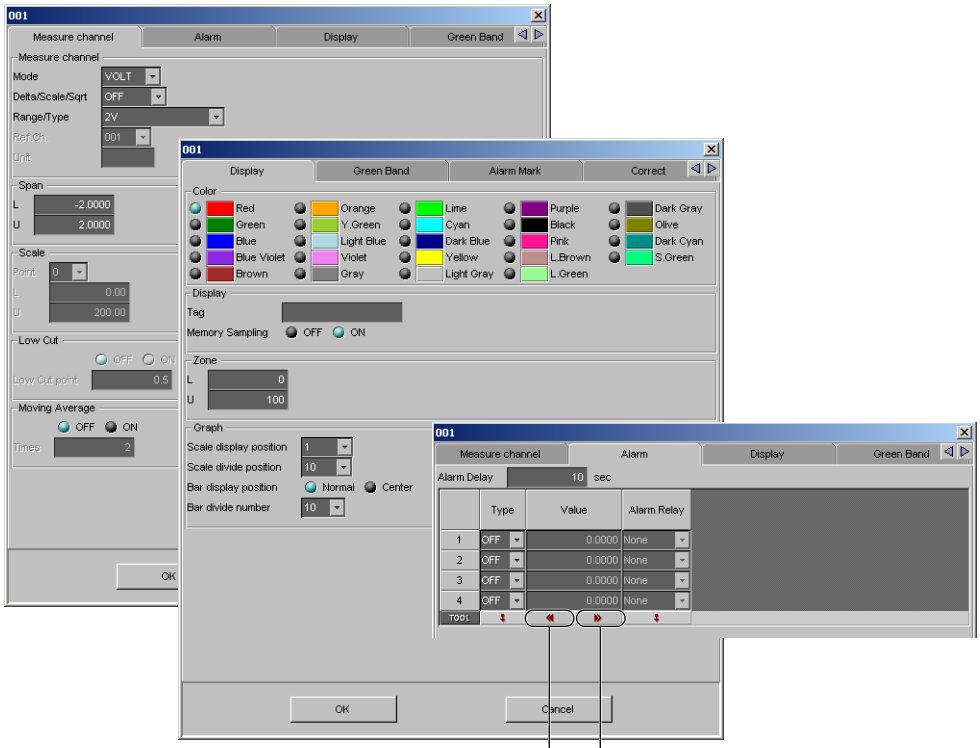
1. Select the copy source channels. Click the [Copy] button.
2. Select the paste destination channels. Click the [Paste] button.

Setting One Channel at a Time

1. Double-click the channel you wish to set.

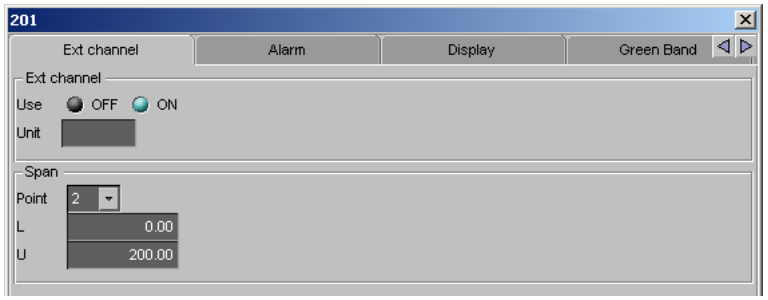


2. The channel setting dialog box opens.



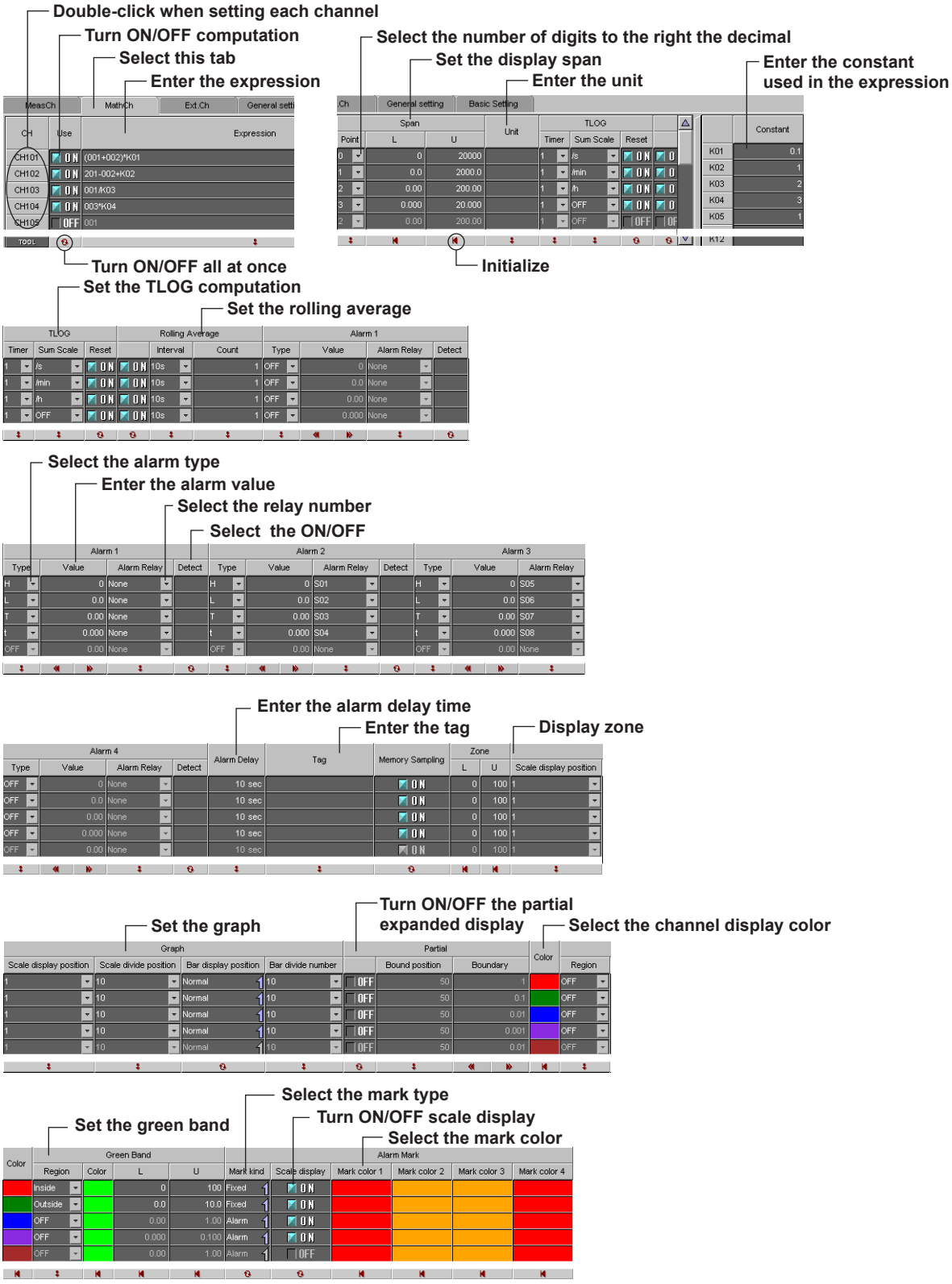
Set the maximum possible value
Set the minimum possible value

For Ext channels



The items in the measurement channel tab can be configured for each channel. The items that are configured are the same as those configured on the spreadsheet. For details, see the page corresponding to the item.

3.4 Setting the Computation Channels

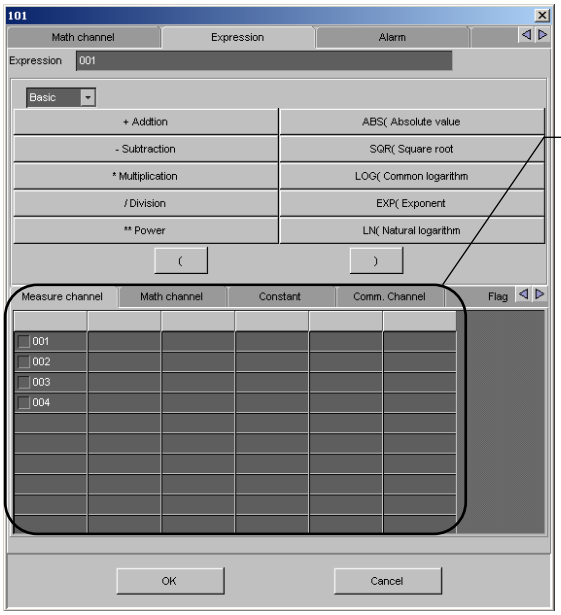


Use (Turning ON/OFF Computation)

Select whether or not to perform computation for each channel.

Entering Expressions

Enter an expression using up to 120 characters. You can display the variables or constants list and add one of the variables or constants in the list to your expression simply by clicking it. For details related to the expression, see the DX1000/DX2000 User's Manual.



Click the tab to display a list of that item (example of screen with revision R7.21 or later)

Span (Display Span) and Point

Sets the upper and lower limits of the display.
The range is from −9999999 to 99999999. Set the number of digits to the right the decimal to four digits or less (0 to 4).

Alarm and Tag

The settings are the same as the measurement channels. For details, see section 3.3, "Setting the Measurement Channel, Ext. Channel."

TLOG (TLOG Computation)

Timer

Select the timer number to use.

Sum Scale

Set the sum scale to [/s], [/min], [/h] to match the unit of the measured value.
Example: If the unit of the measured value is "m^3/min," select [/min].
OFF: Sums as-is the measured data per scan interval.

Reset

To reset the TLOG computed value at each interval, select [ON].

Rolling Average

ON/OFF

To take the rolling average of the measured results, select [ON].

Interval

Select the sampling interval when taking the rolling average from the following: The sampling interval takes on a value that is an integer multiple of the scan interval. For example, if the sampling interval is set to 5 s when the scan interval is 2 s, the actual sampling interval is 6 s.

Count (Number of samples)

Set the number of samples for the rolling average using an integer between 1 and 1500.
The rolling average time is equal to the sampling interval × the number of samples.

Note

DX1000/DX2000 Specifications

- If the number of data points to be averaged has not reached the specified number of samples immediately after computation is started, the average of the available data is calculated.
- Computation error data is excluded from the rolling average computation.
- If the computed data exceeds the upper or lower limit, the data is clipped at the upper or lower limit, and the rolling average is computed. The upper and lower limit is "±100000000" excluding the decimal point. The decimal place is the same as that of the span lower limit.

Memory Smpling, Zone, Graph, Partial, Color, Green Band, and Alarm Mark

The settings are the same as the measurement channels. For details, see section 3.3, "Setting the Measurement Channel, Ext. Channel."

Constant

You can set constants to be used in the expression. Up to 60 constants can be specified.

Copying and Pasting Setup Data

See section 3.3, "Setting the Measurement Channel, Ext. Channel."

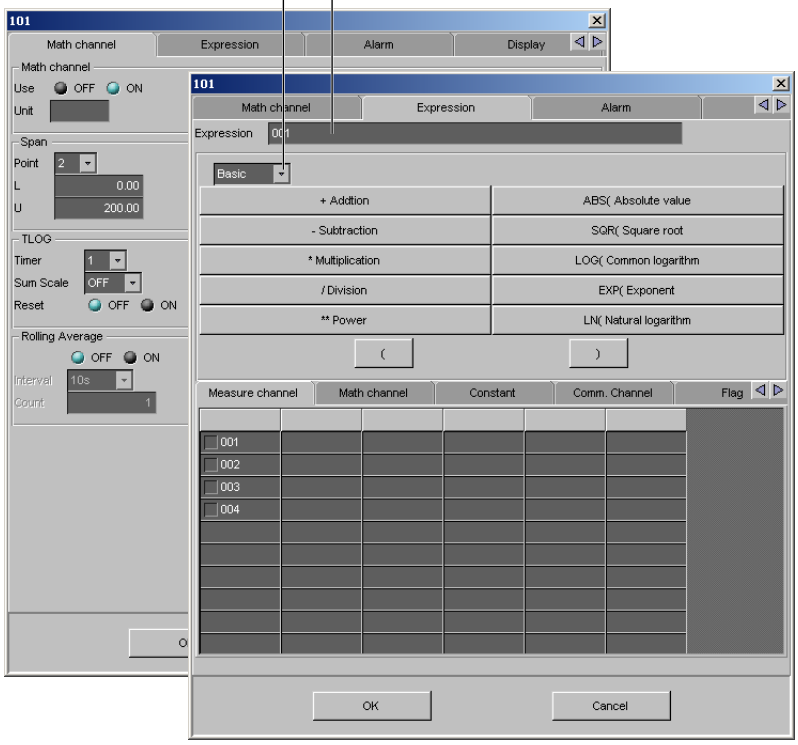
Setting One Computation Channel at a Time

1. Double-click the channel you wish to set.

2. The channel setting dialog box opens.

Clicking here and selecting the list of operators switches the display

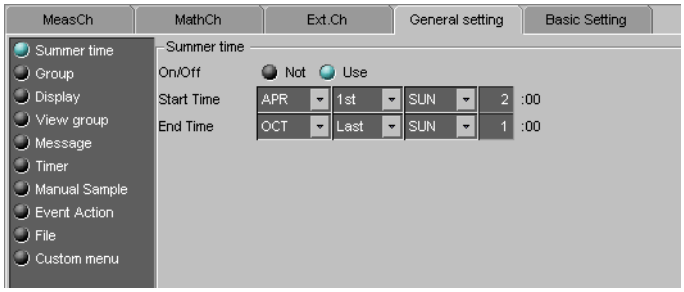
Select arbitrary channels from the measure channel, Math channel, and Ext channel tab pages, then select arbitrary operators to create an expression.



The items in the math channel tab can be configured for each channel. The items that are configured are the same as those configured on the spreadsheet. For details, see the page corresponding to the item.

3.5 Entering General Settings

Summer Time



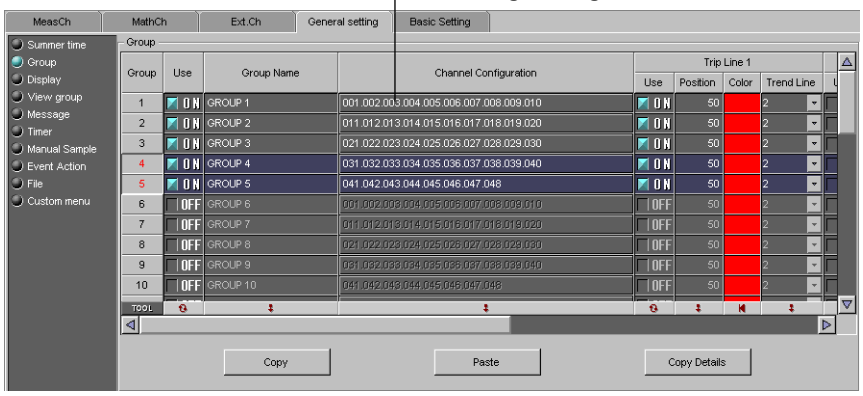
On/Off — To switch between summer time and standard time, select [On].

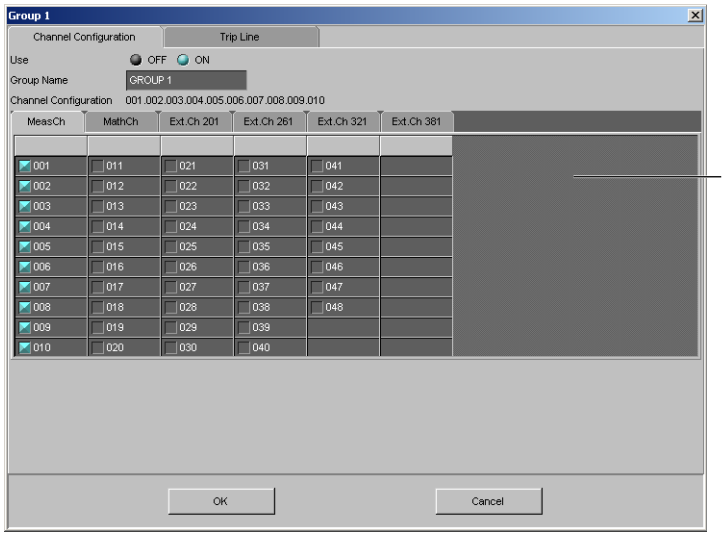
Start Time — Specify the date/time to switch from standard time to summer time. Set the month, the nth week, the day of the week, and the time.

End Time — Specify the date/time to switdh from summer time to standard time. Set the month, the nth week, the day of the week, and the time.

Screen Display

Click to display the channel configuration/trip line settings dialog box.





Select channels to register to the group, or set the trip line.

Use
Turn On the groups you want to use.

Group name
Set the group name. (up to 16 characters)

Channel Configuration
Set up to 10 channels (DX2000) or 6 channels (DX1000) from measurement channels, computation channels (/M1 and /PM1 options), and external input channels (/MC1 option, DX2000).

- Enter the channel number using two or three digits.
- Separate each channel with a period.
- To specify a range of consecutive channels numbers, use a hyphen.
  Example: To assign channels 1 and 5 to 8, enter “001.005-008.”

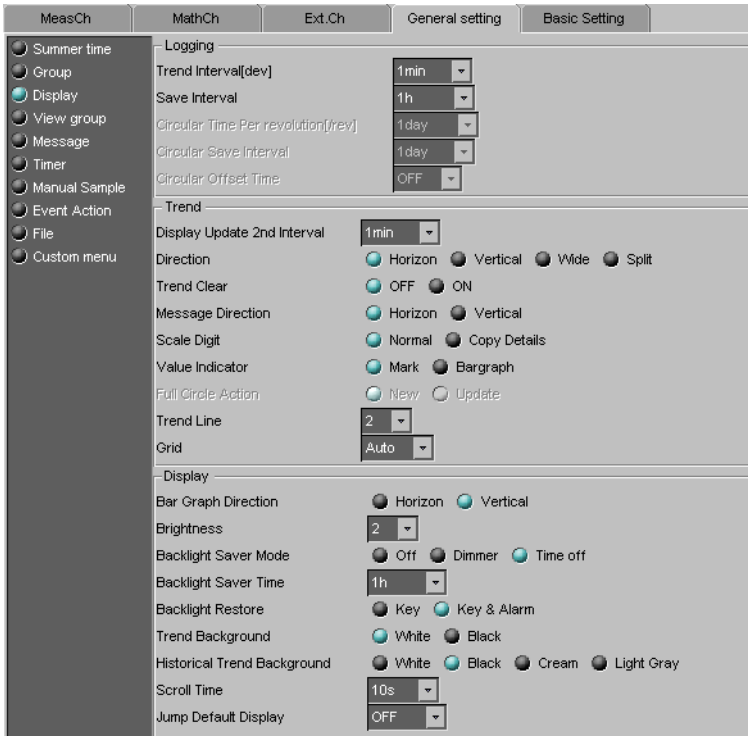
Note

- The trend, digital, and bar graph displays are shown in the specified order.
- A channel can be assigned to multiple groups.
- The same channel cannot be assigned multiple times in a group.

Trip line
Set lines at specified positions in the waveform display range on the Trend display.

- **Use**
  Turn [ON] the trip lines you want to display.
- **Position**
  Set the position in the range of 0 to 100% of the display width.
- **Color**
  The default colors are red, green, blue, and yellow. If you want to change the color, select from the 24 available colors.
- **Trend Line**
  Set the line width of the trip line in dots (1 to 3).

Display



Trend interval [/div]

Select the time corresponding to 1 division of the time axis on the trend display from below: You cannot specify a trend interval that is faster than the scan interval.

15s*, 30s, 1min, 2min, 5min, 10min, 15min, 20min, 30min, 1h, 2h, 4h, and 10h

* Can be set on the DX1002, DX1002N, DX1004, DX1004N, DX2004 and DX2008.

Save Interval (when recording display data)

Select the size of a record data file. The recorded data is divided by the file size specified here. The available settings vary depending on the Trend interval setting.

Trend interval	**15 s***	**30 s**	**1 min**	**2 min**	**5 min**
Selectable range of auto save interval	10 min to 3 days	10 min to 7 days	10 min to 14 days	10 min to 14 days	10 min to 31 days
Trend interval	**10 min**	**15 min**	**20 min**	**30 min**	**1 h**
Selectable range of auto save interval	10 min to 31 days	10 min to 31 days	1 hour to 31 days	1 hour to 31 days	1 hour to 31 days
Trend interval	**2 h**	**4 h**	**10 h**		
Selectable range of auto save interval	2 hours to 31 days	4 hours to 31 days	8 hours to 31 days		

* Selectable on the DX1002, DX1002N, DX1004, DX1004N, DX2004 and DX2008.

Circular Time Per revolution [/rev]

Select the time of revolution from [20min]* to [4week].

* Selectable on the DX2004 and DX2008.

Circular Save Interval

Select the size of a record data file. The recorded data is divided by the file size specified here. The available settings vary in the range of [10min] to [31day] depending on the [Time Per revolution] setting.

Circular Offset Time

The time at the reference position on the circle can be offset in unit of an hour up to 23 hours. The available settings vary depending on the [Time Per revolution] setting.

Display Update 2nd Interval

Enabled when [Trend Rate Switching] is turned [ON] under [Environment] - [Detail Setting] in the [Basic Setting] tab. Select a rate from the list.

Direction

Set the display direction of the trends to [Horizontal], [Vertical], [Wide], or [Split].

Trend Clear

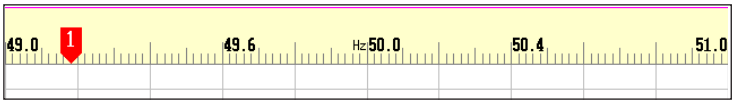
ON Clears the displayed waveform when the memory sampling is started.

OFF Does not clear the waveform when the memory sampling is started.

Message direction
Set the display direction of messages to [Horizontal] or [Vertical]. When the trend is set to Vertical, the message direction is fixed to [Horizontal].

Scale Digit
Select the [Normal] or [Fine].

Fine If the scale value is two-digit display, it can be changed to three digits. For example, if the scale range is “49.0 to 51.0,” the scale values are displayed using 3 digits as shown below.



Value Indicator
The current value is displayed as a mark or a bar graph.

Full Circle Action

Settings	Description
Allclear	Clears the entire waveform when one revolution of waveform is recorded and continues the recording of the next revolution.
Divclear	Clears one division of the old waveform when the remaining amount of waveform to be recorded falls to one division and continues the recording.

Trend Line
Set the line width of the trend in dots (1 to 3).

Grid
Select the number of grids to be displayed in the waveform display area of the trend display.

Settings	Description
4 to 12	Displays a grid that divides the display width into 4 to 12 sections.
Auto	Displays the same number of grids as the number of scale divisions of the first assigned channel of the group.

Bar Graph Derection
Select Bar graph derection.

Brightness
Select a value from 1 to 6 (2 by default). Larger the value, brighter the display becomes.

Backlite Save Mode

Settings	Description
OFF	Disables the backlight saver.
Dimmer	Dims the display if there is no operation for a given time.
Timeoff	Turns the backlight OFF if there is no operation for a given time.

Backlight Saver Time
Select a value from 1 min to 1 h. If the specified time elapses without any key operation or alarm occurrence, the LCD backlight switches to the specified mode.

Backlight Restore

Settings	Description
Key	The backlight returns to the original brightness when a key is pressed.
Key&Alarm	The backlight returns to the original brightness when a key is pressed or when an alarm occurs.

Trend Background
Set the background color of the operation screen to White (default setting) or Black.

Historical Trend Background

Select the background color of the historical trend display from the following:

Settings: White, Black (default setting), Cream, and Lightgray

Scroll Time

Set the switching interval from the available settings between 5 s and 1 min. The groups switch in ascending order.

Jump Default Display

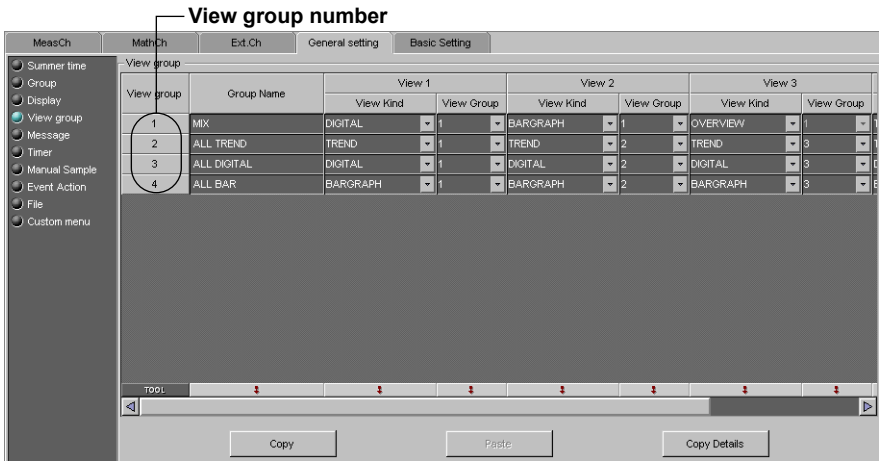
Returns to a preset display if there is no key operation for a specific time.

