User's Manual

DAQSTANDARD

vigilantplant[®]



Foreword	
	Thank you for purchasing DAQSTANDARD (model CXA100-01). This manual explains how to use the software. Please read this manual carefully before operating the software to ensure its correct use. DAQSTANDARD can display settings and data of the DX and MV series, but these functions are not explained in this manual. Refer to the manuals supplied with those products. After you have read this manual, keep it in a safe place where it can be referred to anytime a question arises.
Notes	
	 This manual covers the DAQSTANDARD version 5. This software supports the CX style numbers S1, S2, and S3. The contents of this manual are subject to change without prior notice as a result of improvements in performance or functionality. Every effort has been made in the preparation of this manual to ensure accuracy. However, if any questions arise or errors are found in this manual, please inform your nearest YOKOGAWA representative.
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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 DAQSTANDARD	Lists the PC system requirements for use of the software. Also explains how to install it.
1		Explains Launcher which is used to start other programs. Also explains how to setup communications between the CX and your computer.
3	Configuring the CX	Explains how to enter settings such as the CX control settings, measurement ranges, and measurement conditions.
4	Displaying Data with the Data Viewer	Explains how to display data stored on the hard disk, and other media. Also explains how to convert data to formats such as Microsoft Excel.
5	Troubleshooting	Gives a list of error messages and corrective measures.
Index		Gives an alphabetical list of important terms used in this manual.

Scope of This Manual

This manual does not provide a description of basic operations of Windows 98, Windows Me, Windows NT 4.0, Windows 2000, or Windows XP. For those descriptions, refer to the Windows User's Guide.

Conventions Used in This Manual

Units

K=1024, as in 100 KB

- Menus, Commands, Dialog Boxes and Buttons Enclosed in brackets [].
- Note

Provides useful information regarding operation of the software.

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1.1 Overview of the DAQSTANDARD

The DAQSTANDARD consists of the following three programs.

- · Launcher
- · Hardware Configurator
- · Data Viewer

Launcher

The Launcher is used to start the other two programs. It also allows you to set conditions for communication between the CX1000/CX2000 and this DAQSTANDARD. The Launcher and Data Viewer will be automatically registered in the Windows Start menu of Windows when the DAQSTANDARD is installed.

Hardware Configurator

Allows you to setup the CX1000/CX2000 hardware (measurement/math/control channels, display method, etc.). It also allows transfer of the setup data to the CX1000/CX2000 and saving to the personal computer's hard disk and other media. Setup data can be entered using the following three methods.

- · Receiving the setup data from the CX1000/CX2000 currently connected to the PC
- Loading existing setup data
- · Configuring a new system

Data Viewer

Displays the following five types of data generated by the CX1000/CX2000 and prints them. The data can be displayed graphically or digitally.

- Display data files (.cds)
- Event data files (.cev)
- TLOG files (.dtg)
- Report files (.dhr, .ddr, .dwr, .dmr)
- Manual sample files (.dmn)

1.2 Required PC System Environment

Hardware

Personal Computer (PC)

A computer that runs on Windows 98, Windows Me, Windows NT 4.0, Windows 2000, or Windows XP, and is equipped with a Pentium processor, 166 MHz or higher (Pentium II, 266 MHz or higher is recommended).

Main Memory

32 MB or more. (Generally, 64 to 96 MB is recommended, though the computer performance depends on the graphic board.) However, some applications may require more memory. Also, memory requirements depend on the OS.

Hard Disk

100 MB or more

CD-ROM Drive

To be used for installing the software.

Mouse

A mouse supported by Windows 98, Windows Me, Windows NT 4.0, Windows 2000, or Windows XP.

Monitor

A monitor supported by Windows 98, Windows Me, Windows NT 4.0, Windows 2000, or Windows XP. Resolution: 800×600 pixels or higher, number of colors: 32 K or more. (A monitor with 1024×768 pixels and 65536 colors is recommended.)

Communication Ports

For RS-232, a COM port (COM1, COM2, COM3, COM4) supported by Windows. For RS-422A/RS-485, a converter must be connected to the PC's RS-232 port. This software supports a 4-wire system. For Ethernet, an Ethernet card supported by Windows is required. TCP/IP protocol also needs to be installed.

Printer

A printer supported by the Windows operating system used, with the appropriate supported printer driver.

Operating System (OS)

Windows 98, Windows Me, Windows NT 4.0, Windows 2000, or Windows XP

Note.

- The time zone can be set under Date and Time in the Windows Control Panel.
- If daylight saving time is used, select the "Automatically adjust clock for daylight saving changes" check box.
- 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 used.
- The font "Courier New" needs to be installed on the PC.

1.3 DAQSTANDARD Installation

DAQSTANDARD is provided on a CD-ROM. To install the software, the serial number located on the CD-ROM case needs to be entered.

Procedure

- 1. Turn on the PC. Windows starts.
- 2. Insert the CD-ROM into the CD-ROM drive.
- 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. Double-click [My Computer], then double-click [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.

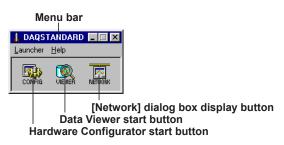
Note -

- Before starting the installation, make sure to exit all resident programs such as anti-virus programs.
- When the installation is complete, the Launcher and Data Viewer are registered on the Start menu.
- To reinstall the software, first remove it, then reinstall it.
- To remove the software, follow the procedure below.
 - 1. In the Control Panel, double-click [Add/Remove Programs]. The add/remove programs properties dialog box appears. From the list, select DAQSTANDARD to remove it.
 - 2. If necessary, back up the following files to another folder.
 - Setup data files (*.pcl) and CX display data files saved in the folder where DAQSTANDARD has been installed
 - 3. In Windows Explorer, delete all the files (data files and folders) created after the installation, as well as the folder where the software was installed

1.4 Starting/Exiting the Utility Software

Starting

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



The first time you start the software after installation, the [Network] dialog box appears. For details about entering settings, see section 2.3 "Communication Method Settings." If the CX is not turned ON or connected, the [Network] dialog box opens when you start the software.

 Click the start button of the desired program or select the desired program from the [Launcher] menu. [Hardware], [Viewer], and [Network] appear on the [Launcher] menu.

Note.

- Once the Hardware Configurator, Data Viewer or [Network] dialog box opens, the corresponding start button is disabled until the box is closed again.
- If you want to open two or more Data Viewers, select [Programs] [DAQSTANDARD] [Viewer] on the Start menu.
- Once the Hardware Configurator starts, it is not possible to open the [Network] dialog box.
- Once the [Network] dialog box opens, it is not possible to start the other programs.

Exiting

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

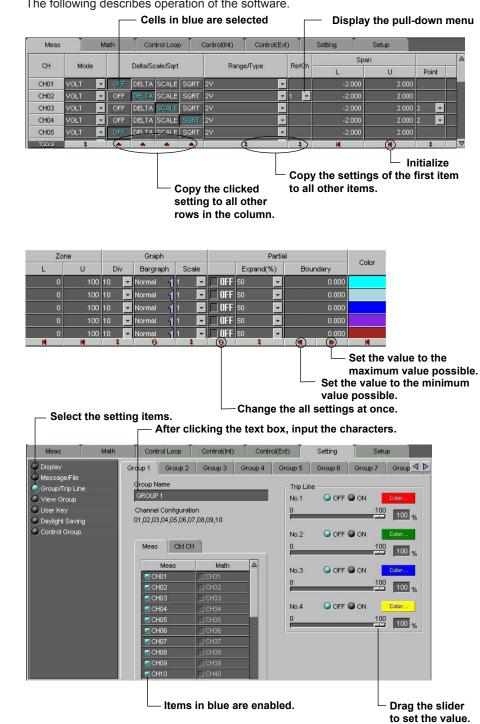
Note

- Close all open programs before exiting the Launcher.
- When you exit the Launcher, the DAQSTANDARD also closes

1

Common Operations 1.5

The following describes operation of the software.



2.1 Functions of Launcher

The utilities of the DAQSTANDARD can be started from Launcher.

Starting

On the Start menu, select [Programs] - [DAQSTANDARD] - [Launcher].

The Launcher starts, and the following window appears. If communications are not set, the [Network] dialog box appears. The Hardware Configurator (CONFIG), Data Viewer (VIEWER), and the [Network] (NETWORK) dialog box can be opened from the Launcher.

🔒 DAQS	TANDARD	
Launcher	<u>H</u> elp	
CONFIG		NETWORK

Description of Each Button

The following three buttons are available.

J .	
CONFIG	The Hardware Configurator start button. Used to start the Hardware
	Configurator. Once the Hardware Configurator starts, this button is disabled.
VIEWER	The Data Viewer start button. Used to start the Data Viewer. Once Data
	Viewer starts, this button is disabled.
NETWORK	The [Network] dialog box display button. Used to open the [Network] dialog box to set communication conditions. Once the Network dialog box opens, this button is disabled.

Description of Each Menu

The following two menus are available.

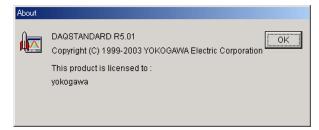
Launcher	Hardware Configurator	Same as the [CONFIG] button.
	Data Viewer	Same as the [VIEWER] button.
	Network	Same as the [NETWORK] button.
	Configuration	
Help	About	Displays the version number of Launcher.

2.2 Displaying the Version Information

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

Procedure

 On the [Help] menu of Launcher, click [About]. The [About] dialog box appears.



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

2.3 Communication Method Settings

Set the communication interface and parameters according to the connection between your PC and the CX1000/CX2000.

Procedure

 Click the [NETWORK] button of the Launcher or click [Network Configuration] on the [Launcher] menu. The [Network] dialog box appears. Ethernet or serial interface (RS-232 or RS-422A/RS-485) can be used.

Communication interface selection button

		—— _Г () RS-232 —		
Address :	j	Port No. :	COM1	÷
User Name :	1	Baud Rate:	9600bps	*
Password :	BLANK	Parity :	Even	-
🔿 RS-422A/RS	6-485			
Port No. :	COM1 💌			
Baud Rate :	9600bps 💌			
Parity :	Even 💌			
Address :	1			
	ок		Cancel	

- 2. Select Ethernet, RS-232, or RS-422A/RS-485 according to the type of connection. The color of the selected interface 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 between the PC and CX. 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 set for the CX1000/CX2000.
User Name:	Specify the user name of the CX.
Password:	Specify the password of the user.

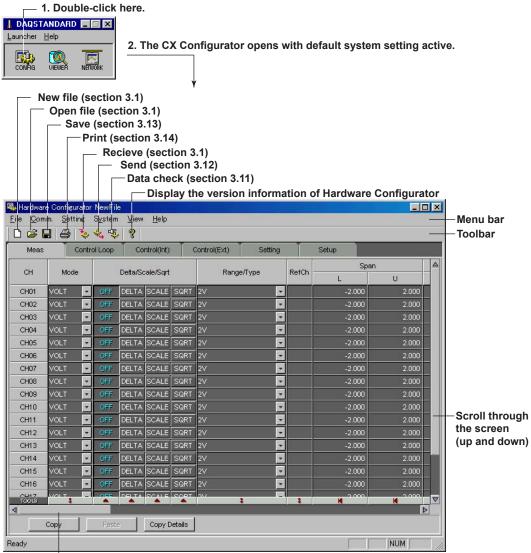
Serial Interface (RS-232 or RS-422A/RS-485)

Port No.:Specify the port number (COM1 to COM4) to be used.Baud Rate:Specify the baud rate (2400 to 38400 bps).Parity:Specify the parity check (None, Odd, or Even).Address:Specify the address (1 to 32) (for RS-422A/RS-485 only).

3.1 Starting the Hardware Configurator, the Hardware Configurator Window, and System Configuration Settings

The Hardware Configurator can be used to transmit and receive the setup data, change the setup data, and create new setup data for a CX1000/CX2000 of style number S1-S3.

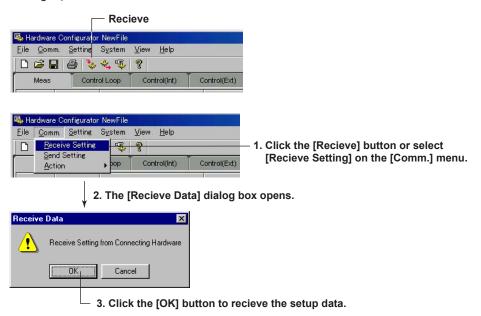
Starting the Hardware Configurator



Scroll through the screen (left and right)

Loading Setup Data from the CX

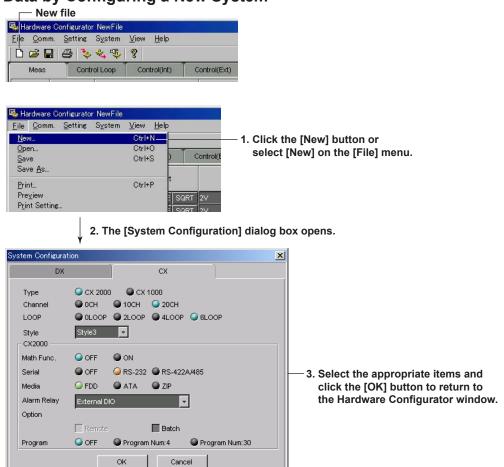
Before performing the following procedure, make sure that the communication method and parameters are correct. (For details, see section 2.3, "Communication Method Settings.")



Note.

Do not load setup data when entering program control function settings on the CX, or when a medium is being accessed. A communications error can result.

Creating Setup Data by Configuring a New System



For details about the settings in the [System Configuration] dialog box, see section 3.2 "Setting and Checking the System Configuration and Initializing Setup Data".

Note -

In the procedure for the [System Configuration] dialog box, make sure that the CX tab is selected before entering settings. If the DX tab is selected, the settings you enter will apply only to those instruments.

3.1 Starting the Hardware Configurator, the Hardware Configurator Window, and System Configuration Settings

Loading Preexisting Setup Data

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	Open	? ×
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	CX2000.pd	
File name: CX2000.pcl	File name: CX2000 pd	Open Select a file with .pcl extension
Files of type: CX ConfiglationFile(*.pcl)	Files of type: CX ConfiglationFile(*.pcl)	Cancel and Chick Here.

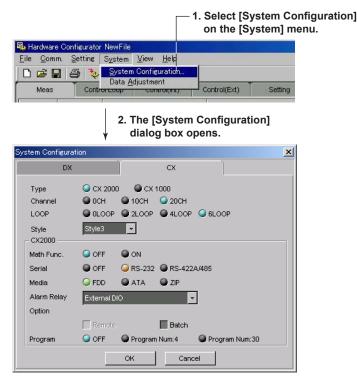
Specify the location of the setup data file and open the setup file.

3.2 Setting and Checking the System Configuration and Initializing Setup Data

Entering and Checking System Settings

You can create new setup data files or open existing setup data files, and then enter or check system configuration according to the connected CX specifications.

Normally these settings should be entered per the specifications of the CX being setup.



You can enter the following settings in this dialog box.

Туре

Select either CX2000 or CX1000.

Channel

Select the number of channels of the CX.CX1000: 0 (when set to Style 2 or later), or 6 channelsCX2000: 0 (when set to Style 2 or later), 10, or 20 channels

LOOP

Select the number of loops. CX1000: [0LOOP], [2LOOP] CX2000: [0LOOP], [2LOOP], [4LOOP], [6LOOP]

Style

Select the CX style number.

Math Function

Select whether or not to enable the math functions (computation function).

Serial

Select the serial communications mode from [OFF], [RS-232], or [RS-422A/485].

Media

Select the external storage media from [FDD], [ATA], or [ZIP].

Alarm Relay

Select the type of alarm relay from [NONE], [4p+With Fail/Mem. End], [6p], or [External Loop]. If you select 2LOOP for the CX1000, the Alarm Relay is automatically set to [NONE]. The items that can be selected vary depending on the model, number of channels, and number of loops.

If you select [2LOOP] for the CX1000, the [Alarm Relay] is automatically set to [NONE].

Options

If set to a style before Style 2, the following options can be selected.

Green Series Comm

Select whether options are installed for communications with an external controller. This option can only be selected when [Serial] is set to [RS-232] or [RS-422A/485]. Also, this option is fixed to [Green Series Comm] if [0LOOP] is selected.

 Ladder Comm Select whether a ladder communication option is installed. This option can only be selected when [Serial] is set to [RS-232] or [RS-422A/485].
 Also, this option is not available if [0LOOP] is selected.

Remote

Select whether a remote option is installed. Note that this option can only be selected when [Alarm Relay] is set to [4p+With fail/Mem. End] or [6p].

Batch

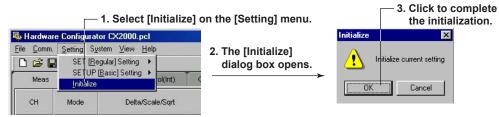
Select whether a batch option is installed. This option applies to style number S3 or later.

Program

Select [None], [Program Num:4], or [Program Num:30].

When you change the system configuration and click the [OK] button, the "System configuration has been changed. The input configuration and data will be initialized. Continue?" message appears. Click the [OK] button to initialize the data.

Initializing the Setup Data

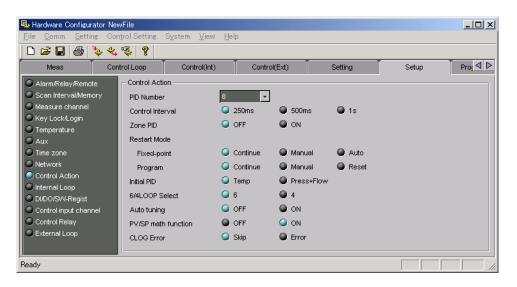


3.3 Control Function Basic Settings

Make the basic settings of control function.

To enter settings, click the [Setup] tab then select the settings you wish to enter from the list that appears on the left of the screen. Or, you can select the items by choosing [Control Settings] - [Setup Mode].

Control Action



PID Number

Set between 1 and 8. If the number is changed, the program pattern for the program control option will be initialized.

Control Interval

Set to [250ms], [500ms], or [1s].

However, when [A/D Integrate] under [Scan Interval/Memory] is set to [100ms], you can only select [1s].

Zone PID

Turn ON or OFF.

Restart Mode

Set to [Continue], [Manual], or [Auto]. With the program control option, the choices are [Continue], [Manual], or [Reset].

Initial PID

Set to [Temp] or [Press+Flow].

6/4LOOP Select (only for CX2000)

Set to 6 or 4 loops.

This selection is only available when the [LOOP] setting in the [System Configuration] dialog box is set to [6LOOP].

Auto Tuning

Turn ON or OFF.

PV/SP Computation Function (CX Style Number S3 or Later)

Turn the PV/SP computation function ON or OFF. When ON, you can set the PV/SP equation.

CLOG Error (CX Style Number S3 or Later)

Set the method for dealing with abnormalities in the channel data for CLOG, an operator for the PV/SP computation function and analog retransmission.

Error: Process as a computation error

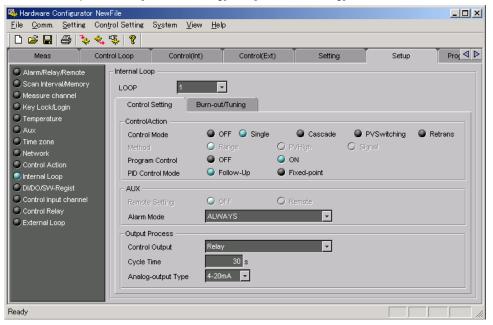
Skip: Skip any abnormal data and complete the computation

Event Output (CX Style Number S3 or Later)

Common: Set a common event output setting for all program patterns Separate: Set the event output for each program pattern

Internal Loop

For each loop there are [Control Setting] and [Burn-out/Tuning] items.



LOOP

Select the loop number to which the settings apply (CX1000: 1 and 2. When 4 selected for CX2000 4/6LOOP: 1-4). Only the loop numbers for the loops specified in the system configuration settings appear in the list.

[Control Setting] Tab

Contains the control settings for internal loops.

- Control Action
 - Control Mode

Select the control mode from [Basic], [Cascade], [PVSwitching], or [Retrans] (Style 3 or later). For a loop with no control, select [OFF]. When selecting [Cascade], because of a common setting between two loops of a control output terminal block, when you set loop 1 to cascade, for example, loop 2 can also automatically be set to cascade. If you make a change such that the smallest loop number changes (other than selecting OFF), all program patterns are initialized.

Method

Select the switching conditions of two measurement inputs from [Range], [PVHigh], or [Signal]. You can only make this selection when [Control Mode] is set to [PVSwitching].

Program Control (with the Program Control Option)

Turn program control ON or OFF for each loop. On style 2 and earlier, there is a common setting for both loops of a single control output terminal block. If you make a change such that the smallest loop number changes (other than selecting OFF), all program patterns are initialized.

PID Control Mode

Select the PID control mode from [Follow-Up] or [Fixed-point]. This setting is disabled on loops for which [Control mode] is [OFF].

• AUX

Remote Setting (Enabled When Program Control Is OFF)

When performing measurements by remote, select [Remote]. It cannot be set in the following cases.

- For secondary measurement loop numbers when [Control Mode] is set to [Cascade].
- With even numbered loops (when PV/SP computation function is OFF) when the number of loops is 2, 4, or 6 (4Loop is selected under 6/4Loop) and [Control Mode] is set to PV Switching.
- When the number of loops is 6 (6 Loop is selected under 6/4 Loop) and [Control Mode] is set to [PV Switching] (when the PV/SP computation function is OFF).

Alarm Mode

Select from the following conditions for disabling the control alarm.

ALWAYS:

Alarm is always enabled.

```
STOP:
```

Alarm disabled when operation is stopped.

```
STOP/MAN:
```

Alarm is disabled in manual operation mode or when operation is stopped.

Output Process

When [Control Mode] is set to [Cascade], the output process settings are not available for the primary loop.

