Temperature Controller Support Software

CX-Thermo Ver.4.0 Online Help

Contents

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Chapter 1 Introduction

1.1 What is CX-Thermo?

CX-Thermo is a software to configure or control parameters in a device (components such as temperature controller). CX-Thermo runs on a computer with Microsoft Windows.

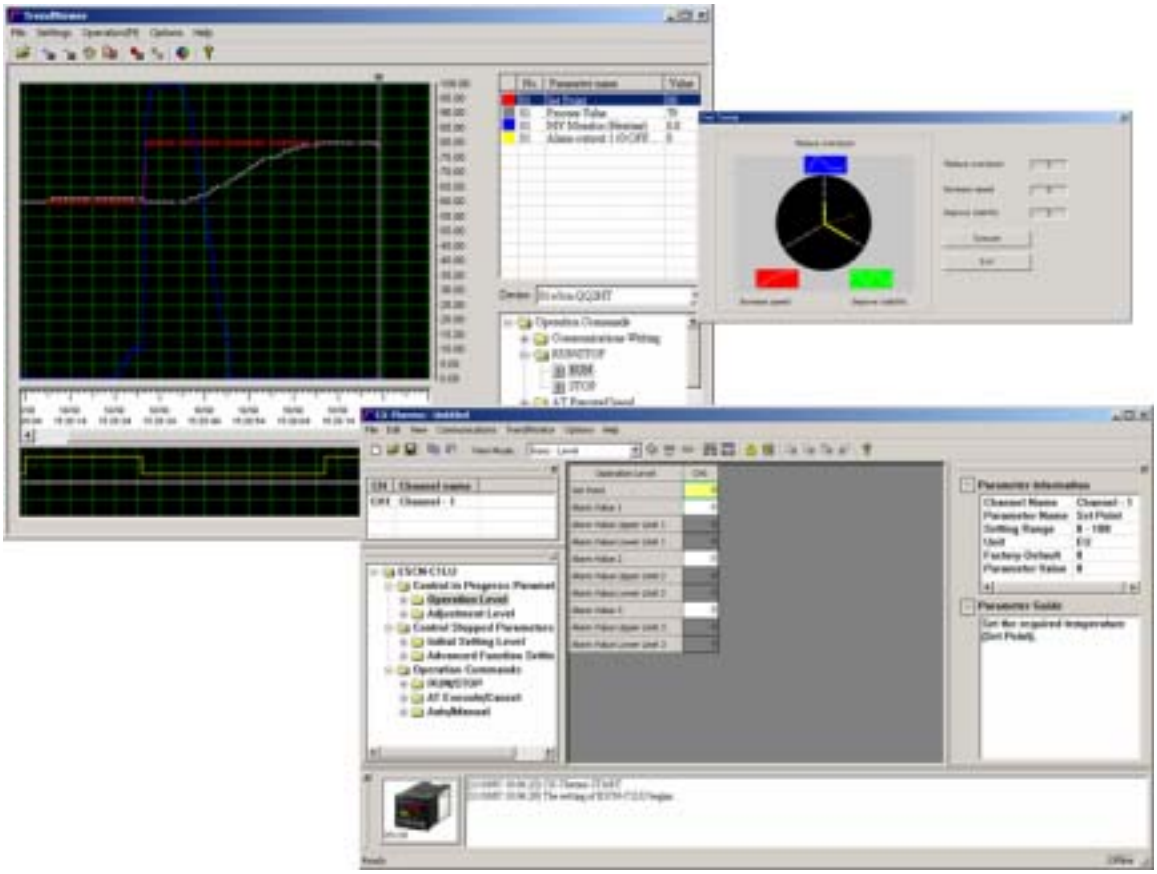
- Editing parameters in a device (E5ZN, E5AN, E5EN, E5CN, E5AN-H, E5EN-H, E5CN-H, E5AR, E5AR-T, E5ER, E5ER-T and EJ1) on a computer screen and saving setting data to a computer are supported.
- Setting data can be exported to a file in CSV format or in HTML format. A CSV-formatted file can be imported as well.

- Internal setting data in a connected device can be transferred to a computer or can be edited on a computer screen.
- The edited setting data can be transferred to a device and set in the device.
- The software has a parameter mask editor (*1) (E5AN, E5EN, E5CN, E5AN-H, E5EN-H, E5CN-H, E5AR, E5AR-T, E5ER and E5ER-T only).