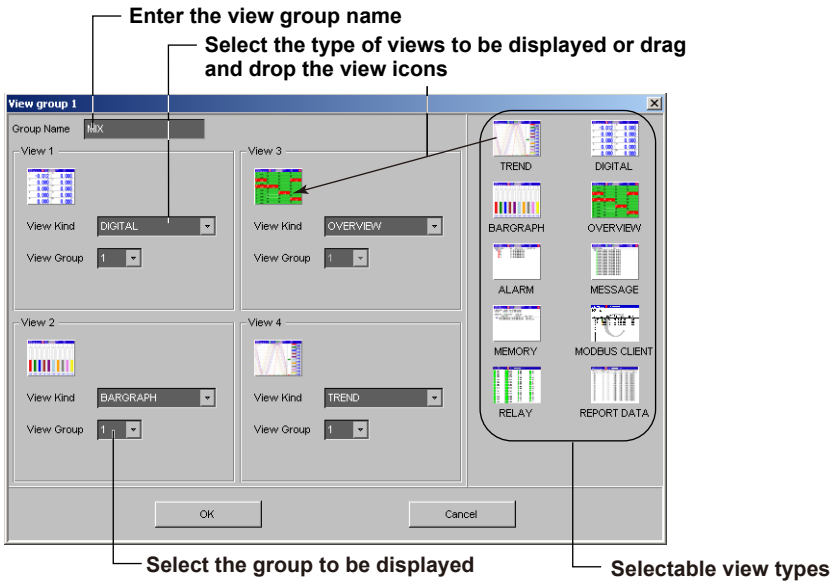
Settings	Description
1min to 1h	Time until switching the display.
OFF	Disables the function.

View Group

This function is for the DX2000 only.

With revision R7.21 or later, you can open a settings dialog box for any view group by double-clicking its number.





Group Name

Up to 16 characters can be entered for the group name.

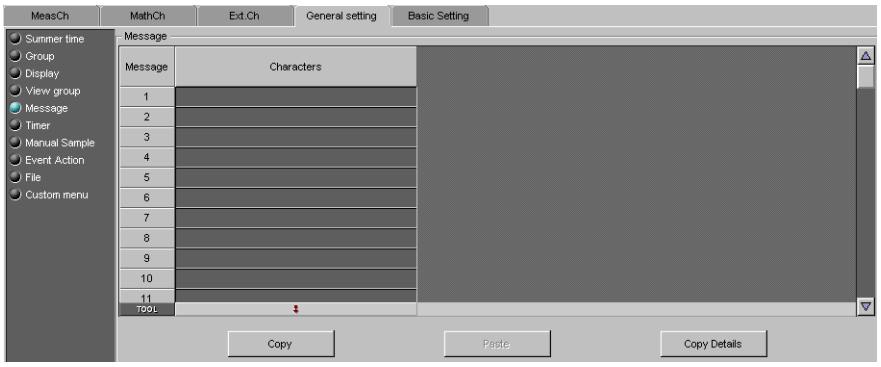
View Kind

The view group is made up of four screens. Select the type of screen to display in each screen.

View Group

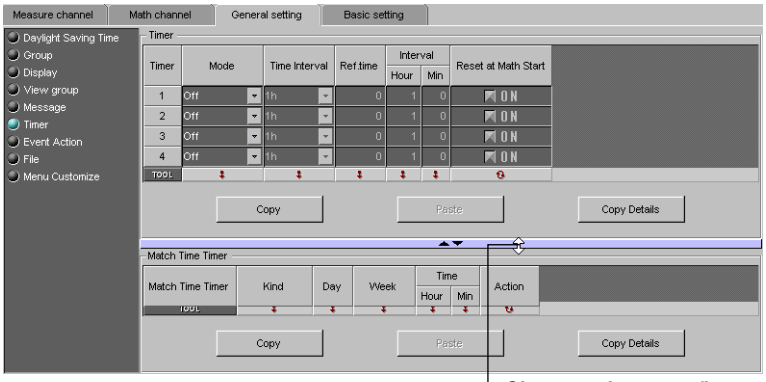
Up to four view groups can be registered.

Message



Enter a message to be written to the group of up to 32 alphanumeric characters.

Timer



Changes the upper/lower display area

Timer used by event action. Used also in the TLOG computation of the computation function.
Up to four timers (1 to 4) can be set.

When Using an Absolute Timer

- **Mode**
  Select [Absolute].
- **Time interval**
  Select the interval from the available settings between 1min to 24h.
- **Ref.time**
  Set the time in the range of hour 0 to hour 23.

When Using a Relative Timer

- **Mode**
  Select [Relative].
- **Time interval**
  Set in the range from 00:01 (1 min.) to 24:00 (24 hours).
  Hour: Set in the range from 0 to 24.
  Min: Set in the range from 0 to 59.
- **Reset at Math Start**
  ON Resets the timer when computation is started. The resetting of the timer is not considered to be a timeout. Even if the timer is used as an event, the action is not executed.

Match Time Timer

Set the time match condition used in event action.

- **Kind**

  Day Set the time match condition of a day.

  Week Set the time match condition of a week.

  Month Set the time match condition of a month.

  Set the items with check marks in the following table depending on the Kind setting.

Setup Item	Kind		
	Day	Week	Month
Day			✔
Weekday		✔	
Hour:Minute	✔	✔	✔

- **Day**

  Set the day.

- **Weekday**

  Set the day of the week.

- **Hour:Minute**

  Set the time in the range of 00:00 to 23:59.

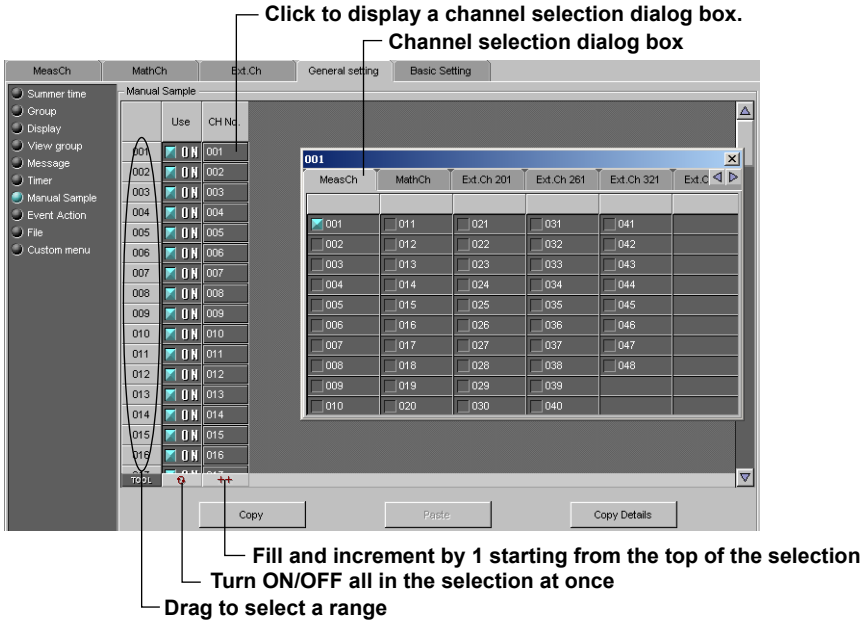
- **Timer action**

  Single Executes the action once when the condition is met.

  Repeat Executes the action at every specified time.

Manual Sample

This is the function for the DX2000 with the external input channel (/MC1 option).



Manual sample number

Select a number from 001 to 120. The instantaneous values are output in this order.

Manual Sample

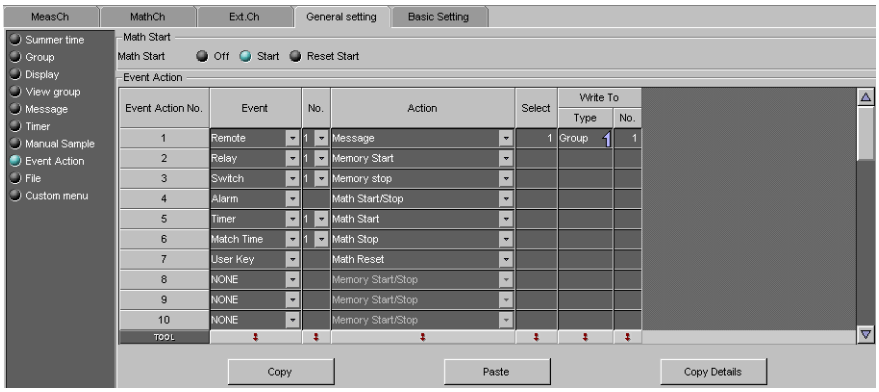
- **Use**

  Select On when assigning a channel to the manual sample number.

- **CH No.**

  Enter a channel number of a measurement channel, computation channel (/M1 and /PM1 options), or external input channel (/MC1 option).

Event Action



Event Action No.

You can set up to 40.

Event

The condition to execute the action.

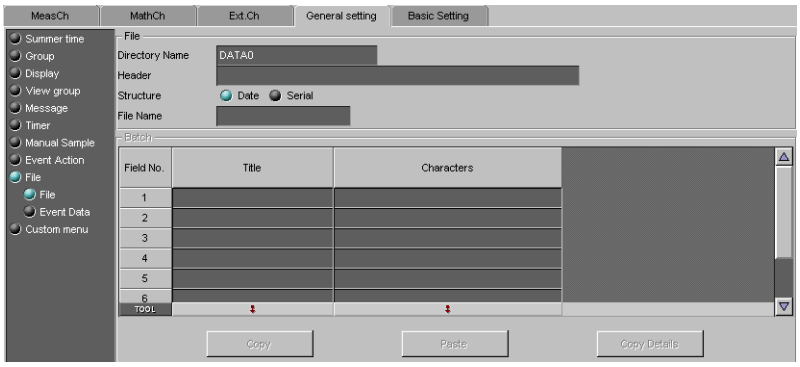
Settings	Description
NONE	Not use.
Remote	Select the remote control input terminal number.
Relay	Select the alarm output relay number.
Switch	Select the internal switch number.
Timer	Select the timer number.
Match Time	Select the match timer number.
Alarm	-
User Key	-

Action

The action to be executed when an event occurs.

Settings	Description
Memory Start/Stop	-
Memory Start	-
Memory Stop	-
Trigger	Can be specified when the DX is configured to record event data.
AlarmACK	Cannot be specified when the event is set to [Relay], [Switch], or [Alarm].
Math Start/Stop	Can be specified on /M1 and /PM1 options.
MathStart	Can be specified on /M1 and /PM1 options.
MathStop	Can be specified on /M1 and /PM1 options.
Math Reset	Can be specified on /M1 and /PM1 options.
Save Display Data	Can be specified when the DX is configured to record display data.
Save Event Data	Can be specified when the DX is configured to record event data.
Message	Set the message number and the destination. Set the message destination to all groups (All) or a group number.
Snapshot	-
Display Update Interval Change	Can be specified when the function for switching between the trend update interval and the secondary update interval is enabled.
Manual Sample	-
Timer Reset	Cannot be specified when the event is set to [Timer].
Display Group Change	Specify the number of the group to be displayed.
Flag	Can be specified on /M1 and /PM1 options.
Time ADJUST	Can be specified only when the event is set to [Remote].
Panel Load	Can be specified only when the event is set to [Remote].

File



Directory name

Set the name of the directory on the storage medium for saving the data on the external storage medium. (Up to 20 characters)

Symbols that can be used: #, %, (,), +, -, ., @, °, and _.

Strings that cannot be used: AUX, CON, PRN, NUL, CLOCK, COM1 to COM9, and LPT1 to LPT9.

Header

Set the header comment to be written to the data file. (Up to 50 characters)

Structure

Sets the structure of the file name when saving data.

Settings	Description
Date	Serial number + user-assigned character string + date
Serial	Serial number + user-assigned character string
Batch	Serial number + batch name (when using the batch function)

File name

Set the user-assigned section of the file name. (Up to 16 characters)

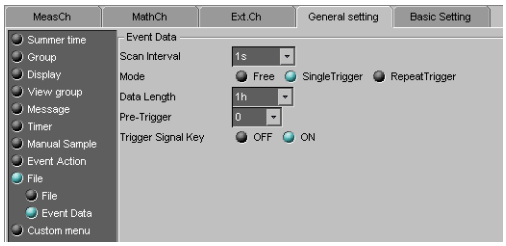
Symbols that can be used: #, %, (,), +, -, ., @, °, and _.

Field Title, Field Characters

Set the string.

Title of field: Up to 20 characters, Characters: Up to 30 characters

Event Date



Event related settings are enabled when [Data Kind] is set to [E+D] or [Event] in [Basic Environment] under [Environment] in the [Basic Setting] tab.

Sample rate

Select the data recording interval from the available settings.

Mode

Settings	Description
Free	Records data continuously.
Single	Records data when the trigger condition is met.
Repeat	Records data each time the trigger condition is met.

Data length

Select the size of a record data file. The recorded data is divided by the file size specified here. The available data lengths vary depending on the Sample rate setting.

Sample rate	**25 ms***	**25 ms**	**250 ms**	**500 ms**	**1 s**
Selectable range of data length	10 min to 4 hours	10 min to 1 day	10 min to 2 days	10 min to 3 days	10 min to 7 days
Sample rate	**2 s**	**5 s**	**10 s**	**30 s**	**1 min**
Selectable range of data length	10 min to 14 days	10 min to 31 days	10 min to 31 days	1 hour to 31 days	1 hour to 31 days
Sample rate	**2 min**	**5 min**	**10 min**		
Selectable range of data length	1 hour to 31 days	1 hour to 31 days	1 hour to 31 days		

* Selectable on the DX1002, DX1002N, DX1004, DX1004N, DX2004 and DX2008

Pre-Trigger

Specify the range when recording data before the trigger condition is met. Select the range as a percentage of the data length from 0, 5, 25, 50, 75, 95, and 100%. If you do not want to record the data existing before the trigger condition is met, select 0%.

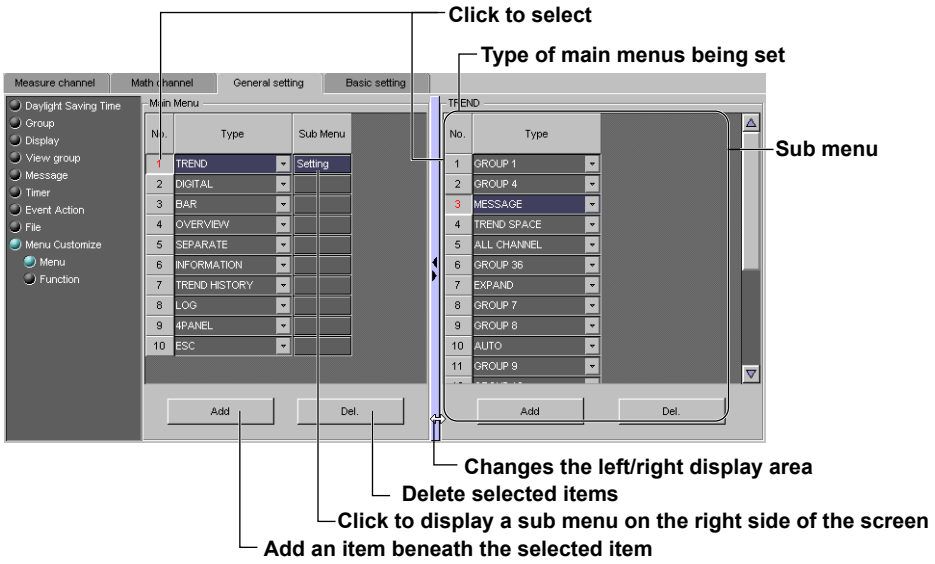
Trigger Signal Key

Select [ON] if you want to activate the trigger using key operation.

Custom Menu

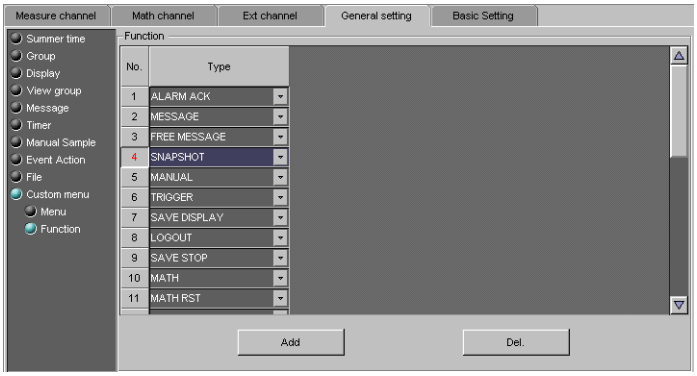
Menu

The display selection menu appears when the DISP/ENTER key is pressed.



Function

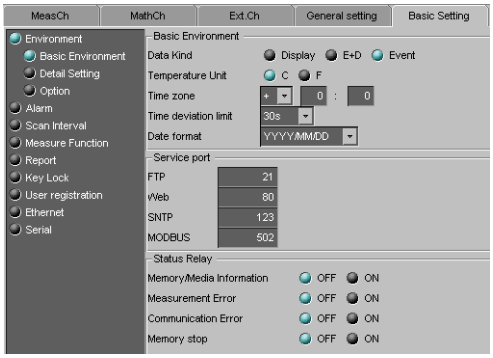
The FUNC key menu appears when the FUNC key is pressed.



3.6 Entering Basic Settings

Environment

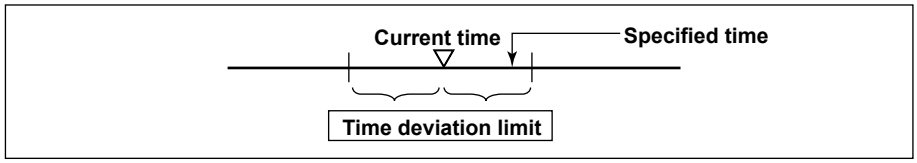
Basic Environment



- **Data Kind**

Settings	Description
Display	Records display data.
E+D	Records display data and event data. [E+D] cannot be selected when [Trend Rate Switching] is turned ON under [Environment] - [Basic Environment] in the [Basic Setting] tab.
Event	Records event data.

- **Temperature Unit**
  Select C or F.
- **Time zone**
  Set the time zone of the region in which the DX will be used in terms of the time difference from GMT. A negative value indicates that the local time is behind the GMT.
- **Time deviation limit**



  When the time deviation between the time on the DX and the specified time is within ±(the value specified here), the time on the DX is gradually corrected. Otherwise, the clock is corrected immediately.
  Select from 10 s to 5 min. Select [OFF] to disables the function.
  Example: If [Time deviation limit] is set to 10s and the time on the DX is 10 hours 21 minutes 15 seconds, the time on the DX is gradually corrected if the specified time is between 10 hours 21 minutes 5 seconds and 10 hours 21 minutes 25 seconds.
- **Date format**

Settings	Display Example
Y/M/D	2005/11/30
M/D/Y	11/30/2005
D/M/Y	30/11/2005
D.M.Y	30.11.2005

Applied Range

The format is applied to the date displayed on the screen. It does not change the date format on the setup screen of the date/time, the date in the output data via communications, the date saved along with the data, and the date used in the data file names.

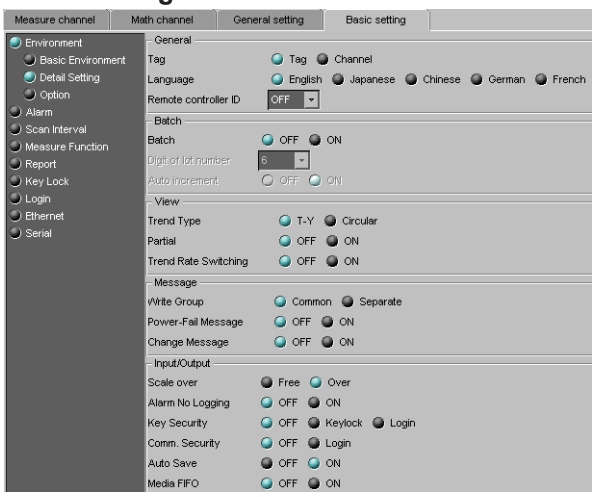
- **Service port**
  The following table indicates the number of simultaneous uses (number of users that can use the function simultaneously), the maximum number of connections, and the port number for each function.

Function	Maximum Number of Connections	Number of Simultaneous Uses		Port No.
		Administrator	User	
FTP server	2	2	2*1	21/tcp*3
Web server	–			80/tcp*3
SNTP server	–			123/udp*3
Modbus server	2			502/tcp*3
Instrument information server	–	–	–	34264/udp*2

*1 There are user limitations. For details, see the DX1000/DX1000N/DX2000 Communication interface User's Manual (IM04L41B01-01E).
*2 The port number is fixed.
*3 The default port number. You can set the value in the range of 0 to 65535. Use the default port number unless there is a special reason not to do so.

- **Status Relay**
  If an abnormality occurs with items turned ON, relay contact output is performed. In the [System Configuration] screen, if [FAIL] is set to [FAIL/Alarm relay] or [FAIL/Status relay], the [Status Relay] setting items are displayed.

Detail Setting



- **Tag**

Settings	Description
Tag	Displays tags. Channel numbers are displayed for channels that do not have tags assigned.
Channel	Displays channel numbers.

- **Language**
  Select the display language
- **Remote controller ID**
  Select the remote controller ID from 0 to 31. When not using the remote control terminal, select [OFF].
- **Batch**
  Select [ON] to use the batch function.
- **Digit of lot number**
  Select the number of digits of the lot number from 4, 6, or 8. Select [OFF] to disable the lot number.

- **Auto increment**
  ON Automatically sets the lot number of the next measurement to “the lot number of the current measurement + 1.”
- **Trend Type**
  Function for the DX2000 only.

Settings	Description
T-Y	A trend display with a linear time axis
Circular	A trend display with a circular time axis

- **Partial**
  Turn Partial [ON] (partially expand) or [OFF] (do not partially expand).
- **Trend Rate Switching**
  ON Enables the function that switches the trend interval while the memory sampling is in progress. The “Second interval [/div]” item is displayed in the setting mode.
  * When [Trend Rate Switching] is turned ON, [Data Kind] cannot be set to [E+D] under [Environment] - [Basic Environment] in the [Basic Setting] tab.
- **Write Group**

Settings	Description
Common	Write the message to all groups.
Separate	Write the message to the displayed group.

- **Power-Fail Message**
  ON A message is written when the DX recovers from a power failure while memory sampling is in progress.
- **Change Message**
  ON Writes the time the interval is switched and the new trend interval as a message when the trend interval is switched.
- **Scale over**

Settings	Description
Free	The value is set to –over range if the value is less than –30000 and +over range if the value is greater than 30000 excluding the decimal point. The value is displayed as –Over and +Over, respectively.
Over	The value is set to –over range if the value is less than –5% of the scale and +over range if the value is greater than 105%. The value is displayed as –Over and +Over, respectively.
Example:	If the scale is 0.0 to 200.0, the value is set to –over range if the value is less than –10.0 of the scale and +over range if the value is greater than 210.0.

Note

For computations such as TLOG, CLOG, and report, the handling of the scale over-range value can be set in advance.

- **Alarm No Logging**
  Turn ON when using the Alarm No Logging function. The [Detect] setting is enabled in the Measure channel/Math channel/Ext channel tab(s).
- **Key Security**

Settings	Description
Login	Enables only registered users to operate the DX using keys. The [User registration] is displayed in the [Basic Setting] tab.
Keylock	Enables the key lock function. Set the key lock function in the [Basic Setting] tab.
OFF	Disables the security functions.

- **Comm. Security**

Settings	Description
Login	Enables only registered users to operate the DX via communications. The [User registration] is displayed in the basic setting mode menu.
OFF	Disables the security functions.

- **Auto Save**

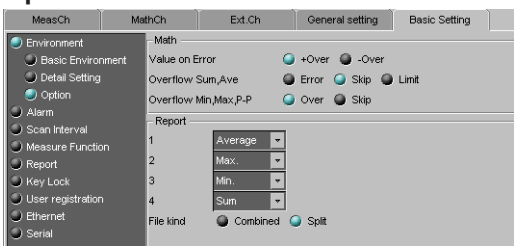
Settings	Description
ON	Automatically saves the measured data to the CF card.
OFF	Does not automatically save the data. Save the measured data manually to the CF card or USB flash memory (/USB1 option).

- **Media FIFO**

  You can select this with DX main unit firmware version 2.0x or later.
  This is valid only when [Auto Save] is [ON].

Settings	Description
ON	If there is no more free space on the CF card, the oldest file is deleted, and the newest file is saved.
OFF	If there is no more free space on the CF card, the measured data is not saved to the CF card.