Control Output

- Select the type of control output from the following:
- Relay (time-proportional PID relay contact output)
- Voltage-pulse (time-proportional PID voltage pulse output)
- Current-output (continuous PID control output)
- On/Off-control (relay contact output, not available for analog retransmission loops)

Cycle Time

With a PID proportional to time, set the cycle time (control output cycle) between [1]s and [1000]s.

Analog-output Type

For the current output, select the output current range from the following:

• [4-20mA], [0-20mA], [20-4mA], and [20-0mA].

3.3 Control Function Basic Settings

		-		-		-
Meas	Control Loop	Control(Int)	Control(Ext)	Setting	Setup	Progra <
Meas Alarm.Relay/Remol Scan IntervalMem Measure channel Key LockLogin Temperature Aux Time zone Network Control Action Internal Loop DD00/SW-Regist Control Action Control Action Control Action Control Relay Esternal Loop	te Internal Loo ory Control Input Pro No.1 Remote	Setting Burn-ou cess Burn OFF UP OFF UP		Setting RJC Type Internal Extern Internal Extern	al 0	Progra d

[Burnout/Tuning] Tab (When PV/SP Computation Is OFF)

Input Process

Burnout

Sets the burnout action for the PV inputs of each loop. You can select [OFF], [UP], or [DOWN]. [No.2] is valid only when the control mode is set to [PVSwitching]; [Remote] is valid only when the PV input is set to remote input. This setting is invalid for PV inputs other than thermocouples and standard signals.

When PV/SP computation is ON, it is set according to "Control Input Channel" on page 3-12.

RJC (Type, Volt (uV))

This is the reference junction compensation setting for thermocouple inputs. The setting is entered on the PV inputs of each loop. [No.2] is valid only when the control mode is set to [PVSwitching]; [Remote] is valid only when the PV input is set to remote input. This setting is invalid on the CX main unit for PV input other than thermocouples. You can select [Internal] or [External] for Type.

If you select [External], set a voltage in the range from -20000 uV to 20000 uV. When PV/SP computation is ON, it is set according to "Control Input Channels" on page 3-12.

Tuning Setting

Tuning item ON/OFF

Select [On] for the parameters that you want to display in the tuning window, and [Off] for other parameters.

ID

Select the ID of the item from the following:

SP (target set point), A1 (alarm 1 setting), A2 (alarm 2 setting), A3 (alarm 3 setting), A4 , P (proportional range), I (integration time), D (differentiation time), OH (upper output limit), OL (lower output limit), MR (manual reset), H (hysteresis), DR (control action direction), PO (preset output), BS1 (measured value 1 input bias), FL1 (measured value 1 input filter), BS2 (measured value 2 input bias), FL2 (measured value 2 input filter), RT (ratio setting), RBS (remote input bias), RFL (remote input filter), or W01–W36 (control computation constant). BS1, FL1, BS2, FL2, and RFL cannot be selected when PV/SP computation is ON. BS1, FL1, BS2, FL2, RT, RBS, RFL, and W01–W36 apply to style number S3 or later.

Name

Specify the name of the item using up to 6 alphanumeric characters.

DI/DO/SW-Regist (Contact Input)

Math	Control Loop	Control(Int)	Control(Ext)	Setting	Setup
Math Alarm/Relay/Remote Scan Interval/Memoo Measure channel Key Lock/Login Timer Report Temperature Aux Time zone Network Control Action Internal Loop D/D/O/SW-Regist	e - DI/DO/SW/ Module S DI001 DI002 DI003 DI004 DI005 DI006 SP Numk	Regist CTRL1-DI NONE CONONE NONE NONE NONE NONE NONE NONE NONE NONE NONE NONE NONE NONE NONE NONE	Control(Ext)	Setting	tion source
Control input chann Control Relay Control Relay		e ♥ 1bit ♥ 2bit	♥ 3bit ♥ 4bit		

Module Setting

Select the terminal blocks where you want to register contact inputs.

Style 3 or later

[CTRL1-DI] (2 loops or more), [CTRL2-DI] (4 loops or more), [CTRL3-DI] (6 loops or more), [CTRL1-DO] (2 loops or more), [CTRL2-DO] (4 loops or more), [CTRL3-DO] (6 loops or more), [EXT1-RI] (CX2000 with extension output terminal), [EXT1-RO] (CX2000 with extension output terminal), [INT-SW2], [INT-SW3]

Style 2 or earlier

[CTRL1-2], [CTRL3-4] (4 loops or more), [CTRL5-6] (6 loops or more), [ETXDIO] (CX2000 with extension output terminal)

Contact

For each contact input number, select the type of contact input from the following. Some items may not be available depending on the system settings and control mode. For details about the contact input settings, refer to the *CX User's Manual (IM 04L31A01-01E or IM 04L31A01-03E)*.

- ControlStopAll
- ControlStartAll
- ControlStart/Stop
- Remote/Local
- Auto/Man
- Cascade (1-2, 3-4)
- Auto1-2 or 3-4
- Man1-2 or 3-4
- SPNumber0 to 3 bit (enter by selecting one of the options under SP Number set).
- PVSwitching
- Program Start
- ProgramStop
- Hold
- Advance
- Memory Start/Stop
- Trigger
- Alarm ACK
- Time Adjust
- Math Start/Stop
- Math Reset
- Manual Sample
- Panel1 Load to Panel3 Load
- Message1 to 8
- Snapshot
- PatternNo.Set (0-4 bits) (Register per the number selected under pattern number setting. Available when program control is ON.)

SP Number Set

Select when registering to the contact input for switching the SP number.

SP No. Selection Source

When specifying input contacts of SP No. settings, select the loop number of the SP Number set to be switched. Activate or deactivate each loop number (CX1000: LOOP1 and LOOP2, CX2000: LOOP1 to LOOP6 (up to 4 loops if 4LOOP was selected under 6/4 Loop selection)).

Pattern Number Selection (When Program Control for Internal Loop is ON) (When [Program Control] for [Internal Loop] is ON)

With program control, you can select the range of pattern numbers when switching program patterns through contact input. The pattern numbers are entered in binary according to the number of relays required as shown in the following chart.

Pattern No.	No. of Relays	Assigned Relay(s)	
1	1 (1 bit)	DI001	
1–3	2 (2 bits)	DI001, DI002	
1–7	3 (3 bits)	DI001–DI003	
1–15	4 (4 bits)	DI001–DI004	
1–30	5 (5 bits)	DI001–DI005	

These are automatically registered under contact inputs according to the selected range of program pattern numbers. [1–15] and [1–30] are active only if the number of program patterns is 30 (/PG2).

Control Input Channel (When PV/SP Computation Is ON, and with CX Style Number S3 or Later)

When PV/SP computation is ON (see Control Action), set burnout and RJC (when PV/SP computation is OFF, set in "Internal Loops").

Meas	Control Loop	ol Loop		pp Control(Int) Control(Ext) Settin		ting	Setup	Pri 🏼 🕨	
Alarm/Relay/Remote	Chanr	nel							
Scan Interval/Memory	/					RJC			
🔍 Measure channel			Bu	rnout	1	уре	Volt(uV)		
🔍 Key Lock/Login		CI 01 🔘	OFF	On	Internal	External	(
Temperature		CI 02 🔘	OFF	On	Internal	External	(5	
Aux		CI 03 🔘	OFF	On	Internal	🥥 External	(5	
) Time zone		CI 04 🔘	OFF	i On	Internal	External	(5	
Network		CI 05 🥥	OFF	O On	Internal	External	()	
Control Action		CI 06 🥥	OFF	O On	Internal	External	()	
) Internal Loop		CI 07 🥥	OFF	O On	Internal	External	()	
DI/DO/SW-Regist		CI 08 🥥	OFF	O On	Internal	External	()	
Control input channel Control		CI 09 🥥	OFF	O On	Internal	External	()	
Control Relay		CI 10 🥥	OFF	O On	Internal	External	()	
💭 External Loop		TOOLS					1		
		Сору		Paste	Copy Deta	ils			

Burnout

Turn each control input channel ON or OFF.

RJC (Type, Volt (uV))

This is the reference junction compensation setting for thermocouple inputs. Set for each control input channel. This setting is invalid on the CX main unit for PV input other than thermocouples.

You can select [Internal] or [External] for Type.

If you select [External], set a voltage in the range from -20000 uV to 20000 uV.

Control Relay

Meas	Math	Control Loop	Control(Int)	Control(Ext)	Setting	Setup
Alarm/Relay/R	Memory	Relay Module Setting	Control1			
Channel Key Lock/Logi Timer Report	in	FAIL Self diagnosis	OFF	ON ON		
 Temperature Aux Time zone 		DO001 De_energi DO002 De_energi		vior) •		
 Network Control Action Internal Loop 		DO003 De_energi: DO004 De_energi: DO005 De_energi:	ze/Hold	•		
 Contact Input Control Relay External Loop 		DO006 De_energi	ze/Hold			

Module Setting

Select the terminal blocks where you want to register contact outputs from [CTRL1-2], [CTRL3-4], [CTRL5-6], or [EXTDIO]. [CTRL3-4], [CTRL5-6], and [EXTDIO] are available only with the CX2000 and when the number of loops is 6 or more (with 6/4 loop select, selection is not possible when set to 4 loops). EXTDIO is available with the CX2000 and when External Loop is selected for alarm relay.

FAIL ([CTRL1-2] Only)

Activates the output of a relay contact signal (FAIL signal) if a fault occurs in the CX CPU. When it is [ON] (default: [OFF]), contact output number [DO001] of control output terminal block 1 in the [Relay] (Action/Behavior) setting is automatically assigned to [De_energize/Nonhold].

Self Diagnosis ([CTRL1-2] Only)

Activates the output of a relay contact signal in the event of input burnout, an A/D converter fault, or reference junction compensation failure. When it is [ON] (default: [OFF]), contact output number [DO002] of control output terminal block 1 in the [Relay] (Action/ Behavior) setting is automatically assigned to [De_energize/Nonhold].

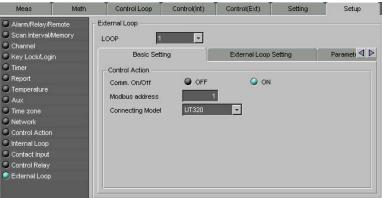
Relay (Action/Behavior)

Set the contact output relay operating mode to [De_energize/Hold], [De_energize/ Nonhold], [Energize/Hold], or [Energize/Nonhold].

External Loop

For each loop there are Basic Setting, External Loop Setting, Parameter Address Setting, and Tuning Setting items. For details on external loops, see the CX1000/CX2000 Communication Interface User's Manual (IM04L31A01-17E).





- Control Action
 - Comm. On/Off

Select to turn the external loop function (the Green Series Comm. function) ON or OFF.

If you select OFF, all settings below will be disabled.

Modbus address

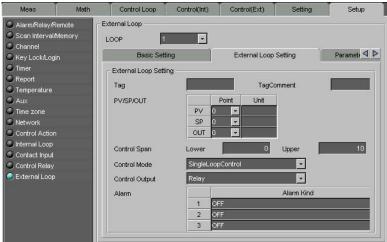
Enter the Modbus address of the controller used in external loop control from 1 to 247.

Connecting Model

Select the type of connected UT series controller. Select [Other] when connecting to a controller other than a UT series instrument.

The following settings vary depending on the selected instrument.

[External Loop Setting] Tab



Control Action

Loop Select

Select the loop from [Loop1] or [Loop2].

This item appears when [Connecting Model] in [Basic Setting] is set to a model capable of two-loop control (UT520, UT550, UT750, or Other).

Tag

Specify a tag using a maximum of 8 alphanumeric characters.

Tag Comment

Specify a tag comment using a maximum of 8 alphanumeric characters.

PV/SP/OUT

Set the decimal place (0-4) and units (using up to 6 alphanumeric characters) of PV, SP, and OUT.

Control Span Set the control span between the upper and lower limits.

Control Mode

Select the control mode from the choices below. The available modes differ depending on the connected instrument.

[SingleLoopControl], [CascadePrimaryLoop], [CascadeSecondaryLoop], [CascadeControl], [ControlBackUp], [PVSwitching], [PVAutoSelector], [PVHoldFunction], [2LoopControl], [GreenControl], [UniversalPVCascade], [UniversalPVSwitching], or [UniversalPVSelector].

Control Output

Select the type of control output from the choices below. This setting not available if the control mode is set to Cascade or UniversalPVCascade. [Relay], [Voltage-pulse], [Current-output], and [On/Off-control]

Alarm

Select the type of alarm from the choices below. The alarm types that can be selected differ depending on the connected model.

[OFF], [PV-High(Energ)], [PV-Low(Energ)], [Deviation-High(Energ)], [Deviation-Low(Energ)], [Deviation-High(Deenerg)], [Deviation-Low(Deenerg)], [Deviation-H&L(Energ)], [Dev-within-H&L(Energ)], [PV-High(Deenerg)], [PV-Low(Deenerg)], [PV-Low(Deenerg)], [PV-Low(Energ/Standby)], [Dev-High(Energ/Standby)], [Dev-Low(Energ/Standby)], [Dev-Low(Deenerg/Standby)], [Dev-Low(Energ/Standby)], [Dev-High(Deenerg/Standby)], [Dev-Hakl(Energ/Standby)], [Dev-H&L(Energ/Standby)], [Dev-H&L(Energ/Standby)], [PV-Low(Deenerg/Standby)], [PV-High(Deenerg/Standby)], [PV-Low(Deenerg/Standby)], [PV-Low(Deenerg/Standby)], [PV-Low(Deenerg/Standby)], [Timer-upward(h:m)], [Timer-upward(m:s)], [Timer-downward(m:s)], [Sensor-grounding], [Problem-diagnostic], [FAIL-output], [SP-High], [SP-Low], [Output-High], [Output-Low], [Header-burnout1], and [Header-burnout2].

3.3 Control Function Basic Settings

[Parameter Address Setting] Tab

Meas	Math	Control Loop	Control(Int)	Control(Ext)	Setting	Setup
Meas Alarm/Relay/R Scan Interval Channel Key Lock/Logi Timer Report Temperature Aux Time zone Network Ontrol Action Internal Loop Contact Input Control Action External Loop	emote – Memory n	Control Loop External Loop External Loop 2 External Loop 3 Parameter Address PV:Input SP:Setting OUT:Output Control Mode Remote/Local Operation STOP/RU Alarm Value SP Number PID Number Auto Tuning	Setting Setting 4000 4000 4000 4000	Parameter Addre	-	Ti d
	1					

Select the parameter address settings from the following ranges. 30001 to 39999, 300001 to 365535, 40001 to 49999, 400001 to 465535.

[Tuning Setting] Tab

Meas	Math	Control Loop	Cor	trol(int)	Control(Ext)	Setting	3	Setup	
🕽 Alarm/Relay/Ren	note 📄	External Loop —							
Scan Interval/Me	mory	LOOP	1	*					
) Channel									۹ ۵
Key Lock/Login		Parameter Ac	idress Sett	ng	Tuning Se	tting			
Timer		- Tuning Setting(External) -						
Report			20 <u>0</u>		Ti-	12			
Temperature			ID	Name	Register		Span		-
Aux						Point	L	U	
) Time zone		1 OF	1						
Network		2 OF			1				
Control Action		3 OF	401 U.S.		-				
Internal Loop		4 OF			-	-			
Contact Input		5 OF							
Control Relay		6 OF		1					
External Loop		7 OF	F		j.				
- Entormal Ecop		8 OF	F						
		9 🗌 OF	F						
		10 UF	F						▽
			-		<i></i>				

- Tuning Setting
 - Tuning item ON/OFF

Select [On] for the parameters that you want to display in the tuning window, and [Off] for other parameters.

ID

Select the ID of the item from the choices below. Internal Loop

SP (target set point), A1 (alarm 1 setting), A2 (alarm 2 setting), A3 (alarm 3 setting), A4 (alarm 4 setting), P (proportional range), I (integration time), D (differentiation time), OH (upper output limit), OL (lower output limit), MR (manual reset), H (hysteresis), DR (control action direction), DB (dead band), PO (preset output), ETC (others), BS1 (measured value 1 input bias), FL1 (measured value 1 input filter), BS2 (measured value 2 input bias), FL2 (measured value 2 input filter), RT (ratio setting), RBS (remote input bias), RFL (remote input filter), or W01-W36 (control computation constant)

External Loops

Internal loop SP (target set point), A1 (alarm 1 setting), A2 (alarm 2 setting), A3 (alarm 3 setting), A4 (cannot select with UT320, UT321, UT350, or UT420), P (proportional range), I (integration time), D (differentiation time), OH (upper output limit), OL (lower output limit), MR (manual reset), H (hysteresis), DR (control action direction), DB (dead band), PO (preset output), or ETC (others)

Note _

When [Connecting Model] in the [Basic Setting] tab of [External Loop] is set to [Other], you can only select [ETC].

Name

Specify the name of the item using up to 6 alphanumeric characters.

Register

Set the register address in the following ranges. 30001 to 339999, 300001 to 365535, 40001 to 49999, and 400001 to 465535.

Span (Point)

Set the parameter decimal point position.

Span (L) Set the lower control span value between -30000 to 30000.

Span (U)

Set the upper control span value between -30000 to 30000.

3.4 Control Function General Settings

This section describes settings for the internal loop control functions. Enter settings for the internal loop control functions, using the [Control Loop] tab and [Control Group] on the [Setting] tab. You can also enter these settings by choosing [Control Setting] - [SETUP [Regular] Setting] - [Control Loop], or [Control Settings] - [SETUP [Regular] Setting] - [Control Group].

On the [Control Loop] tab, click the button (LOOP01, LOOP02, ...) of each loop number that you want to set, and then enter the settings for that loop. The label of the selected loop number button is red. Select each item (Control Input, PID/Alarm, Operation Related, Linearizer, and Control Function) with the option buttons.

Control Input

A different menu is displayed when PV/SP computation function in the control basic settings is turned ON or OFF.

When PV/SP computation function is OFF

The control input settings vary depending on the Control Mode setting selected under [Internal Loop] in the [Setup] tab. You can make settings for the inputs [PV1], [PV2], [Remote], and [PVrange]. They appear in the following situations.

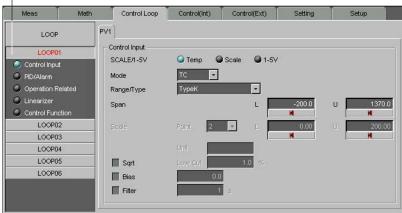
		PV1	PV1	Remote	PVrange
Basic	Odd loops	0		0	
	Even loops	0		0	
Cascade	Odd loops	0		0	
	Even loops	0			
PVSwitching	Odd loops	0	0	0*	0
_	Even loops	0	0		0
Analog Re-transmission	Odd loops	0		0	
(Style 3 or later)*	Even loops	0		0	

*: With 6 loops, disabled when 6/4LOOP Select set to 6 loops.

Remote appears if the Setup tab's Internal Loop > Remote setting is set to Remote.

The settings displayed depend on the input type, [PV 1], [PV2], [Remote], and [PVrange], but the settings are the same.

- Select the loop number



SCALE/1-5V (PV1, PV2, Remote)

Select the channel measurement mode from [Temp], [Scale], or [1-5V].

Mode (PV1, PV2, Remote)

Select a channel input mode of [VOLT], [TC], or [RTD]. When [SCALE/1-5V] is set to [1-5V], the mode is fixed [VOLT].

Range/Type (PV1, PV2, Remote)

Select the voltage range, thermocouple, and resistive temperature detector type.

VOLT: 20mV, 60mV, 200mV, 2V, 6V, 20V, or 50V

TC: TypeK, TypeJ, TypeT, TypeB, TypeS, TypeR, TypeN, TypeE, TypeL, TypeU, TypeW, PLATINEL, PR40-20, or WRe3-25

RTD: JPt100 or Pt100

When [SCALE/1-5V] is set to [1-5V], [Range/Type] is fixed to [6V].

Span (PV1, PV2, Remote)

Specify the measurement span such that the upper limit is greater than the lower limit.

Scale (PV1, PV2, Remote)

Specify the scale for each loop between -30000 and 30000, such that upper limit > lower limit, and upper limit - lower limit \leq 30000. Set the decimal place in the range from 0 to 4. Only available when [Scale] is selected under [Scale/1-5V]. For details, refer to the CX User's Manual (IM 04L31A01-01E or IM 04L31A01-03E).

Unit (PV1, PV2, Remote) Specify the units for each loop. Use a maximum of 6 alphanumeric characters.

Sqrt (PV1, PV2, Remote) Select or clear the check box to turn the square root function ON or OFF. When it is ON, set [Low Cut] between 0.0% and 5.0%.

Bias (PV1, PV2, Remote) Select the check box to turn the bias ON/OFF. When it is ON, enter the setting for EUS (-100 to 100%) of the measurement span.

Filter (PV1, PV2, Remote) Select the check box to turn the filter ON/OFF. When it is ON, set between 1 and 120.

Ratio setting (Remote)

Turn ON when applying the designated ratio to remote measurement input. When turned ON, set the value in the range from -30000 to 30000. Set the decimal place in the range from 0 to 4. With Style 2 or earlier, the setting range is from 0.001 to 9.999.

PV Range (PV Range)

Enter the maximum value, minimum value, decimal place, and units. Set the max. and min. values between -30000 and 30000 such that max. > min., and max. - min. ≤ 30000 .

PV Switching (PV Range)

Set within the input range. When setting [Method] to [Range] in the [Control Action] within the Setup tab's internal loop item, or when setting [Method] to [PVHigh], only the upper limit is set. If you set [Method] to [Signal], the PV Switching setting is not available.

Note _

When the PV/SP computation function is ON, the above settings for the input related settings are entered for each control input channel item on the Setup tab. See page 3-30 for the setting method.