- The software monitors data (such as a process value, set point, manipulated variable, PID parameter, and alarm ON/OFF) in a device up to 31 units (for EJ1N:up to 64, for EJ1G:up to 17, and for E5ZN:up to 16) and saves a trend data file.
  The internal setting data such as a set point in a device can be modified during TrendMonitoring.
  Executing operation instructions (such as RUN/STOP, or bank switch) and changing a condition inside a device can be changed during TrendMonitoring.
- Tuning of control performance is available.
  Users can set a preference on control performance with auto-tuning (AT) to a connected device and set auto-tuning on PID parameter with fine-tuning, (*2).

*1 Parameter mask editor is a function that hides unnessary parameters from parameters displayed on a device. This function is useful when to display only nessesary parameters and to hide particular parameters so that final users cannot make modifications.

*2 Fine-tuning instructs CX-Thermo to calculate a new PID parameter by putting direct commands to improve a response condition.



1.2 Compatible Device Models and Computers

■ **Compatible Device Models**

CX-Thermo Ver.4.0 supports the following models (except models for DeviceNet communications type).

E5CN (after renewal in April of 2004)

E5EN

E5AN (after renewal in February of 2005)

E5CN-H

E5EN-H

E5AN-H

E5ER

E5AR

E5ER-T

E5AR-T

E5ZN

EJ1N-TC4

EJ1N-TC2

EJ1N-HFU

(When connected with EJ1N-TC4, EJ1N-TC2, EJ1G-TC4 or EJ1G-TC2)

■ **Personal Computer System Requirements**

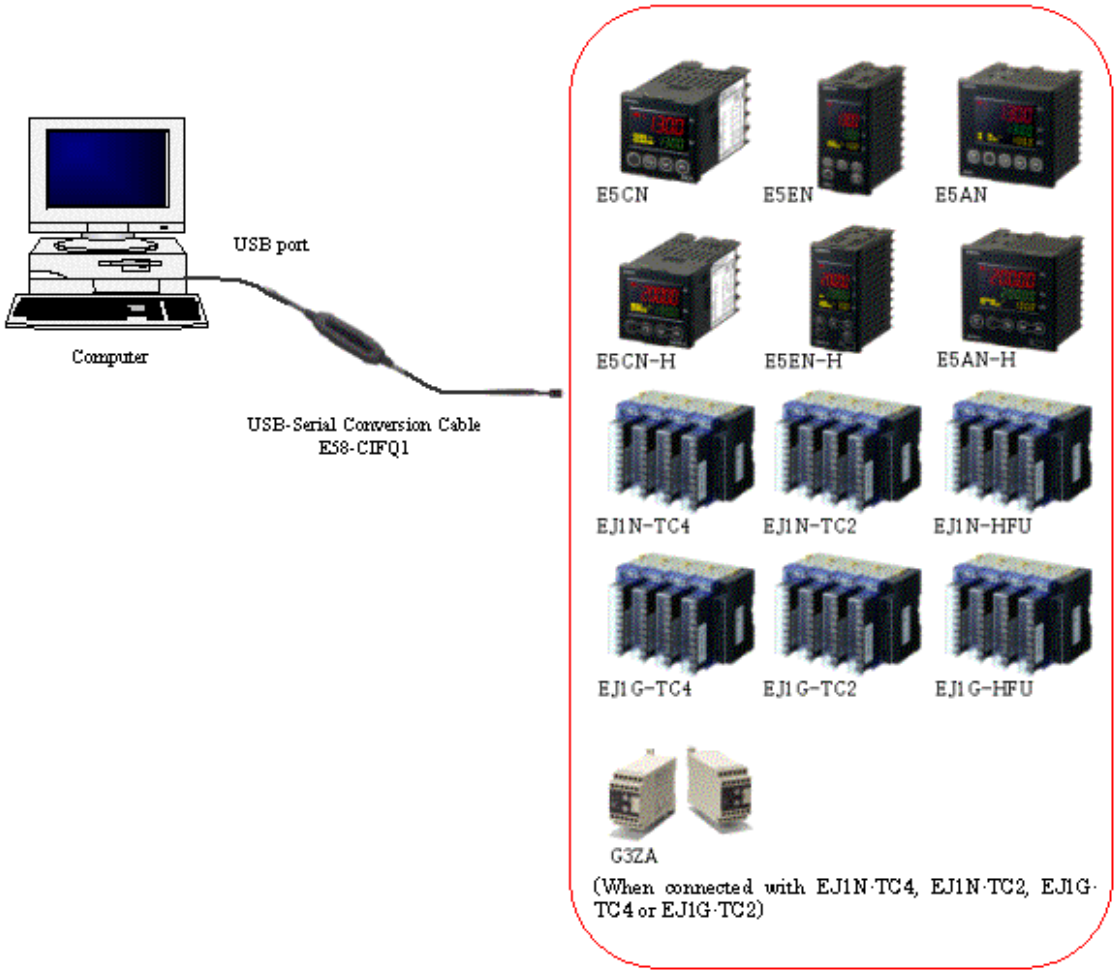
Item	Specification
OS	Microsoft Windows 2000 (Service Pack 3 or after)/XP/Vista
CPU	Pentium 300MHz or more
Memory	128MB or more
Hard disk	300MB or more space
CD-ROM	1 or more
Monitor	SVGA (800 x 600 pixel) min
Communications Ports	RS-232C port, USB port 1 port or more