Option



- **Value on Error**

  Specify whether to set the display for a computation error to [+Over] or [–Over].

- **Overflow Sum, Ave**

  Specify how to handle overflow data when it is detected in the SUM or AVE computation of TLOG or CLOG. This setting is also applied to report generation.

Settings	Description
Error	Sets the computed result to computation error.
Skip	Discards the overflow data and continues the computation.
Limit	Uses a limit value in place of the overflow data and continues the computation.

- **Overflow Min, Max, P-P**

  Specify how to handle overflow data when it is detected in the MAX, MIN, or P-P computation of TLOG or CLOG. This setting is also applied to report generation.

Settings	Description
Over	Uses the overflow data as-is.
Skip	Discards the overflow data and continues the computation.

- **Report (1 to 4)**

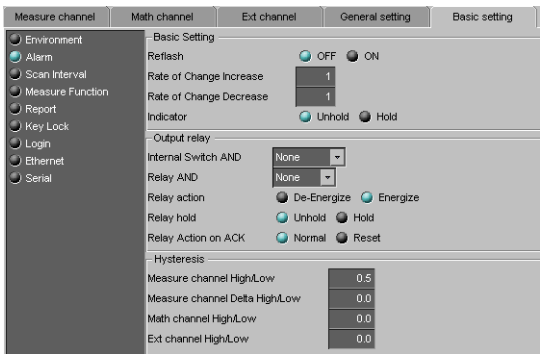
  Select the type of data to output as reports.

Settings	Description
OFF	Does not output reports.
Ave	Outputs the average value.
Max	Outputs the maximum value.
Min	Outputs the minimum value.
Sum	Outputs the sum value.
Instant	Outputs the instantaneous value.

- **File kind**
  Set this item when creating two types of reports such as daily report and monthly report.

Settings	Description
Split	Saves each type of report to a separate file.
Combined	Saves the report data of two types in a single file.

Alarm



Reflash
To set the reflash operation on the alarm output relay, select [ON]. The reflash function is set on the first three output relays.

Rate of Change Increse
Set the interval for the rate-of-change calculation of the high limit on rate-of-change alarm in terms of the number of sampled data points (1 to 32). The actual interval is obtained by multiplying the value specified here by the scan interval.

Rate of Change Decrease
Set the interval for the rate-of-change calculation of the low limit on rate-of-change alarm in the same manner as the interval for the high limit on rate-of-change alarm.

Hold
Select the alarm indication behavior from the following:

Settings	Description
Unhold	Clears the alarm indication when the alarm condition is released (returns to normal condition).
Hold	Holds the alarm indication until an alarm acknowledge operation is performed.

Internal Switch AND
Select the internal switches that are to operate using AND logic. Set the range of internal switches (from the first internal switch) to take the AND logic. All subsequent switches will be set to OR logic.

Relay AND
Select the relays that are to operate using AND logic. Set the range of relays (from the first alarm relay) to take the AND logic. All subsequent relays will be set to OR logic. Available settings are [None], [I01] (I01 only), [I01-I02] (I01 and I02), [I01-I03] (I01 to I03), etc. Only alarm output relays that are installed are valid.

Note

When reflash is turned ON, the operation of the first three output relays is fixed to OR logic. Specifying AND produces no effect.

Relay action
Select whether the alarm output relay is energized or de-energized when an alarm occurs. The setting applies to all alarm output relays.

Relay hold

Select the alarm output relay behavior from below: The setting applies to all relays.

Settings	Description
Unhold	Turns the output relay OFF when the alarm condition is released (returns to normal condition).
Hold	Holds the output relay at ON until an alarm acknowledge operation is performed.

Relay Action on ACK

You can select this with DX main unit firmware version 2.0x or later.

Settings	Description
Normal	The relay output is deactivated when the alarm ACK operation is executed. If the condition for activating the alarm output relay is met in the next scan interval, the relay output is activated. This operation is valid only when the alarm output relay is set to [Hold].
Reset	The relay output is deactivated when the alarm ACK operation is executed. If a new condition for activating the alarm output relay, the relay is activated.

Note

When reflash is turned ON, the operation of the first three output relays is set to nonhold. Specifying Hold produces no effect.

Measure channel High/Low

Sets the hysteresis width of the alarm occurrence/release of the high/low limit alarm specified on measurement channels.

Selectable range: 0.0% to 5.0% of the span or scaling width

Measure channel Delta High/Low

Sets the hysteresis width of the alarm occurrence/release of the difference high/low limit alarm specified on measurement channels.

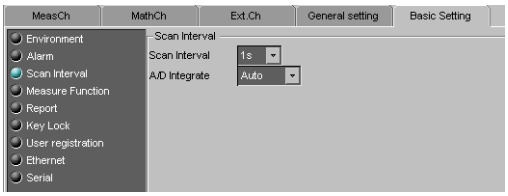
Selectable range: 0.0% to 5.0% of the span

Math channel High/Low, Ext channel High/Low

Sets the hysteresis width of the alarm occurrence/release of the high/low limit alarm specified on computation and external input channels.

Selectable range: 0.0% to 5.0% of the measurement span

Scan Interval



Scan interval

Select a scan interval.

A/D integrate

Select the A/D integration time as necessary. Only the selectable settings are displayed.

Settings	Description
Auto	The DX automatically detects the power supply frequency and sets the integration time to 16.7 ms and 20 ms for 60 Hz and 50 Hz, respectively. Fixed to 20 ms on /P1 models that use the 24 VDC power supply.
50Hz	Sets the integration time to 20 ms.
60Hz	Sets the integration time to 16.7 ms.
100ms	Sets the integration time to 100 ms (when the scan interval is 2 s or 5 s).
600Hz	The A/D integration time for fast sampling mode. You cannot change this value.

Measure Function

Burnout

Settings	Description
OFF	Sensor disconnections are not detected.
UP	When the sensor burns out, the measured result is set to +over range. The measured value displays “Burnout.” For 1-5V input, the DX assumes that the sensor has burned out when the measured value exceeds the scale upper limit by 10% of the scale width. (Example: When the measured value is greater than 110 when the scale is from 0 to 100)
DOWN	When the sensor burns out, the measured result is set to –over range. The measured value displays “Burnout.” For 1-5V input, the DX assumes that the sensor has burned out when the measured value falls below the scale lower limit by 5% of the scale width. (Example: When the measured value is less than –5 when the scale is from 0 to 100)

RJC Mode

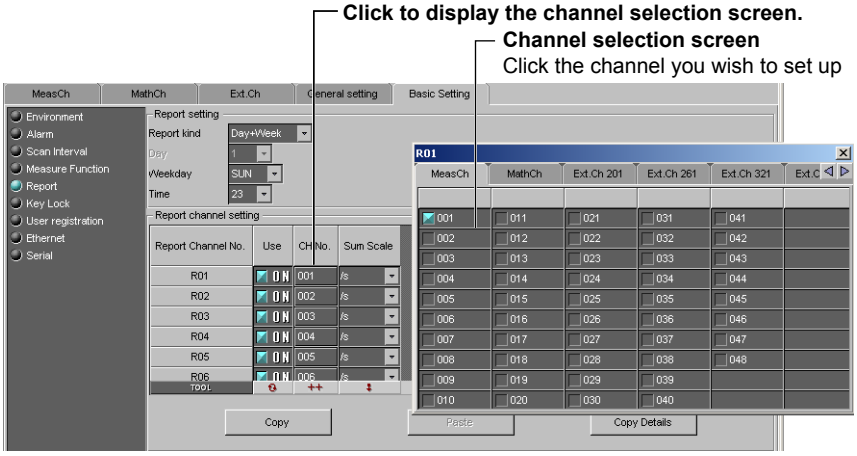
Sets the reference junction compensation method of the thermocouple input. Select [Internal] or [External].

Settings	Description
Internal	Uses the reference junction compensation function of the DX.
External	Uses an external reference junction compensation function. When set to [External], [Volt] is displayed.

RJC voltage (µV)

The compensation voltage to be added to the input. Set the value in the range of –20000 µV to 20000 µV.

Report



Report kind

Select the type of report to be created.

Settings	Description
OFF	Do not create a report.
Hour	Creates hourly reports.
Day	Creates daily reports.
Hour+Day	Creates hourly and daily reports.
Day+Week	Creates daily and weekly reports.
Day+Month	Creates daily and monthly reports.

Day, Week day, and Time (hour)

Set the date or day of the week and the time when the report is to be created. The specified date/time is when the report file is divided. Set the values in the range indicated below. Items with a dash are invalid.

Report Type	Day	Week day	Time
Hour	-	-	0 to 23
Day	1 to 28*	-	0 to 23
Hour+Day	-	-	0 to 23
Day+Week	-	SUN to SAT	0 to 23
Day+Month	1 to 28*	-	0 to 23

* You cannot specify 29, 30, or 31.

Report Channel No.

The report is output in order by this number.

Use

Select [ON] for the report channels to be used.

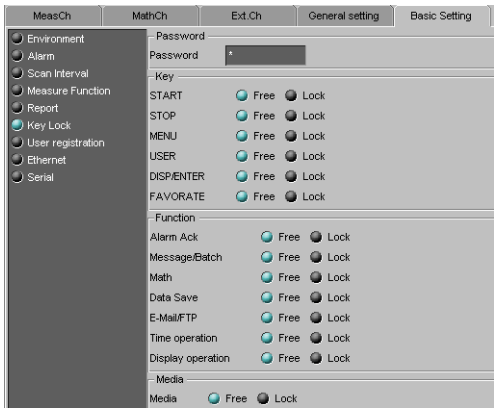
CH No.

Set the channel to assign to the report channel. All channels can be assigned, but reports are not created for channels set to [Skip] or [OFF] even if they are assigned.

Sum Scale

Set the sum scale to [/s] to [/day] to match the unit of the measured value.
Example: If the unit of the measured value is “m^3/min,” select [/min].
OFF Sums as-is the measured data per scan interval.

Key Lock



Enabled when [Key Security] is set to [Keylock] under [Environment] - [Detail Setting] in the [Basic Setting] tab.

Password

The password used to release the key lock. (Up to 8 characters)

Key, Function, Media

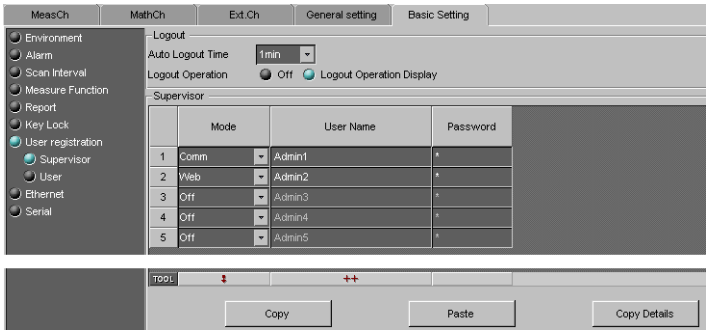
Select whether to lock each item.

Settings	Description
Free	Key lock not applied.
Lock	Disables the operation.

User Registration

You can set the [User Registration] when [Login] is selected as [Key Security] or [Comm. Security] under [Environment] - [Detail Setting] in the [Basic Setting] tab.

Supervisor



- **Auto Logout Time**

Settings	Description
OFF	Does not log out until the logout operation is executed.
1min to 10min	Automatically logs out when there is no key operation for a specified time.

- **Logout Operation**

Settings	Description
OFF	Only login operation is available.
Logout Operation Display	Allows the user to switch the operation screen in addition to the login operation.

- **Mode**

The choices differ depending on the selected contents of [Key Security] and [Comm. Security] under [Environment] - [Detail Setting] in the [Basic Setting] tab.

Settings	Description
OFF	Not register.
Key	Log into the DX1000/DX2000 using keys.
Comm	Log into the DX1000/DX2000 via communications.
Web	Log into the operator page and monitor page of the DX1000/DX2000 using a Web browser.
Key+Comm	Log into the DX1000/DX2000 using keys and via communications.

- **User Name**

Set the user name. (Up to 20 characters)

- You cannot register user names that are already registered.
- You cannot register “quit” or a user name containing all spaces.

- **Password**

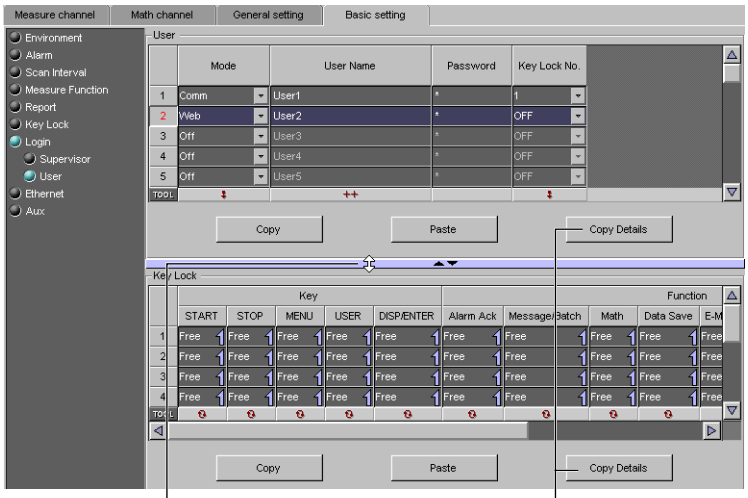
Set the password. (Up to 8 characters)

An entered password is displayed as “********.”

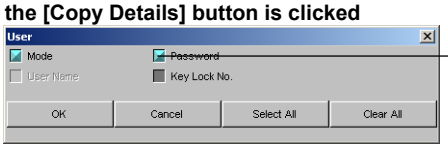
- You cannot register “quit” or a password containing all spaces.

User

Up to 30 names can be registered.



Example of the dialog box displayed when the [Copy Details] button is clicked



- **Mode**

  The available settings vary depending on the [Security] setting.

Settings	Description
OFF	Not register.
Key	Log into the DX using keys.
Comm	Log into the DX via communications.
Web	Log into the monitor page of the DX using a Web browser.
Key+Comm	Log into the DX using keys and via communications.

- **User Name, Password**

  Same as the supervisor settings.

- **Key Lock No.**

Settings	Description
OFF	No limitations on the operation.
1 to 10	Registration number of the operation limitation.

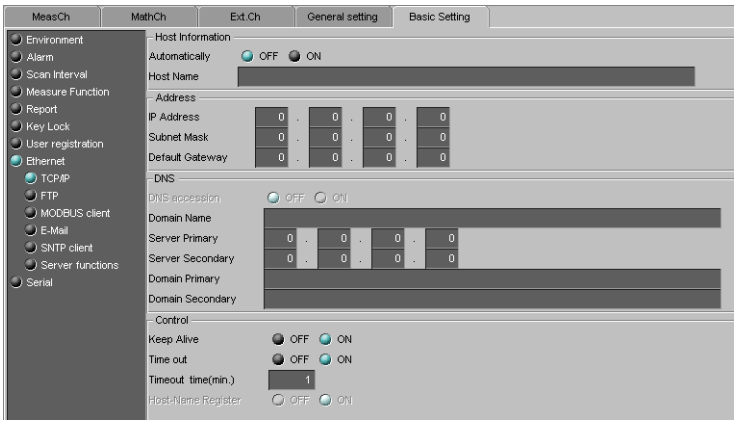
- **Key lock**

  Select whether to lock each item.

Settings	Description
Free	Key lock not applied.
Lock	Disables the operation.

Ethernet

TCP/IP



Set the IP address to a fixed IP address or obtain it automatically (DHCP).
Consult with your network administrator for the network parameters such as the IP address, subnet mask, default gateway, and DNS.

When using a fixed IP address

- **DHCP**
  Set [DHCP] to [OFF].
- **IP Address**
  Set the IP address to assign to the DX1000/DX2000.
- **Subnet Mask**
  Set the subnet mask according to the system or network to which the DX1000/DX2000 belongs.
- **Default Gateway**
  Set the IP address of the gateway.
- **Host Name**
  Set the DX's host name using up to 64 alphanumeric characters. You do not have to set this parameter.
- **Domain Name**
  Set the network domain name that the DX1000/DX2000 belongs to using up to 64 characters. You do not have to set this parameter.
- **Server Primary, Server Secondary**
  Register up to two IP addresses for the primary and secondary DNS servers.
- **Domain Primary, Domain Secondary**
  Set up to two domain suffixes: primary and secondary.

When obtaining the IP address from DHCP

- **DHCP**
  Set [DHCP] to [ON].
- **DNS accession**
  To automatically obtain the DNS server address, select [ON]. Otherwise, select [OFF]. If you select [OFF], you must set the IP address of the DNS server.
- **Host-Name Register**
  To automatically register the host name, select [ON].
- **Host Name**
  Set the DX1000/DX2000's host name using up to 64 alphanumeric characters.
- **Domain Name**
  Set the network domain name that the DX belongs to using up to 64 characters.
- **Server Primary, Server Secondary (not necessary when DNS accession is enabled)**
  Register up to two IP addresses for the primary and secondary DNS servers.
- **Domain Primary, Domain Secondary**
  Set up to two domain suffixes: primary and secondary.

Keep Alive

To disconnect when there is no response to the test packets that are periodically sent, select [ON]. Otherwise, select [OFF].

Time out

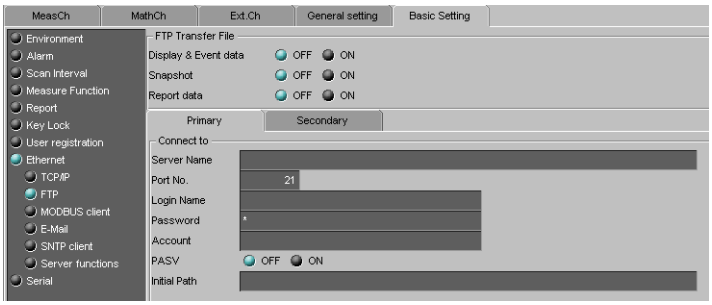
To use the application timeout function, select [ON]. Otherwise, select [OFF]. If you select [ON], a [Timeout time] is displayed.

- **Timeout time (min.)**
  Set the timeout value between 1 and 120 (minutes).

Checking the communication status

The Ethernet communication status can be confirmed with the LED lamp that is provided on the Ethernet connector on the DX1000/DX2000 rear panel or the [Ethernet link] that is shown at the upper right of the basic setting screen.

FTP



The data files are automatically transferred to the FTP destination.

File Type	Description
Display data file	Data files are automatically transferred at each file save interval.
Event data file	Files are automatically transferred when the data length of data is recorded.
Report data file	Data files are automatically transferred every time a report is created.
Snapshot data file	The files are automatically transferred when a snapshot is executed. They are transferred regardless of the media storage setting.

* Indicates snapshot using the FUNC key, communication command (EV2 command), USER key, or remote control function.

Setting the FTP connection destination

Consult your network administrator when setting parameters such as the primary/secondary FTP servers, port number, login name, password, account, and availability of the PASV mode.

- **Primary, Secondary**
  You can specify two destination FTP servers, [Primary] and [Secondary]. If the primary FTP server is down, the file is transferred to the secondary FTP server.
- **Server Name**
  Enter the name of the file transfer destination FTP server using up to 64 alphanumeric characters.
  - If the DNS is used, you can set the host name as a server name.
  - You can also set the IP address. In this case, the DNS is not required.
- **Port No.**
  Enter the port number of the file transfer destination FTP server in the range of 1 to 65535. The default value is 21.
- **Login Name**
  Enter the login name for accessing the FTP server using up to 32 alphanumeric characters.
- **Password**
  Enter the password for accessing the FTP server using up to 32 alphanumeric characters.
- **Account**
  Enter the account (ID) for accessing the FTP server using up to 32 alphanumeric characters.
- **PASV**
  Select [ON] when using the DX behind a firewall that requires the passive mode. The default setting is [OFF].

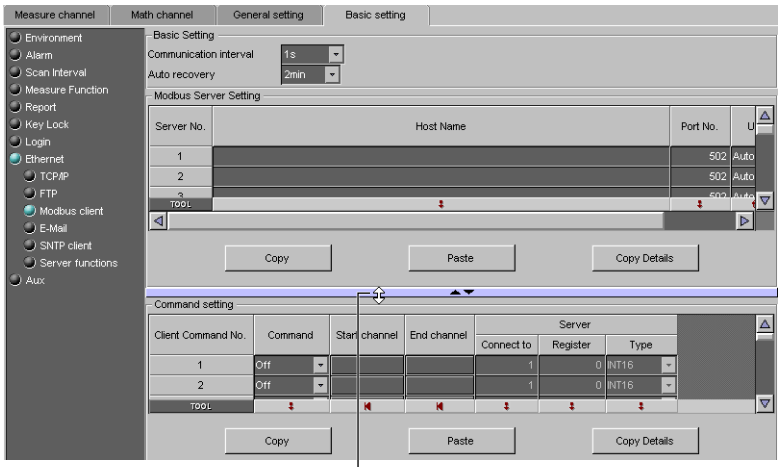
- **Initial Path**

  Enter the directory of the file transfer destination using up to 64 alphanumeric characters. The delimiter for directories varies depending on the implementation of the destination FTP server.

  Example: When transferring files to the “data” directory in the “home” directory of an FTP server on a UNIX file system.
  /home/data

  If the file transfer to both primary and secondary destinations fails, the DX aborts the file transfer. When the connection recovers, the DX transfers the data that could not to be transferred in addition to the new data file. However, since the data that is transferred resides in the internal memory of the DX, if the data is overwritten, the data that could not be transferred is lost.

MODBUS Client



Communication interval

Set the read cycle to 125ms, 250ms, 500ms, 1s, 2s, 5s, or 10s.

Auto recovery

Set the interval for retrying the connection when the connection is interrupted for some reason. Select OFF, 10s, 20s, 30s, 1min, 2min, 5min, 10min, 20min,30min, or 1h.

Modbus Server setting

- **Server No.**
  Select from 1 to 16 for the server registration numbers to be configured.
- **Port No.**
  Enter the port number in the range of 0 to 65535 for the selected server. The default value is 502.
- **Host Name**
  Set the destination Modbus server name using up to 64 alphanumeric characters.
  - If the DNS is used, you can set the host name as a server name.
  - You can also set the IP address. In this case, the DNS is not required.
- **Unit**
  Select [Auto] if the unit number of the destination server is not required; Otherwise, select [Fixed]. If you select [Fixed], the [Unit No.] item is displayed.
- **Unit No.**
  Enter a fixed unit number in the range of 0 to 255.

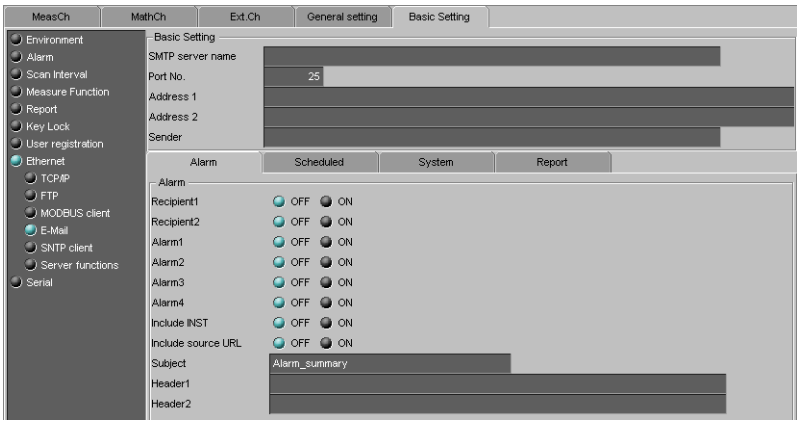
Command setting

- **Client command No.**
  Select from 1 to 16 for the transmitted command numbers to be configured.
- **Command type**
  Set the command type.

Settings	Description
Read	Read to the external input channel (16-bit signed integer type) from the server.
R-Math	Read to the communication input data (32-bit floating point type) from the server.
Write	Write the measurement channel (16-bit signed integer type) to the server.
W-Math	Write the measurement channel (32-bit signed integer type) to the server.

  [Read] can be selected on DX2000s with the external input channel (/MC1 option) installed.
  [R-Math] and [W-Mat] can be selected on models with the computation function (/M1 option) installed.
- **First/Last (client channels)**
  Enter the first and last channel numbers of input/output. The range of channels that you can enter varies depending on the command type as follows:
  Read: 201 to 440, R-Math: C01 to C60, Write: 1 to 48, W-Math: 101 to 160
- **Server (server number)**
  Select the server number from 1 to 16.
- **Regi.**
  Set the register number of the server.
  For an input register, select in the range of 30001 to 39999 and 300001 to 365536.
  For a hold register, select in the range of 40001 to 49999 and 400001 to 465536.
  The register numbers you can specify vary depending on the command type. See section 6/3 of the DX1000/DX1000N/DX2000 Communication Interface User's Manual (IM04L41B01-17E).
- **Type**
  Select [INT16], [UINT16], [INT32_B], [INT32_L], [UINT32_B], [UINT_L], [FLOAT_B], or [FLOAT_L].
  The register numbers you can specify vary depending on the command type. See section 6.3 of the DX1000/DX1000N/DX2000 Communication Interface User's Manual (IM04L41B01-17E).