3.4 Control Function General Settings

Meas Control Loop		Control(Int) Control(Ext) Setting S		Setup	Program patte	Program pattern	
LOOP	PV/SP math						
Control Input	PV					Cons	stant
) PID/Alarm	Mode	OFF 🤇) on			VV01	
) Operation Related Linearizer	Exp.	CI01	_		Ope.	VV02	
Control Function	PV Range	Point 1	▼ L	-200.0 U	1370.0	VV03 VV04	
LOOP02	Unit					VV05 VV06	
LOOP03	PV Switch	Point 4	- L	-200.0 U	1370.0	V/06	
LOOP04 LOOP05	_			N	N	V/08	
LOOP06	Ratio	Point	0	0.0001		VV09 VV10	
	Remote		0.0			VV11	
	Math Error	Over	Under			VV12 VV13	

When PV/SP Computation Function is ON

Enter PV or SP related settings.

When the control mode is analog retransmission, the setting menu for that mode is displayed. See the next page.

PV/SP Computation Function

Select whether to enter settings for PV, PV1, PV2, or SP. Enter PV if the control mode is single loop control or cascade control, or PV1, PV2 for 2 input switching control. SP can be entered when the Setup tab's Internal Loop > [Remote Setting] is set to [Remote].

Mode

Select ON or OFF.

ON: Activates the equation.

OFF: Assigns the following control input channels to the equation.

Control mode	Single loop control		Cascade control		2 input switching control (4 loops)			2 input switching control (6 loops)		
	PV	SP	PV(1)	SP	PV1	PV2	SP	PV1	PV2	SP
Loop 1	CI01	CI02	CI01	CI02	CI01	CI02	CI03	CI01	CI02	CI01
Loop 2	CI04	CI05	CI04		CI04	CI05	CI01	CI04	CI05	CI01
Loop 3	C106	CI07	C106	CI07	C106	CI07	C108	C106	CI07	CI01
Loop 4	C109	CI10	C109		C109	CI10	CI01	C109	CI10	CI01
Loop 5	CI03	CI01			—	—		—	—	—
Loop6	C108	CI01		—	—	—	—	—	—	—

Equation

Enter the PV/SP equation. If the mode is OFF, the equation cannot be entered.

PV range (PV or PV1)

Set the maximum value, minimum value, decimal place (0–4), and units using 6 alphanumeric characters or less.

Set the max. and min. values between -30000 and 30000 such that max. > min., and max. - min. \leq 30000.

PV1 can be set even if the mode is OFF.

Input Switching (PV1)

Set within the PV range. Set the decimal place (0–4), upper limit (U) and lower limit (L). When setting [Method] to [Range] in [Control Action] under the Setup tab's Internal Loop item, and when setting the upper limit (U), lower limit (L), and [Method] to [PV High], only the upper limit value is set. If you set [Method] to [Signal], the PV Input Switching setting is not available. This can be set even if the [Mode] is OFF.

Ratio (Remote)

Turns ON when a given ratio is applied to SP.

When turned ON, set the ratio in the range from 0.0001–30000. Set the decimal place in the range from 0 to 4.

Remote Bias

You can select ON or OFF to determine whether bias is applied to SP.

When turned ON, set the bias value in the PV range of "EUS(-100% to 100%)."

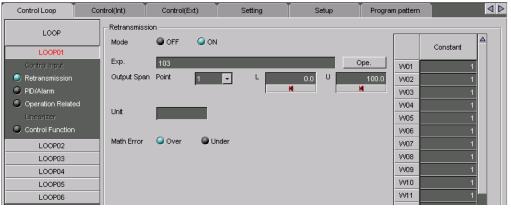
Math Error

If a computation error occurs, specify whether to process it as a PV/SP, overrange, or underrange.

Constants

Set the constants to be used for PV/SP computation, analog retransmission, and logic computation. Constants are common for analog retransmission and logic computation.

Analog Retransmission



Sets the equation and output span on loops whose control mode is analog retransmission.

Mode

Select ON or OFF. ON: Activates the equation. OFF: Analog retransmission does not function.

Equation Enter the analog retransmission equation.

Output Span

Set the maximum value, minimum value, decimal place (0–4), and units using 6 alphanumeric characters or less.

Set the max. and min. values between -30000 and 30000 such that max. > min., and max. - min. \leq 30000.

Math Error Select whether to set to an overrange or underrange when computed results in an error.

Constants

Set the constants to be used for PV/SP computation, analog retransmission, and logic computation.

3.4 Control Function General Settings

Meas	Math	Control	Loop	Control(Int)	Control(Ex	t) (Setting	Setup	
LOOP		- Alarm							
LOOP LOOP01) Control Input) PID/Alarm) Operation Related) Linearizer				Туре		Standby	Relay	Histeresis	
LOOP01		Alarm1	OFF		~	🗌 🗌 OFF	OFF 🔻	1	7.
Control Input		Alarm2	OFF		-	☐ OFF	OFF 👻		7.
🥑 PID/Alarm		Alarm3	OFF			OFF 🗾		7.	
		Alarm4	OFF				OFF 🚽	1	7.
🕽 Linearizer		TOOLS		4		8	4	*	
Control Function	tion								
LOOP02		- PID Paramete	rs						
LOOP03			[Alarm valu	ie [
LOOP04	<i>8</i>	PID NUM	Targ	et setpoint -	1		2		
LOOP05		1		-200.0		1370.0		1370.0	
LOOP06		2		-200.0		1370.0		1370.0	1
and the second		TOOLS	*	200.0		1070.0		1070.0	

Alarm

Specify an alarm for each loop.

Туре

Select the type of alarm from the following:

[PV-High], [PV-Low], [Deviation-High], [Deviation-Low], [Deviation-H&L], [Dev-within-H&L], [SP-High], [SP-Low], [Output-High], and [Output-Low].

Standby

Turn standby ON or OFF.

For details about the alarms that can be turned on or off, refer to the CX User's Manual (IM 04L31A01-01E or IM 04L31A01-03E).

Relay

Select the type of relay

DO001 to DO006: Loop2

DO101 to DO106: Loop4 (CX2000 only)

DO201 to DO206: Loop6 (with 4/6 loop selection, selection is only possible for a CX2000 set to 6 loops.)

RO001-RO012: Control extension DIO (only a CX2000 with the control extension DIO)

SW001-SW036: internal switches (SW001-SW018 for the CX1000, Style 3 or later)

Hysteresis

Specify the alarm hysteresis in EUS (0.0 to 10.0%).

PID Parameters

Specify the PID parameters for each loop.

Target setpoint

Specify the target setpoint in EU (0.0 to 100.0%). Set between the target setpoint's upper and lower limits.

Alarm value (1 to 4)

Other deviation alarms:

Set the alarm value. (The setting depends on the type of alarm.)

- PV and SP alarms: EU (0 to 100%)
- Deviation-High and Deviation-Low alarms: EUS (-100 to 100%) of the measurement span

EUS (0 to 100%) of the measurement span

Output alarms: -5.0 to 105.0% of the output value

Proportional band (P) Specify between 0.1 and 999.9%.

Integral Time(I) Specify between 0 and 6000s.

Derivative Time(D) Specify between 0 and 6000s.

Output Lower Limit Set the output lower limit between –5.0 and 105.0% such that upper limit > lower limit.

Output Upper Limit Set the output upper limit between –5.0 and 105.0% such that upper limit > lower limit.

Shutdown

Turn the shutdown function ON or OFF. Available when the Setup tab's Internal Loop > Output Process > Control output setting is set to Current output, and analog retransmission is set to 4-20 mA.

Manual Reset Set the manual reset between –5.0 and 105.0% of the output value.

Relay Hysteresis (Value) Set the relay hysteresis in EUS (0.0 to 100.0%).

Relay Hysteresis (Point)

Select the Hysteresis operating point when using ON/OFF control from [Mid], [Lower Limit], or [Upper Limit].

Preset Out

Select a fixed control output value from -5.0 to 105.0% to be used when operation is stopped.

Reverse/Direct

Select reverse/direct switching from [Direct] or [Reverse].

Note.

[Relay Hysteresis (Value)] and [Relay Hysteresis (Point)] appear in PID Parameters when [Control Output] is set to [On/Off-control] under [Setup] > [Internal Loop] > [Output process]. In that case, [PID], [Output Limit], [Shutdown], and [Manual Reset] are not shown.

3.4 Control Function General Settings

Operation Related

Meas	Math	Control Loop	Control(Int)	Control(Ext)	Setting	Setup
LOOP Control Inpu PID/Alarm Operation R Linearizer	<mark>1</mark> t	Operation Related – Supperssing Func Ramp-rate Time Un SP Ramp-down	n-rate	© Overshoot © Minute © 1570.0	Second	
Control Fund		TagComment	1			
LOOPO	0.00	Zone PID				
LOOPO	3	Referen	ice Point			
LOOPO	4	1	1370.0			
LOOPO	5	2	1370.0			
LOOPO	6	3	1370.0			
		4	1370.0			
		5	1370.0			
		6	1370.0			
		Switching Histeresi	~	7.8		

Operation Related

Enter internal loop control operation-related settings.

Suppressing Function Select [OFF] or [Overshoot].

Ramp-rate Time Unit Set the ramp-rate time units.

SP Ramp-down-rate Set between 1 digit and EUS (100%) of the measurement span.

SP Ramp-up-rate Set between 1 digit and EUS (100%) of the measurement span.

Tag Specify a tag. Use a maximum of 8 characters.

Tag Comment Specify a comment for the tag. Use a maximum of 8 characters.

Zone PID

Specify the internal loop control zone PID. The zone PID setting appears when [Zone PID] is [ON] in [Setup] - [Control Action].

Reference Point (displayed when the PID number is 3 or higher) Specify the reference point with the measurement input span EU (0.0 to 100.0%). The number of points depends on the number of PID. ([PID Number]-2.) Therefore, it is not displayed when the PID number is 2 or less. The value of each point is such that $1 \le 2 \le ... \le 6$ is set.

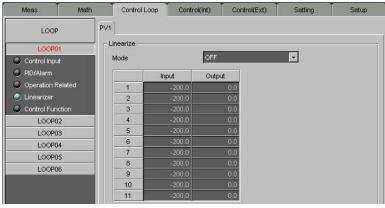
Switching Hysteresis

Specify the switching hysteresis value with the measurement input span EU (0.0 to 10.0%). It is not displayed when the PID number is 1 or less (or 2 or less with style number S1).

Reference Deviation

Turn the reference deviation ON or OFF, and specify the value from 1 digit of the measurement span to EUS (100.0%). With style number S1 (system setting), it is not displayed if the PID number is 1. With style 2 or later, it is not displayed when the PID number is 2 or less.

Linearize (When PV/SP Computation Is OFF)



Mode

Select the linearize mode from [OFF], [Biasing], or [Approximation].

Input

Enter the linearize	input value. (The value depends on the linearize mode.)
Biasing:	Set with EU (-5.0 to 105.0%) of the measurement input span.
Approximation:	Set with EU (-5.0 to 105.0%) of the measurement input span.
	Set between 2 and 11 points.

Output

Enter the linearize output value. (The value depends on the linearize mode.) Biasing: Set with EUS (-100.0 to 100.0%) of the measurement input spa

Biasing:	Set with EUS (-100.0 to 100.0%) of the measurement input span.
Approximation:	Set with EU (-5.0 to 105.0%) of the measurement input span.

Note_

- With linearize bias, set so that input + output is EU(0-100%). Also, set so that linearizer input
 + linearizer output is greater than or equal to the previous linearizer input + linearizer output.
- · Set so that linearizer approximation output is more than the previous value.
- Starting from the third point, if you set a value smaller than the previous value, all settings after that point become disabled.
- When the PV/SP computation function is ON, the above settings are entered for each control input channel item under Control Input Channel on the Setting tab. See page 3-30 for the setting method.

Control Function Settings

Meas	Math	Control Loop	Control(Int)	Control(Ext)	Setting	Setup
LOOP	[Control Function SP Tracking	OFF	ON		
LOOP01		PV Tracking	OFF	ON		
Control Input PID/Alarm		Target Setpoint Limite	с L	-200.0 U	1370.0	
Operation Re Linearizer Control Funct		Output Velocity Li Anti-reset Windup	m 🖉 Auto	100.0 %/s Manual		
LOOP02	2	Dev Band	,	100.0 %		

SP Tracking

Turn the target setpoint tracking ON or OFF.

PV Tracking

Turn the measurement value tracking ON or OFF.

Target Setpoint Limiter

Specify the target setpoint limiter in the measured span's EU (0.0–100.0%) range so that L < U.

Output Velocity Lim

Select or clear the check box to turn the output velocity limiter ON or OFF, and specify a value between 0.1 and 100.0%/s. This is unavailable for style number S2 or later if you set [Control Output] to [On/Off control] in the [Setup] tab for [Internal Loop].

Anti-reset Windup

Select an anti-reset windup of [Auto] or [Manual]. This is unavailable for style number S2 if you set [Control Output] to [On/Off control] in the [Setup] tab for [Internal Loop].

Dev Band

Set the deviation band of the anti-reset windup between 50.0 and 200.0%. This setting is only valid when the [Anti-reset Windup] is set to [Manual].

Control Groups

Set the groups to which control functions apply.

Meas	Control Loop	Control(I	Int)	Contro	ol(Ext)	Sett	ing	Setup)
 Display Message/File 	Control Group 1	·	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	
 Group/Trip Line View Group User Key Daylight Saving 		Name IROL GROUP1	_						
Control Group	KIND	KINE)		Tag		Т	aqComment	
DIO Monitor DIO Label	1	LOOP01	~	INT-01				<u>,</u>	
Clogic math	2	LOOP02	~	INT-02					
Control Input	3	LOOP03	~						
-	4	LOOP04	*	INT-04					
	5	LOOP05							
	6	LOOP06	*	INT-06					

From the [Setting] tab, select [Control Group].

Group Name

Enter a group name using a maximum of 16 alphanumeric characters.

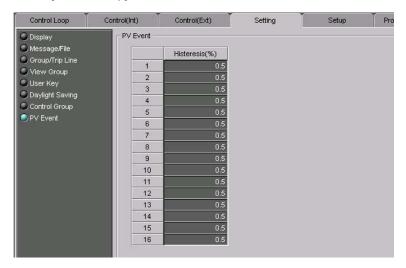
KIND

Select the loops, measurement channels, and DIO numbers (Style 3 or later) you want to assign to a group. For the CX1000, you can select 1-2 internal loops, 1-4 external loops, and 1-12 DIOs. For the CX2000, you can select 1-6 internal loops, 1-16 external loops, and 1-36 DIOs.

On the CX1000, group1 consists of up to 4 types of control loops and measurement channels. On the CX2000, it consists of up to 6 types.

PV Event Hysteresis (Style 2 or earlier)

This is available for style number S2 if you set [Program Control] to [On] in the [Setup] tab for [Internal Loop].



From the [Setting] tab, select [PV Event].

DIO Operation Monitoring Function (CX Style Number S3 or Later)

Meas	Conf	trol Loop	Co	ontrol(Int))		Corr	trol(Ext)		Setting		Setup	Progr 4 D
 Display Message/File 		Entry Num	Use	DIO Kir	nd	SW Nu	m		01	Num OFF	DI Num	Tag	TagComme
Group/Trip Line		01	🗾 O N	DI-1	-						DI001 💌		
View Group User Key		02	N N	DO-1	*	SVV001	*	DO001	-				
Daylight Saving		03		DIO-12	•	SV/001	*	DO002	-	DO003 🗾	DI002 💌		
Control Group		04	_ OFF										
DIO Monitor		05	_ OFF										
DIO Label		06	_ OFF										
Curve Logic math		07											
Control Input		08											
		09											
		10 TOOLS	OFF			,					,		1
		4		•		•					*	•	

DIO Operation Monitoring Number

Enter an integer between 1 and 36.

DIO Operation Monitoring Function

Turns the specified DIO operation monitor number ON and OFF.

DIO Types

Select the DIO operation monitoring method.

- DI-1: Displays the input status of the specified DI. The status of the internal switches are output.
- DO-1: The status of the internal switches are output to one DO. 1 (ON) is output when the internal switches are ON, and 0 (OFF) is output when they are OFF.
- DO-2: You can output the ON and OFF statuses of the internal switches to separate DOs. 1 (ON) is output from the ON output DO when the internal switches are ON, and 0 (OFF) is output from the OFF output DO when they are OFF. 0 (OFF) is output from the ON output DO when the internal switches are OFF, and 1 (ON) is output from the OFF output DO when they are ON.
- DIO-11: The same action as the DO-1 is performed while displaying the input status of the specified DI.
- DIO-12: The same action as the DO-2 is performed while displaying the input status of the specified DI.
- DO-2P: You can output the ON and OFF statuses of the internal switches to separate DOs. A pulse signal having a 1 to 2 second pulse width is output from the ON output DO when the internal switches are ON, and from the 0 (OFF) output DO when they are OFF.
- DOI-12P: The same action as the DO-2P is performed while displaying the input status of the specified DI.

SW Number

Set the internal switches assigned to DO.

DO Number

Set the DO performing DIO operation monitoring. If the DIO type is DO-2, DIO-12, DO-2P, or DIO-12P, specify a separate DO with ON and OFF. DO numbers may not overlap with other numbers, including DIO operation monitoring numbers. Not displayed when the DIO type is DI-1.

DI Number

Set the DI number to perform operation monitoring.

Tag

Enter tags. Up to 8 alphanumeric characters can be used.

Tag Comment

Enter tag comments. Up to 8 alphanumeric characters can be used.

Operation Status Display

Set the label and display colors when displaying operation status.

DIO Labels (CX Style Number S3 or Later)

Control Loop	Control(Int)	Control(Ext)	Setting	Setup	Program patte 🔍 Þ
 Display Message/File Group/Trip Line 	DIO Label	CTRL1-DI]		
 View Group User Key 	DI001	Label DI001			
Daylight Saving		DI002			
Control Group		DI003			
DIO Monitor DIO Label		DI004 DI005			
Control Input		D1005			

Set the DIO labels.

Logic Computation (CX Style Number S3 or Later)

Control Loop	Control((Int)	Control((Ext)	Setting	Setup		Program	pattern	
Display	_ Lo	ogic math								
Message/File				Expre	ssion Operator					
Group/Trip Line View Group			KIND		Expression		⊿		Constant	
User Key		01 DC	0001 💌	01.EQ.W0	3			VV01		
Daylight Saving		02 DC	002 🗾					W02	•	
Control Group		03 Of	f 🔻					VV03		
DIO Monitor		04 Of						VV04		1
ODIO Label		05 Of						VV05		
🥥 Logic math		06 Of						VV06		
Control Input		07 Of						VV07		
		08 Of						VV08		
		09 Of 10 Of						V/00		
		10 Of 11 Of						VV10		-
		TI UT	, <u>▼</u>		+		▽			

Туре

Select the output destination for the computed results.

Equation

Input an equation. Click the Operator button to display the operators that can be entered.

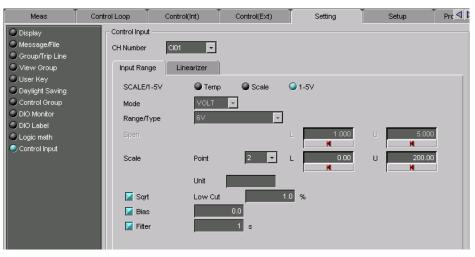
Constants

You can specify the constants used in equations. Constants are common with PV/SP computation and analog retransmission constants.

Control Input Channel (CX Style Number S3 or Later)

When the PV/SP computation function is ON, you can set the input range and ten segment linearizer output for each channel.

[Input Range] tab



SCALE/1-5V

Select a channel measurement mode from [Temp], [Scale], or [1-5V].

Mode

Select a channel input mode of [VOLT], [TC], or [RTD]. When [SCALE/1-5V] is set to [1-5V], the mode is fixed to [VOLT].

Range/Type

Select the voltage range, thermocouple, and resistive temperature detector type.

- VOLT: 20mV, 60mV, 200mV, 2V, 6V, 20V, or 50V
- TC: TypeK, TypeJ, TypeT, TypeB, TypeS, TypeR, TypeN, TypeE, TypeU, TypeW, PLATINEL, PR40-20, or WRe3-25
- RTD: JPt100 or Pt100

When [SCALE/1-5V] is set to [1-5V], [Range/Type] is fixed to [6V].

Span

Specify the measurement span such that the upper limit is greater than the lower limit.

Scale

Specify the scale for each loop between -30000 and 30000, such that upper limit > lower limit, and upper limit - lower limit \leq 30000. Only available when [Scale] is selected under [SCALE/1-5V]. For details, refer to the CX User's Manual (IM 04L31A01-01E or IM 04L31A01-03E).

Unit

Specify the units for each loop. Use a maximum of 6 alphanumeric characters.

Sqrt

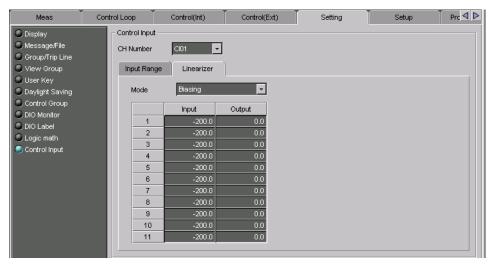
Select or clear the check box to turn the square root function ON or OFF. When it is ON, set [Low Cut] between 0.0% and 5.0%.

Bias (PV1, Remote)

Select the check box to turn the bias ON/OFF. When it is ON, enter the setting for EUS (-100 to 100%) of the measurement span. Filter (PV1, Remote)

Select the check box to turn the filter, ON/OFF. When it is ON, set between 1s and 120s.

[Linearizer] tab



Mode

Select the linearize mode from [OFF], [Biasing], or [Approximation].

Input

Enter the linearize	input value. (The value depends on the linearize mode.)
Biasing:	Set with measurement input span EU (-5.0 to 105.0%).
Approximation:	Set with measurement input span EU (-5.0 to 105.0%).
	Set between 2 and 11 points.

Output

Enter the linearize	output value. (The value depends on the linearize mode.)
Biasing:	Set with measurement input span EUS (–100.0 to 100.0%).
Approximation:	Set with measurement input span EU (-5.0 to 105.0%).