1.3 Hardware Setups

■ **Hardware Setup 1**

Connect a setting tool port of E5CN, E5EN, E5AN, E5CN-H, E5EN-H, E5AN-H and EJ1 and a computer with USB-Serial Conversion Cable (E58-CIFQ1).

When E58-CIFQ1 is used to connect a device with a computer, driver is required. Please refer to "How to install a driver when using a USB cable" about the procedures to install a driver.



Note:

You cannot use ports for setting tools with E5CN, E5EN or E5AN with communications functions ("-FLK" models before renewal in January of 2008) during host cumminications.

Reference:

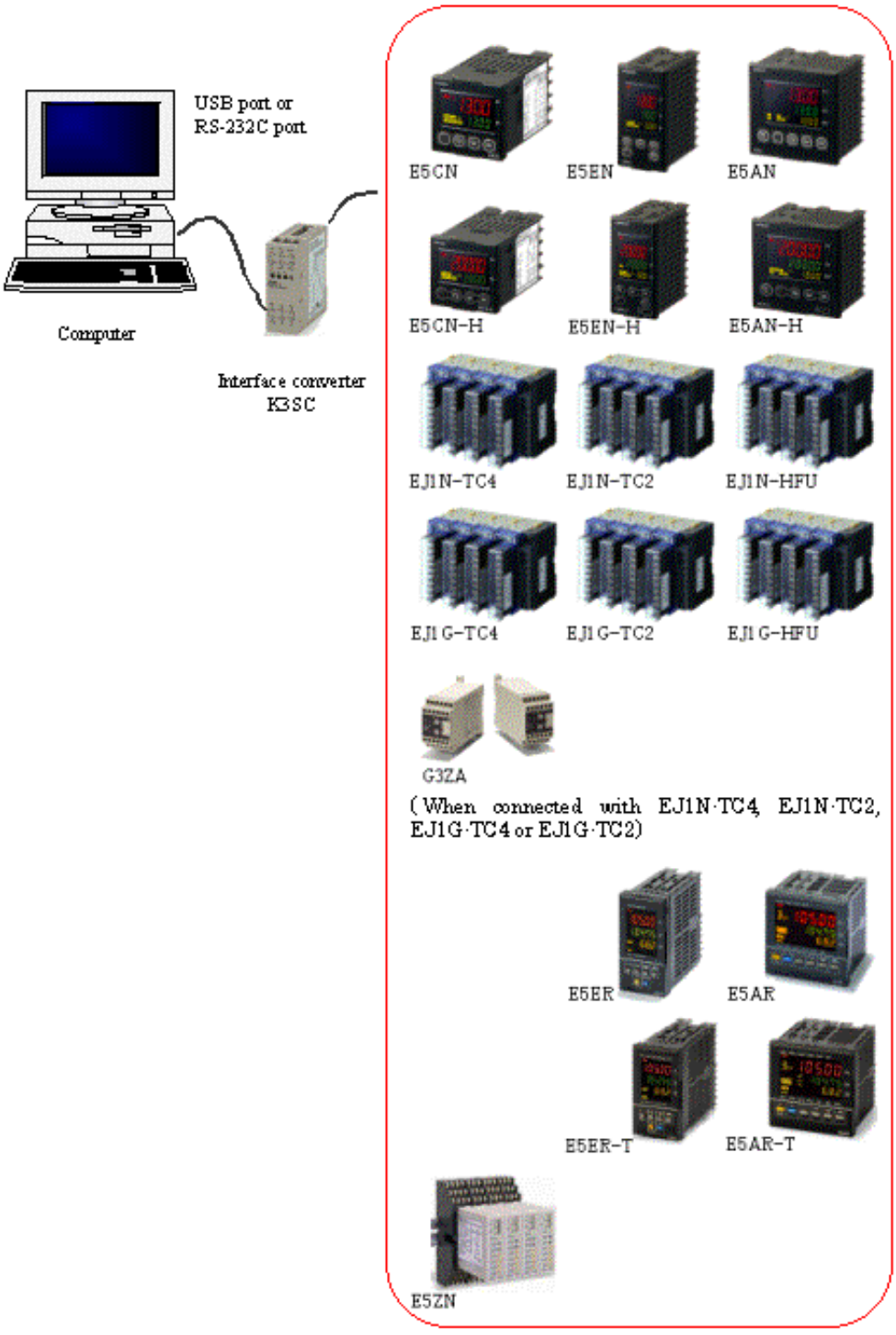
When a computer is connected with a setting tool port of EJ1 end unit, communications can be executed with multiple EJ1 connected horizontally.