E-mail



Set the SMTP server and mail address.

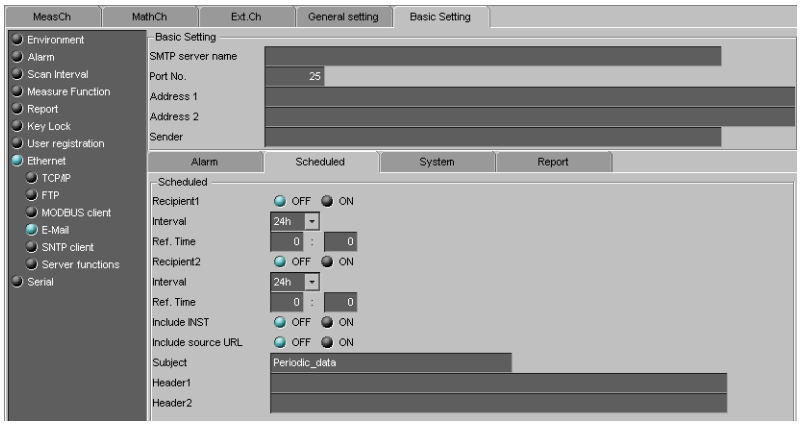
- **SMTP server name**
  Enter the host name or IP address of the SMTP server.
- **Port No.**
  Unless specified otherwise, set the number to the default value. The default value is 25.
- **Address 1, Address 2**
  Enter the e-mail address. Multiple e-mail addresses can be entered in the box of one recipient. When entering multiple addresses, delimit each address with a space. Up to 150 characters can be entered.
- **Sender**
  Enter the sender e-mail address. You can enter up to 64 characters.

Alarm

Specify the settings for sending e-mail when alarms occur.

- **Recipient1 and Recipient2**
  Set the e-mail recipients. For Recipient1 and Recipient2, select [ON] to send e-mail or [OFF] to not send e-mail.
- **Active alarms**
  Sends an e-mail when an alarm occurs. You can select [ON] (send e-mail) or [OFF] (not send e-mail) for alarms 1 to 4.
- **Include INST**
  Select [ON] to attach instantaneous value data when the alarm occurred.
- **Include source URL**
  Select [ON] to attach the source URL. Attach the URL when the Web server is enabled.
- **Subject**
  Enter the subject of the e-mail using up to 32 alphanumeric characters. The default setting is Alarm_summary.
- **Header1, Header2**
  Enter header 1 and header 2 using up to 64 characters.

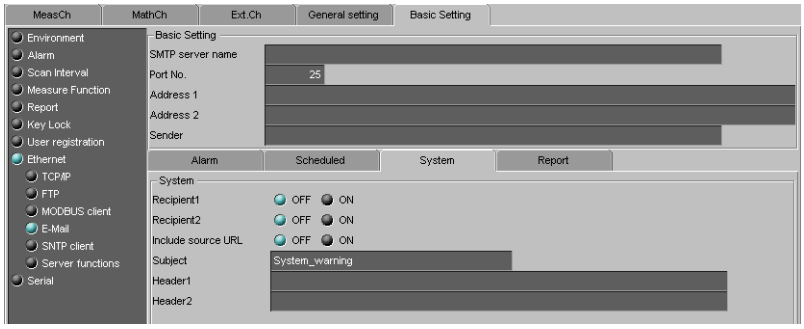
Scheduled



Specify the settings for sending e-mail at scheduled times.

- **Recipient1 and Recipient2**
  Set the e-mail recipients. For Recipient1 and Recipient2, select [ON] to send e-mail or [OFF] to not send e-mail.
- **Interval**
  Select the interval for sending e-mail to Recipient1 and Recipient2 from 1, 2, 3, 4, 6, 8, 12, and 24 hours.
- **Ref. time**
  Enter the time used as a reference for sending the e-mail at the specified interval to Recipient1 and Recipient2.
- **Include INST, Include source URL, Subject, and Header**
  These items are the same as the e-mail that is sent when an alarm occurs. The default subject is Periodic_data.

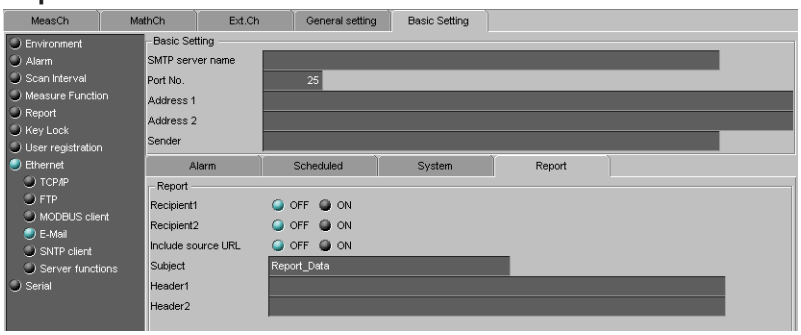
System



Specify the settings for sending e-mail when the DX recovers from a power failure, at memory end, and when an error occurs.

- **Recipient1 and Recipient2**
  Set the e-mail recipients. For Recipient1 and Recipient2, select [ON] to send e-mail or [OFF] to not send e-mail.
- **Include source URL, Subject, and Header**
  These items are the same as the e-mail that is sent when an alarm occurs. The default subject is System_warning.

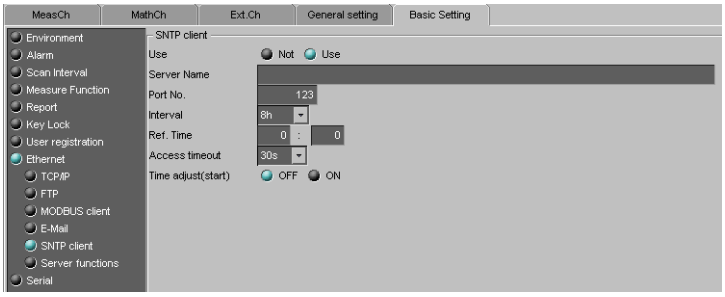
Report



Specify the settings for sending e-mail when reports are created.

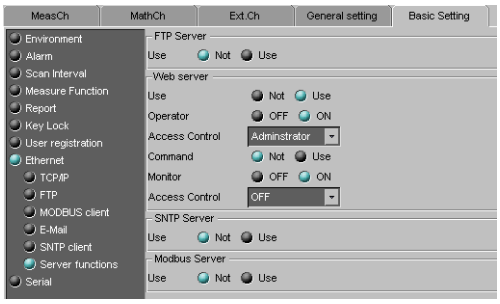
- **Recipient1 and Recipient2**
  Set the recipients. For Recipient1 and Recipient2, select On to send e-mail or OFF to not send e-mail.
- **Include source URL, Subject, and Header**
  These items are the same as the e-mail that is sent when an alarm occurs. The default subject is Report_data.

SNTP Client



- **Use**
  Select [Use] to use the SNTP client function; Otherwise, select [Not]. If you select [Use], the SNTP client settings are displayed.
- **Server Name**
  Set the SNTP server name using up to 64 alphanumeric characters.
  - If the DNS is used, you can set the host name as a server name.
  - You can also set the IP address. In this case, the DNS is not required.
- **Port No.**
  Enter the port number of the file transfer destination SNTP server in the range of 1 to 65535. The default value is 123.
- **Access Interval**
  Set the time interval for synchronizing the time with the server to OFF, 1, 8, 12, or 24h. If you select OFF, you can synchronize the time manually by operating soft keys. The time is not synchronized if the difference in the time between the DX and the server is greater than or equal to 10 minutes.
- **Ref. Time**
  Set the reference time for making queries.
- **Access timeout**
  Set the time to wait for the response from the SNTP server when querying the time to 10, 30, 90s.
- **Time adjust (start)**
  Select [On] to synchronize the time using SNTP when memory start is executed; Otherwise, select [OFF].

Server Function



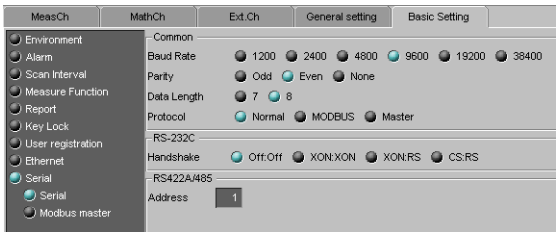
- **Use**
  Select [Use] or [Not] (don't use).

- **Web server Use**
  For the Web item under Server, select [Use] or [Not] (don't use). When [Use] is selected, the Web page item is added to the basic setting mode menu.
  - **Operator**
    To set the operator page, select [ON].
  - **Operator Access Control**
    To use access control, select [ON]. You must enter a user name and password to display the operator page. You must select [Login] as [Key Security] or [Comm. Security] under [Environment] - [Detail Setting] in the [Basic Setting] tab, and register users under the [User Registration].
  - **Command**
    To write messages, select [ON]; Otherwise, select [OFF].
  - **Monitor**
    To display the monitor page on a browser, select [ON]; otherwise, select [OFF].
  - **Monitor Access Control**
    Same as the Operator Access Control.

- **SNTP Server Use**
  select [Use] or [Not] (don't use).

- **Modbus Server Use**
  select [Use] or [Not] (don't use).

Serial



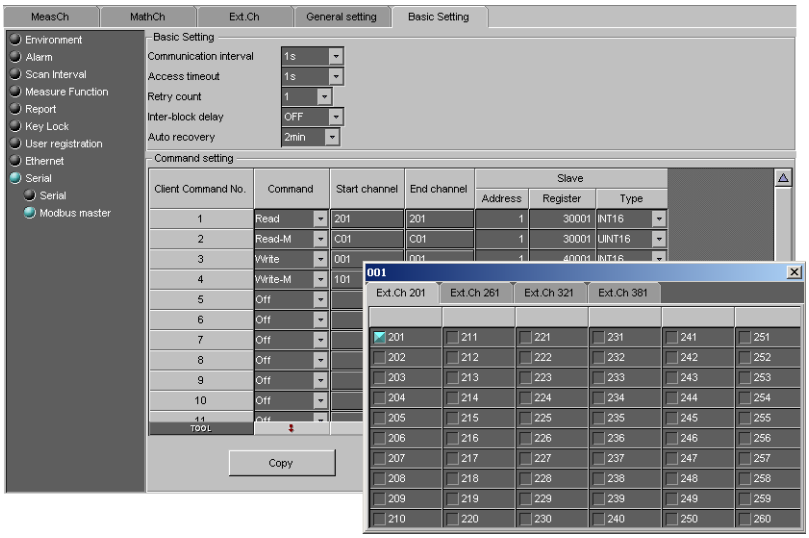
For RS-232

- **Baud Rate**
  Select 1200, 2400, 4800, 9600, 19200, or 38400 (bps).
- **Parity**
  Set the parity check method to Odd, Even, or None.
- **Data length**
  Select 7 or 8 (bits). To output the data in binary format, select 8.
- **Handshaking**
  Select Off:Off, XON:XON, XON:RS, or CS:RS.
- **Address**
  For Modbus protocol, enter a value in the range of 1 to 99. For a general purpose communication protocol, this value is not set.
- **Protocol**
  Select [Normal] for a general purpose communication protocol, [MODBUS] for Modbus slave, and [Master] for Modbus master.
  If Modbus master is selected, Modbus master settings must be entered.

For RS-422A/485

- **Baud rate**
  Select 1200, 2400, 4800, 9600, 19200, or 38400 (bps).
- **Data length**
  Select 7 or 8 (bits). To output the data in binary format, select 8.
- **Parity**
  Set the parity check method to Odd, Even, or None.
- **Handshaking**
  Not specified.
- **Address**
  Select a number from 1 to 99.
- **Protocol**
  This is the same as with the RS-232.

Modbus master



Modbus master settings are enabled when you set [Protocol] to [Master] under [Serial] - [Serial] in the [Basic Setting] tab.

Basic setting

- **Read cycle**
  Set the read cycle to 125ms, 250ms, 500ms, 1s, 2s, 5s, or 10s.
- **Timeout**
  Set the command timeout value to 125ms, 250ms, 500ms, 1s, 2s, 5s, 10s, or 1min.
- **Retrials**
  Set the number of retrials when there is no response from the slave. Select OFF, 1, 2, 3, 4, 5, 10, or 20.
- **Inter-block delay**
  Set the inter-block delay to OFF, 5ms, 10ms, 15ms, 45ms, or 100ms.
- **Auto recovery**
  Set the auto recovery time from communication halt. Select OFF, 1min, 2min, 5min, 10min, 20min, 30min, or 1h.

Command setting

- **Master command No.**
  Select from 1 to 16 for the command numbers to be configured.
- **Command type**
  Set the transmitted command type.

Settings	Description
Read	Read to the external input channel (16-bit signed integer type) from the slave.
R-Math	Read to the communication input channel (32-bit floating point type) from the slave.
Write	Write the measurement channel (16-bit signed integer type) to the slave.
W-Math	Write the measurement channel (32-bit signed integer type) to the slave.

[Read] can be selected on DX2000s with the external input channel (/MC1 option) installed. [R-Math] and [W-Mat] can be selected on models with the computation function (/M1 option) installed.

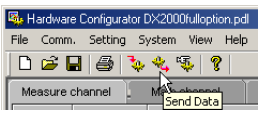
- **First/Last (master channel numbers)**
  Enter the first and last channel numbers of input/output. The range of channels that you can enter varies depending on the command type as follows:
  Read: 201 to 440, R-Math: C01 to C60, Write: 1 to 48, W-Math: 101 to 160

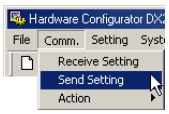
- **Address**
  Enter the address of the slave device in the range of 1 to 247.
- **Regi.**
  Set the register number of the server.
  For an input register, select in the range of 30001 to 39999 and 300001 to 365536.
  For a hold register, select in the range of 40001 to 49999 and 400001 to 465536.
  The register numbers you can specify vary depending on the command type. See section 6.3 in the DX1000/DX1000N/DX2000 Communication Interface User's Manual.
- **Type**
  Select [INT16], [UINT16], [INT32_B], [INT32_L], [UINT32_B], [UINT_L], [FLOAT_B], or [FLOAT_L].
  The type you can specify vary depending on the command type. See section 6.3 in the DX1000/DX1000N/DX2000 Communication Interface User's Manual (IM04L41B01-17E).

3.7 Sending the Setup Data to the DX1000/DX2000

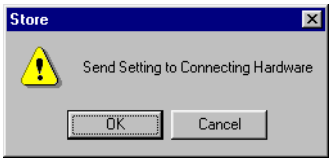
Data cannot be sent while the DX1000/DX2000 is starting up (while loading data into memory) or Math in progress.

1. Click the [Send Data] button, or choose [Comm.] - [Send Setting] from the menu bar.





The send settings dialog box opens.



2. Click [OK] to start sending. A message is displayed when sending is complete. Click [OK] to clear the message.

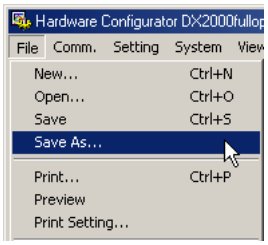
Note

The following items located on the setup tab cannot be sent.

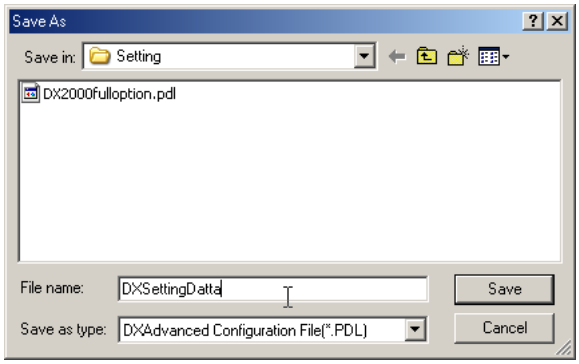
- The [Ethernet communication] - [TCP/IP] and [Server functions] setting items
- All serial communication settings

3.8 Saving the Setup Data

1. Click the Save button or choose [File] - [Save], or [File] - [Save As].



If you choose [File] - [Save as], the [Save As] dialog box appears.



2. Enter a destination file name and location and click the [Save] button.

Save

The setup data are overwritten to the preesxisting file (*PDL). The [Save As] dialog box does not open.

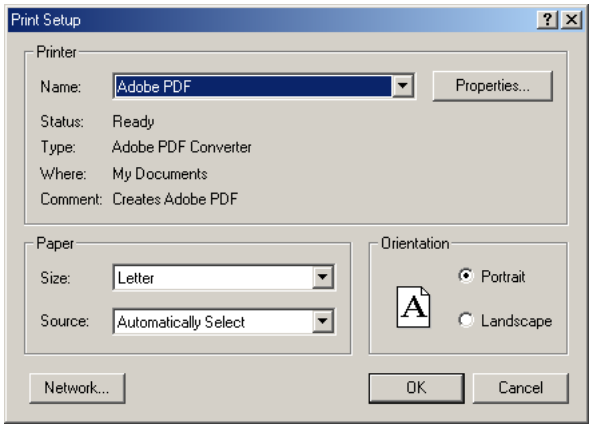
Save As

Saves the setup data by specifying the save destination and file name.

3.9 Printing the Setup Data

Setting the Printer

1. Select [File] - [Print Setting].



2. Set the printer, paper and orientation.

Note

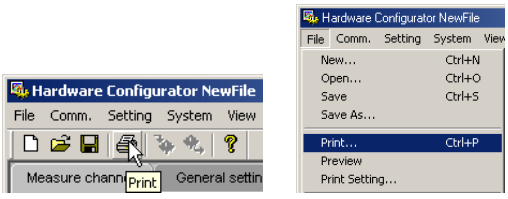
Set the printer according to the environment of the system that you are using.

Print Preview

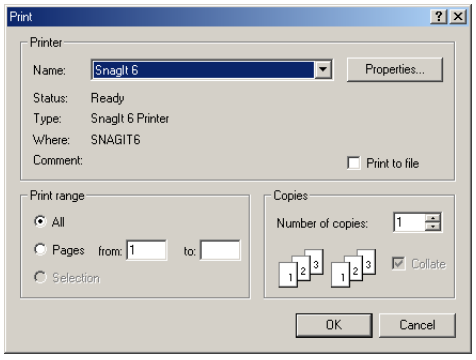
You can preview the print layout before actually printing the data.
Selecting [File] - [Print Preview] displays the print preview screen.

Printing

1. Click the [Print] button, or choose [File] - [Print] from the menu bar.



The [Print] dialog box opens.



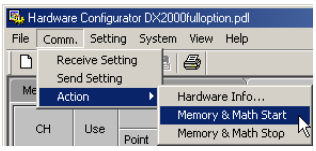
2. Click the [OK] button to start printing.

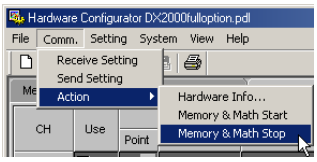
3.10 Starting and Stopping Measurement on the DX1000/DX2000, Checking the DX1000/DX2000 System Configuration

From this software you can start and stop the DX1000/DX2000, and display DX1000/DX2000 system configuration information.

Starting and Stopping Measurement

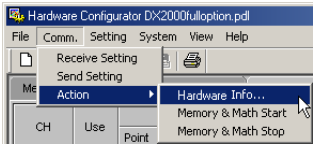
1. Choose [Comm.] - [Action] - [Memory and Math] - [Start/Stop] from the menu bar.





Displaying DX1000/DX2000 System Configuration Information

1. Choose [Comm.] - [Action] - [Hardware info] from the menu bar.



3.11 Characters That Can Be Used

List of Input Types

Type	Allowed Characters		Item
	Alphanumeric characters	Symbol	
Arbitrary string	Yes	Yes	Tag, group name
	Yes	No	Batch field title/characters, file header, mail header
Alphanumeric	Yes	Yes	Unit, user name, password, character string account
	Yes (including “[” and “]”)	Yes	Expression
Machine address	Yes	Disallowed	Host name, domain name, server name, and domain suffix
E-mail address	Yes	Disallowed	Transfer destination, transfer source
Subject	Yes	Disallowed	Mail title
File path name	Yes	Disallowed	File name, directory name,initial path [#%()-^_]

[Yes] and [Disallowed] indicate availability.
A triangle, “Disallowed” in the symbol box indicates some disallowed characters are present even though input was possible.
For file name, only the symbols in the table are valid.
Expressions are defined by the grammar check.

Allowed alphanumeric characters and symbols expressed with a single byte are as follows.

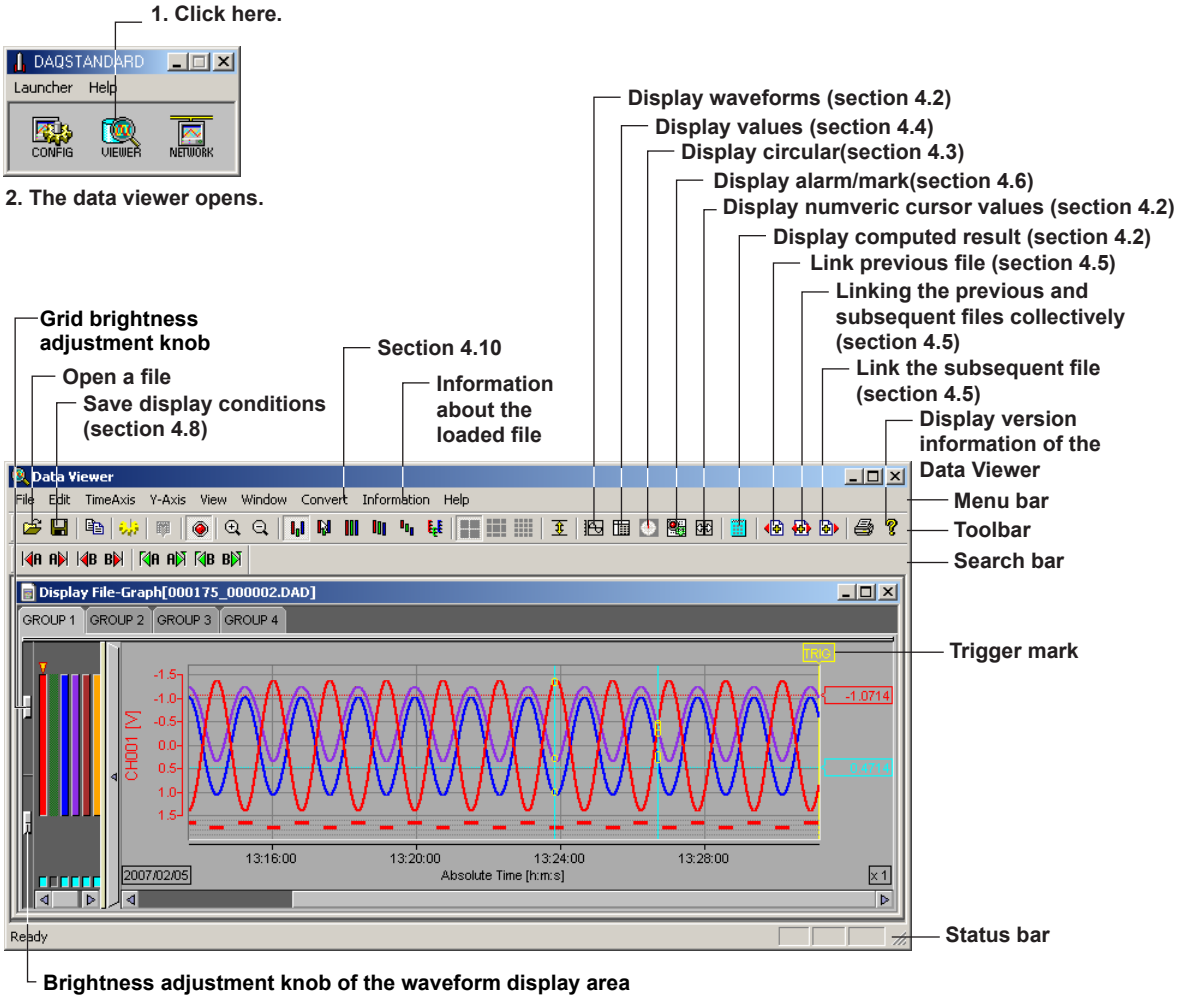
Table of Character Codes

HEX	Alphanumeric characters, Symbol							
	0x	1x	2x	3x	4x	5x	6x	7x
0		(SP)	0	@	P		p	
1			1	A	Q	a	q	
2			2	B	R	b	r	
3		#	3	C	S	c	s	
4			4	D	T	d	t	
5		%	5	E	U	e	u	
6			6	F	V	f	v	
7			7	G	W	g	w	
8		(	8	H	X	h	x	
9		)	9	I	Y	i	y	
A		*		J	Z	j	z	
B		+		K	[	k		
C				L		l		
D		-		M	]	m		
E		.		N	°	n		
F		/		O	_	o		

(SP) means “space.”
“ ° ” is the symbol for degrees (of temperature). Input, output and indicated using “ ^.”
“ [” and “]” are only allowed in expressions.