Note _

- With linearize bias, set so that input + output is EU (0-100%). Also, set so that linearizer input + linearizer output is greater than or equal to the previous linearizer input + linearizer output.
- · Set so that linearizer approximation output is more than the previous value.
- Starting from the third point, if you set a value smaller than the previous value, all settings after that point become disabled.
- When the PV/SP computation function is OFF, the above settings are entered for each loop item on the Setting tab. See page 3-25 for the setting method.

3.5 Control Channel Settings (Internal/External)

The following settings apply to the internal and external loop's SP, PV, and OUT displays. To enter control channel settings, click the [Control(Int)] tab. Or, you can select the items by choosing [Control Setting] - [SET [Basic] Setting] - [Control Channels (Internal)].

Meas		Math	Control Loop	Control(Int)	Co	ntrol(Ext)	Ĭ	Se	etting		Setup						
СН	LOOP	Time	Tea		Zone	,			Graph						Partia	I	Color
СП	LOOP	Туре	Tag	L		U	Div	v.	Bargraph	1	Scale			Expand	(%)	Boundary	Color
CH101	LOOP01	PV	INT-01.PV		0	100	10	*	Normal	11	-		JFF	50	*	0.0	
CH102	LOOP01	SP	INT-01.SP		0	100	10	-	Normal	11			JFF	50		0.0	
CH103	LOOP01	OUT	INT-01.OUT		0	100	10	*	Normal	11	-		JFF	50	*	0.0	
CH104	LOOP02	PV	INT-02.PV	2	0	100	10	-	Normal	11			JFF	50		0.0	
CH105	LOOP02	SP	INT-02.SP		0	100	10	*	Normal	11	-		JFF	50		0.0	
CH106	LOOP02	OUT	INT-02.OUT	1	0	100	10	-	Normal	11	-		JFF	50		0.0	
CH107	LOOP03	PV	INT-03.PV			100	10	*	Normal	11	-		JFF	50	-	0.0	
CH108	LOOP03	SP	INT-03.SP		0	100	10	-	Normal	11			JFF	50	Ψ.	0.0	
CH109	LOOP03	OUT	INT-03.OUT			100		-	Normal	11	-		JFF	50	-	0.0	
CH110	LOOP04	PV	INT-04.PV	1	0	100	10	-	Normal	11			JFF	50		0.0	
CH111	LOOP04	SP	INT-04.SP			100		-	Normal	11	-		JFF	50	-		
CH112	LOOP04	OUT	INT-04.OUT	1	0	100	10	-	Normal	11	-		JFF	50	-	0.0	
CH113	LOOP05	PV	INT-05.PV			100		*	Normal	11	*		JFF	50	*	0.0	
CH114	LOOP05	SP	INT-05.SP	1		100	10	-	Normal	11	*		JFF	50		0.0	
CH115	LOOP05	OUT	INT-05.OUT		0	100	10	*	Normal	11	-		JFF	50		0.0	
CH116	LOOP06	PV	INT-06.PV		0	100	10	-	Normal	11	-		JFF	50	-	0.0	
CH117	LOOP06	SP	INT-06.SP		0	100	10	Ŧ	Normal	11	*		JFF	50		0.0	
CH118	LOOP06	OUT	INT-06.OUT		0	100	10	-	Normal	11	-		JFF	50	-	0.0	
TOOLS	le l					M	:	Carlores .	0	100	1	1				🦛 🕨	K

Tag

Enter a tag using maximum of 16 alphanumeric characters.

You can select tags instead of channel numbers to be displayed on the screen. Select whether the channel name or tag is displayed in the [Setup] tab under [Aux] > [Tag/ Channel]. By selecting [Tag] in [Aux] of the [Setup] tab, you can select the tag No./tag comment or tag in the Data Monitor or Data Viewer.

Zone

You can select the range on the CX's screen where each channel waveform is displayed. Set the lower and upper limits as percentages on the scale displayed. The zone setting conditions are as follows:

- Setting range: 0 to 100%
 - Lower limit < Upper limit
- Difference between upper and lower limits: at least 5%

Graph

Div

Select the number of bar graph divisions from 4 to 12, or C10. When selecting C10, the scale of the trend display is divided into 10 or some other number of major divisions, numbered at the [0], [30], [50], [70], and [100]% marks.

Bar graph

Select the bar graph reference point. When the bar graph is displayed vertically, [Center] is invalid, even if selected. During the data check it is changed back to [Normal].

Scale

When the scale is displayed in the trend display, select the scale display position. For details, refer to the *CX User's Manual (IM 04L31A01-01E or IM 04L31A01-03E)*.

Partial

Expand(%)

The boundary value is displayed as a percentage along the width of the display, between 1 and 99%.

Boundary

The setting conditions depend on the internal control channel and external control channel as follows:

Internal control channel

PV /SP: EU (0%) < boundary value < EU (100%)

OUT: EU (-5.0%) < boundary value < EU (105.0%)

However, with OUT for analog retransmission, minimum value of span < boundary value < maximum value of span.

 External control channel span L + 1 digit < boundary value < span U - 1 digit However, when external loop is OFF, the partial expansion/reduction is also OFF.

Note .

- The partial expansion/reduction settings are valid when [Partial] is set to [Use] in [Aux] of the [Setup] tab.
- For the external control channel, set a boundary within the span determined by the internal span -50–1050 and the specified decimal point. Normally there is one decimal place, so it can be set to -5.0% < boundary < 105.0%.

Color

Click in the display color setting field to display a color selection dialog box. You can select the display color of each channel from 16 colors.

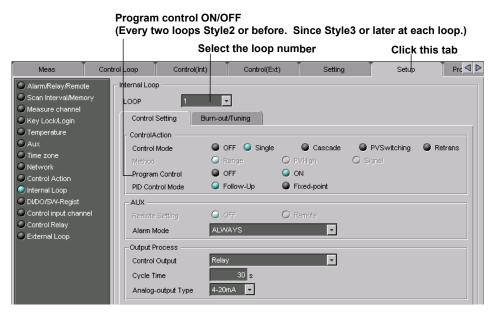


3.6 Program Control Related Setup Operations

This section describes optional program control related operations.

Turn ON/OFF Program Control

Program control can be turned ON and OFF under Internal Loop in the Setup tab. Click the Setup tab then select Internal Loop from the list that appears on the left of the screen. Or, you can select the items by choosing Control Settings > Setup Basic Setting > Internal Loop.

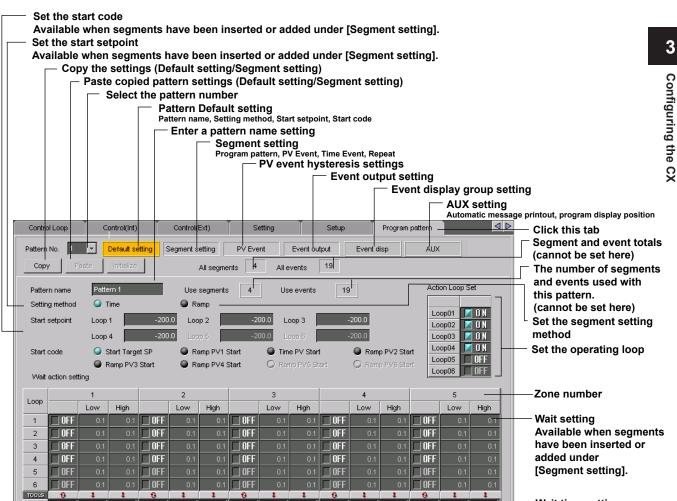


Note .

You must first turn ON program control to carry out the program control related settings below.

Initial Program Patterns

You can set the initial program patterns. You can set the initial (default) program patterns by clicking the [Program pattern] tab, then selecting [Default setting]. Settings cannot be entered when the number of segments is 0. Add segments using [Segment setting].



Pattern number

Select the number of the desired pattern from [1] to [30] ([1] to [4] for models with /PG1 option).

Pattern name

Enter the pattern name using up to 16 alphanumeric characters.

Segment setting method

Select segment time setting method or segment time ramp grade setting method. If you change this setting, the program pattern setting corresponding to the pattern number is initialized.

Start target setpoint

Set the start SP, a starting condition, in the range of [EU (0.0% to 100.0%)] (initial value is 0%) of the measurement span. For style 3 or later, the PV event hysteresis setting for loops turned ON in operating loop designation can be entered. With style 2 or earlier, settings for loops turned ON in Program Control under Internal Loops in the Setup tab can be entered. Only the loops that are set as follows are displayed: [Setup] tab > [Internal Loop] > [Program control] to [On]. During cascade control, even-numbered loops within the same terminal block are not displayed.

Start code

Select the operation start condition from the following. Note that only the possible loop conditions are displayed.

Starting target setpoint start, PV1 to PV 6 ramp-prioritized PV start, time-prioritized ramp start (not displayed for segment time ramp setting method).

Wait action setting

Set the wait zones for 6 (number of loops) × 5 (number of zones) (CX1000: 2 (number of loops) × 5 (number of zones))in the range of [EUS (0.0 to 100.0%)] of the measurement span. For style 3 or later, the wait action setting for loops turned ON in operating loop designation can be entered. With style 2 or earlier, settings for loops turned ON in Program Control under Internal Loops in the Setup tab can be entered.

Wait time

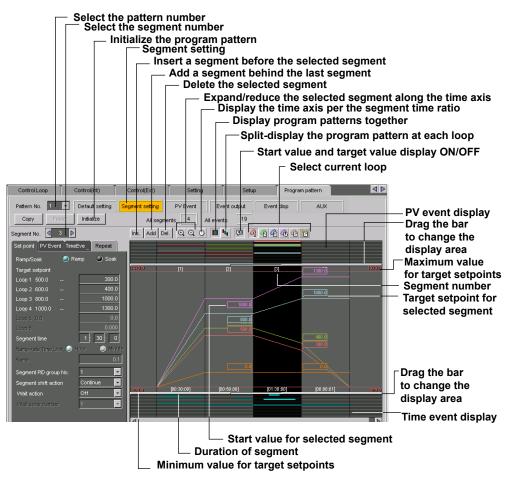
Set the wait time in [hh:mm:ss] format (selectable range: [00:00:00] to [99:59:59]) for all the available zones. The setting applies to the same zones in each loop. Wait time cannot be set if the wait zone for all loops is set to OFF.

Operating Loop Designation

Set the loops to operate. Select from loops whose program control is ON.

Program Pattern Setting (Segment setting)

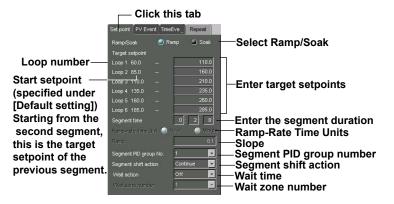
You can enter a program pattern for each segment. Set the program patterns by clicking the [Program pattern] tab, then selecting [Segment settings].



Select the Segment

Click the [Segment No.] arrow or click the desired segment in the program pattern display screen.

Select Setpoints Enter a program pattern for each segment.



Note

The program pattern waveform displayed on screen is not strictly accurate.

- Ramp/Soak select Select the type of segment to be specified ([Ramp] or [Soak]).
- Target setpoint (ramp segment only)

Set the final SP of the ramp segment in the range of "EU (0.0% to 100.0%)" (initial value is 0%) of the measurement span. For style 3 or later, the target setpoint setting for loops turned ON in operating loop designation can be entered. With style 2 or earlier, settings for loops turned ON in Program Control under Internal Loops in the Setup tab can be entered. Only the loops that are set as follows are available: [Setup] tab> [Internal Loop] > [Control mode] to a mode other than [Off] and [Program control] to [On] During cascade control, even-numbered loops within the same terminal block are not displayed.

Segment time

Set the segment time in the range of [0:00:01] to [99:59:59] (0 hour 0 min 1 s to 99 hour 59 min 59 s). This item is available at all times during segment time setting method and only when soak is selected during segment time ramp setting method.

Ramp-rate time unit

Set the ramp-rate time unit for ramps to [Hour] or [Minute]. This item is available only during segment time setting method.

Ramp

Set the ramp per unit time in the range of "1 digit to EUS (100%) of the measurement span." The measurement span and decimal point position of the selectable range vary depending on the smallest numbered loop to be specified. This item is available only during ramp in the segment time ramp setting method.

Segment PID group No.

Select the segment PID group number [1] to [8]. This item is not displayed when zone PID is selected. Only the PID group numbers that can be specified through [Setup] tab > [Control action] > [PID number] are displayed.

Segment shift action

Set the segment shifting action to [Continue], [Hold] (hold after end of segment), [Local] (local mode after completing the last segment), or [Reset] (reset mode after completing the last segment).

Note

When creating the program pattern, data is created so that the segment set to [Local] or [Reset] is the last segment of program control.

Wait action

Set the wait action type to [Shift] or [Within]. To disable the wait action, select [Off].

• Wait zone number

Select the wait zone number from [1] to [5]. This item is available only when [Wait action] is set to [Shift] or [Within].

PV Event

Set the PV Event.

			Г	_	Click	this tab
Set	point	P\	/ Event TimeEv	e	Repeat	
	Lo	p	Kind		Set value	1
1	1	7	PV-High	7	500.0	
2	1	*	PV-Low	7	0.0	
3	1	7	Deviation-H&L	7	50.0	
4	OFF		P∨-High	۲	0.0	
5	OFF	7	P∨-High	•	0.0	
6	OFF	-	P∨-High	٠	0.0	
7	OFF	-	P∨-High	Ŧ	0.0	
8	OFF	-	P∨-High	٣	0.0	
9	OFF	-		٣	0.0	
10	OFF	-	P∀-High	٣	0.0	
11	OFF	-	P∨-High	*	0.0	
12	OFF	*		٣	0.0	
13	OFF	7	P∨-High	-	0.0	
14	OFF			۲	0.0	
15	OFF	7	P\/-High	•	0.0	
16	OFF	-	PV-High	٣	0.0	

• Loop

Set the target loop number [1] to [6] of the PV event (only selectable loop numbers). Up to 16 events can be assigned. Select [Off] (initial setting) for the number of the loops to which the event is not to be assigned.

• Type

Select the type of PV event from the following.

PV high-limit, PV low-limit, deviation high-limit, deviation low-limit, deviation high & low limit, deviation within high & low limits, SP high-limit, SP low-limit , output high-limit , and output low-limit

Value

Set the value in the following range according to the type of PV event.

PV/SP event: EU (0.0 to 100.0%) of the measurement span

Deviation high-limit event/low-limit event: EUS (-100.0 to 100.0%) of the measurement span

Deviation high & low limit/within high & low limits: EUS (0.0 to 100.0%) of the measurement span

Output event: -5.0% to 105.0% of output

PV event display

A bar showing that the PV event was set is displayed in the upper part of the program pattern display screen.

Time Event

Set the Time Event.

• On1/On2/On3/Off

Set the ON/OFF setting type of each event (16 events) from the following. Select [Off] for events that are not to be assigned.

On1: Use On time and Off time On2: Use On time only

On3: Use Off time only

On-time/Off-time

Set the ON-time/OFF-time of the time event in "hh:mm:ss" format. The selectable range is "00:00:00 to 99:59:59." Make sure that Set On-time \leq Off-time.

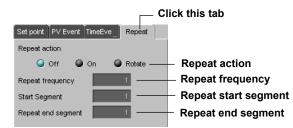
Time event display

At the bottom of the program pattern display screen, a bar showing setting of time events is displayed according to the specified ON and OFF times. If time events overlap with those of other segments, or in other such cases, the specified time event may not occur. For details, see the CX1000/CX2000 User's Manual (IM04L31A01-01E or IM04L31A01-03E).

Repeat

Set the repeat action.

The repeat start segment, repeat end segment, and repeat frequency is displayed in the program display screen.



- Repeat action Select the repeat function from [Off], [On], and [Repeat].
- Repeat frequency Set the number of repetitions when the repeat function is turned ON in the range of [1] to [999].

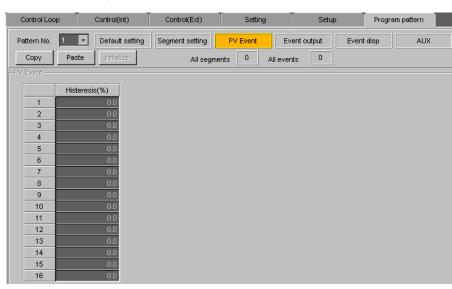
· Repeat start segment/Repeat end segment

Set the repeat start segment number and the repeat end segment number when the repeat function is turned ON or when repeating in the range of "1 to 99." However, the maximum value is the maximum segment number set for the pattern. The selectable range for the maximum value is

Set repeat start segment ≤ repeat end segment.

PV Event (CX Style Number S3 or Later)

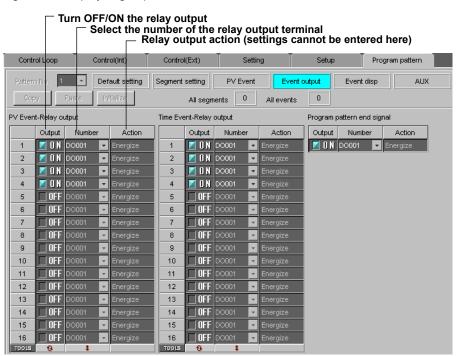
The selectable range for the maximum value is 0.0 to 10.0.



With Style2 or earlier, set in the setting menu of the [Setting] tab.

Event Output Setting (PV event-relay output/Time event-relay output/Program pattern end signal)

You can set the PV event relay output, time event relay output, program pattern end signal, and displayed groups.



PV Event-Relay output/Time Event-Relay output/Program pattern end

signal Relay Output Turn OFF/ON the relay output.

Number

Select the number of the relay output terminal from the following. DO001 to 006, DO101 to 106, DO201 to 206, RO001 to 012 only (on models with the expansion DIO terminal block), SW001 to SW036 (internal switches, Style3 or later).

Action

Displays the relay output action (Energized/De-Energize) per the [Control Relay] settings on the [Setup] tab.

Event Display Group

Contro	ol Loop	Conf	rol(Int)	Control(Ext)	Setting	Ĭ	Setup	Program	n pattern
Pattern	No. 1		fault setting	Segment setting	PV Event	Event out	out E	Event disp	AUX
Cop	y _	Paste	nitialize	All segme	ents 0 ,A	II events	0		
Event o	lisplay gro	oup ———		_					
		Kind	Number						
1	🗾 O N	TIME	1 🔻						
2	🗾 O N	TIME 🗖	2 💌]					
3	🗾 O N	TIME 🗖	3 🔻]					
4	🗾 O N	TIME 🗖	4 🔻						
5	🗾 O N	TIME 🗖	5 🔻						
TOOLS	8	4	1]					

You can select events for when groups are displayed in the CX program selection screen or program operation screen. Up to 5 events can be specified.

ON/OFF Turns the display ON or OFF. Kind Select either time event or PV event. Number Set the event number.

AUX (Automatic Message, Display Position, Operation Display Automatic Switching)

Turn message display ON/OFF, and set the loop display position on the CX.

			sition when pa g display (sett Tag co	ings cannot	be entered	d here)	ot be entered he
Control Lo	qo	Control(Int)	Control(Ext)	Setting	Set	up	Program pattern
attern No.	1	Default setting	Segment setting	PV Event	Event output	Event	disp AUX
Сору	Paste	Initialize	All segm	ents 0 All	events 0		
l tomessaj ogram disp	olay positi						
	-	n	ON TagComment				
ogram disp	olay positi	on Tag					
ogram disp LOOP01	olay positi	on Tag V INT-01					
	olay positi	on Tag INT-01 INT-02					
LOOP01	olay positi	on Tag NT-01 NT-02 NT-03					

Auto message

If you select [On] (initial setting), a message is automatically written on the trend display when program control is started and when program control is stopped. If you do not wish to write messages, select [Off]. The message when starting program operation is "PROGRAM RUN"; the message when stopping the program operation is "PROGRAM RESET."

Position

On the program selection screen and program operation screen, the specified patterns and PV waveforms can be displayed in the same display frame (full display), and data can be displayed by dividing the display position per loop (split display). When using split display, select the display position number from [1] to [6] for each loop. For Style 3 or later, the position setting for loops turned ON in operating loop designation can be entered. With style 2 or earlier, only settings for loops turned ON in Program Control under Internal Loops in the Setup tab can be entered. During cascade control, evennumbered loops within the same terminal block are not available.

Operation Display Automatic Switching (Style Number S3 or Later)

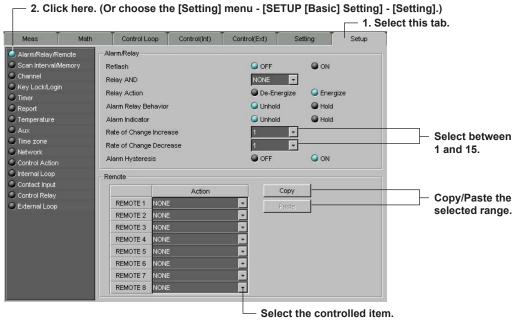
When a program execution command is sent via the communication function, you can have it switch to the program operation display.

- ON: Switches to the program operation display when a program execution command is sent.
- OFF: Does not switch to the program operation display (default) even if a program execution command is sent.

3.7 Measurement Function Basic Settings

To enter measurement function basic settings, click the [Setup] tab. Or, you can select the items by choosing [Setting] - [SETUP [Basic] Setting] - [Setting].

Alarm/Relay/Remote



Alarm/Relay

Select the alarm format. The selected items are blue.

Reflash

Set whether to use the alarm relay output reflash (ON or OFF).

Relay AND

Set the range of relays (from the first alarm relay) using the AND logic gate. All other relays are set to the OR logic gate. If [NONE] is selected, all relays use the OR logic gate.

Relay Action

Select whether the alarm output relay should be [Energize] or [De-Energize] when an alarm occurs.

Alarm Relay Behavior

Select the output relay when returning from an alarm to the normal state of operation (when the alarm is released). This applies to all alarm output relays. If the measuring alarm output option is not active, this setting is invalid.

Unhold (Default): When the alarm is released, the output relay stays off.

Hold: The output relay stays on until an Alarm ACK operation is performed.