Hardware Setup 2

It is possible to connect up to 31 temperature controllers with RS-485 communications functions (for EJ1N:up to 64 units, for EJ1G:up to 17 units, for E5ZN:up to 16 units) and a computer through an interface converter (K3SC).

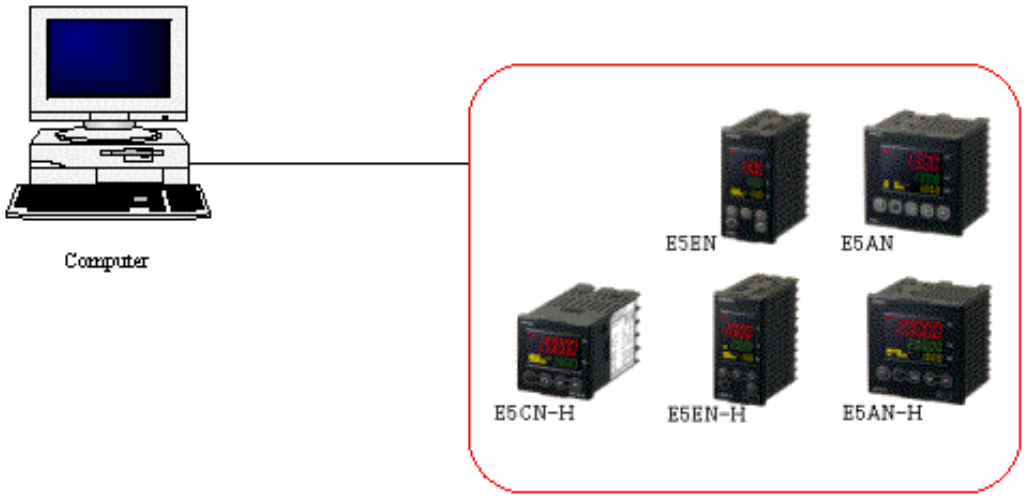
It is possible to connect temperature controller with RS-422 communications functions and a computer through an interface converter (K3SC).

When K3SC and a USB cable are used to connect a device with a computer, driver is required. Please refer to "How to install a driver when using a USB cable" about the procedures to install a driver.



■ **Hardware Setup 3**

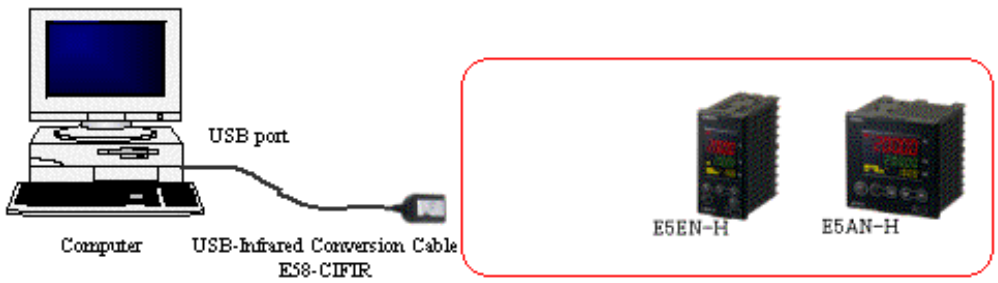
It is possible to connect temperature controller with RS-232C communications functions and a computer.



■ **Hardware Setup 4**

It is possible to connect temperature controller with infrared communications functions and a computer through USB-Infrared Conversion Cable (E58-CIFIR).