4.1 Starting and Exiting the Data Viewer

Starting the Data Viewer



You can also start the program by selecting [Start] - [Programs] - [DAQEXPLORER] - [Viewer].
You cannot start multiple Data Viewers. If you set file associations you can start Data Viewer by double-clicking a data file. You can start Data Viewer by dragging a data file onto the Data Viewer icon.

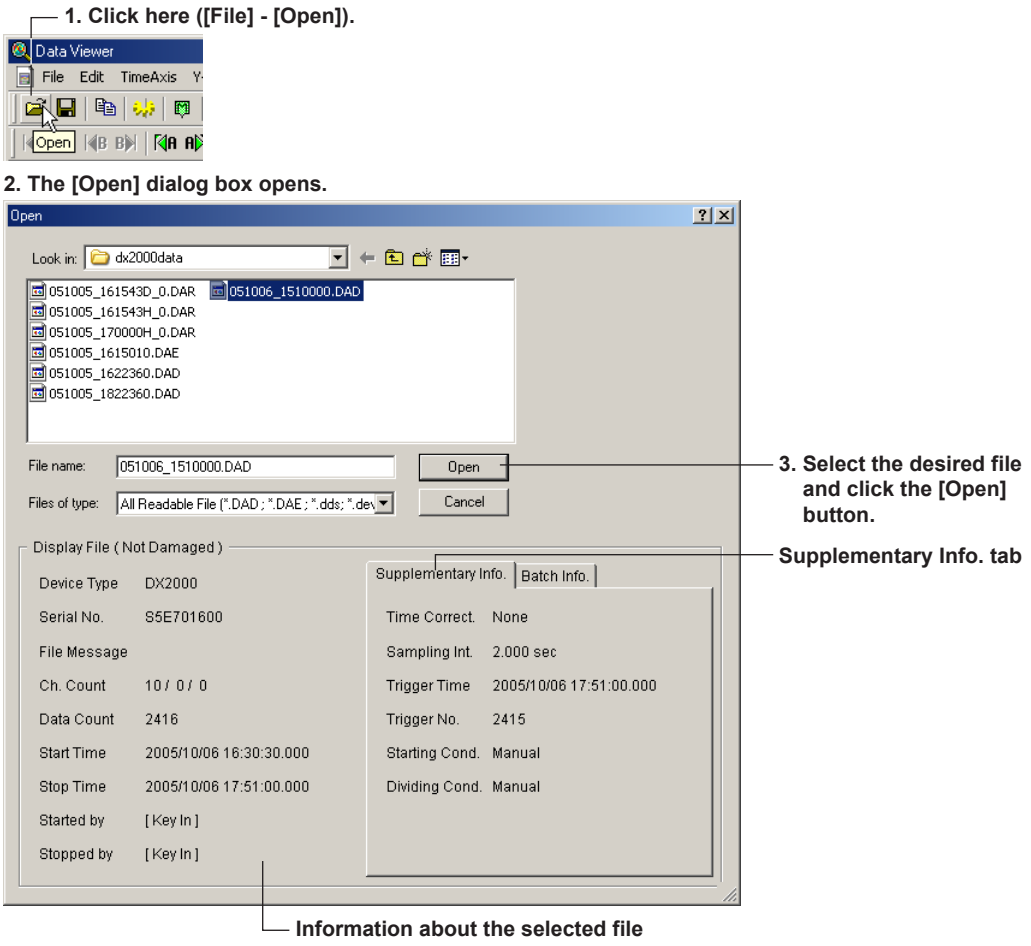
Files that Launch the Data Viewer

- Display data file (*.DAD)
- Event data file (*.DAE)
- Link setting file (*.ldx)
- Report file: .DAR
- Manual sample file: .DAM

Toolbar, Search Bar, and Status Bar

Clicking [View] - [Toolbar], [Search Bar], or [Status Bar] from the menu bar displays the corresponding bar in the window. The bar will disappear if the check is removed.

Opening the File by Specifying its Location

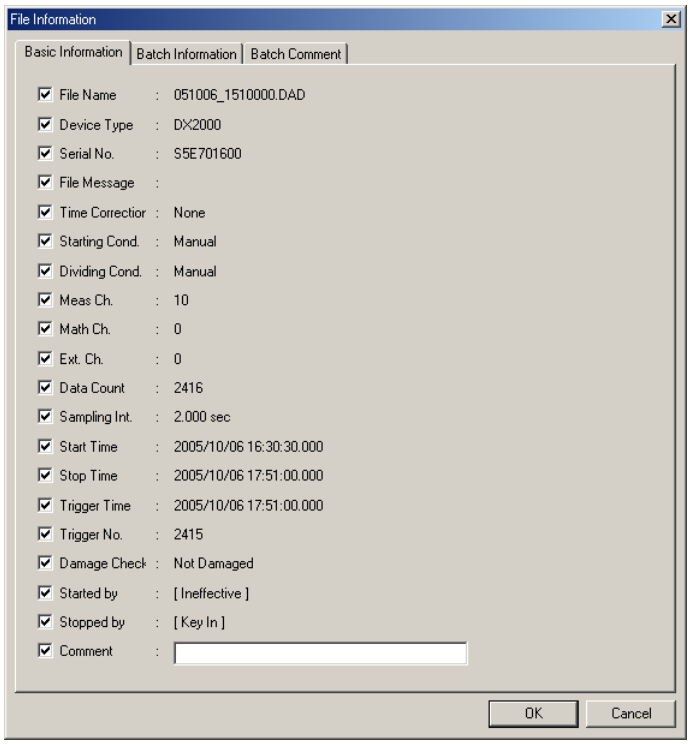


You can open a file by specifying the location.

Checking the Information About the Loaded File

You can check the information about the active data file by selecting [Information] - [About Document].

- **For waveform data files and event data files**



The items that are checked are output in the header when printed.

Note

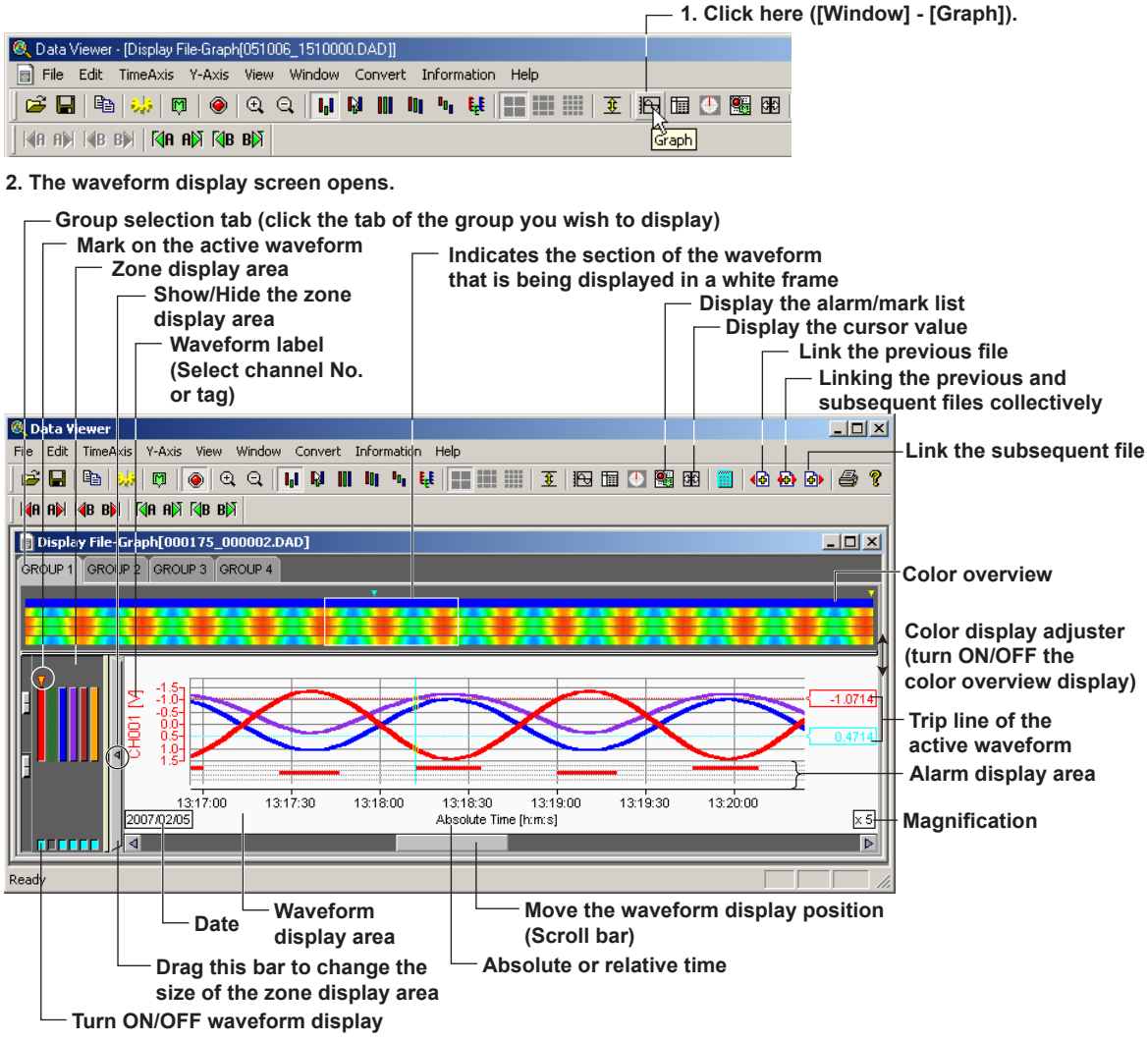
- Multiple files can be opened simultaneously.
- The number of files that can be opened simultaneously depends on the memory size of the PC and the free disk space.
- CX1000/CX2000 series files cannot be opened using DX100/DX200 series instruments. When displaying these files, the File Information dialog box, Alarm List tab, and the report file display screens are formatted differently in each Data Viewer software.

Exiting the Data Viewer

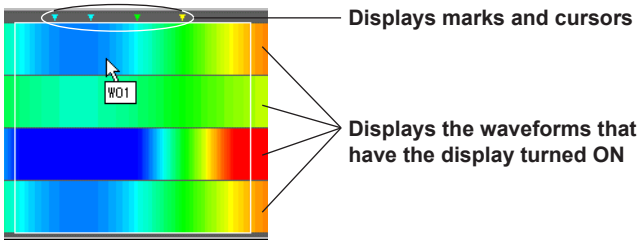
Select [File] - [Exit] or click the [×] button. If you changed the settings in any of the windows, a message “Save changes to ****.***?” is displayed. Click the [Yes] button, if you wish to save the settings and exit the Data Viewer. Click the [No] button, if you do not wish to save the settings and exit the Data Viewer.

4.2 Displaying the Waveform

Displaying the Waveform



Color Overview Display



The measured values of the entire data are displayed using various colors. By assigning 50 different colors from the minimum to the maximum values of the scale, the measured values are assigned to those colors.
If the data are display data, the maximum value is displayed at the top of the space allocated to a single waveform, and the minimum value is displayed at the bottom.

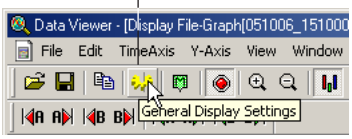
If you click or drag the cursor on the color overview display area, the section of the waveform is displayed in the waveform display area.

Note

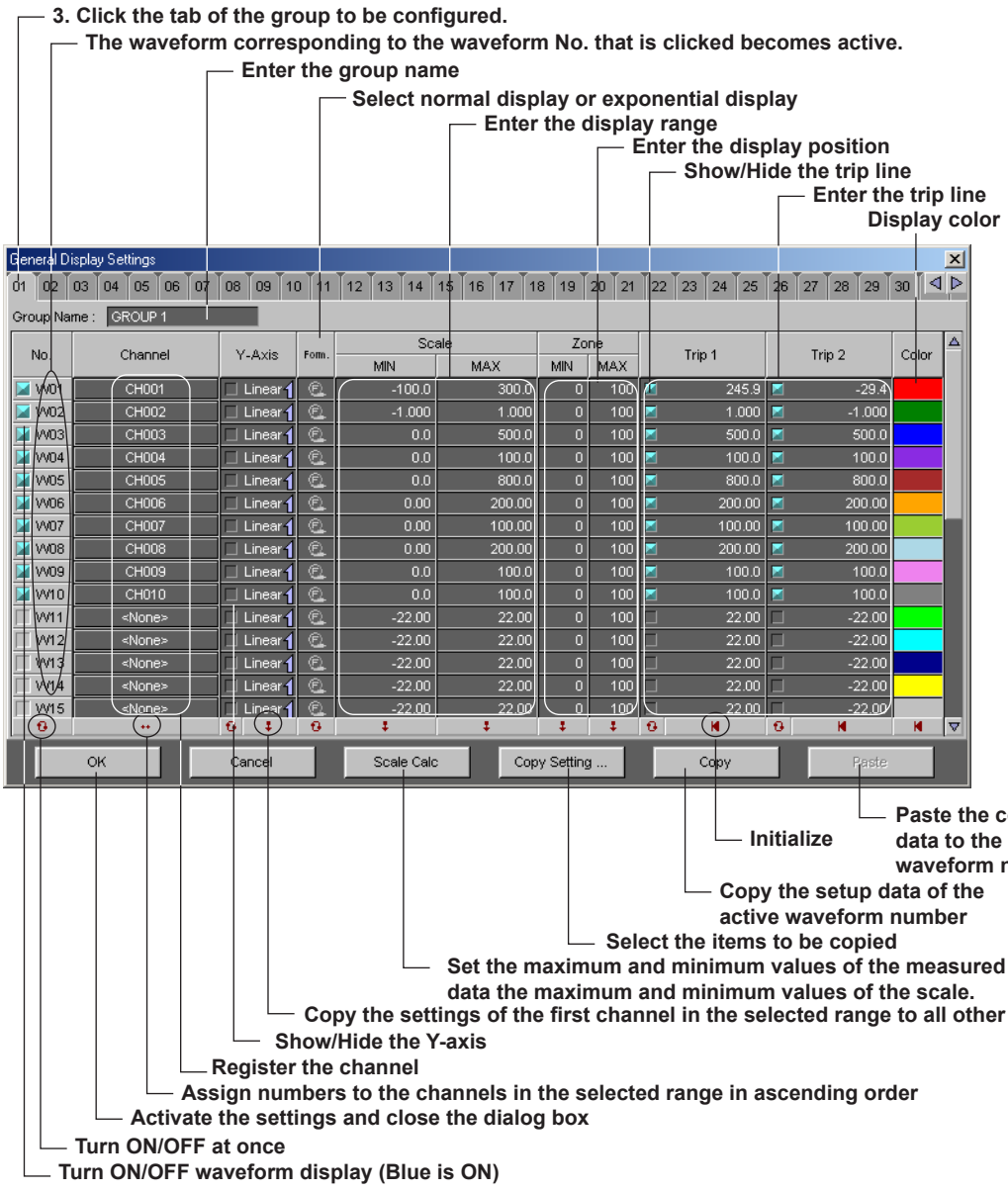
The color overview is turned OFF as default.

General Display Settings

1. Click here ([View] - [General Display Settings]).



2. The [General Display Settings] dialog box opens.



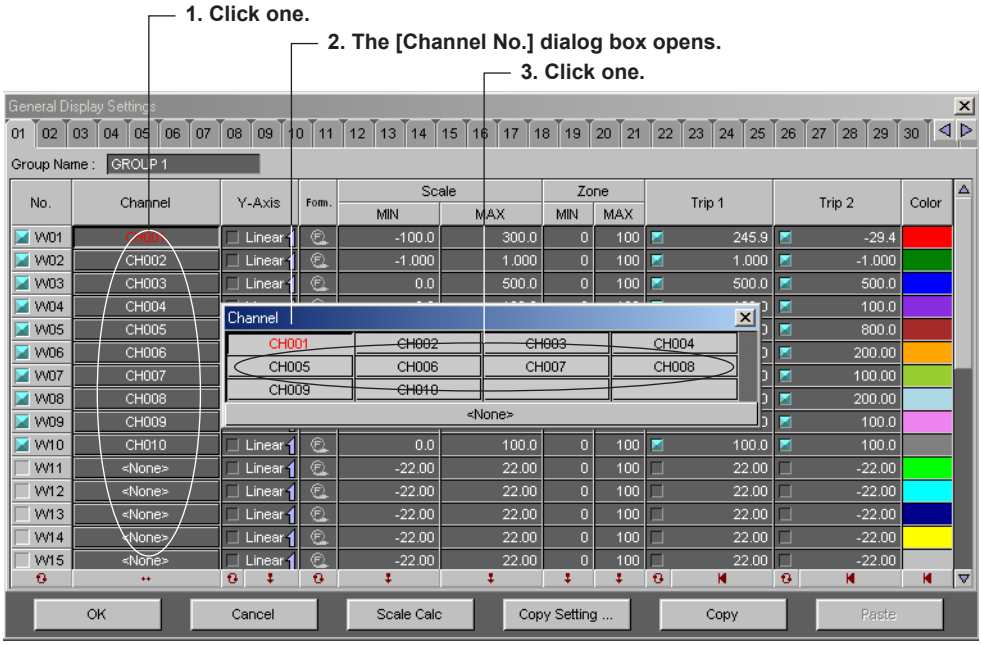
Group

A maximum of 50 groups can be set. A maximum of 32 channels can be registered in one group.

Turn ON/OFF the Display

Check the box of the waveform number to be displayed. This is synchronized to the ON/OFF button of the waveform display of the zone display area.

Registering the Channel



Types of Y-axis and Turning ON/OFF the Y-axis

Select linear or logarithmic by clicking the Y-axis display area. If [Multi-Axis Zone] (page 4-8, Setting the Y-axis) is selected, you can select whether or not to display the Y-axis. The Y-axis of the waveform for which the check box is shown in [blue] will be displayed.

Scale (display range)

The range of minimum and maximum values is from -1.0×10^{-16} to 1.0×10^{16}.
Click the scale value display area to enter values.

Zone (display position)

The range is as follows:

- Minimum value: 0 to 99%
- Maximum value: 1 to 100%

Specify the waveform display position by taking the bottom edge of the waveform display area of the trend display screen to be 0% and the top edge to be 100%. Click the zone display area to enter values.

Trip Line

Two trip lines (trip 1 is red, trip 2 is blue) can be set for each waveform. Only the trip lines of the active waveform are displayed on the trend screen. However, on the auto zone display screen (“Setting the Y-axis” on page 4-8), the trip lines of all displayed waveforms that are checked are displayed.
You can change the waveform display zone on the trend display screen by clicking the edit zone icon on the tool bar or by selecting [Y-Axis] - [Edit Zone] in the menu bar.

Display Color

You can select the color of each waveform. To create custom colors, click the [Define Custom Colors] button in the [Color] dialog box.

Copy/Paste

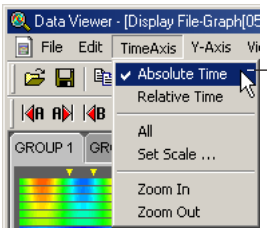
You can copy the setup data of one channel or more to other channels. Use the following procedure to copy and paste.

1. Click the source channel number that you want to copy. To select many channels, click the first source channel, then drag over all the channels that you want to copy.
2. Click the [Copy] button at the bottom of the window.
3. Click the destination channel number. To select many channels, click the first destination channel, then drag over all the channels where you want to paste.
4. Click the [Paste] button at the bottom of the window. The setup data is pasted in the active waveform(s).

You can also copy and paste specific channel items.
After selecting the copy source in step 1, click the [Copy Details] button to display the [Copy Details] dialog box.
Select the items that you want to copy.

Setting the Time Axis

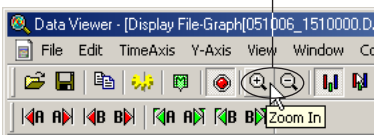
Selecting absolute or relative time display



Select [Time Axis] - [Absolute Time] or [Relative Time].

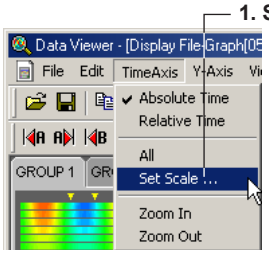
Zoom in or zoom out on the time axis

Click either one

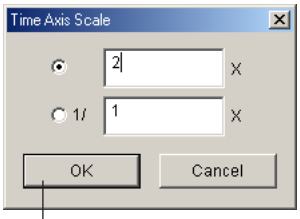


By selecting [Time Axis] - [All], the time axis is adjusted so that all the data can be displayed. If you wish to zoom in or out by specifying the zoom rate, take the following steps (resolution is 1/1000 to 20):

1. Select [Time Axis] - [Set Scale].



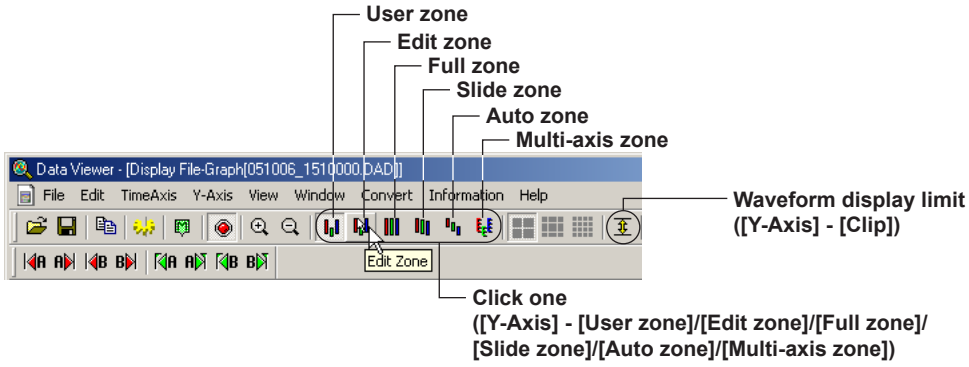
2. The [Time Axis Scale] dialog box opens.



3. After entering the zoom rate, click the [OK] button.

Setting the Y-axis

Selecting the waveform display zone



Select from the following list of choices:

For the display examples of each zone, see the next page.

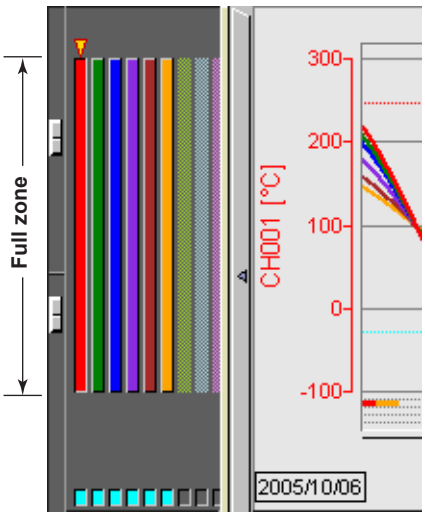
- User zone: Each waveform is displayed in the range specified in [Zone] under the [General Display Setting] (the zone cannot be changed on the trend display screen).
- Edit zone: Each waveform is displayed in the range specified in [Zone] under the [General Display Setting] (the zone can be changed on the trend display screen).
- Full zone: Display all waveforms using full zones.
- Slide zone: Display the waveforms in a cascade fashion from the top to the bottom of the waveform display area.
- Auto zone: Display the waveforms by equally dividing the waveform display area by the number of displayed waveforms.
- Multi-axis zone: Display the Y-axis of multiple waveforms.

Note

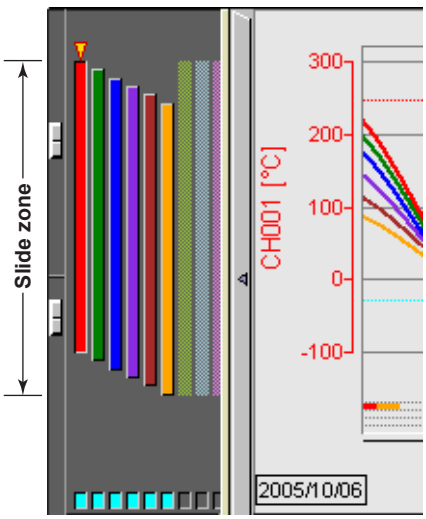
If the waveform display zone is set to some setting other than multi-axis zone and auto zone, only the Y-axis of the active waveform is displayed.