Alarm Indicator

Select the alarm indicator when returning from an alarm to the normal state of operation. Unhold (Default): The alarm display ends when the alarm is released.

Hold: The alarm display stays on until an Alarm ACK operation performed.

Rate of Change Increase

Select the number of data samples that determines the interval of the rate of change of an upper limit alarm between [1] and [15].

Rate of Change Decrease

Select the number of data samples that determines the interval of the rate of change of a lower limit alarm between [1] and [15].

Alarm Hysteresis

Set the alarm hysteresis to [ON] or [OFF]. When it is [ON], the hysteresis is set to 0.5% of the scale or the measurement span.

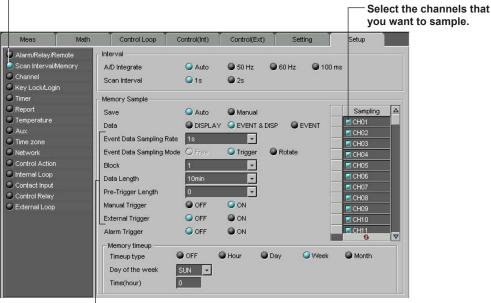
Remote (Option)

You can assign items to be controlled by the eight remote control terminals. This setting is available with the measurement remote input function. For details, refer to the *CX User's Manual (IM 04L31A01-01E or IM 04L31A01-03E).*

Select a remote number, and then click the [Copy] button. This copies the setting of that remote number. When you want to paste the copied setting, select the remote number where you want to paste the setting, and then click the [Paste] button.

Scan Interval/Memory

- Click here. (Or choose the [Setting] menu - [SETUP [Basic] Setting] - [Setting].)



- Set these parameters when the data type is [EVENT & DISP] or [EVENT].

A/D Integrate

Select from [Auto], [50 Hz], [60 Hz], and [100 ms]. The [Auto] setting automatically detects the CX power supply frequency, and switches the integration time.

Scan Interval

Select [1s] or [2s].

Memory Sample (save method of measured/computed data)

Save

Select the save method of internal memory data to an external storage media from [Auto] or [Manual].

- Manual: Inserting the external storage media into the drive and closing the cover displays a "save confirm" message, from which you can save data. When the operation is complete, remove the external storage media from the drive, so that the next set of data save operation can be performed. You can select whether to save all of the data from internal memory or only to update the data still not saved to an external storage media.
- Auto: If an external storage media is always in the drive, data is saved automatically at a preset interval.

Data

Select the data to be written to internal memory from the following: [DISPLAY] (displayed data only), [EVENT & DISP] (event data and displayed data), or [EVENT] (event data only).

Event Data Sampling Rate

Select the interval at which event data is saved from the following: [1s], [2s], [5s], [10s], [30s], [60s], [120s], [300s], or [600s].

Event Data Sampling Mode Select [Free], [Trigger] or [Rotate].

Block

When the data type is [EVENT&DISP], select 1, 2, or 4. When the data type is [EVENT], select 1, 2, 4, 8, or 16.

Data Length

Set the interval corresponding to the amount of data (data length) that can be written as a block of the event data storage region. The data length that can be set depends on the event data sampling rate. It also depends on the block setting and number of Meas and Math channels, and number of loops (internal loop and external loops).

Pre-Trigger Length

If 0% is selected, the event file entirely consists of data after the trigger. If 100% is selected, the event file entirely consists of data before the trigger.

Manual Trigger To activate triggers with keys, select [ON].

External Trigger When applying trigger signals by remote input, select [ON].

Alarm Trigger When applying alarms as triggers, select [ON].

Sampling Select the channels to be saved to the memory.

Memory Timeup

When [Save] is set to [Auto] under [Memory Sample], specify the date and time of the save operation.

Timeup type

Select the timing of saving from [OFF], [Hour], [Day], [Week], or [Month]. When you are not using this function, select [OFF].

Day of the week/Date

When [Timeup type] is [Week], select a day.

When [Timeup type] is [Month], specify the date, between 1 and 28. It is not possible to specify dates 29 to 31.

Time (hour)

When [Day], [Week], or [Month] is selected as [Timeup type], specify the time of the save operation. When [Timeup type] is [Hour], this setting is invalid. Specify between [00] and [23].

Channel (Setting the Burnout and RJC)

Network

Control Action

🔘 Internal Loop

Contact Input

Control Relay

🔍 External Loop

Click here				ting] mei	Set to th	e positi	sic] Setting ve side (100 le negative — Set the re to [Intern)%). side (0% eference). junction compensation
Meas	Math	Control	Loop	Control(Int)	Contro	I(Ext)	Setting	Setup	
Alarm/Relay/Remote	e r	Channel							
Scan Interval/Memory	ory	1	1	-		ľ l	RJC		
Channel				Burnout			Туре	Volt(uV)	
Key Lock/Login		CH01	OFF	Ú UP	🛈 DOWN	🔵 Internal	External		0
Timer		CH02	OFF	O UP	O DOWN	Internal	C External		0
Report		CH03	OFF	O UP	O DOWN	Internal	External		0
Temperature		CH04	OFF	O UP	O DOWN	Internal	A PROVIDE A		0
Aux		CH05	OFF	O UP	O DOWN	Internal	and an and a second		0
Time zone		CH06	OFF	O UP	O DOWN	Internal			0

🔍 DOVVN 🥥 Internal

DOWN

C DOWN

C DOWN

O DOWN

C DOWN

C DOWN

O DOWN

🔘 DOWN 🥥 Interna

🔘 DOWN 🥥 Interna

Copy Details

Intern

Internal

🥥 Interna

🔵 Intern

🥥 Internal

Intern

🥥 Intern

External

C External

C External

C External

External

External

C External

🔘 External

External

External

V

Burnout

Set the burnout operation. For details, refer to the CX User's Manual (IM 04L31A01-01E or IM 04L31A01-03E).

RJC Volt (uV)

CH07

CH08

CH09

CH10

CH11

CH12

CH13

CH14

CH15

CH16

TOOLS

Сору

🔵 OFF

OFF

🔵 OFF

OFF

OFF

OFF

OFF

OFF

OFF

O UP

QUP

QUP

O UF

O UP

🔾 UP

O UF

🔾 UP

O UP

This is the reference junction compensation setting for thermocouple inputs. For details, refer to the *CX User's Manual (IM 04L31A01-01E or IM 04L31A01-03E)*.

Note_

"Channel" settings cannot be entered on 0 measurement channel models. The Channel command does not appear in the menu.

Copying and Pasting Setup Data

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 left 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.

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 [Setup Channel Copy Details] dialog box.

Select the items that you want to copy.

Key Lock/Login

- Click here. (Or choose the [Setting] menu - [SETUP [Basic] Setting] - [Setting].)

Meas	Math	Control Loop	Control(In) 🗍 Contro	ol(Ext) Settin	ig Setu	qu
) Alarm/Relay/R) Scan Interval/		Key Lock Setting — Key Lock	Not	Use Pa	issword	Inspecified	
) Channel Key Lock/Log	in	Keylock	Co	ntrol Action	Control Menu L	.ock	
Key Lock/Login Timer Report Temperature Aux Time zone Network Control Action Internal Loop		Start Key Stop Key Menu Key User Key	Coc Loc Loc Loc Loc	Free	Alarm ACK MATH Write Memory Media	Lock Free Lock Free Lock Free Lock Free Lock Free Lock Free	
) Network Control Action Internal Loop	1.	Disp/Enter Key	Coc Coc	C Q Free			
Network Control Action	1	Disp/Enter Key	Coc	Free			
) Network) Control Action) Internal Loop) Contact Input				C Free	Jame User	ID Password	Setup
) Network) Control Action) Internal Loop) Contact Input) Control Relay		Login Setting			lame User	ID Password Unspecified	1 53 U.S.
) Network Control Action Internal Loop Contact Input Control Relay		- Login Setting	1 7 0 N 2 0 FF	User N user1 user2	2777 2777		Enable
) Network) Control Action) Internal Loop) Contact Input) Control Relay		Login Setting	1 7 0 N 2 0 FF	User N user1	2222	Unspecified	Enable Enable
) Network Control Action Internal Loop Contact Input Control Relay		Login Setting	1 7 DK 2 OFF 3 OFF 4 OFF	User N user1 user2	2777 2777	Unspecified Unspecified	Enable Enable Enable

└── Select to use login, auto logout,or user ID.

Key Lock Setting

Key Lock

When using the key lock function, select whether or not to activate the key lock function (lock or free). For details, refer to the *CX User's Manual (IM 04L31A01-01E or IM 04L31A01-03E)*.

Password

Enter the password used to release the key lock using up to six characters. [???] is displayed after the password is entered.

Login Setting

Use Login

To use the login, auto-logout, or user ID, select the appropriate items.

Auto Logout

Selected: If idle for ten minutes, logs out automatically. Clear: Requires the logout procedure to log out.

User ID

Specify whether to use a user ID when logging in. User ID entry is enabled when the check box is selected.

User Setting List

User name Use up to 16 alphanumeric characters for the user name.

User ID

Up to 4 alphanumeric characters can be entered for the User ID. [???] is displayed after the item is entered.

Password

Up to 6 alphanumeric characters can be entered for the password. [???] is displayed after the item is entered.

Setup

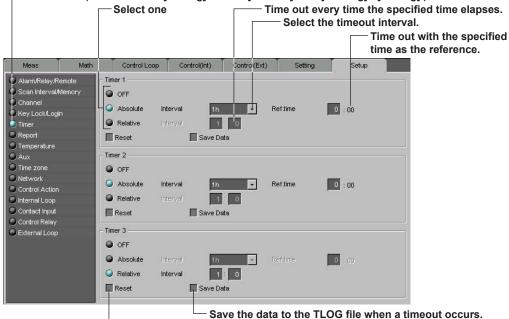
Select whether to allow setting changes in the setup mode for the user.

Note _

- If there is a duplicate [User Name] turned ON, the user with the larger user number is turned OFF.
- If [Setup] of all users that are turned ON is set to [Disable], the [Setup] of the user with the smallest number is set to [Enable].

Timer (Option)

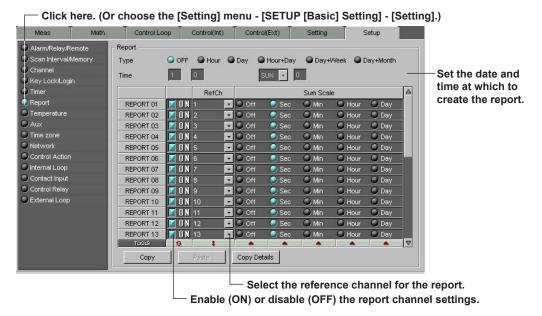
Click here. (Or choose the [Setting] menu - [SETUP [Basic] Setting] - [Setting].)



Reset computation when a timeout occurs.

You can set three types of timers to be used in the statistical computation. You can save the data to a TLOG file or reset the computation when the specified timeout interval elapses. This function is available only if the Computation function is installed. For details about the types of timers and various settings, refer to the *CX User's Manual (IM 04L31A01-01E or IM 04L31A01-03E)*.

Report (Creating Hourly/Daily/Weekly/Monthly Reports, Setting Available When the Computation Function Option is Active)



Note

Measurement channels cannot be set for reference channels on 0 measurement channel models.

Туре

Specify the report creation time. For details, refer to the CX User's Manual (IM 04L31A01-01E or IM 04L31A01-03E).

Time

Specify the report creation time. For details, refer to the CX User's Manual (IM 04L31A01-01E or IM 04L31A01-03E).

Report Channel

There are 12 report channels for the CX1000 and 30 report channels for the CX2000. The check boxes on the right of the report channels are used to select what report to create. Clear ([OFF]) the reports you do not want to produce.

RefCh

Selects the report reference channel. For details, refer to the CX User's Manual (IM 04L31A01-01E or IM 04L31A01-03E).

Sum Scale

Select whether to convert the results of the TLOG.SUM computation channels to a specified time unitary value. Select [Off], [Sec], [Min], [Hour], [Day]. This function is available only if the Computation function is installed.

For details, refer to the CX User's Manual (IM 04L31A01-01E or IM 04L31A01-03E).

Copying and Pasting Setup Data

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 left 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.

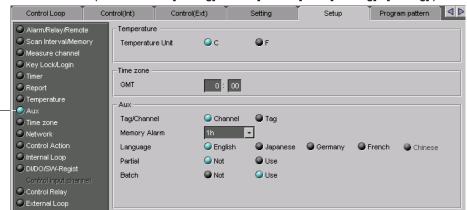
You can also copy and paste specific channel items.

After selecting the copy source in step 1, click the [Copy Details] button to display the [Report Copy Details] dialog box.

Check whether the items you want to copy/paste are selected.

Tag, Memory Alarm Time, Displayed Language, and Partial Expanded Display Settings

Click either one. (Or choose the [Setting] menu - [SETUP [Basic] Setting] - [Setting].)



Tag/Channel

Select whether to use the tag name or channel number as the measurement/computation channel label (see "Selecting the Characters Used to Identify Channels" on page 4-11). If you select tag name, you can select the label display from tag and channel.

Memory Alarm

Free internal memory is monitored, and the memory end output can be programmed to activate some period of time before the memory is completely full. This time period is called the *memory alarm time*.

Language

Select the language ([English], [Japanese], [Germany], [French], or [Chinese]) to be used on the CX's display.

Note_

Beware that if you configure the system after receiving setup data from the CX, the received setup data will be initialized. For information on system configuration, refer to section 3.2, "Setting and Checking the System Configuration and Initializing Setup Data."

Partial

If set to [Not], the partial expanded display settings of the [Meas], [Math], and [Control Loop] tabs are void.

Batch (Batch Option, Style3 or later)

Set the information to be added to data written to the CX internal memory.

Temperature Unit

Set the temperature unit from [C](Celsius) or [F](Fahrenheit).

— 1. Click here. (Or choose the [Setting] menu - [SETUP [Basic] Setting] - [Comm].)

Meas	Math	Control Loop	Control(Int)	Control(Ext)	Setting	Setup
 Alarm/Relay/R Scan Interval/N Channel 	Memory	Temperature	Θc	ØF		
 Key Lock/Logi Timer Report 	n	Time zone GMT	0:00			
 Temperature Aux Time zone Network 		Aux Tag/Channel Memory Alarm	Channel	Tag		
Control Action		Language Partial	 English Not 	Japanese		
External Loop						

Time Zone

Set the difference in time from the GMT.

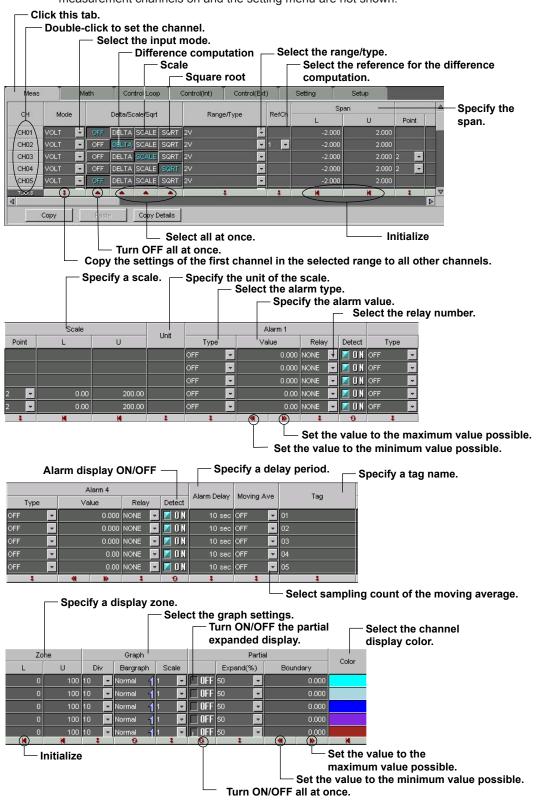
For example, with Japanese time this is normally +9:00.

1. Click here. (Or choose the [Setting] menu - [SETUP [Basic] Setting] - [Comm].)

Meas	Math	Control Loop	Control(Int)	Control(Ext)	Setting	Setup
) Alarm/Relay/Rem) Scan Interval/Me) Channel		Temperature	€c	ØF		
Vey Lock/Login Timer Report		Time zone GMT	0:00			
 Temperature Aux Time zone 		Aux	Channel	Tag		
 Network Control Action Internal Loop 		Memory Alarm Language Partial	1h G English	Japanese		
 Contact Input Control Relay External Loop 						

3.8 Measurement Channels Settings

To enter measurement channel settings, click the [Meas] tab. Or, you can select the items by choosing [Setting] - [SET [Regular] Setting] - [Meas Channels]. Measurement channel settings cannot be entered on 0 channel models. The Meas Channels tab and measurement channels on and the setting menu are not shown.



Input Type (Mode and Range/Type)

Select one of the following from the pull-down list.

Mode	Relevant Settings	
VOLT (voltage)	Range, span L, and span U	
TC (thermocouple)	Type, span L, and span U	
RTD (resistance temperature detector)	Type, span L, and span U	
DI (voltage level/contact input)	Range, span L, and span U	
SKIP (measurement/display OFF)	None	

Note _

- When a value outside the range is entered or when the span L and span U are set to the same value, they are corrected when the data is checked.
- If SKIP is selected, settings such as Delta/Scale/Sqrt and Range/Type are disabled.

Difference Computation and Reference

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 place of the result is set to that of the channel computing the difference. If the number of decimals 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 the difference is rounded down beforehand.

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. As necessary, set the span, scale, and unit.
Display Span	
	Sets the upper and lower limits (full scale) of the display.
	When the span L and span U are set to the same value or when a value outside the
	range is entered, they are corrected when the data is checked.
Scale	
	Scale L, scale U, and Decimal Point
	The scale value is displayed by taking the range between scale L and scale U to be the
	full scale. Enter the upper and lower limits to which you want to convert the raw values. Include the decimal point.
	When the scale L and scale U values are set to the same value or when a value outside
	the range is entered, they are corrected when the data is checked.
	Unit
	Enter the unit using up to 6 alphanumeric characters.

Alarm	
	Four alarms (Alarm 1 to 4) can be specified on each channel.
	Type Select H, L, h (dH), I (dL), R (RH), r(RL) T, or t. The selectable alarms vary depending on the input mode and computation type. For details, see section 7.2 of the <i>CX User's</i> <i>Manual (IM 04L31A01-01E or IM 04L31A01-03E)</i> .
	Value Alarm is generated using the specified value as the boundary. The selectable range of alarm values varies depending on the input mode and range.
	Relay Select the output relay number or internal switch number for outputting to relay output or internal switches (Style 3 or later). When not outputting to relays or internal switches select NONE.
	Detect Select whether to display alarms (ON) or not to display alarms (OFF) when they occur. When turned OFF, they are not retained in the alarm summary.
Alarm Delay	An alarm is generated when the measured value stays above or below the specified value for the specified length of time.
Moving Average	To use the moving average, select the sampling count (2 to 16).
Тад	Use up to 16 alphanumeric characters to specify a tag. You can select tags instead of channel numbers to be displayed on the screen. To select whether to display channel names or tag names on the screen, select [AUX] > [Tag/Channel] on the [Setup] tab. If you select [Tag] in the [Setup] screen, you can select tag No., tag comment, or tag in the Data Monitor or Data Viewer.
Zone	 You can select the range of the screen in which the waveform of each channel is 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 must be less than the upper limit The difference between the lower and upper limits must be at least 5%.

Graph

Divisions

Select the number of bar graph divisions.

Bar graph

Select the reference position of the bar graph. Selecting [Center] when the bar graph is vertical produces no effect. It is set back to [Normal] when the data is checked.

Scale

When using scale display on the trend screen, select the scale display position.

Partial

Expand (%)

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

Boundary

The conditions used to set the boundary vary depending on the measurement and computation channels are 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
 For details, refer to the CX User's Manual (IM 04L31A01-01E or IM 04L31A01-03E).

Note.

The partial expansion settings take effect when the partial expansion function is set to [Use] in the [Aux] section of the [Setup] tab.

Display Color

You can select the display color of each channel from 16 colors.



Copying and Pasting Setup Data

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

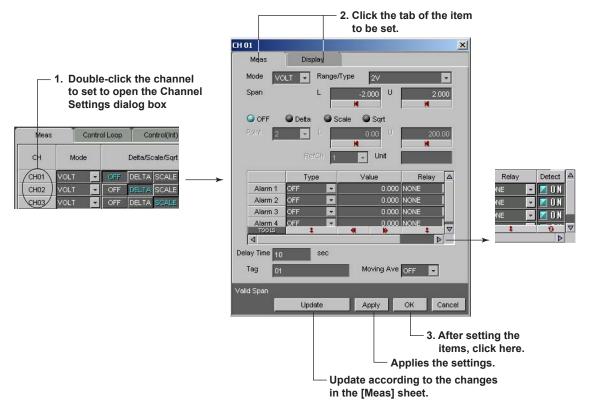
- 1. Click the source channel number that you want to copy. To select many channels, click the first source channel, then drag over all the channels that you want to copy.
- 2. Click the [Copy] button at the bottom left of the window.
- 3. Click the destination channel number. To select many channels, click the first destination channel, then drag over all the channels where you want to paste.
- 4. Click the [Paste] button.

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 [Meas Channel Copy Details] dialog box.

Check whether the items you want to copy/paste are selected.

Setting One Channel at a Time



The items of the [Meas] tab can be set for each channel. The items set here are the same as the ones in the [Meas] tab of the Hardware Configurator. For details, see the page corresponding to the item.