When E58-CIFIR is used to connect a device with a computer, driver is required. Please refer to "How to install a driver when using a USB cable" about the procedures to install a driver.



1.4 Basic Use Procedures

This chapter explains the basic use procedure for CX-Thermo.

- **To set a parameter offline**
  1. Starting CX-Thermo
  2. Displaying a edit screen on a new project
  3. Editing a parameter value (setting data) on a CX-Thermo database
  4. Saving a parameter value (setting data) on a CX-Thermo database

- **To load a saved parameter (setting data) and download into a device**
  1. Starting CX-Thermo
  2. Loading a CX-Thermo data file
  3. Communications Settings
  4. Online Connection
  5. Transferring a parameter value (setting data) to a device (download)

- **To set a parameter online**
  1. Starting CX-Thermo
  2. Communications Settings
  3. Online Connection
  4. Editing a parameter value (setting data) on a CX-Thermo database
  5. Transferring a parameter value (setting data) to a device (download)
  6. Parameter Mask Editor (*1)

- **To adjust control parameters such as PID parameter while TrendMonitoring**
  1. Starting CX-Thermo
  2. Communications Settings
  3. Online Connection
  4. Starting TrendViewer
  5. Starting TrendMonitor
  6. PID parameter tuning

- **To load a parameter (setting data) and save as a file**
  1. Starting CX-Thermo
  2. Communications Settings
  3. Online Connection

4. Transferring a parameter value (setting data) from a device (upload)
5. Saving a parameter value (setting data) on a CX-Thermo database

Note:

Online is a status in which communications between CX-Thermo and a device is confirmed. CX-Thermo confirms that device model edited on CX-Thermo corresponds with a device connected. CX-Thermo must be online with devices to transfer parameters and function particular options. A parameter value on CX-Thermo is not synchronized with a parameter value in a device even when online. You can match parameter values by transferring operations between a device and a computer.

Chapter 2 Starting and Closing CX-Thermo

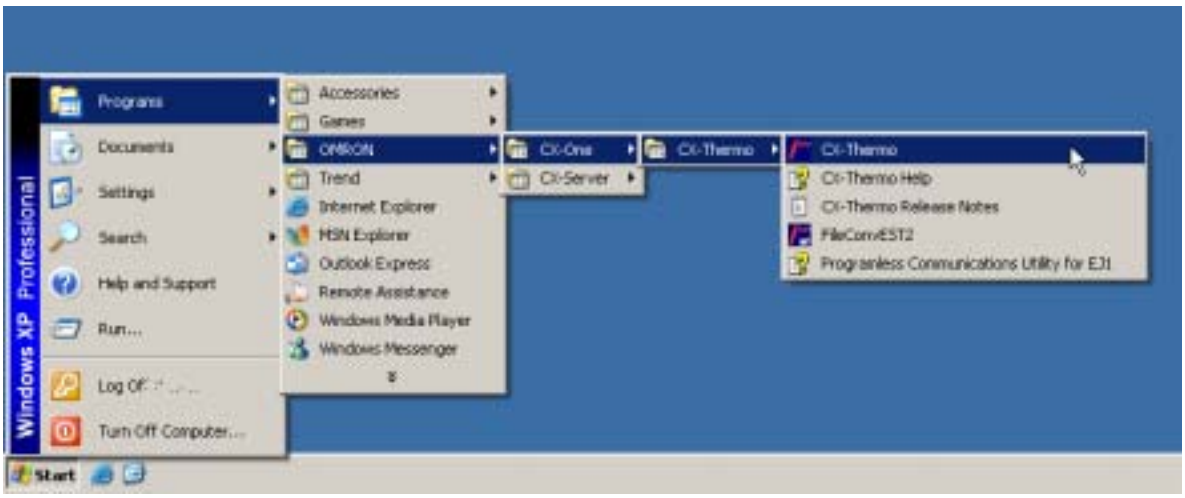
2.1 Starting CX-Thermo

CX-Thermo starts with one of these steps:

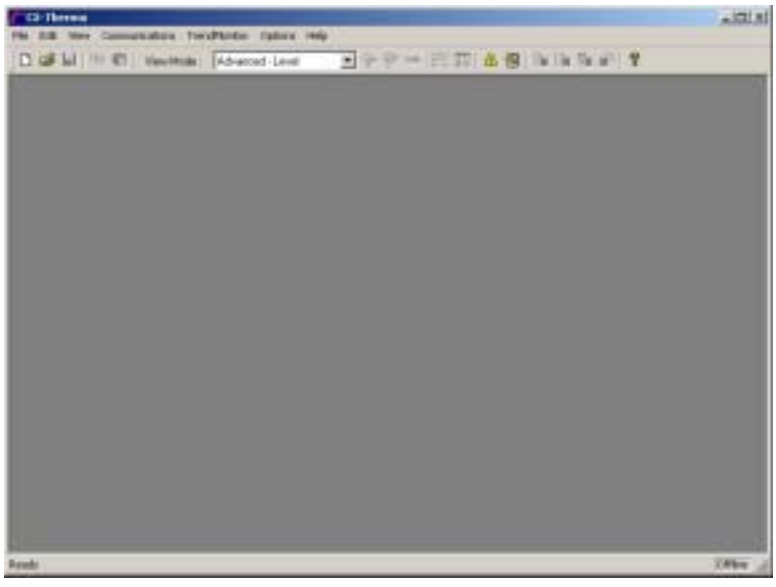
1. Selecting CX-Thermo from the start menu.
2. Install CX-Integrator from CX-One, right-click the temperature controller icon on ***Network Configuration*** window, and the select ***start a dedicated tool***

2.1.1 Selecting CX-Thermo from the start menu

1. Select ***Program*** in the ***Start*** menu in Microsoft Windows -> ***OMRON*** -> ***CX-One*** -> ***CX-Thermo*** -> ***CX-Thermo*** as the screen shown below.