Examples of the Various Zone Settings

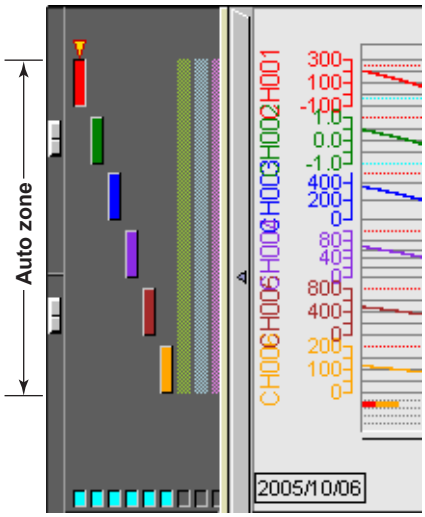
- Full zone



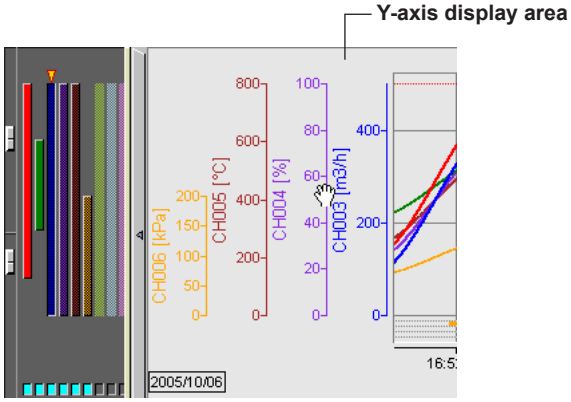
- Slide zone



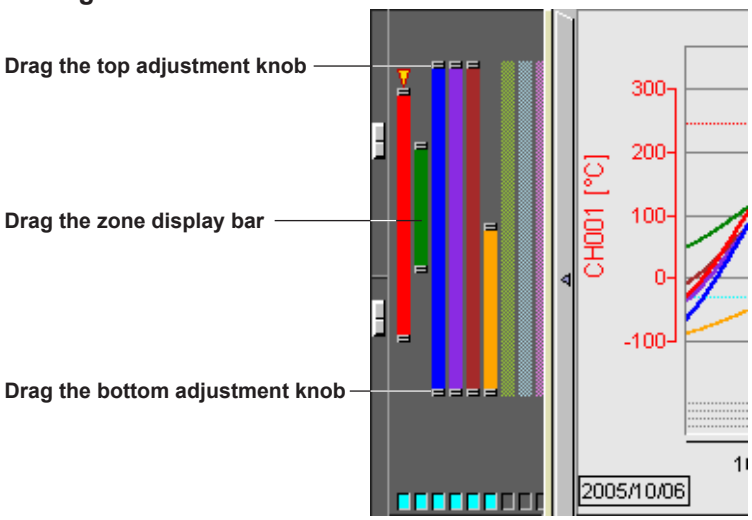
- Auto zone



- Multi-axis zone



Editing Zones

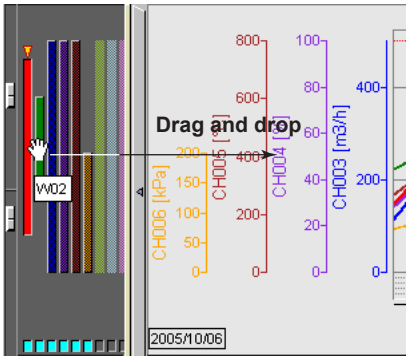


You can change the waveform display zone on the trend display screen by clicking the edit zone icon on the tool bar or by selecting [Y-Axis] - [Edit Zone] in the menu bar.
The size of the zone can be changed by dragging the top and bottom adjustment knobs.
The entire zone can be moved by dragging the zone display bar.
The zones that are set in [Edit Zone] are reflected in the [Zone] setting of the [General Display Settings].

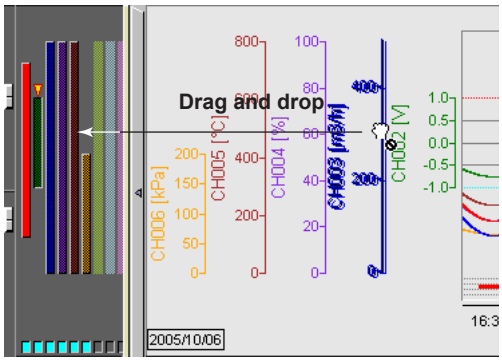
Displaying Multiple Y-axis

When multi-axis zone is selected, the Y-axis scales corresponding to the [Y-Axis] boxes in the [General Display Settings] that are checked will be displayed.

- Adding a Y-axis

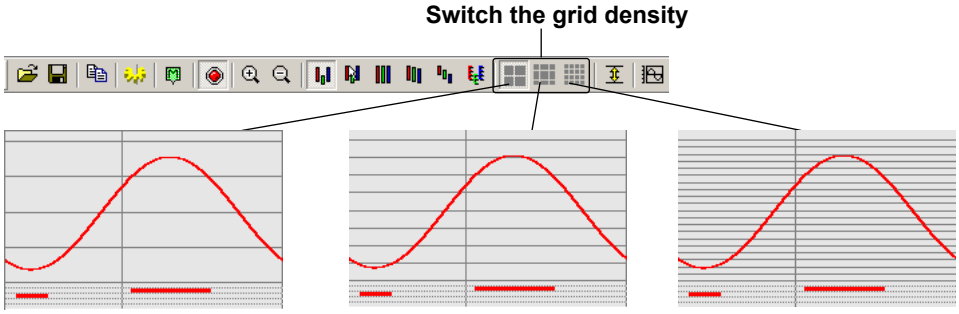


- Deleting a Y-axis



Changing the Grid Display

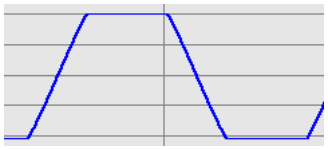
Select the grid type by clicking Grid density on the toolbar, or Y-axis on the menu bar. Switch the grid density.



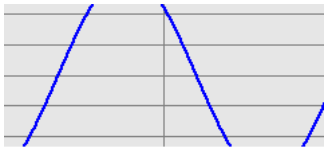
Waveform Display Limit (clip)

When the waveform display limit is enabled by clicking the clip icon or by selecting [Y-Axis] - [Clip], the Y-axis display range of the waveform are limited to the minimum and maximum values that were specified under [General Display Settings] - [Scale]. Measured values that are less than the minimum value are set to the minimum value and values that are greater than the maximum value are set to the maximum value.

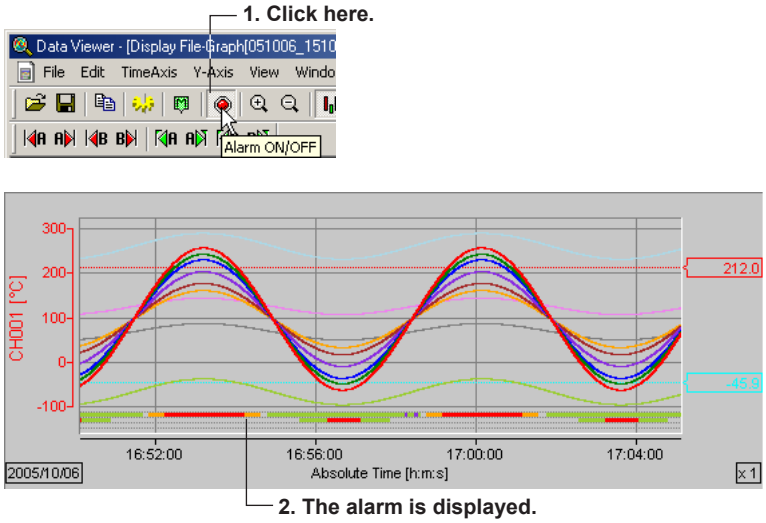
- **Example in which Display Limit is Enabled**



- **Example in which Display Limit is Disabled**

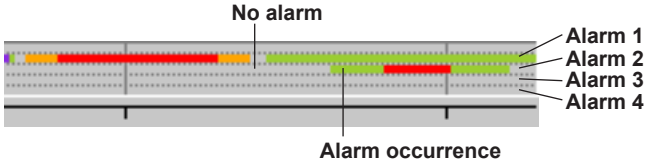


Turn ON/OFF the Alarm Display



The alarm conditions of alarm 1 to 4 are displayed in the alarm display area.

Alarm display



The alarm of the active waveform is displayed in front.

Selecting the Characters Used to Identify Channels

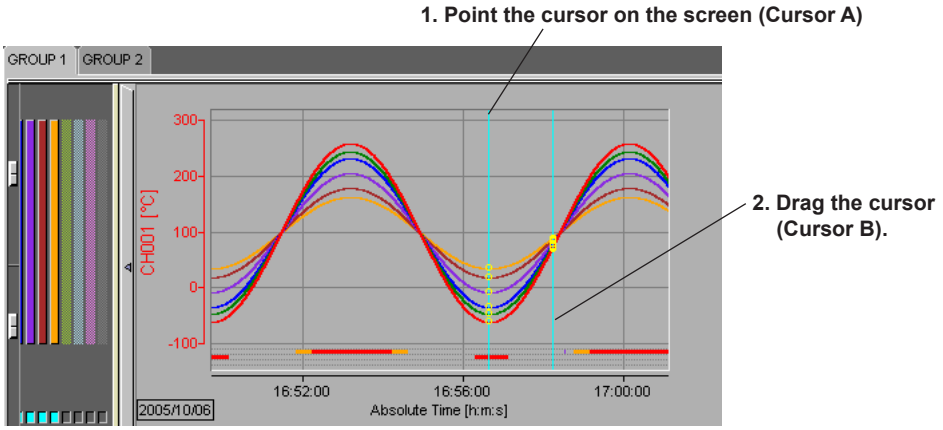
You can select the channel No. or tag as the character string used to identify the channels by selecting [View] - [Channel No.] or [Tag]. The selected character string will be used as a label to indicate the waveform.
The character string is registered on the DX1000/DX2000 or by using the Hardware Configurator.

Note

- When the identification string is switched, the channel character string displayed on the Y-axis of the waveform display window, circular display window, numeric window, list display window, [Cursor Value] window, [Computed Result] window, [General Display Setting] dialog box, and data conversion dialog box will change accordingly.
- Both the channel No. and tag are used in the output result of the data conversion.

Showing/Hiding Cursors

Showing the Cursor

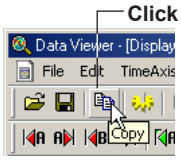


By selecting [Edit] - [Select All], Cursor A and Cursor B moves to the beginning and the end of the data, respectively.

Hiding the Cursor

Select [View] - [Hide Cursor].

Copying the Data to the Clipboard



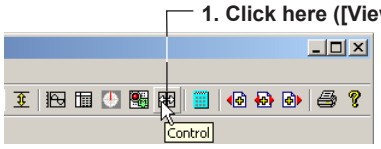
On the numerical window and list display window (section 4.6), you can copy the data between Cursor A and Cursor B to the Windows clipboard. On the waveform display window and circular display window, the displayed image can be copied to the clipboard.

Note

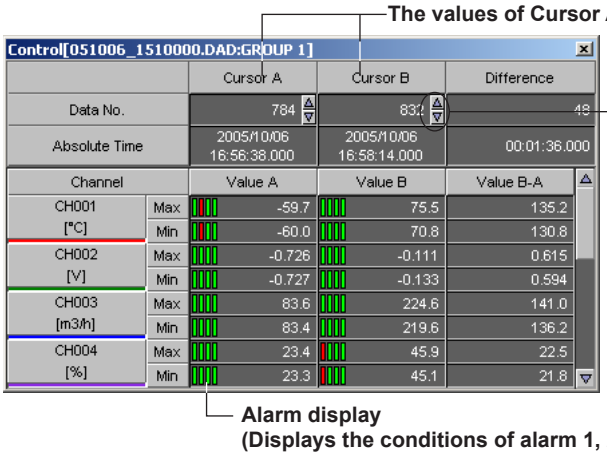
- The maximum number of data points that can be copied to the clipboard is 1000.
- The channels that are copied to the clipboard are those that are registered in the selected group with the waveform display turned ON.
- When the display mode of the time axis is set to absolute time, the absolute time is output. If it is set to relative time, the relative time from the first data point is output.
- Contents that have been copied to the clipboard can be pasted to other applications for use.

Displaying Cursor's Values

Clicking the control icon or selecting [Window] - [Control] displays the [Control] dialog box.



2. The [Cursor's Value] dialog box opens.



A list of Cursor A and B values and their differences on the trend screen is displayed. You can change the values of Cursor A and B by clicking the cursor movement buttons. When the alarm display is turned ON, the alarm conditions are displayed. When an alarm is in effect, the indicator is red. When it is not, the indicator is green.

Displaying Numeric Values of Abnormal Data

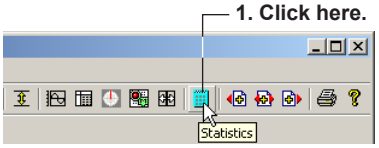
The abnormal data are displayed as follows:

+OVER: Measured/computed data are over the positive limit
-OVER: Measured/computed data are under the negative limit
LACK: Computation error or data dropout

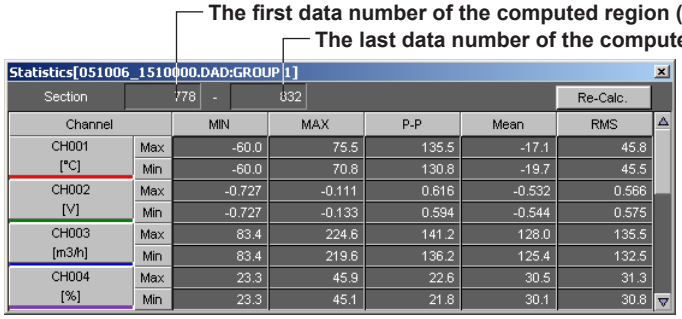
Note

When a cursor is not displayed on the trend screen, the cursor's value display area becomes blank. Difference becomes INVALID.

Displaying Statistics



2. The statistics display screen opens.



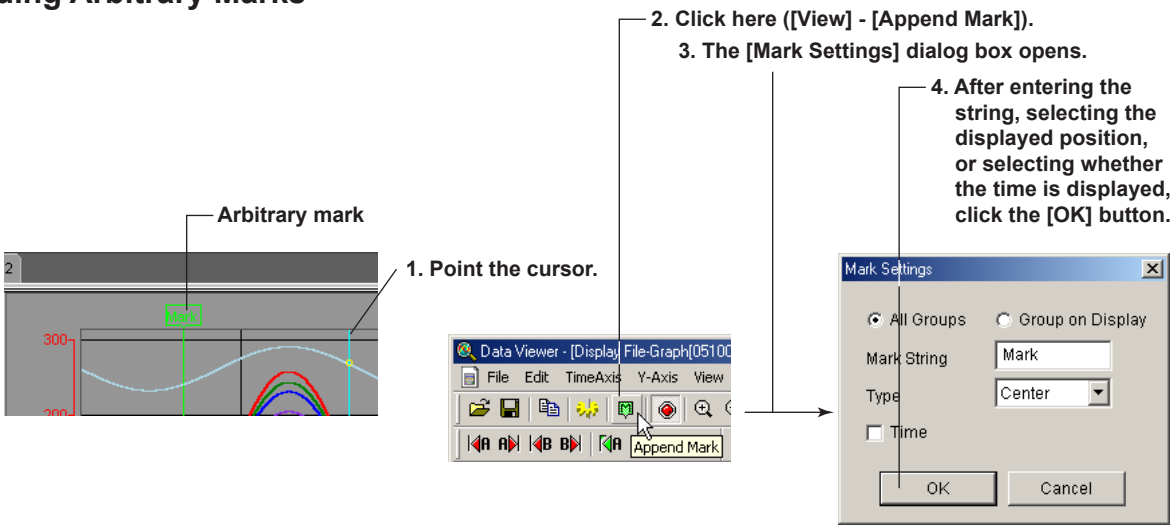
Note

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

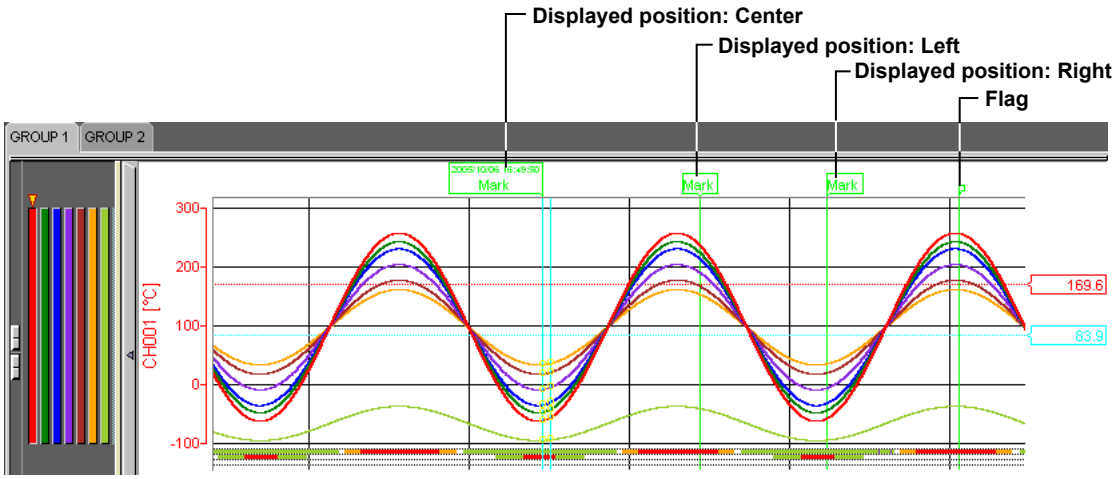
n : umber of data
x_k : value

The minimum value, maximum value, P-P, mean, and rms value for each waveform in the range specified by Cursors A and B are computed and displayed. If the cursor is not displayed, the computation is performed over the entire data.
As the results of the computation do not update automatically, you must click the ReCalc. button in the Statistics dialog box to update the computed results if you change the position of Cursor A or B.

Adding Arbitrary Marks

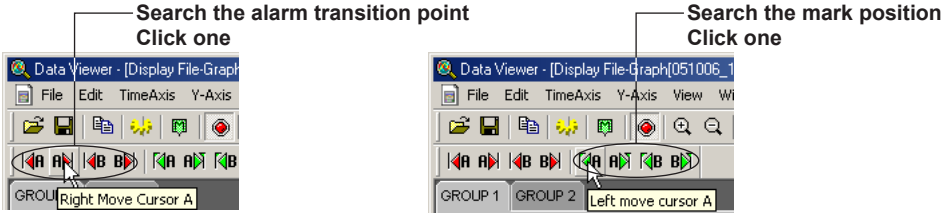


When Cursor A and Cursor B are at the same position, arbitrary marks can be placed. You can select whether to put the arbitrary marks on all groups or only on the displayed group. And you can set the displayed position of the mark and select whether the time is displayed by the mark.
The displayed time is either the absolute time or relative time depending on the time axis setting.



If you left-click the mark while pressing the “Ctrl” key, the mark is displayed in front.
If you left-click the mark while pressing the “Shift” key, the mark is displayed in the back.
Double-clicking a mark, that has been created using the Data Viewer, opens the [Mark] dialog box in which you can change the displayed group and the mark name.

Searching the Alarm Transition Point and Mark Position



Searching the Alarm Transition Point

Moves Cursor A or Cursor B to the alarm transition point (the point at which the alarm occurred and the point at which the alarm was released) of the active channel.
Searching is possible to the left and right of the cursor.

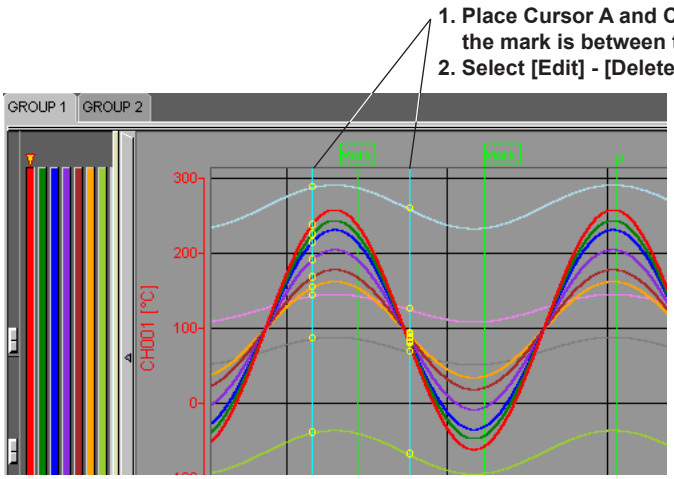
Searching the Mark Position

Moves Cursor A or Cursor B to the mark position (arbitrary mark or trigger mark) of the active group.
Searching is possible to the left and right of the cursor.

Note

- The searching function cannot be used, if the cursor is not displayed.
- The search function cannot be used, if there are no arbitrary marks or when the alarm display is OFF.

Deleting Marks



The arbitrary marks (green/yellow) and trigger marks (yellow) between Cursor A and Cursor B are deleted.

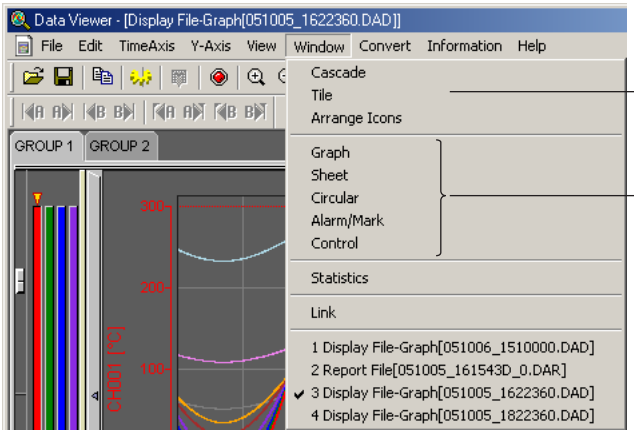
Note

- The arbitrary marks placed on the Data Viewer are green. The arbitrary marks (messages) and trigger points placed on the DX1000/DX2000 are yellow.
- Up to 32 characters can be used for a mark name.

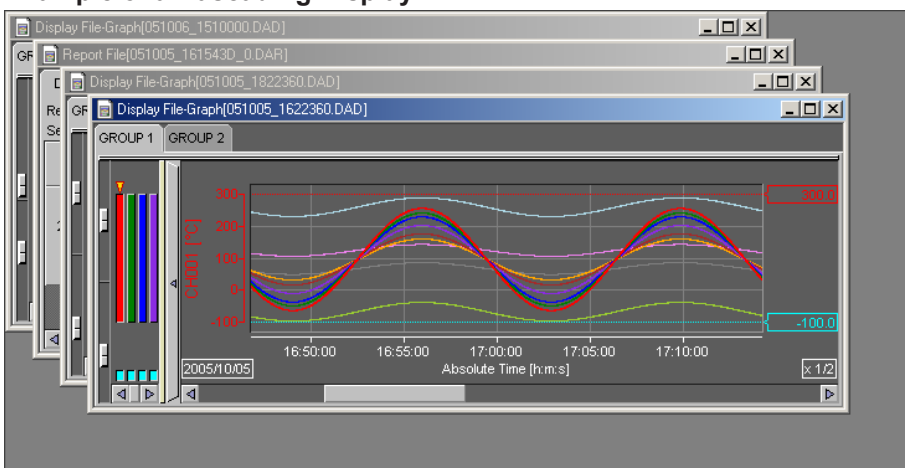
Resetting Marks

All arbitrary marks created on the Data Viewer are erased by selecting [Edit] - [Reset Mark]. The marks (messages) and the trigger point that were created on the FX100 but deleted on the Data Viewer are displayed again.