3.9 Computation Channel Settings

Set the display span (6 characters or less). Double-click to set the channel. Click this tab. Specify the unit. Turn ON/OFF the computation. Specify the constant to be used in the expression. Specify on expression. Math Control Loop Δ Δ Span Expressio Unit Constant П Point Tγ CH31 **ON** 01 -200.00 200.00 K01 -CH32 🗾 ON 🛛 01 K02 -200.00 200.00 -CH33 🚺 O N 01 -200.00 200.00 OFF K03 CH34 **D N** 01 -OFF K04 CH35 ___ OFF 01 n nr K05 (0) Initialize Select the number of decimals. Turn ON/OFF Copy the settings of the first channel in the selected range to all at once. all other channels. Set the alarm (section 3.8). Alarm 2 Alarm 1 Relay Detect Туре Value Detect Туре Value Relay Туре 🗾 O N 토 🚺 🛛 N OFF 0.00 NONE DFF -DFF DFF * 0.00 IONE * 🗾 O N OFF 0.00 NONE * 🗾 O N OFI -Ţ -. 🗾 🛛 N OFF 0.00 NONE 0.00 NONE * N 🛛 OFF -* 🔽 🚺 🛛 N OFF * * 🛛 O N -OFF -0.00 NONE 🔽 🚺 🛛 🖌 OFF * 0.00 NONE 🖃 🗾 🛛 N OFF • Enter the alarm period. Specify a tag (section 3.8). TLOG Rolling Average Alarm Delay Tag Sum Scale Timer Interval Times 10 sec --| **OFF** | 10s -- 31 10 sec -OFF ٠ | **OFF** | 10s -* - 33 ▼ OFF -~ INFE 10s 10 sec ▼ OFF * _ **OFF** 10s - 1 **v** 34 OFF ٠ 0FF 10s 4 ▼ 35 4 Copy the settings of the first channel in the selected range to all other channels. Display zone (section 3.8). Set the graph (section 3.8). Partial expansion (section 3.8). Display color (section 3.8). Zone Graph Partia Color Div L U Bargraph Scale Expand(%) Boundary * -OFF 0.00 ormal * OFF 100 * 50 * 0.00 -* 50 * 100 10 _ OFF rmal 100 10 ormal -🗌 OFF * 0.00 50

To enter computation channel settings, click the [Math] tab. Or, you can choose [Setting] - [SET [Regular] Setting] - [Math Functions].

Computation ON/OFF

Select whether to perform computation for each channel.

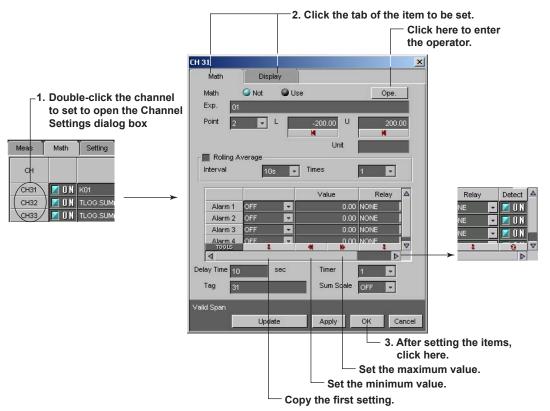
Expression

Enter an expression using up to 40 characters. For details about expressions, see the *CX User's Manual (IM 04L31A01-01E or IM 04L31A01-03E)*.

Expressions cannot be used with measurement channels on 0 measurement channel models.

	old Computation Chamber Solaringe
Display Span	Set the upper and lower limits of the display. The range is –99999999 to 999999999. Set the number of decimals to four digits or less.
Alarm and Tag	The settings are the same as those of the measurement channels. For details, see section 3.8, "Measurement Channels Settings".
TLOG Computation	on
	Timer Select one of the timers (1 to 3) set in the setup mode. The computation interval of TLOG computation is set to the time assigned to the selected timer.
	Sum Scale Set the sum scale.
Rolling Average	
Noning Average	Rolling Average Computation ON/OFF Select whether to compute the rolling average.
	Interval Select the sampling interval when rolling average is activated.
	Times (Number of Samples) Select the number of samples (number of data points used to compute the rolling average).
Zone, Graph, Part	ial, and Color The setting method is the same as that of the measurement channels. For details, see section 3.8, "Measurement Channels Settings."
Constants	You can set constants to be used in the expression. Up to 12 constants (CX1000) or up tp 30 constants (CX2000) can be specified.





[Select Operator] dialog box

Select the operator type and click the operator but	ton.
---	------

Basic Relation	Logical Channel				
+ Addtion	ABS() Absolute value				
- Subtraction	SQR() Square root				
* Multiplication	LOG() Common logarithm				
/ Division	EXP() Exponent				
. ** Power	Close				

Operator button

The items of the [Math] tab can be set for each channel. The items set here are the same as the ones in the [Math] tab of the Hardware Configurator. For details, see the page corresponding to the item.

Copying and Pasting Setup Data

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 left 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.

You can also copy and paste specific channel items.

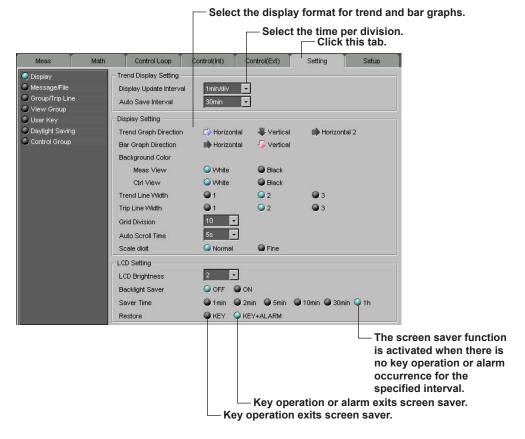
After selecting the copy source in step 1, click the [Copy Details] button to display the [Math Channel Copy Details] dialog box.

Check whether the items you want to copy/paste are selected.

3.10 Display Settings

To enter display settings, click the [Setting] tab. Or, you can select the items by choosing [Setting] - [SET [Regular] Setting] - [Display Setting].

Display



Display Update Interval

You can select the display update interval of the trend display from [1 min/div], [2 min/div], [5 min/div], [10 min/div], [20 min/div], [30 min/div], [1 h/div], [2 h/div], [4 h/div], or [10 h/div] of the time axis.

Auto Save Interval

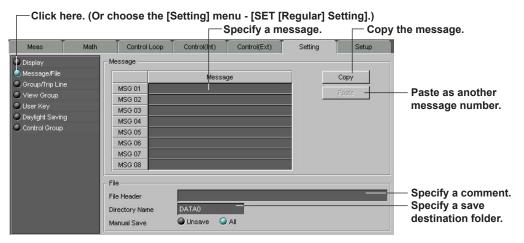
The auto save interval can be specified when the [Save] is set to [Auto] and the data type is set to [DISPLAY] or [EVENT & DISP] in the [Memory Sample] setting of the [Setup] tab.

Auto Scroll Time

This is the time period used to automatically switch the displayed group. Select from [5s], [10s], [20s], [30s], or [1min].

For details about the other settings, refer to the *CX User's Manual (IM 04L31A01-01E or IM 04L31A01-03E)*.

Message/File



Message

Use up to 16 alphanumeric characters can be entered for the message.

File Header

Add a comment to the header section of the measurement/computation data file.

Directory Name

Specify the name of the folder where measurement/computation data files are saved.

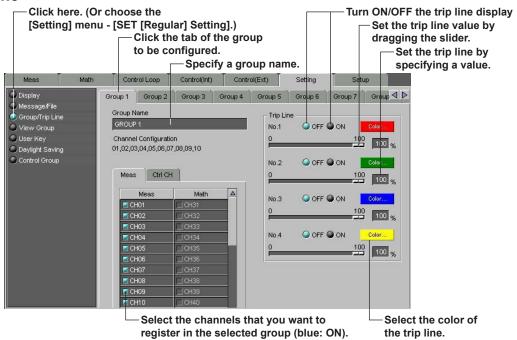
Note _

- Up to eight characters can be entered for the file header and director, name. AUX, CON, PRN, NUL, and CLOCK cannot be used.
- If the directory name is not specified, DATA0 (default) is automatically set as the directory name.

Manual Save

Select whether to save all the data or data that has not been saved during manual save.

Group/Trip Line



Group Name

Use up to 16 alphanumeric characters can be entered for the group name.

Channel Configuration

The maximum number of channels that can be assigned to a group is 6 for the CX1000 and 10 for the CX2000. The assigned channels are listed under [Channel Configuration].

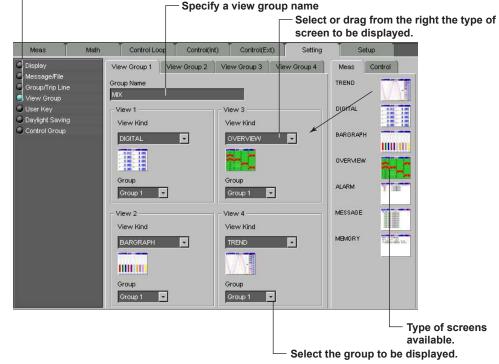
Trip Line

Up to four trip lines can be set to one group.

With regard to the trip lines set here, the first and second settings (No.1 and No. 2) refer to the trip lines in Data Monitor and Data Viewer. If you change them here, they also change in Data Monitor and Data Viewer. For details about trip line settings, refer to the *CX User's Manual (IM 04L31A01-01E or IM 04L31A01-03E)*.

View Group (CX2000 Only)

Click here. (Or choose the [Setting] menu - [SET [Regular] Setting].)



View Groups

Up to four view groups can be registered.

Group Name

Use up to 16 alphanumeric characters can be entered for the group name. The group name appears as a submenu of the [4 PANEL] display.

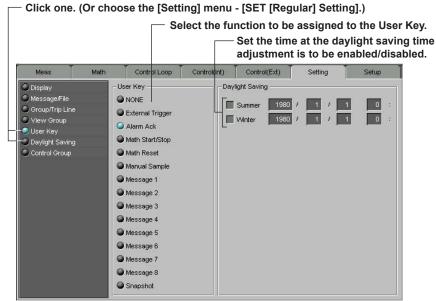
View Kind

The view group consists of four views. Select the type of screen to display in each view. Overview cannot be selected on 0 measurement channel models without the calculation option installed.

Group

The group displayed varies depending on the type of view selected. When selecting measurement screen for the view kind, select the group from the measurement groups (Group 1 to 10). When selecting control screen for the view kind, select the group from the control groups (Group 1 to 8).

User Key/Daylight Saving



For details about the User Key settings, refer to the CX User's Manual (IM 04L31A01-01E or IM 04L31A01-03E).

Batch Header

Enter the header if the option batch headers are active.

Click here. (Or choose the Setting menu > SET [Regular] Setting.)

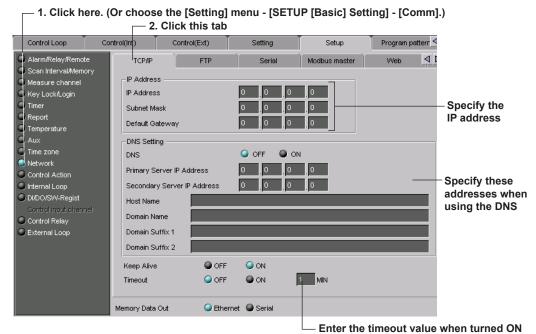
Meas	Math	Control Loop	Control(Int)	Control(Ext)	Setting	
 Display Message/File Group/Trip Line View Group User Key Daylight Saving Batch Control Group DIO Monitor DIO Label Logic math Control Input 	- User Key - NONE External Alarm A Math Sta Manda Sta Manual S Message Message Message Message Message Message Message Message Message Message Message	ck art/Stop Sample e 1 e 2 e 3 e 4 e 5 e 6 e 6 e 7 e 8	Daylight Saving Summer 1980 VVinter 1980 Batch Application Name Supervisor Name Manager Name Batch No. Lot No. Lot No. Lot No. Auto Increment Data Display Information			 Enter up to 16 alphanumeric characters. Enter a number from 0 to 9999

3.11 Network Settings

To enter network settings, click the [Setup] tab, then select [Network] from the list on the left. It is also possible to select the item in [SETUP [Basic] Setting] on the [Setting] menu.

TCP/IP Settings

Connect the CX to the Ethernet and, in the dialog box below, enter TCP/IP settings. Type the same address for [IP Address] as the one of the [Address] box of the [Network Settings] dialog box.



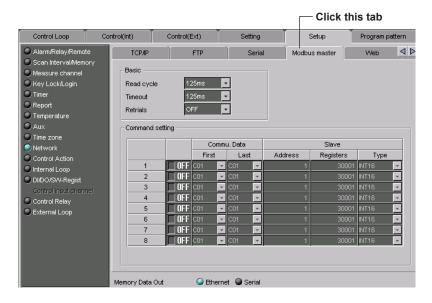
Serial Communication Settings

When using serial communications between the CX and other devices, set the parameters required for serial communications. If [MODBUS MASTER] is selected in the [Protocol] settings, you must click the [Modbus master] tab and enter [Modbus master] settings.

						- Click	this tab		
Control Loop	Co	ntrol(Int)	Cont	rol(Ext)	Setti	ng	Setup	Progra	am patterr
Alarm/Relay/Remo		ТСРЛР		FTP	se se	erial	Modbus master	VVek	
 Scan Interval/Mem Measure channel Key Lock/Login Timer Report Temperature Aux Time zone Network Control Action Internal Loop DI/DO/SW-Regist Control Relay External Loop 		Baud Rate Data Length Parity RS232 Han RS422A/48 RS422A/48	dshaking 15 Address	1	-		I RS @CS:RS	LADDER	
		Memory Data	Out	Ethe	rnet 🔍 Ser	ial			

Modbus Master Settings

When using the CX as a Modbus master, enter the Modbus master basic and command settings. For details about the settings, refer to the CX Communication Interface User's Manual (IM 04L31A01-17E).



FTP Settings

Using the FTP function, measurement/calculation data can be automatically transferred from the CX to the specified server as files. The FTP function can be used only with Ethernet communications. When using the FTP function, specify the destination server name, port number, and other settings in the dialog box below.

		ooth if usin	•	dary] tab ry and second	dary) FTP s	ervers	s.).
		1. Cli	ck this tab.		-		
Control Loop		ontrol(Ext)	Setting	Setup	Program patt	tern i	
Alarm/Relay/Remote Scan Interval/Memory Measure channel Key Lock/Login Timer Report Temperature Aux Time zone Network Control Action Internal Loop DI/DO/SW-Regist Control Relay External Loop	тсрир	FTP condary 21 Unspecified	Use	Modbus master	Web		 Enter file transfer destination settings.
	Report Memory Data Out	C Etherr	OFF ON				

Web Server Settings

When using Ethernet communications, the CX can be set up as a web server. Set Web Server to [ON], and then set the access certification and other settings for the operator page and monitor page.

							Click this	tab
Control Loop	Control	(Int)	Contro	I(Ext)	Setting	Setup	Program pa	attern
 Alarm/Relay/Remot Scan Interval/Memory Macourse chapped 		FTP Web serve	er	Serial	Modbus master	Web	E-Mail	
Measure channel Key Lock/Login Timer Report Aux Time zone Network Control Action Internal Loop Control Input: channe Control Relay External Loop	rel .	Web serv Operato Create Comma	ver Moni Page Ind s control ame	ON tor ON ON ON Unspec	OFF OFF OFF OFF			
	Me	mory Data (Dut	G Ethern	et 🚇 Serial			

E-mail Transmission Settings

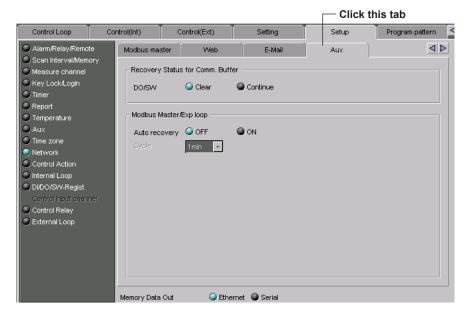
When using e-mail transmission, specify [SMTP server name], [Port number], [Recipient1], and other settings. The e-mail transmission function can be used only with Ethernet communications. For details about the settings, refer to the *CX Communication Interface User's Manual (IM 04L31A01-17E)*.

				Click this tab)
Control Loop	Control(Int)	Control(Ext)	Setting	Setup	Program pattern
Control Loop Alarm/Relay/Remote Scan Interval/Memory Measure channel Key Lock/Login Timer Report Temperature Aux Time zone Network Control Action Internal Loop DI/DO/SW-Regist Control Relay External Loop	Modbus ma Basic — SMTP sei Port numi Recipient Sender Alarm Rec E Rec Alarm	ver name	ystem Report	Aux Aux Alarm4	
	Memory Data	Out 🥥 Eth	ernet : 🔘 Serial		

By clicking the [Alarm], [Scheduled], [System], or [Report] tab, you can make settings separately for each type of e-mail message.

Auxiliary Settings

You can set the control output DO when the communication buffer recovers, internal switch status processing, and auto recovery of communication with Modbus master/ temperature controllers valid for serial communications. These settings are available when serial communication is installed.



Recovery Status for Comm. Buffer

You can set the recovery operation for the control output DO/internal switch communication buffer to be performed when the power is turned ON, or when recovering to Operation Mode from Basic Setting Mode. The communication buffer is an internal region for turning the DO/internal switches ON and OFF via communications.

Continue :Holds the status of the control output DO and internal switchesClear:Clears the status of the control output DO and internal switches

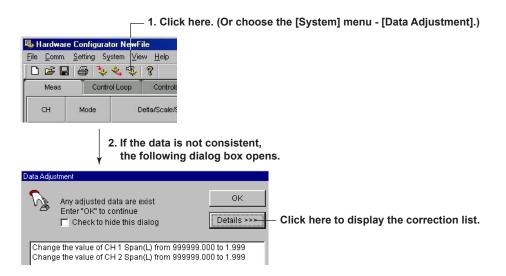
Modbus Master/Exp loop

You can select whether or not to automatically recover communications with modbus mice and temperature meters. If you select automatic recovery, you can also specify the recovery interval. You can select one of the following intervals: 1 min, 2 min, 5 min, 10 min, 20 min, 30 min, or 60 min.

Specifying the Memory Data Out Mode

You can only specify to output memory via Ethernet or serial communications.

3.12 Setup Data Adjustment (Data Check)



Checks whether the specified setup is consistent with the actual system. If not, the data is automatically corrected.

Data is corrected in the following cases:

- In such cases as when values of items of the Meas/Math tab are outside the specified range.
- · When an invalid character string is used.

[Data Adjustment] Dialog Box

If [Data Adjustment] Dialog on the [View] menu is selected, the [Data Adjutment] dialog box opens whenever data is not consistent when checking or transmitting data.

Note

Perform the data check before sending the new setup data to the CX.

3.13 Sending Setup Data to the CX

If the CX is acquiring data to the memory, the setup data will not be sent to the CX. An error message appears.

File	Comm.	Setting	System	m <u>V</u> ie	wĿ	lelp
D	Rec	eive Settin	g	5	2	
	<u>S</u> er	d Setting	_			
_	Acti	on	•	pop	ç	ontro
	сн	Mode			etta	Scale

The setup data are sent when
 [Comm] - [Send Setting] is selected.

A confirmation dialog box is displayed.

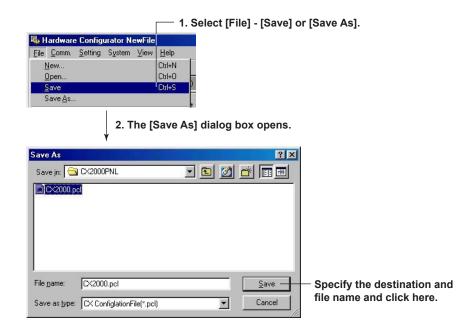


To send the new setup data to the CX, click the OK button. A message is displayed when the transmission is complete. Click OK to close the message.

Note .

- Of the network settings in the [Setup] tab, the following items are not transmitted.
- [IP Address] under the [TCP/IP] tab
- All settings under the [Serial] tab.

3.14 Saving Setup Data



Save

The setup data overwrites a preexisting file (*.pcl). The [Save As] dialog box does not open.

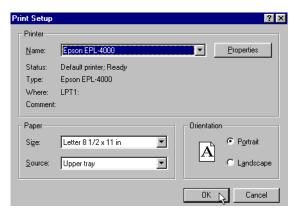
Save As

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

3.15 Printing Setup Data

Printer Settings

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



2. Set the printer, paper and orientation.

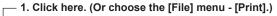
Note .

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

Print Preview

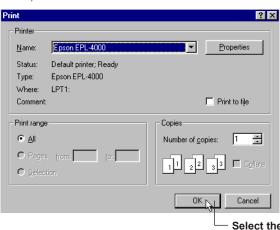
You can preview the print layout before printing the data. Selecting [File] - [Preview] displays the print preview window.

Printing





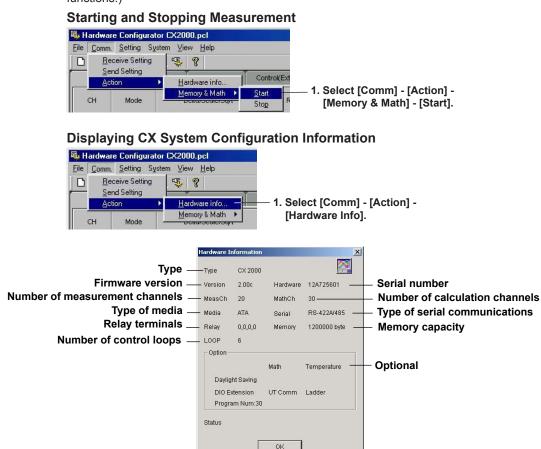
2. The [Print] dialog box opens.



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

3.16 Starting and Stopping Measurement on the CX and Checking the CX System Configuration

You can start and stop the CX, as well as display CX system configuration information from the Hardware Configurator. (Start/Stop operation is only possible with memory sample and math functions. This software does not support this operation for control functions.)



3.17 Usable Characters

The characters in the following table can be used when entering group names, view group names, messages, comments to file headers, save destination directory names, the password for the key lock function, and login parameters such as user names, user ID, and passwords.