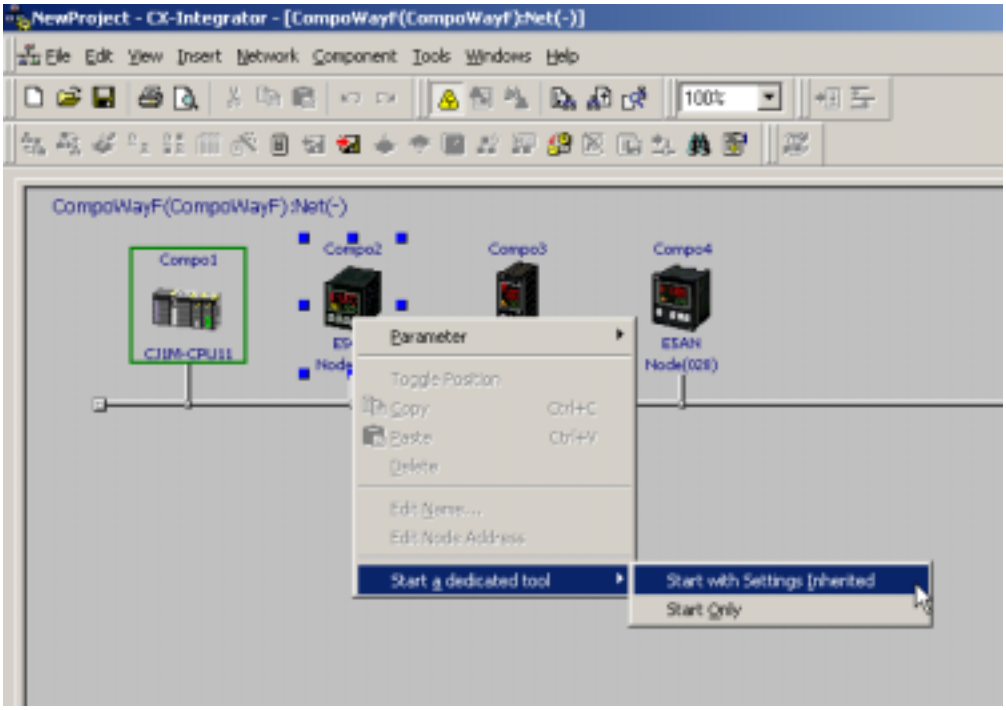


2. CX-Thermo starts and the following screen will be displayed.



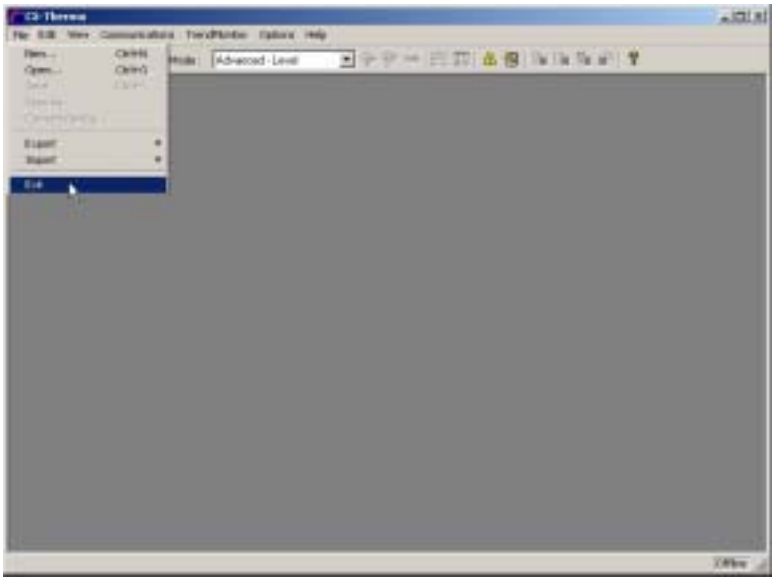
2.1.2 Starting CX-Thermo from *start a dedicated tool* in CX-Integrator.

Refer to the "CX-Integrator help" for details.



2.2 Closing CX-Thermo

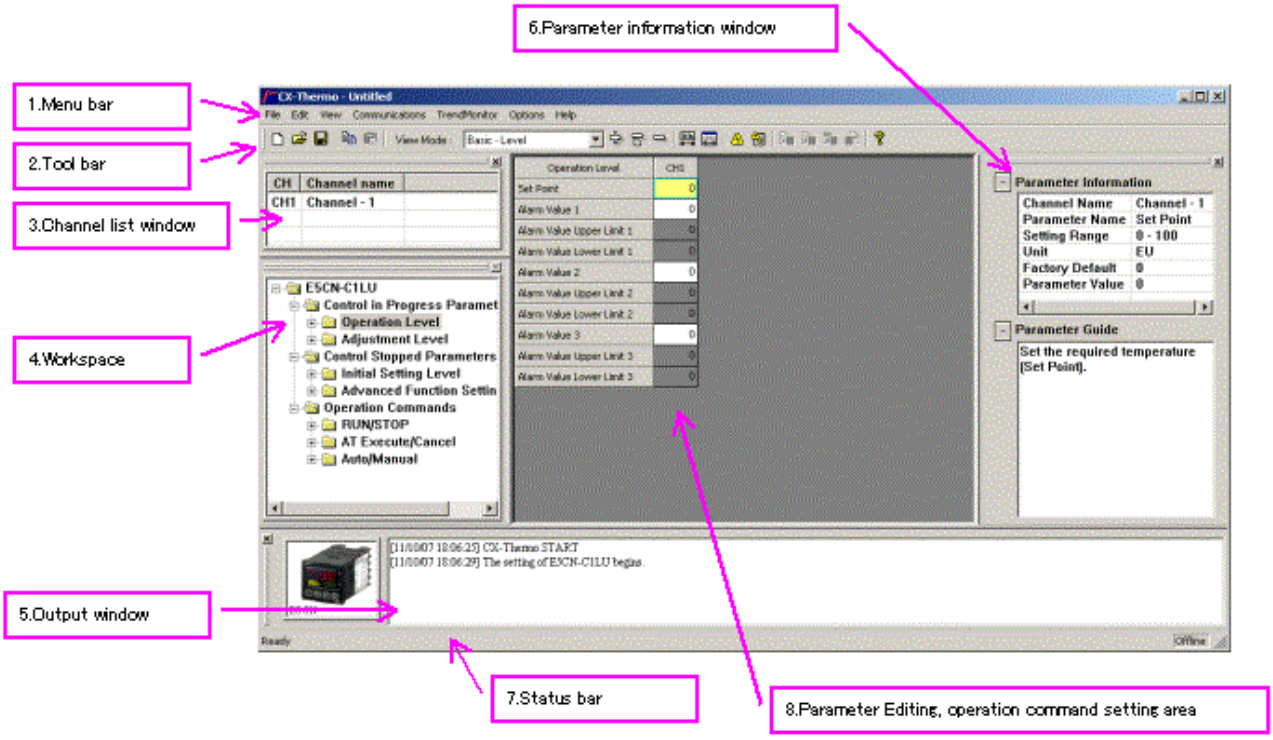
Select ***File*** -> ***Exit*** in the menu bar on the CX-Thermo screen.