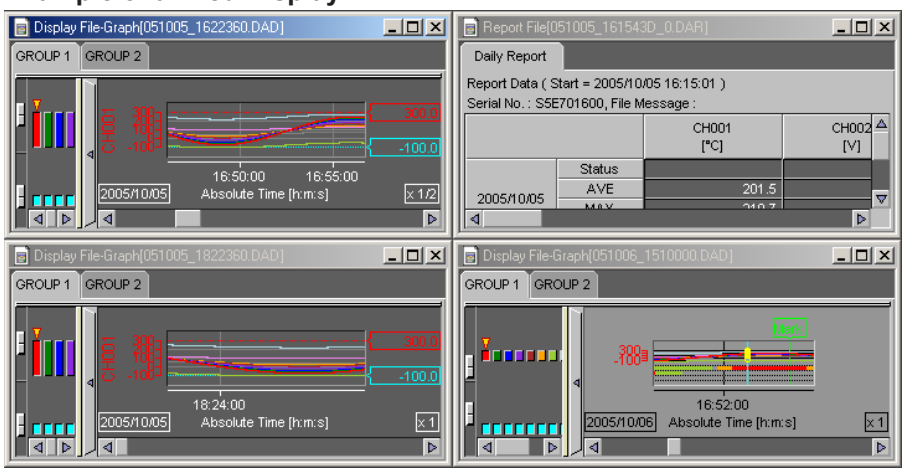
Setting the Window



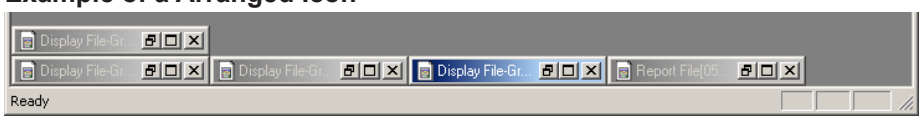
- **Example of a Cascading Display**



- **Example of a Tiled Display**

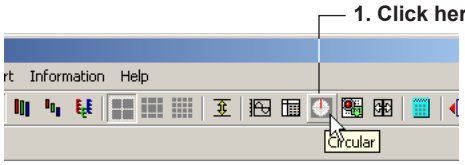


- **Example of a Arranged Icon**

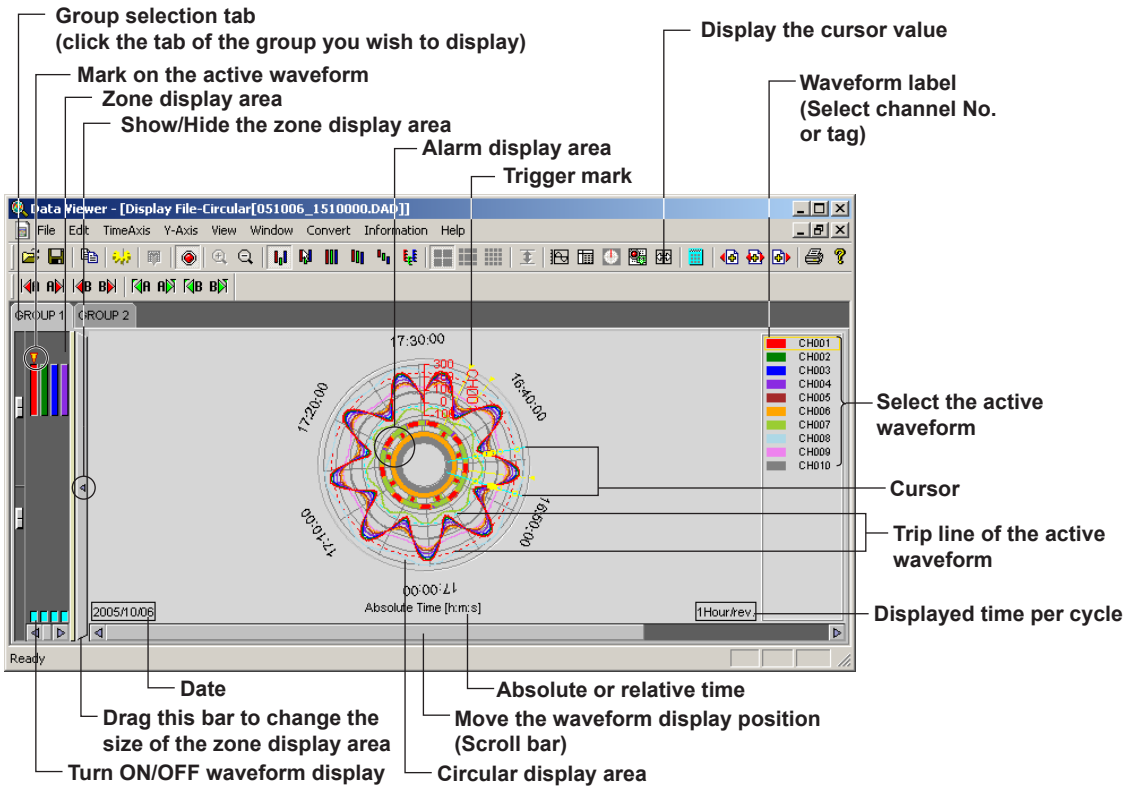


4.3 Circular Display

Circular Display



2. The circular display screen opens.



General Display Settings

The parameters in the [General Display Settings] dialog box that are different between the circular display and the trend display (section 4.2) are as follows:

Trip Line

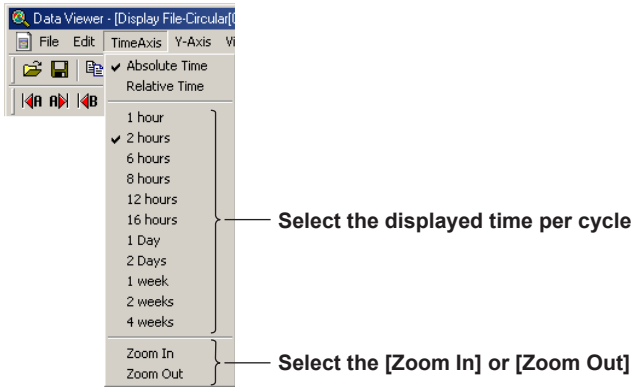
The trip lines on the circular screen cannot be dragged and dropped.
You can change the position of the trip lines by changing the values in the [General Display Settings] dialog box.

Setting the Time Axis

Selecting absolute or relative time display and zooming in or zooming out on the time axis.

See section 4.2, “Displaying the Waveform.”

Selecting the displayed time

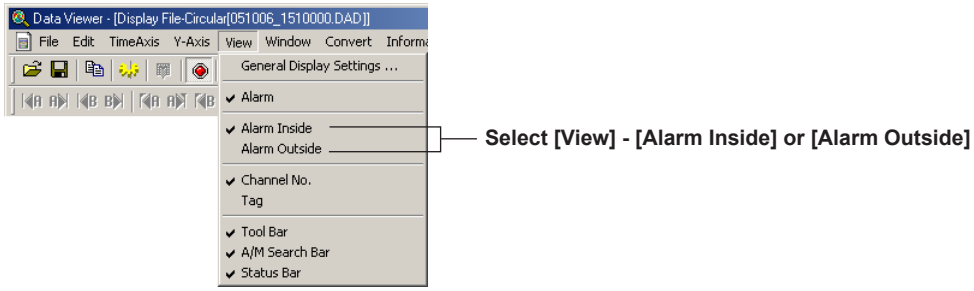


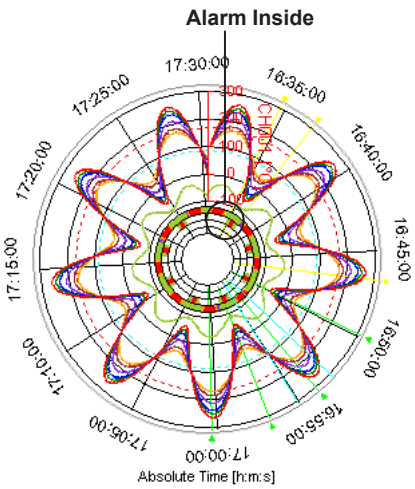
Setting the Y-axis

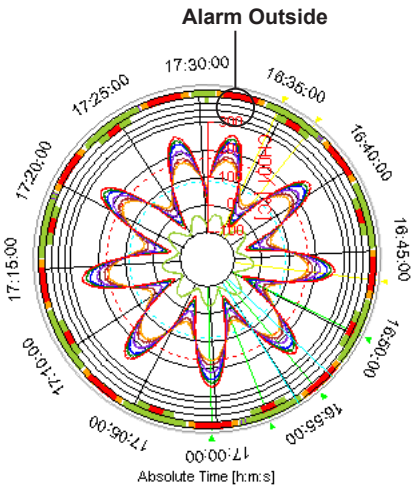
The circular screen always displays the waveform that is limited to the values between the maximum and minimum values of the Y-axis display range. The range is set using [Scale] in the [General Display Settings] dialog box.

Turning ON/OFF the Alarm Display

You can select whether to display the alarm on the inside or the outside of the waveform display section of the circular screen.

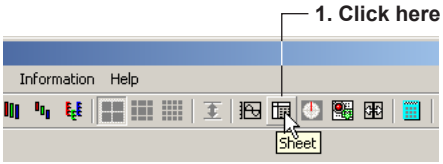




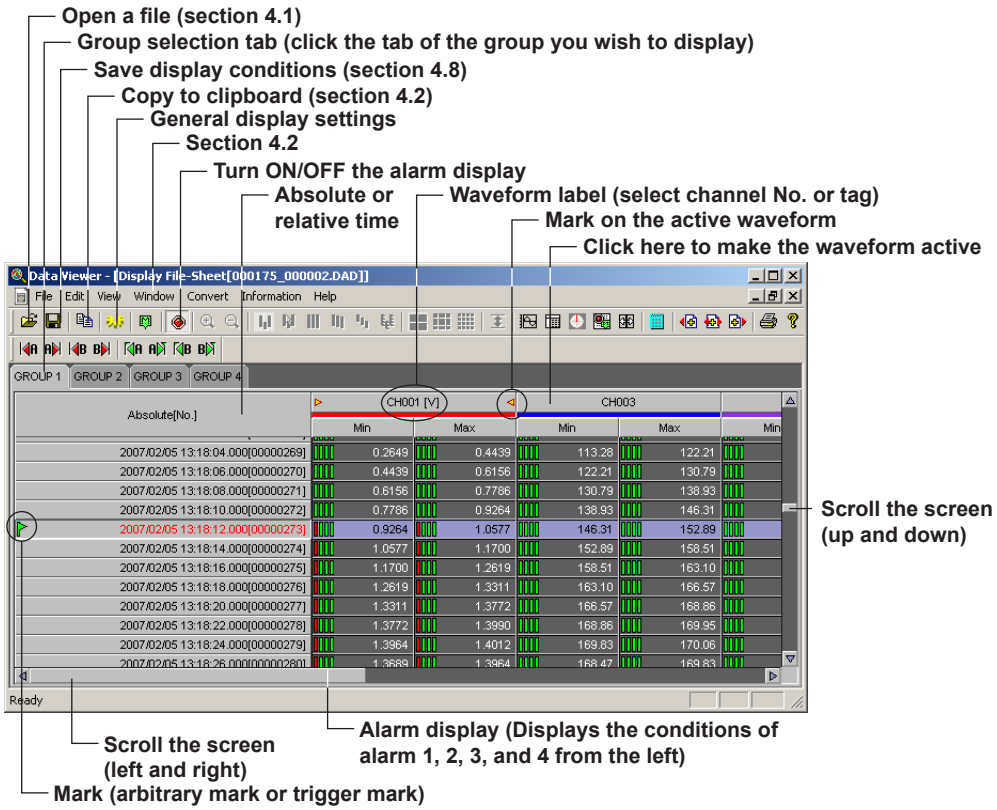


4.4 Displaying Numeric Values

Displaying Numeric Values



2. The numeric display screen opens.



General Display Settings of the Numeric Display

Clicking the General Display Settings icon or selecting [View] -[General Display Settings] opens the [General Display Settings] dialog box. Of the parameters in the [General Display Settings] dialog box, those that relate to the numeric display are as follows:

- Normal or Exponential display of numerical values
- Registering the channel and turn the display ON or OFF

For details related to the setting procedures, see “General Display Settings” in section 4.2, “Displaying the Waveform.”

Setting the Time Axis

Select [View] - [Absolute Time] or [Relative Time]. Then, select the time display format using [Format].

Turn ON/OFF the Alarm Display

The alarm conditions of alarms 1 to 4 are displayed on the screen by clicking the alarm display icon or selecting [View] - [Alarm] and turning ON the alarm display. When an alarm is in effect, the indicator is red. When it is not, the indicator is green.

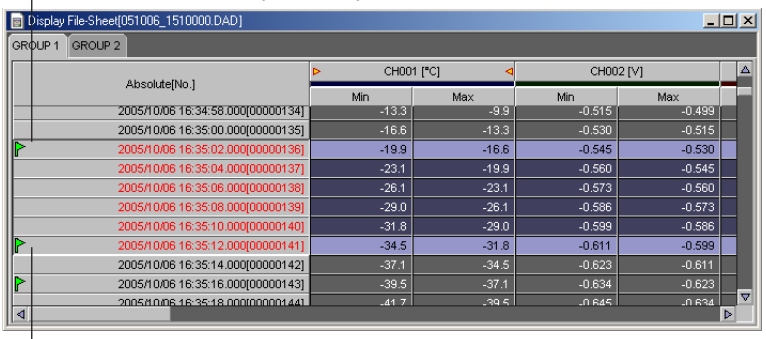
Selecting the Characters Used to Identify Channels

For details, see “Selecting the Characters Used to Identify Channels” in section 4.2, “Displaying the Waveform.”

Showing/Hiding Cursors

Showing the cursor

1. Point the cursor (Cursor A)



2. Drag the cursor (Cursor B).

By selecting [Edit] - [Select All], Cursor A and Cursor B moves to the beginning and the end of the data, respectively.

Showing the Cursor Value, Displaying Statistics and Hiding the Cursor

For details, see “Displaying Cursor’s values,” “Hiding the Cursor,” “Displaying Statistics” in section 4.2, “Displaying the Waveform.”

Adding Arbitrary Marks, Deleting Marks, and Resetting Marks

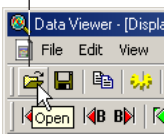
For details, see “Adding Arbitrary Marks,” “Deleting Marks,” and “Resetting Marks” in section 4.2, “Displaying the Waveform.”

4.5 Linking Files and Saving the Link Settings File

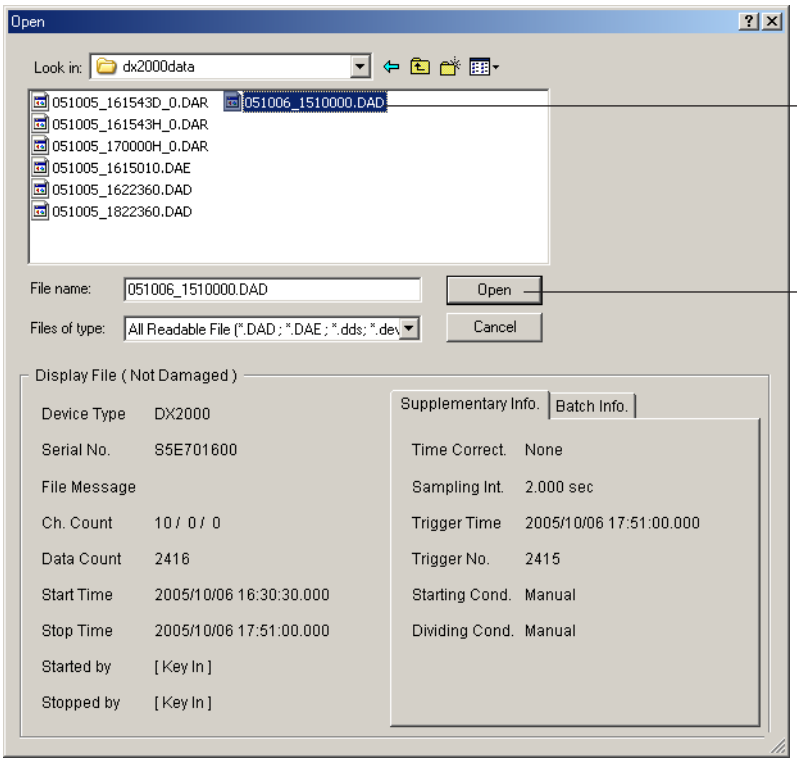
Linking Files

You can link and display DX1000/DX2000 files that have been divided by the auto save function, power failures, or other means (factors).
The files that can be linked are those that exist in the same directory. There are two methods to link files, from the toolbar and from the menu bar.

1. Click here ([File] - [Open]).



2. The [Open] dialog box opens.



3. Select the initial file.

4. Click here to open the file.

From the Toolbar

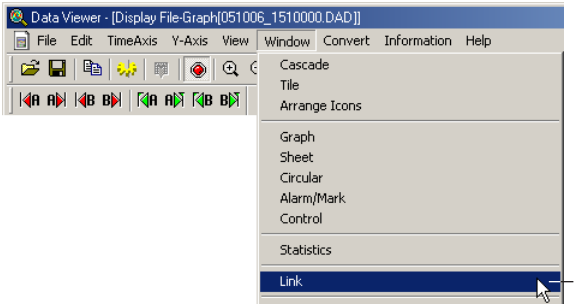
5. Click one

[File] - [Previous Files]
[File] - [All]
[File] - [Next Files]

Linking Previous and Subsequent Files Collectively

This function is available with revision R7.21 or later. You can collectively link previous and subsequent files to the current file, and display them. All files available for linking are shown together in a display.

From the Menu Bar

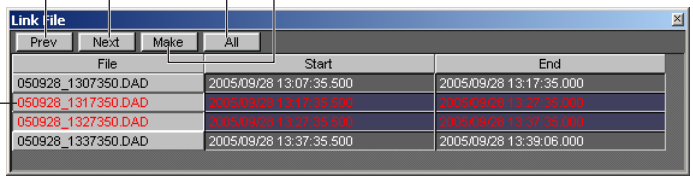


5. Click here ([Window]-[Link]).

6. The [Link] dialog box opens.

8. Select [Prev] (previous file), [Next] (subsequent file), or [All] (all files).

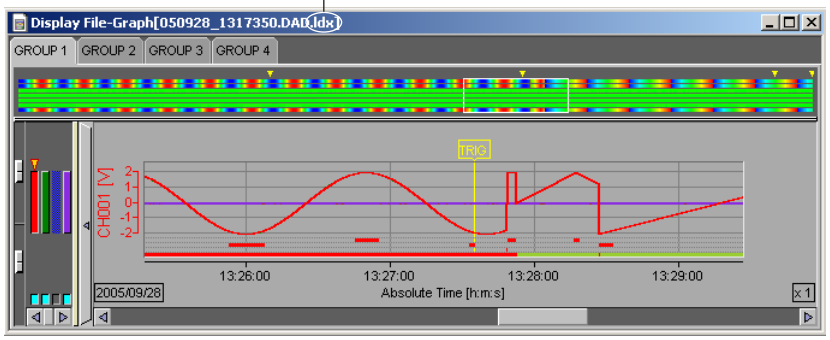
7. Click here (display files for linking).



10. Displays the linked files in a different color.

9. Displays the linked files.

The file extension .ldx is appended to the original file name



Note

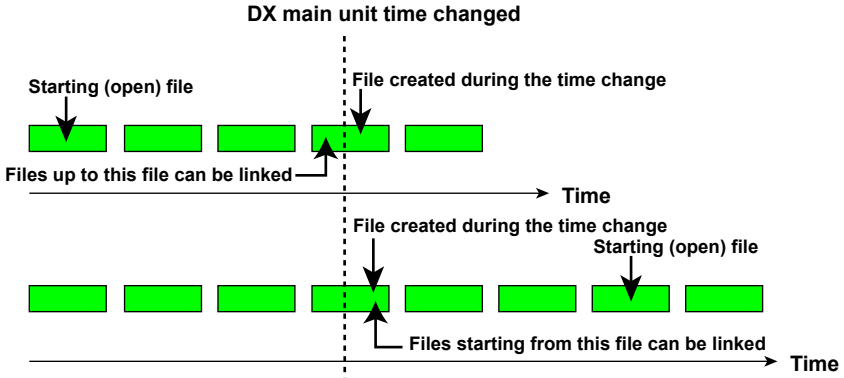
When linking and displaying files, make sure that the number of data points after linking does not exceed 5242880.

In addition, if there is a period over which data does not exist such as when a power failure occurs, data is counted as if the data is acquired at the given scan interval even during that period. The scan interval and the maximum period for linking files are indicated below.

Interval	Period
25 ms	36.4 hour
1/8 s	7.5 days
1 s	60.6 days
10 s	606.8 days

For example, if data is captured continuously at a 1/8–second interval and there is a one or more week long power failure, the data from before and after the power failure cannot be linked and displayed.

- If you open a file that was created prior to a time change on the DX main unit and then link subsequent files, files from the open file up to the point of the time change are linked. If you open a file that was created after a time change on the DX main unit and then link previous files, files starting from the point of the time change are linked.



- The linked data display is based on the time of the starting file.

Saving the Link Settings File

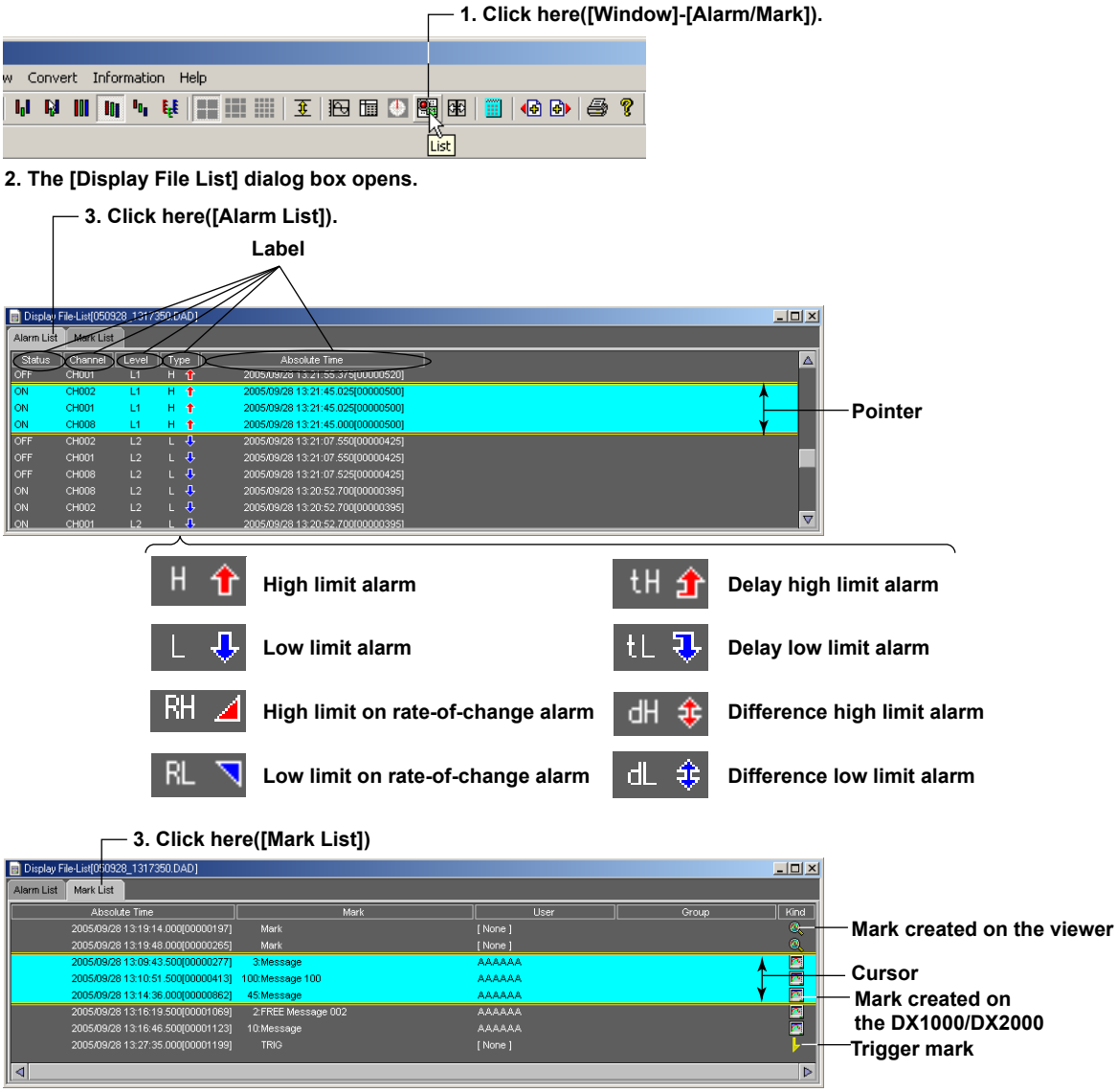
Select [File] - [Save Display Setting As] to save the link settings file to the same directory as the linked files.
The file name takes the form of the original file name with the file extension .ldx.
You can save the file by specifying the file name and the destination directory by selecting [File] - [Save Display Setting].

Note

Files with the extension .ldx contain only link settings. To reopen a linked file, you must have the original data file.

4.6 Listing Alarms and Marks and Converting the List

A list of alarms and marks is displayed with the display file or event file opened.



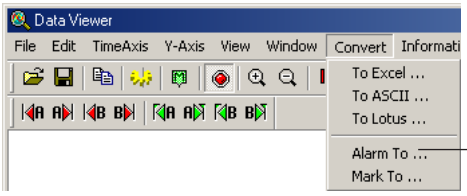
Click a label on the “Alarm List” display screen to sort using the label. The first click will sort the list in the ascending order; the second click will sort the list in the descending order.