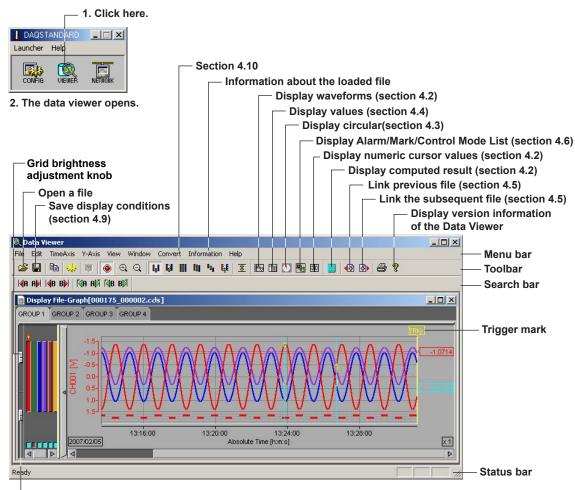
SP	#	%	()	*	+	-		1
0	1	2	3	4	5	6	7	8	9
Α	в	С	D	E	F	G	н	I	J
к	L	м	N	0	Р	Q	R	S	Т
U	V	w	X	Y	Z				
а	b	с	d	е	f	g	h	i	j
k	1	m	n	ο	р	q	r	s	t
u	v	w	x	У	z				
_		@							

Note -

(*), (+), (.), and (/) cannot be used for folder names where files are saved.

4.1 Starting and Exiting the Data Viewer

Starting the Data Viewer



Brightness adjustment knob of the waveform display area

You can also start the program by selecting [Programs] - [DAQSTANDARD] - [Viewer] on the Start menu.

You can start multiple Data Viewers by starting the program from the Start menu.

Viewable Files in the Data Viewer

- Display data files (*.cds)
- Event data files (*.cev)
- TLOG files (*.dtg)
- Link setting files (*.ldx)
- · Reports files :
 - Hourly (*.dhr) Daily (*.ddr) Weeky (*.dwr) Monthly (*.dmr)
- Manual sample files (*.dmn)

Toolbar, Search Bar, and Status Bar

Clicking [View] - [Toolbar], [Search Bar], or [Status Bar] displays the corresponding bar in the window. The bar disappears if cleared.

Opening a File by Specifying its Location

1. Click		og box opens.	
Open			? ×
Look jn: 🔂 dat	a0 🗾 🖻		
x2515531.cds x2518301.cds x2610481.cds x2610481.cds x2916181.cds x3009391.cds x3003391.cds x3013211.cds	x3019401.cds y0114 x3020141.cds y0209 x3110291.cds y0216 x3112311.cds y0312 x3112311.cds y0509 y0109521.cds y0503 y0109521.cds y0513	1121.cds 🖬 y0611441. 431.cds 📾 y0619171. 321.cds 📾 y0708451. 4111.cds 📾 y0713591.	
4			
	515531.ods alid)	pen v;*.▼Cancel	3. Select the desired file and click the [Open] button. [Supplementary Info.] tab
Device Type	CX2000	Supplementary Info. Batch Info.	[euppionionialy mol] tab
Serial No.	124725586	Time Correct. None	
	128723300	Sampling Int. 2.000 sec	
File Message Ch. Count	0/0/3/0	Trigger Time 2001/10/25 17:34:48.000	
Data Count	3042	Trigger No. 3041	
Start Time	2001/10/25 15:53:26.000	Starting Cond. Manual	
Stop Time	2001/10/25 17:34:48.000	Dividing Cond. Manual	
Started by	[Key In]		
Stopped by	[Key In]		

Information about the selected file

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

Information						
🔽 File Name		y1314581.cds	5	Data Count	:	7098
🔽 Device Type		CX2000	v	Sampling Int.	;	2.000 sec
🔽 Serial No.	::	134/3666	•	Start Time	4	2001/11/13 14:58:36.000
🔽 File Message	2005		v	Stop Time	1	2001/11/13 18:55:10.000
Time Correction	ĺa.	None	5	Trigger Time	:	2001/11/13 18:55:10.000
Starting Cond.	100	Manual	v	Trigger No.	1	7097
Dividing Cond.	8	Manual	1	Damage Check	:	Not Damaged
🔽 Meas Ch.		3	5	Started by		[Key In]
🔽 Math Ch.	S	0	5	Stopped by	ः	[Key In]
🔽 Ctrl Ch.	100	3/0	9	Comment	1	
Batch Information						
Application			₽	Comment User	•	[None]
Supervisor	3		M	Comment Time	:	[None]
🔽 Manager			V	Comment1	:	[None]
🔽 Batch No.			M	Comment 2		[None]
🔽 Lot No.	8	7		Comment 3	3	[None]

• For TLOG Files

ile Information		
🔽 File Name	13	91417051.dtg
🔽 Device Type		CX2000
🔽 Serial No.		134/3680
🔽 File Message		
🔽 Meas Ch.	12	10
🔽 Math Ch.		30
🔽 Interval Up	::	2
🔽 TLOG Start Time		2001/09/14 17:04:17.000
🔽 Damage Check	:2	Not Damaged
🔽 Timer No.		2
🔽 Comment		
		OK Cancel

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

Note -

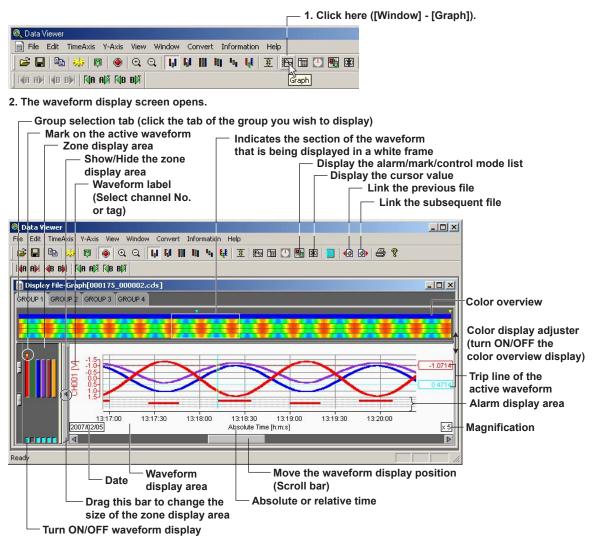
- Several files can be opened simultaneously.
- The number of files that can be opened simultaneously depends on the memory of your PC and the free disk space.

Exiting the Data Viewer

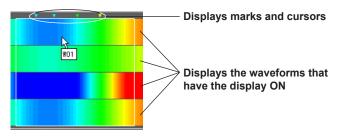
Select [File] - [Exit] or click the [x] button. If you modified any settings, the message "Save changes to ****.***?" appears. Click the [Yes] button, if you wish to save the settings and exit the Data Viewer. Click the [No] button, if you do not wish to save the settings and exit the Data Viewer.

4.2 Waveform Display

Waveform Display



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 is 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.

4

Displaying Data with the Data Viewe

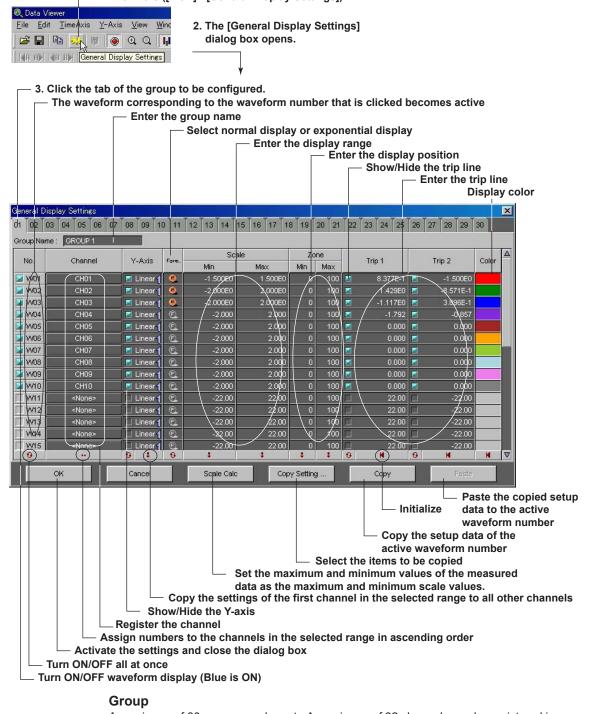
If you click or drag the cursor on the color overview display area, the section of the waveform is displayed in the waveform display area.

Note

- By default, the color overview is OFF.
- When the data file recorded with the selection of tag/channel set to "Channel" with the main body of CX is seen in the viewer, tag cannot be selected. It is necessary to set the selection of tag/channel to "Tag" with the main body of CX to display tag by the viewer.

General Display Settings

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



A maximum of 30 groups can be set. A maximum of 32 channels can be registered in one group.

Waveform Display ON/OFF

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.

Channel Registration

1. Click one.									
2. The [Channel No.] dialog box opens. 3. Click one.									
General [Display Setting	IS [CX-]	Channel No.				×		
01 02 0	03 04 05 06	5 07 T	CH01		CH63	CH04			
Group Nan	ne: GROUP 1		CH31 /	СН32	СНЗЗ	CH34			
			<none></none>	<none></none>	<none></none>	<none></none>			
No.	Channel No.	Y-A	<norje></norje>	<none></none>	<none></none>	None>			
📈 VV01		🗾 Lir	<none></none>	<none></none>	<none></none>	<nqne></nqne>			
			✓None>	<none></none>	<none></none>	<none></none>			
W02		_ Lir	/ <none></none>	<none></none>	<none></none>	<none*< td=""><td></td></none*<>			
			/ «None»	<none></none>	<none></none>	<none></none>			
VV04	CH04		<none></none>	<none></none>	<none></none>	<none></none>			
W05	<none></none>		<none></none>	<none></none>	<none></none>	<none></none>			
	<none></none>		<none></none>	<none></none>	<none></none>	<none></none>			
VV07	<none></none>		<none></none>	<none></none>	<none></none>	<none></none>			
VV08	<none></none>		<none></none>	<none></none>	<none></none>	<none>/</none>			
VV09	<none></none>		<none></none>	<none></none>	<none></none>	<none></none>			
V/10	<none></none>	of the second division of the local division	«None>	<none></none>	<none></none>	<nor e=""></nor>			
W11	<none></none>		<none></none>	<none></none>	<none></none>	<none></none>			
V/12	<pre> <none> /</none></pre>		<none+< td=""><td><none></none></td><td><none></none></td><td><none></none></td><td>٦</td></none+<>	<none></none>	<none></none>	<none></none>	٦		
V/13			<none></none>	<none></none>	<none></none>	<none></none>	٦		
0 VV14	- Noner	C Lir	<none></none>	<none></none>	<none></none>	<none></none>	٦		
	1		<none></none>	<nme></nme>	=Ahnne>	<none></none>	1 V		
	ОК	C	C: <none></none>						

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

Select linear or logarithmic by clicking the Y-axis display area. If [Multi-Axis Zone] (page 4-7, Setting the Y-axis) is selected, you can select whether to display the Y-axis. The Y-axis of the selected waveforms are 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 4-7), the trip lines of all displayed waveforms that are checked are displayed.

If you click the trip line numeric display area, you can enter numeric values.

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 and 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. Settings of the waveforms whose waveform numbers were made active (displayed in red) are copied.
- 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. 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.

Check whether the items you want to copy/paste are selected.

Time Axis Settings

Selecting Absolute or Relative Time Display



Zoom In or Zoom Out on the Time Axis

- Click either one.

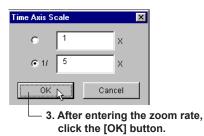


By selecting [Time Axis] - [All], the time axis is adjusted so that all the data can be displayed. If you wish to zoom in or out by specifying the zoom rate, take the following steps (resolution is 1/1000 to 20 times):



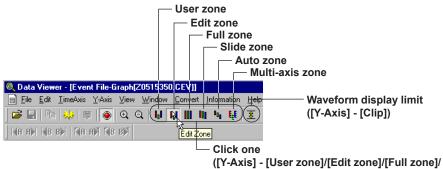
- 1. Select [Time Axis] - [Set Scale].

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



Y-Axis Settings

Selecting the Waveform Display Zone



[Slide zone]/[Auto zone]/[Multi-axis zone])

Select from the list of choices below:

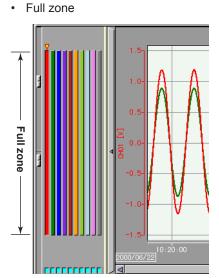
For the display examples of each zone, see the next page.

- 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.

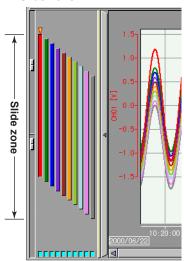
Note.

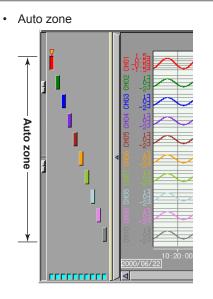
If the waveform display zone is set to some setting other than multi-axis zone and auto zone, only the Y-axis of the active waveform is displayed.

Zone Setting Examples

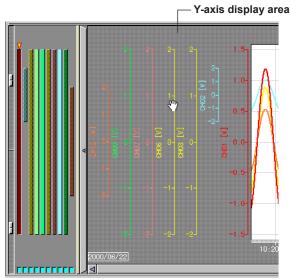


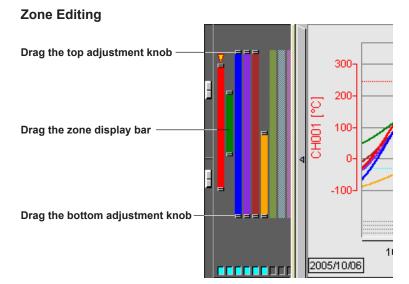






Multi-axis zone



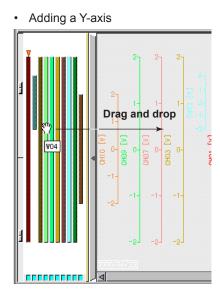


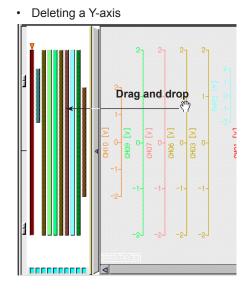
4

You can change the waveform display zone on the trend display screen by clicking the edit zone icon or by selecting [Y-Axis] - [Edit Zone]. 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].

Multiple Y-Axis Display

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

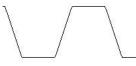




Waveform Display Limit (Clip)

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 is 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

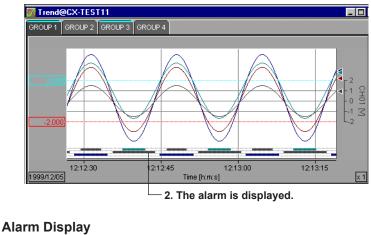


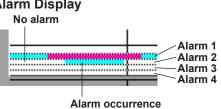
• Example in which Display Limit is Disabled

Alarm Display ON/OFF

	- 1. Click here.
🍭 Data Viewer - [Display File-(Graph(051006_1510
📄 File Edit TimeAxis Y-/	Axis View Windo
] 🛎 日 🖻 🥠 🖗	
∢a a) ∢b b) [∢a a))	Alarm ON/OFF

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





Selecting the Characters Used to Identify Channels

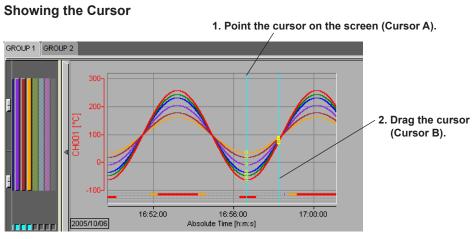
You can select the channel No. or tag as the character string used to identify the channels by selecting [View] - [Channel No.] or [Tag]. The selected character string will be used as a label to indicate the waveform name.

The character string is registered on the CX 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] window, and data conversion dialog box will change accordingly.
- Both the channel No. and tag are displayed in the channel string of the data conversion output result.

Showing/Hiding Cursors



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

Click here ([Edit] - [Copy]).



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 Values

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

🖵 1. Click here ([View] - [Display Cursorís Values]).



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

rol[051006	_151000	0.DAD:0	GROUP 1]				×	
		Cur	sor A	d	ursor B	Difference		
Data No.			784 🗸		832		48	- Cursor movement butt
Absolute Ti	me		5/10/06 :38.000		05/10/06 58:14.000	00:01:36	.000	
Channel	à l	Val	lue A	1	/alue B	Value B-A	Δ	
CH001	Max	000	-59.7	0000	75.5	135.:	2	
[°C]	Min	0000	-60.0	0000	70.8	130.	3	
CH002	Max	0000	-0.726	0000	-0.111	0.61:	5	
[V]	Min	1000	-0.727	0000	-0.133	0.59	4	
CH003	Max	0000	83.6	0000	224.6	141.	2	
[m3/h]	Min	0000	83.4	0000	219.6	136.:	2	
CH004	Max	0000	23.4	0000	45.9	22.:	5	
[%]	Min	nnn	23.3		45.1	21.3	3 ⊽	

Alarm display
 (display the second)

(displays the conditions of alarm 1, 2, 3, and 4 from the left)

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

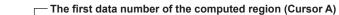
Note _

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

Displaying Statistics

1. Click here.
I IB III 🕛 📴 BB 📃 <table-cell> 🚱 🎒 🌮</table-cell>
Statistics

2. The statistics display screen opens.



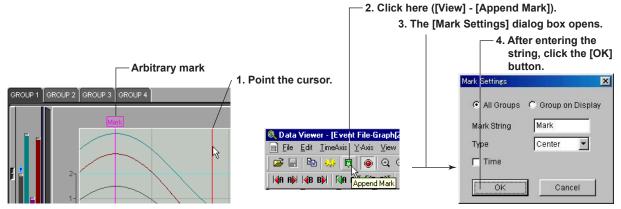
The last data number of the computed region (Cursor B)

				ot data m		and domp	died region (oursor b
istics[0510	06_1510	000.DAD:GROUI	P 1]			2	×
Section		778 -	832			Re-Calc.	Note
Channel		MIN	MAX	P-P	Mean	RMS 4	1^{n-1}
CH001	Max	-60.0	75.5	135.5	-17.1	45.8	$\stackrel{\triangle}{=} RMS = \sqrt{\frac{1}{n} \sum_{k=0}^{n-1} (x_k)}$
[°C]	Min	-60.0	70.8	130.8	-19.7	45.5	
CH002	Max	-0.727	-0.111	0.616	-0.532	0.566	n : umber of data
[V]	Min	-0.727	-0.133	0.594	-0.544	0.575	x _k : value
CH003	Max	83.4	224.6	141.2	128.0	135.5	
(m3/h)	Min	83.4	219.6	136.2	125.4	132.5	
CH004	Max	23.3	45.9	22.6	30.5	31.3	
[%]	Min	23.3	45.1	21.8	30.1	30.8	▼

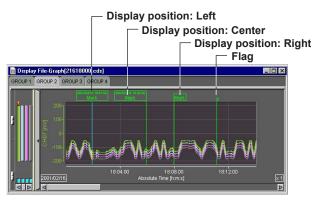
The minimum value, maximum value, P-P, mean, and rms value for each waveform in the range specified by Cursors A and B are computed and displayed. If the cursor is not displayed, the computation is performed over the entire data.

You can copy computed results by pressing Ctrl+C on the keyboard.

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. When adding an arbitrary mark, you can set a mark string, display position, and time display ON/OFF). The time display is an absolute time from a time specified on the time axis, or the time from the first data. In addition, 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.



Hold down the [Ctrl] key and click the mark to display the foremost screen. Hold down the [Shift] key and click the mark to display the rearmost screen.

Searching for the Alarm Transition Point and Mark Position



Searching for 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 for the Mark Position

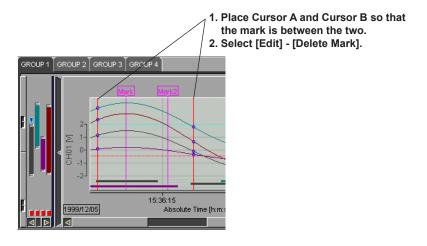
Moves Cursor A or Cursor B to the mark position (arbitrary mark or trigger mark) of the active channel.

Searching is possible to the left and right of the cursor.

Note -

- The search 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.

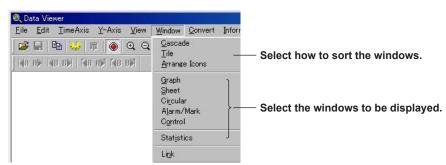
- The arbitrary marks placed on the Data Viewer are green. The arbitrary marks (messages) and trigger points placed on the CX are yellow.
- Up to 16 characters can be used for a mark name.

Resetting Marks

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

4.2 Waveform Display

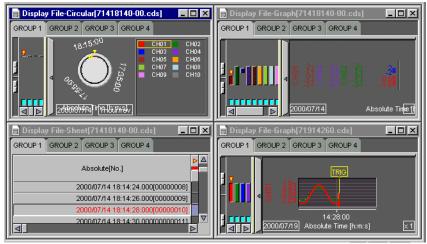
Window Settings



• Example of a Cascading Display

GF Display File-Sheet[71418140-00.cds] GF Display File-Graph[71418140-00.cds]	
GROUP 1 GROUP 2 GROUP 3 GROUP 4	
Image: State of the s	• *1

• Example of a Tiled Display



• Example of a Arranged Icons

📄 Display File 🖪 🗆 🗙	📄 Display File 🗗 🗖 🗙]	
📄 Display File 🖪 🗖 🗙	👩 Display File 🗗 🗖 🗙	📄 Display File 🗗 🗖 🗙	📄 Display File 🗗 🗖 🗙
Ready			NUM //

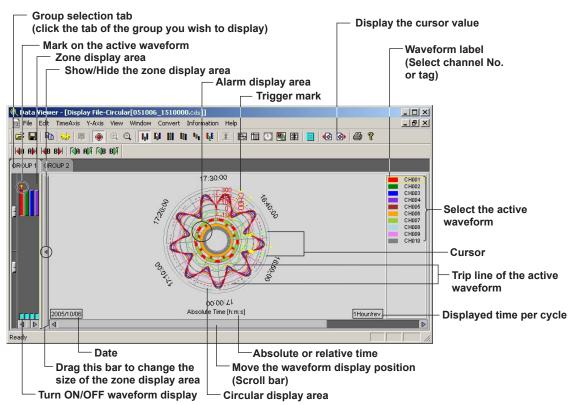
4.3 Circular Display

Circular Display

- 1. Click here ([Window] - [Circular]).