Note

If you drag on the “Alarm List” display screen, a pointer is displayed. The cursor on the waveform display, circular display, numerical display, and cursor value display are not synchronized to this pointer.

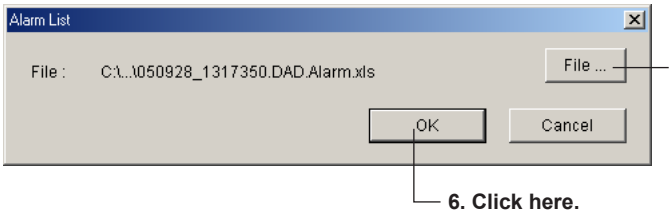
Converting and Outputting the Alarm or Mark List

The Alarm or Mark List can be converted to ASCII, Lotus, and Excel formats.



1. Click here([Convert]-[Alarm to] or [Mark to])

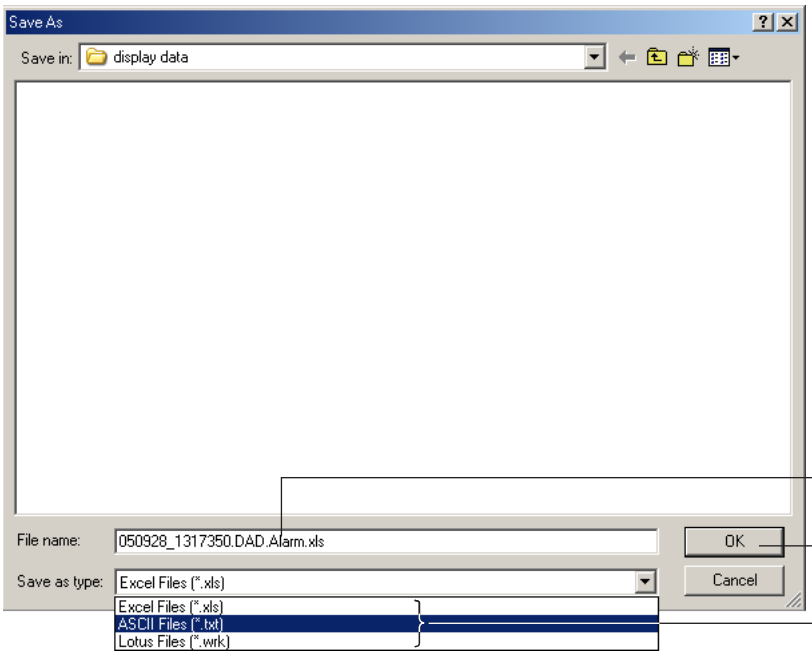
2. The [Alarm List] or [Mark List] dialog box opens.



3. Click here.

6. Click here.

4. The [Save As] dialog box opens.



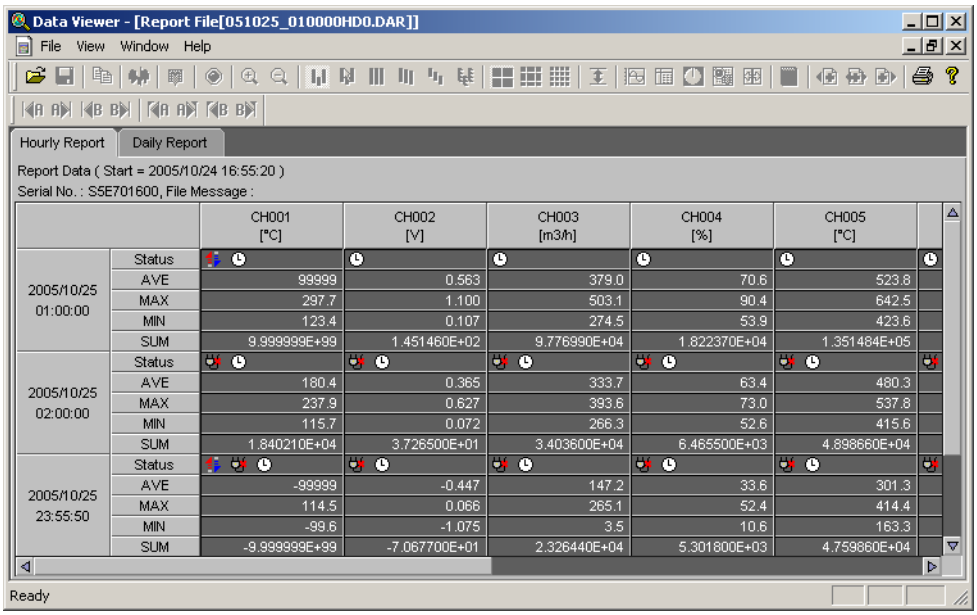
Enter the file name.

5. Set the items and click here.

Select one.

4.7 Displaying the Report Files

1. Click Open button or select [File]-[Open] from menu bar.
2. Select the report file.



		CH001 [°C]	CH002 [V]	CH003 [m3/h]	CH004 [%]	CH005 [°C]
2005/10/25 01:00:00	Status					
	AVE	99999	0.563	379.0	70.6	523.8
	MAX	297.7	1.100	503.1	90.4	642.5
	MIN	123.4	0.107	274.5	53.9	423.6
	SUM	9.999999E+99	1.451460E+02	9.776990E+04	1.822370E+04	1.351484E+05
2005/10/25 02:00:00	Status					
	AVE	180.4	0.365	333.7	63.4	480.3
	MAX	237.9	0.627	393.6	73.0	537.8
	MIN	115.7	0.072	266.3	52.6	415.6
	SUM	1.840210E+04	3.726500E+01	3.403600E+04	6.465500E+03	4.898660E+04
2005/10/25 23:55:50	Status					
	AVE	-99999	-0.447	147.2	33.6	301.3
	MAX	114.5	0.066	265.1	52.4	414.4
	MIN	-99.6	-1.075	3.5	10.6	163.3
	SUM	-9.999999E+99	-7.067700E+01	2.326440E+04	5.301800E+03	4.759860E+04

The above screens differ when displaying reports and other files of the DX100/DX200 or CX1000/CX2000.

Status

The following icons are displayed in Status.

: A measurement error or computation error occurred during the period over which the report was created.

: An ober range or computation overflow occurred during the period over which the report was created.

: A power failure occurred during the period over which the report was created.

: The time was changed during the period over which the report was created.

: The burn out occurred during the period for the report.

Note

When displaying DX100/DX200, CX1000/CX2000, or other report files, the screen differs from above.

4.8 Saving the Display Settings

The display settings can be saved to a file. The following display settings can be saved:

For Display File, Event File, and Link File Displays

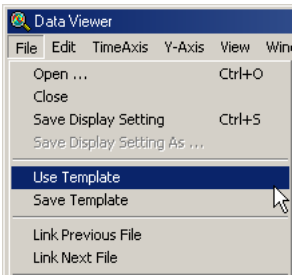
- Print comment
- Cursor A and Cursor B positions
- ON/OFF condition of the clipping of the displayed waveform
- Settings specified in the General Display Settings
- Mark information
- Zoom rate of the time axis
- Display mode of the time axis (absolute/relative)
- Waveform display area
- Grid type
- The channel identification string mode (channel/tag)
- ON/OFF condition of file information items (see section 4.1)
- The background and grid color of the waveform display area
- Y-axis zone setting
- The active waveform
- The height of the data overview of each group
- The width of the zone display area of each group
- Show/Hide condition of the zone display area
- Selected group
- ON/OFF condition of the alarm display
- Position of the display screen

The information is saved to the same directory as the data files. The name of the saved file is the name of the data file being displayed, with an added [vdx] extension (Y1116040.DDS.vdx, for example).
This display setting file can be overwritten unlimited number of times.
When the data with the same file name is reopened, the display settings that were saved are used. If you do not wish to open the data using the saved settings, delete the display setting file ([vdx] extension) before opening the data file.

4.9 Saving Display Template

Saving Templates

1. From the File menu, choose Save Template.
   The currently displayed settings are saved as a template file to the same folder as the displayed data.



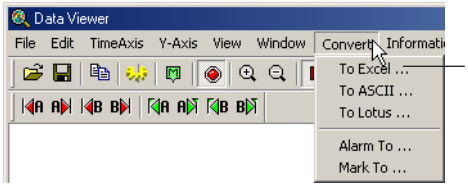
Using Templates

1. From the File menu, choose Use Template.
   If the currently displayed data file is not accompanied by its display settings file, it is displayed according to the setting information of the template file residing in the same folder.
   If the currently displayed data file is accompanied by its display settings file, it is displayed according to the setting information of the display settings file.
   If you do not wish to use the template, select File > Use Template again to clear the check mark.

The template file is saved with the name default.tdx in the folder of the currently displayed data. When using a template file, the template file residing in the same folder as the displayed data is used. The setting information saved to the template file is as follows.

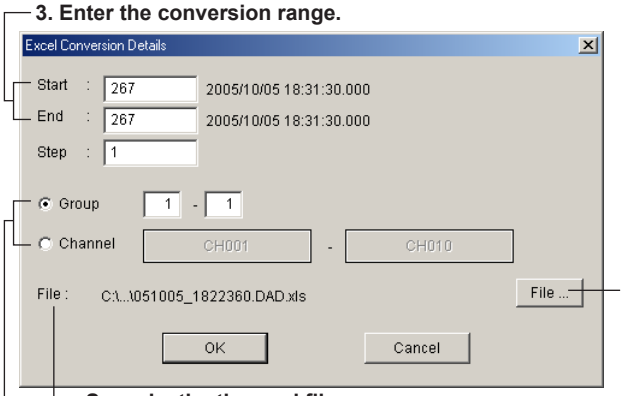
- Print comment
- Y-axis zone setting
- ON/OFF condition of the clipping of the displayed waveform
- Settings specified in the General Display Settings
- Zoom rate of the time axis
- Display mode of the time axis (absolute/relative)
- Waveform display area
- Grid type
- The channel identification string mode (channel/tag)
- ON/OFF condition of file information items (see section 4.1)
- The background and grid color of the waveform display area
- The width of the zone display area of each group
- The active waveform
- The height of the data overview of each group
- Show/Hide condition of the zone display area
- Selected group
- ON/OFF condition of the alarm display
- Position of the display screen

4.10 Converting the Data



1. Select one.

2. The [Conversion Details] dialog box opens.



3. Enter the conversion range.

5. Change the save destination.

Save destination and file name

4. Select either one.

The measured data can be converted to ASCII, Lotus, and Excel formats.

Start Point and End Point

Cursor A and Cursor B are used to set the start point and end point of the range, respectively. If Cursor A and Cursor B are not specified or the cursors were erased, the data numbers of the start and end points are automatically set to [0] and [total number of data points - 1], respectively.

To convert all the data in the specified range, set the step number to 1.

Step

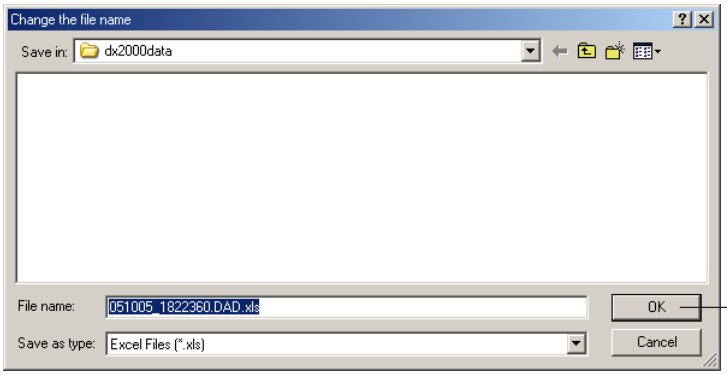
To convert all the data in the specified range, set the step number to 1.

Group/Channel

If you select [Group], enter the range of groups to be converted.

If you select [Channel], enter the range of channels to be converted.

Changing the Save Destination



Select the destination folder and file and click the [OK] button

To change the destination folder or the name of the file containing the converted data, click the [File] button. The [Change the file name] dialog box opens.

Note

- The default group is set to the number of the group that is currently being displayed. The default channel is set to all channels.
- The name of the destination file is automatically set to the displayed file name followed by the extension that identifies the data format. For ASCII, Lotus, and Excel conversions, the file extensions [txt], [wrk] (can be loaded using version 2.0 or later, and [xls] (can be loaded by version 4.0 or later) are attached, respectively.
- The conversion format of files with and without batch information differs.
- There is a limit in the number of data points that Lotus1-2-3 and Excel can handle. For these programs, specify the number of data points to be converted before performing the conversion. Note that even if the number of data points to be converted is within the limits, it still may not be possible to load the data if there is not enough free memory available on the PC. If the limit is exceeded, perform automatic division prior to conversion. A serial number is attached to the file name.
- Do not specify a floppy disk or an external storage medium as the save destination as it will take a long time for the save operation.
- Do not specify the root directory as the save destination.
- Prepare enough free space on the destination disk.

Conversion Example

ASCII conversion file

```
"DAQSTANDARD","[illegible]"
"Data Viewer","[illegible]"
"","",""
"Device Type","DX2000"
"Serial No.","S5E701600"
"File Message","DATA01"
"Time Correction","None"
"Starting Condition","Auto"
"Dividing Condition","Auto"
"Meas Ch.",       10
"Math Ch.",        0
"Ext Ch.",         0
"Data Count",      3600
"Sampling Interval",    2.000,"sec"
"Start Time","2005/10/05","18:22:36",    0.000
"Stop Time","2005/10/05","20:22:34",    0.000
"Trigger Time","2005/10/05","20:22:34",    0.000
"Trigger No.",      3599
"Damage Check","Not Damaged"
"Batch No.",""
"Lot No.","000002"
"Discription1","",""
"Discription2","",""
"Discription3","",""
```

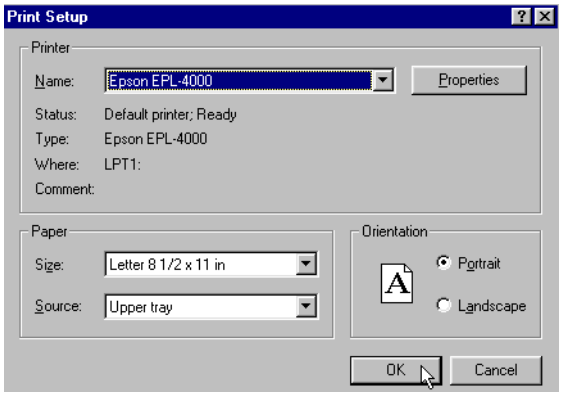
Excel conversion file

	A	B	C	D	E	F
1	DAQSTANDARD		[illegible]			
2	Data Viewer		[illegible]			
3						
4						
5	Device Type		Unknown			
6	Serial No.		S5E701624			
7	File Message		DATA01			
8	Time Correction		None			
9	Starting Condition		Auto			
10	Dividing Condition		Auto			
11	Meas Ch.		8			
12	Math Ch.		0			
13	Ext Ch.		0			
14	Data Count		24000			
15	Sampling Interval		0.025	sec		
16	Start Time		2005/09/28	13:27:35	0.425	
17	Stop Time		2005/09/28	13:37:35	0.400	
18	Trigger Time		2005/09/28	13:37:35	0.400	
19	Trigger No.		23999			
20	Damage Check		Not Damaged			
21						
22	Batch No.					
23	Lot No.		1			
24	Discription1					
25	Discription2					
26	Discription3					

4.11 Printing

Setting the Printer

1. Select [File] - [Print Setup].



2. Set the printer, paper and orientation.

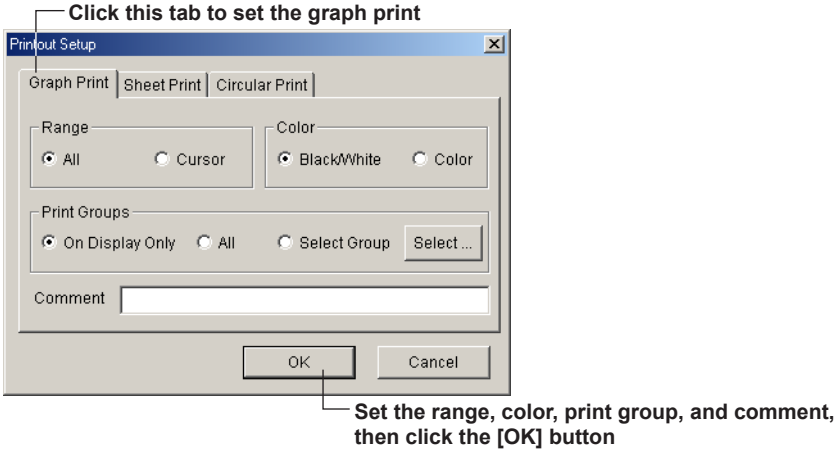
Note

Set the printer according to the configuration of the system that you are using.

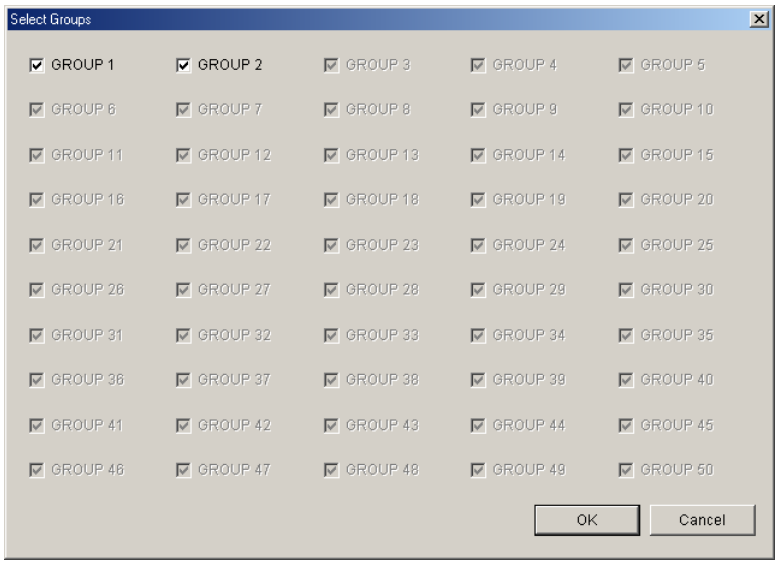
Specifying the Contents to be Printed (for Display Data File and Event Data File)

Specify the contents to be printed before executing the print.
Select [File] - [Print Settings]. The [Printout Setup] dialog box opens. When the waveform is displayed, printing is carried out according to the settings under the Graph Print tab of the [Printout Setup] dialog box. If numeric values are displayed, printing is carried out according to the settings under the Sheet Print tab.

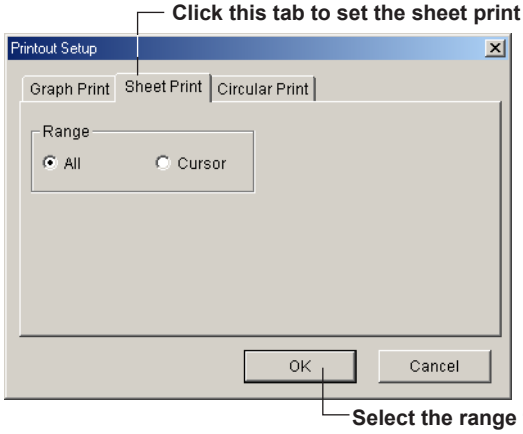
Setting Graph Print



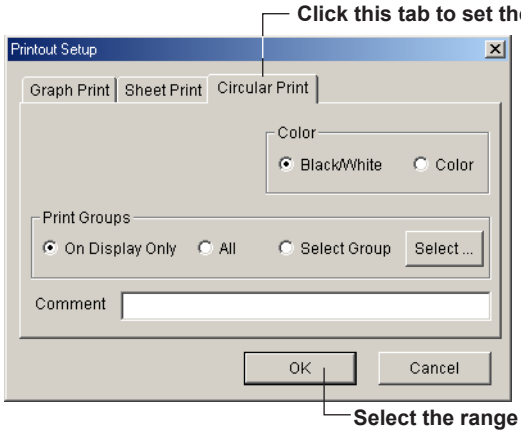
If you selected [Select Group], click the [Select] button. The [Select Groups] dialog box opens. Select the groups to be printed. Click the [OK] button to close the dialog box.



Setting Sheet Print



Setting Circular Print



Note

- The [Comment] can be entered or changed using [About Document] (see “Checking the Information About the loaded File” page 4-3). When the print comment is entered or changed, it is reflected in the comment of [About Document] dialog box.
- Up to 127 characters can be entered in the [Comment] entry box. However, the number of characters that is actually printed is limited.
- When the cursor is not displayed, select the [All] button under [Range] in the [Printout Setup] dialog box.

Header

A header can be printed when printing the waveform or a TLOG file.
Of the items that are displayed in the file information dialog box ([Information] - [About Document]), those that are checked are printed in the header section. For details related to the file information, see section 4.1.

Print Preview

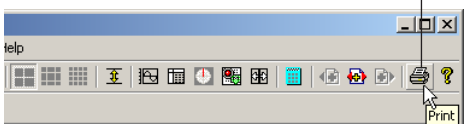
You can preview the print layout before actually printing the data.
Selecting [File] - [Print Preview] displays the print preview screen.

Note

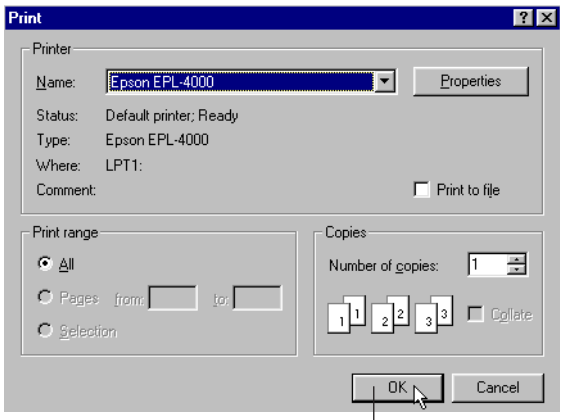
- The preview screen will display the print image of the specified range.
- The file information is also displayed when previewing the graph. If the color overview, alarm, [Cursor value] window, and [Statistics] window are displayed, these are also displayed on the preview screen along with the graph
- For the print preview operation, see the instruction manual that came with your operating system.

Printing

1. Click here ([File] - [Print]).



2. The [Print] dialog box opens.



Select the printer, print range, the number of copies, and click the [OK] button

5.1 Troubleshooting

Launcher

Message	Corrective Action	Reference Pages
Check communication settings.	Open the [Network] dialog box and check the settings.	2-3

Hardware Configurator

Warning Message List

Message	Reference Pages
System settings have been changed. Input configuration and data will be initialized. Do you want to proceed?	3-3
Data created in 2038 or later cannot be handled.	–
Some A/D converters are faulty. Some items cannot be set.	–
Some information cannot be set. Do you still want to continue?	–
Settings may not be made correctly since the configuration does not match the connected DX1000/DX2000.	–
Do you still want to send?	
The current setup data will be initialized.	3-4
Setup data will be received from the DX1000/DX2000.	3-1
The setup data will be sent.	–
Memory sampling will be stopped.	–
Memory sampling will be started.	–

Error List

Message	Corrective Action	Reference Pages
Illegal file to load	Select another file.	3-2
Failed to load the file.	Try to load the file again. If still not possible, the file may be damaged. Select another file.	3-2
Failed to create a file.	Check the free space in the directory.	–
Memory sampling in progress Stop sending.	Send after data has been written to the internal memory of the DX1000/DX2000.	–
Math in progress Stop sending.	Send after math is completed.	–
Memory sampling & math in progress Stop sending.	Send after data has been written to the internal memory of the DX1000/DX2000 and math is completed.	–
Saving to the media. Re-send later.	Send after data has been saved to the external media.	–
Communication error	Check the communication settings.	2-3
Time out	Traffic may be busy. Retry later.	–
Illegal user information	Check whether the user name is correct.	–
Failed to connect.	Check the communication settings. Check whether the DX1000/DX2000 is powered ON.	2-3
Communication busy	Retry later.	–
Memory error	Exit other programs then restart, or reboot the OS then restart.	–
User level error	No right is given to the login user ID	–

Message

Message
Data has been sent.
Data has been received.
Some information has not been sent.
Not allowed.
A password is required.
A user name is required.
Some information requires attention.

Data Viewer

Message	Corrective Action	Reference Pages
Insufficient memory. Exit immediately.	Exit other programs then restart, or reboot the OS then restart.	–
Cannot write to the file.	Check the free space in the directory. The file may be currently used by another program, so check it.	–
Cannot load the file.	Check whether the file exists. Also check whether the file system is correct.	–
Cannot open the file.	Check whether the file exists. Also check whether the file system is correct.	–
Illegal file	Select another file.	4-2
The number of data sets is “0”.	Select another file.	4-2
The number of channels is “0”.	Select another file.	4-2
Some files may be overwritten. Do you still want to continue?	Continue if OK. If not, change the file names.	–

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