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.

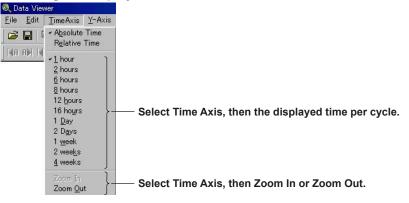
You can change the position of the trip lines by changing the values in the [General Display Settings] dialog box.

Time Axis Settings

You can select absolute or relative time display and zooming in or zooming out on the time axis

See section 4.2, "Waveform Display."

Selecting the displayed time



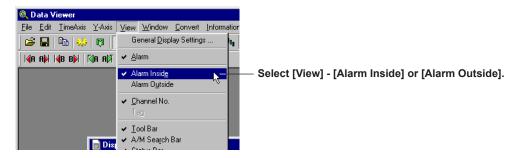
Y-Axis Settings

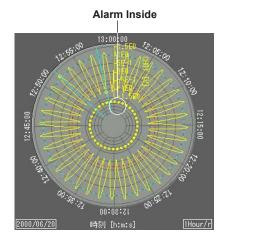
Waveform display limit

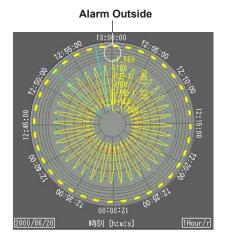
The circular screen always displays the waveform that is limited to the values between the maximum and minimum values of the Y-axis display range. The range is set using [Scale] in the [General Display Settings] dialog box.

Alarm Display ON/OFF

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







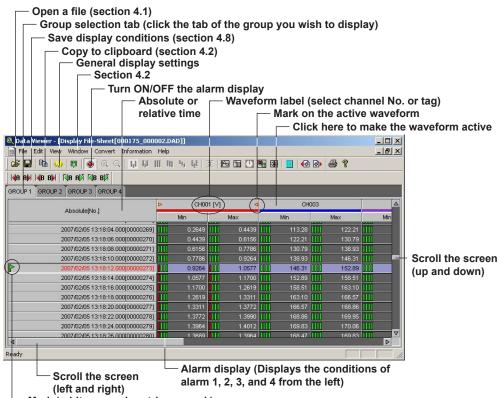
4.4 Numeric Value Display

Numeric Value Display

— 1. Click here ([Window] - [Sheet]).



2. The numeric display screen opens.



— Mark (arbitrary mark or trigger mark)

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:

- Turn ON/OFF numeric value display
- · Registering the channel

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

Time Axis Settings

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

Alarm Display ON/OFF

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, "Waveform Display."

Showing/Hiding Cursors

Showing the cursor

GROUP 1	GROUP 2 GROUP 3	GROUP 4							
	Absolute[1			Þ	CH01 [⊻]	4	CH02 [∀]		CHI [⊻
		15:36:20.500[-0.001		-0.008		
>	1999/12/05	15:36:20.625[00000573]	000	-0.024	0000	-0.031	0000	
	1999/12/05	15:36:20.750[00000574]		-0.048		-0.054		
	1999/12/05	15:36:20.875[00000575]		-0.072	000	-0.079		
	1999/12/05	15:36:21.000[00000576]		-0.095		-0.103		
P		15:36:21.125[-0.118		-0.126	0000	
		19.36:21.250[-0.142	0000	-0.149	0000	
4	1999/12/05	15:36:21.375[00000579]		-0.166		-0.173	0000	

└── 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 values," "Hiding the Cursor," and "Displaying Statistics" in section 4.2, "Waveform Display."

Adding Arbitrary Marks, Deleting Marks, and Resetting Marks

For details, see "Adding Arbitrary Marks," "Deleting Marks," and "Resetting Marks" in section 4.2, "Waveform Display."

4.5 Linking Files and Saving the Link Settings File

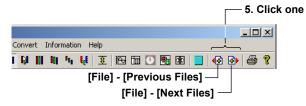
Linking Files

You can link and display CX files that have been divided by the auto save function, power failures, or other means (factors).

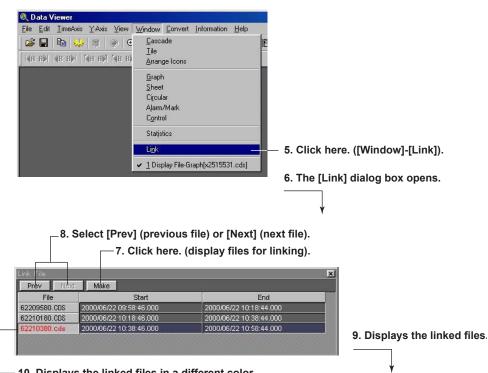
The files that can be linked are those that exist in the same directory. There are two methods to link files, from the toolbar and from the menu bar.

- 1. Click Data Viewer e Edit Iim ⊋	here ([File] - [Open]). 2. The [Open] dialog box opens.		
en		? >	<
Look jn: 🔂 dat	ا ک 0ء		
 x2515531.cds x2518301.cds x2610481.cds x2916181.cds x3009391.cds x3009391.cds x3013211.cds 	x3020141.cds y02(x3110291.cds y02(x3110291.cds y02(x3112311.cds y03(x3112311.cds y05(x3113461.cds y05(x3113461.cds y05(x3113461.cds x3112411.cds x31112411.cds x311112411.cds x311112411.cds x311112411.cds x311112411.cds x3111111111111111111111111111111111	14341.cds a) y0519221. 19121.cds a) y0611441. 16431.cds a) y0619171. 12321.cds a) y0708451. 13411.cds a) y0713591. 13261.cds a) y0717041.	3. Select the initial file.
Files of <u>type</u> : D	515531.cds XMV/CX/Data Viewer File (*.dds; *.c	▶ lev; *. ▼ Cancel	4. Click here to open the file.
Display File (V		Supplementary Info. Batch Info.	
Device Type	CX2000		
Serial No.	12A725586	Time Correct. None	
File Message	0/0/0/0	Sampling Int. 2.000 sec	
Ch. Count	0/0/3/0	Trigger Time 2001/10/25 17:34:48.000	
Data Count	3042	Trigger No. 3041	
Start Time	2001/10/25 15:53:26.000	Starting Cond. Manual	
Stop Time Started by	2001/10/25 17:34:48.000	Dividing Cond. Manual	
Stopped by	[Keyin] [Keyin]		

From the toolbar



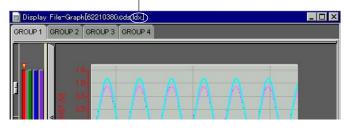
4.5 Linking Files and Saving the Link Settings File



From the menu bar

10. Displays the linked files in a different color.

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



Note.

When displaying linked files, ensure that the number of data values does not exceed 5000000 after connecting.

If there is an interval with no data, due for example to a power failure, the number of data values is still counted as though the data had been captured at the specified measurement intervals. The following table shows the measurement cycle and the maximum time of connection.

Cycle	Time
1/8s	7.5 days
1s	60.6 days
10s	606.8 days

For example, if data is captured continuously with a 1/8 second cycle, if there is a two-week power failure, then data from before and after the power failure cannot appear in a connection display.

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.

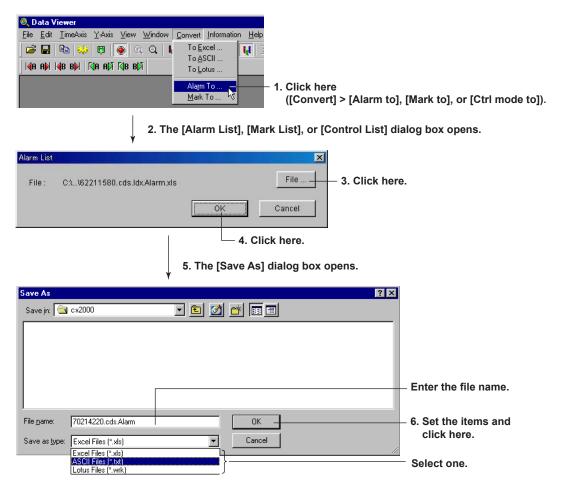
Files with the extension .ldx contain only link settings. To reopen a linked file, you must have the original data file.

4.6 Alarm, Mark, and Control List, and List Conversion

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



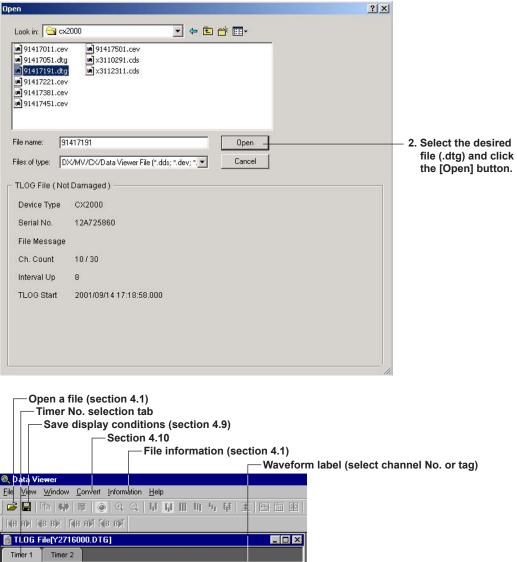
Converting and Outputting the Alarm, Mark List, or Control Mode List The Alarm, Mark, or Control Mode list can be converted to ASCII, Lotus, and Excel formats.

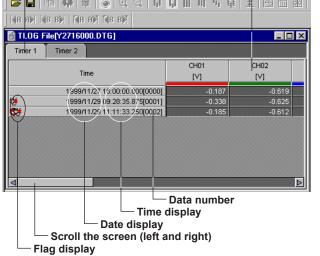


4.7 TLOG File Display

TLOG File Display

1. Click the [Open] button or select [File] - [Open].





Turning ON/OFF Flags

When [View] - [Flags] is selected, the following status information is displayed:

- Stopped TLOG computation.
- () : The CX time and date was changed during TLOG computation.
- : Power failure occurred during TLOG computation.

Date/Time Display

Select [View] - [Date Format] or [Time Format] to select the display format. If [None] is selected, the date or time will not be displayed.

Data No.

When [View] - [Data No.] is checked, the data number is displayed.

Selecting the Characters Used to Identify Channels

For details, see "Selecting the Characters Used to Identify Channels" in section 4.2, "Waveform Display."

4.8 Report File Display

Report File Display

1. Click the [Open] button or select [File] - [Open].

Vertical Display

V-Format	H-Format				
) RT (Start = 2001/02/ /C43913, File Messag	195			
		Ş	2	001/02/16 18:00	
		Status	AVE	MIN	MAX
CH01	[mV] 🌉	8	0.3	99999	-995
CH02	[mV] 🃑		-14.3	99999	-999
CH03	[mV] 🇾		-32.2	99999	-999
CH04	[mV] 🃑		-51.0	99999	-999
CH05	[mV] 🇾		-67.5	99999	-999
CH06	[mV] 🃑		-84.7	99999	-999
CH07	[mV] 🌉	2	-91.1	99999	-999

Horizontal Display

V-Format	H-Format				
	RT (Start = 200 C43913, File Me	1/02/16 17:04) essage :			
		CH01 [m∨]	CH02 [mV]	CH03 [m∨]	CH04 [m∨]
1	Status	le la	1	4	1
0004 0040	AVE	0.3	-14.3	-32.2	-51.0
2001/02/16	MIN	99999	99999	99999	99999
18:00	MAX	-99999	-99999	-99999	-99999
	SUM	7.866000E+02	-4.485020E+04	-1.006384E+05	-1.591344E+05

Status

The following icons are shown in Status.

- A measurement or computation error occurred in the report period.
- : An out-of-range value or computation range error occurred in the report period.
- 😕 : A power failure occurred in the report period.
- The time was changed in the report period.

4.9 Saving Display Settings

Click here ([File] - [Save Display Setting]).



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

For Display File, Event File, and Link File Dis	splays
Print comment	The background and grid color
of the waveform display area	
 Cursor A and Cursor B positions 	 Y-axis zone setting
 ON/OFF condition of the clipping of the 	 The active waveform
displayed waveform	
Settings specified in the General Display Settings	 The height of the data overview
of each group	
Mark information	 The width of the zone display
area of each group	
Zoom rate of the time axis	 Show/Hide condition of the
zone display area	
Display mode of the time axis (absolute/relative)	 Selected group
Waveform display area	
 ON/OFF condition of the alarm display 	
The channel identification string mode (shannel/te	a)

The channel identification string mode (channel/tag)

ON/OFF condition of file information items (see section 4.1)

For TLOG File Display

- · ON/OFF condition of TLOG file information items (see section 4.1) and print comment
- The string to be used (channel/tag)
- Timer No.
- · Display format of date and time

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. CDS.vdx, for example).

This display setting file can be overwritten an unlimited number of times.

When the display conditions are saved and 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 (with the .vdx extension) before opening the data file.

4.10 Data Conversion

🍭 Data Viewer	
<u>File E</u> dit <u>TimeAxis</u> <u>Y</u> -Axis <u>View</u> <u>Window</u> <u>Conver</u> Infor	n
🖙 🖃 🔛 🗰 🧼 👜 👰 🗨 🔾 📕 To <u>E</u> xcel	— 1. Select one.
To≜SCII I∢AR ANA I∢ABBANI T∢IAR ANA T∢BBANI To_Lotus	2. The [conversion betails] dialog box opens.
	- ↓

When Waveform Display or Numeric Display is Open

- 3. Enter the conversion range.	
Excel Conversion Details	×
Start : 573 1999/12/05 15:36:20.625 End : 577 1999/12/05 15:36:21.125 Step : 1	
C Channel CH01 - CH34	
File : C:\\~CX001\memory\Z0515350.xls	File 5. Change the save destination.
OK L	
— Save destination and file name	

4. Select either one.

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

When Displaying the TLOG File

-3. Select the timer numbers to be converted.

Con	version Details	×	
V	Timer 1		
V	Timer 2		
Г	Timer 3		
F	le : C:\DAQEXPLORER\desktops\DAQStation\Y2716000.xls	File	— 4. Change the save destination.
	ОК	Cancel	

4.10 Data Conversion

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

Change the file name	? ×	
Save in: 🔄 DAQStation	🔽 🖻 🕋 🏢	
🔁 ~cx001		
Cx-TEST11		
12716000.xls		
File name: Y2716000.xls	L <u>ok k</u> -f-	
Save as type: Excel Files (*.xls)	Cancel	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 extensions [.txt] and [.wrk] (can be loaded using version 2.0 or later, and [xls] (can be loaded by version 4.0 or later) are attached, respectively.
- 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.
- 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	
-----------------------	--

"DAOSTANDARD", "DI CE
"Data Viewer", "MI Con"
"Device Type", "CX2000"
Serial NO. ,
"File Message",""
"Time Correction", "None"
"Starting Condition", "Manual"
"Dividing Condition", "Manual"
"Meas Ch.", 3
"Math Ch.", 0
"Ctrl Ch.", 3,"/", 0
"Meas Ch.", 3 "Math Ch.", 0 "Ctrl Ch.", 3,"/", 0 "Data Count", 7098
"Sampling Interval", 2.000,"sec"
"Start Time", "2001/11/13", "14:58:36", 0.000
"Stop Time","2001/11/13","18:55:10", 0.000
"Trigger Time", "2001/11/13", "18:55:10", 0.000
"Trigger No.", 7097
"Damage Check", "Not Damaged"
"Started by","[Key In]"
"Stopped by","[Key In]"
"Application", ""
"Supervisor", ""
"Manager", ""
"Batch No.",""
"Lot No.", 7
"Converted Group", 1,"-", 1
"Ch.", "CH001", "CH002", "CH003", "CH107", "CH108", "CH109"
"Tag", "01", "02", "03", "INT-03.PV", "INT-03.SP", "INT-03.OUT"
"Unit", "°C", "", "", "°C", "°C", "%"
"Date" "Time" "sec" "MIN" "MAX" "MIN" "MAX" "MIN" "MAX" "MIN" "MAX"
"2001/11/13" "14:58:36" 0 000 593 7 593 7 -0 1
"Date", "Time", "sec", "MIN", "MAX", "MAX, "MAX", "MAX", "MAX, "M
"2001/11/13", "14:58:40", 0.000, 593.5, 593.6, -0.1,

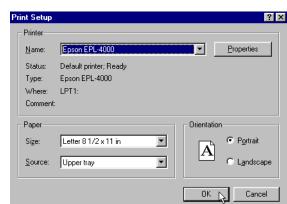
Excel Conversion File

	A	В	0	D	E	F	G
1	DAQSTAN	DARD	F0.0				
2	Data Viewe	r	64.0				
3	(
4	Device Typ	e	CX2000				
5	Serial No.		(U.C. STORE)	(
6	File Messag	e :					
7	Time Corre	ction	None				
8	Starting Co	ndition	Manual				
9	Dividing Cor	ndition	Manual				
10	Meas Oh.		3				
11	Math Ch.		0				
12	Otrl Oh.		3	1	0		
13	Data Count		7098				
14	Sampling In	terval	2.000	sec			
15	Start Time		2001/11/1	14:58:36	0.000		
16	Stop Time		2001/11/1	18:55:10	0.000		
17	Trigger Tim	e	2001/11/1	18:55:10	0.000		
18	Trigger No.		7097				
19	Damage Ch	eck	Not Damag	ed			
20	Started by		[KeyIn]				
21	Stopped by		[KeyIn]				
22							
23	Application						
24	Supervisor						
25	Manager						
26	Batch No.						
27	Lot No.		7				
28	1						
29	Converted	Group	1	-	1		
30							
31			Ch.	CH001		CH002	
32	i I		Tag	01		02	
33	()		Unit	°C			
34	Date	Time	sec	MIN	MAX	MIN	MAX
35	2001/11/1	14:58:36	0.000	593.7	593.7	-0.1	-0.1
36	2001/11/1	14:58:38	0.000	593.6	593.7	-0.1	-0.1
37	2001/11/1	14:58:40	0.000	593.5	593.6	-0.1	-0.1
38	2001/11/1	14:58:42	0.000	593.4	593.5	-0.1	-0.1

4.11 Printing

Printer Settings

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. This is not necessary when printing the TLOG file.

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

ener and tab to out and graph print	
Printout Setup	×
Graph Print Sheet Print Circular Print	
Range © All C Cursor © Black/White C Color	
Print Groups On Display Only C All C Select Group Select	
Comment	
OK Cancel	
Set the range	. (

Set the range, color, print group, and comment, then click the [OK] button

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.

Select Groups				2
GROUP 1	GROUP 2	GROUP 3	GROUP 4	🔽 GROUP 5
GROUP 6	GROUP 7	GROUP 8	GROUP 9	GROUP 10
🖉 GROUP 11	GROUP 12	GROUP 13	GROUP 14	GROUP 15
🔽 GROUP 18	GROUP 17	GROUP 18	GROUP 19	GROUP 20
👿 GROUP 21	GROUP 22	GROUP 23	GROUP 24	GROUP 25
GROUP 28	GROUP 27	GROUP 28	GROUP 29	GROUP 30
				Cancel

Setting Sheet Print

Click this tab to set the sheet print

Printout Setup		×
Graph Print SI	heet Print Circular Print	
Range © All	C Cursor	
	OK Can	:el

Select the range to be printed, and click the [OK] button

Setting Circular Print

octaing on outain 1 mil			
	Click this	tab to set tl	ne circular print
Printout Setup		×	
Graph Print Sheet Print Circula	ar Print		
	Color		
	 Black/White 	C Color	
Print Groups © On Display Only C All	C Select Group	Select	
Comment			
	ОК	Cancel	

Select the range to be printed, and click the [OK] button

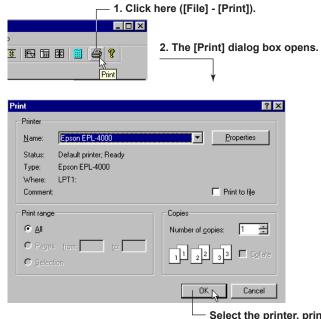
Note .

- 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, the [Cursor] button in the [Range] area of the [Sheet Print] dialog box is the same as when selecting [All].

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 selected are printed in the header section. For details related to the file information, see section 4.1.
Print Preview	You can provide the print level the fore actually printing the data
	You can preview the print layout before actually printing the data. Selecting [File] - [Print Preview] displays the print preview screen.
	 Note

 For the print preview operation, see the instruction manual that came with your operating system.

Printing



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

5.1 Troubleshooting

Launcher

Message	Corrective Action	Reference Section
Check communication settings.	Open the [Network] dialog box and check the settings.	2.3

Hardware Configurator

Warning Message List

Reference Section
3.2
-
-
-
3.12
3.2
3.1
3.12
3.13
3.13

Error List

Message	Corrective Action	Reference Section
Illegal file to load	Select another file.	3.1
Failed to load the file.	Try to load the file again. If still not possible, the file may be damaged.	3.1
	Select another file.	
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 CX.	3.13
Math in progress Stop sending.	Send after math is completed.	3.13
Memory sampling & math in progress.	Send after data has been written to the internal memory of the CX and math is completed. Stop sending.	3.13
Now controlling. can't store settings.		-
Saving to the media. Re-send later.	Send after data has been saved to the external media.	3.13
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.	3.6
Failed to connect.	Check the communication settings. Check whether the CX 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	_

5.1 Troubleshooting

Message

Message	Corrective Action	Reference Section
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 Section
Insufficient memory.	Exit other programs then restart, or reboot the OS then restart.	-
Exit immediately.		
Cannot write to the file.	Check whether the file is currently being used by another	_
	program.	
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.	4.1
The number of data sets is "0".	Select another file.	4.1
The number of channels is "0".	Select another file.	4.1
Some files may be overwritten.	Continue if OK. If not, change the file names.	4.10
Do you still want to continue?		

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