Chapter 3 Setting Parameters

3.1 CX-Thermo Screen

■ **Items on the CX-Thermo screen**

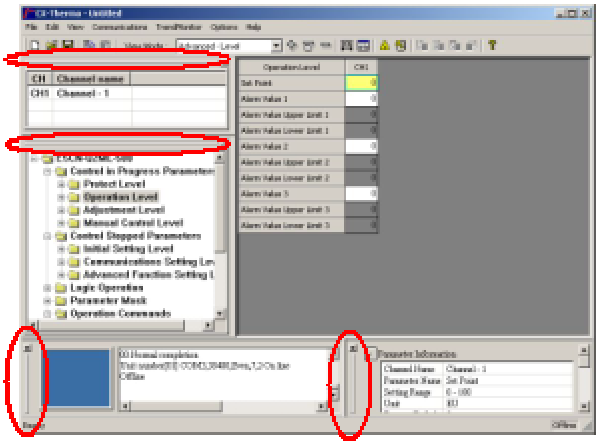


Items	Functions
1.Menu bar	Selects an operation from the menu
2.Toolbar	Displays buttons and options for frequently used operations in the menu bar
3.Channel List Window (*1), (*2)	Displays channel names Channel names can be freely edited. (Select ***Options*** in the menu bar on the CX-Thermo screen -> ***Edit channel name*** to edit channel names in the dialog box).
4.Workspace (*2)	Displays a parameter name and an operation command name Displays a parameter name on a device and an operation command name on a tree display When selecting a parameter, an operation command or a folder that includes parameters, editing on No.8 (parameter editing, operation command execution area) is accessible.

5.Output Window (*1), (*2)	Displays a currently editing device image and operation information
6.Parameter Information Window (*1), (*2)	Displays a workspace tree, parameter information that is selected in a table-formatted parameter editing view, 1. Channel name, 2. Parameter name, 3. Setting range, 4. Unit, 5. Default value, 6. Parameter value） and parameter guide (parameter descriptions).
7.Status bar	Displays online or offline status Displays communications settings in orange color while online
8.Parameter editing, operation command execution area	User can perform parameter editing and an operation command execution. When selecting a parameter in a workspace tree, an individually edited parameter view is displayed on the parameter editing and the operation command execution area, and the setting form of the selected parameter, the parameter information (1. Channel name, 2. Parameter name, 3. Setting range, 4. Unit, 5. Default value, 6. Parameter value) and the parameter guide (parameter descriptions) are displayed as well. Input a parameter value from the setting form, click ***Update***, and the changed value becomes effective on CX-Thermo. When performing transfer from a computer to a device, the parameter value will be written into the device. When selecting a folder that includes parameter in a workspace tree, a table-formatted parameter editing view is displayed on a parameter editing and an operation command execution area and a parameter in the selected folder and the parameter value are showed by a list. When inputting a parameter value and then click other section or click ***Enter***, the changed value becomes effective on CX-Thermo. When performing transfer from a computer to a device, the parameter value will be written into the device. When selecting an operation command in a workspace tree, an operation command execution view is displayed on the parameter editing and the operation command execution area, and the setting form of the selected operation command, the parameter information (1. Channel name, 2. Parameter name) and the parameter guide (operation command descriptions) are displayed as well. When clicking ***Execute***, the operation command will be executed and the device status changes.

*1 Select ***View*** - ***Window*** in the menu bar on CX-Thermo and you can swtitch display and hide.

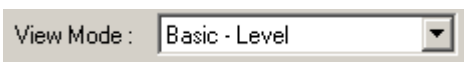
*2 Double-click the area shown below and you can freely move it around in the screen.

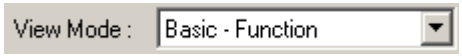


■ **Menu Format List**

Main Menu	Icon	Submenu	Functions
File		New	Creates a new project
		Open	Loads CX-Thermo data files (with file extension ".est")
		Save	Saves setting data in a currently opened CX-Thermo data file (with file extension ".est")
		Save As	Saves setting data in a different file separate from a currently opened CX-Thermo data file (with file extension ".est")
		Convert Device	Converts the project into another one of compatible model

		Export	CSV	Export All	Saves all setting data in CSV format
				Export Changed Parameters	Saves only changed setting data in CSV format
		Export	HTML	Export All	Saves all setting data in HTML format
				Export Changed Parameters	Saves only changed setting data in HTML format
		Import	CSV		Loads a CX-Thermo data file in CSV format
		Exit			Closes CX-Thermo
Edit		Copy			Copies a parameter value in a table-formatted parameter editing view
		Paste			Pastes a parameter value in a table-formatted parameter editing view
Communications		Work Online			Switches online/offline
		Settings			Sets network communications
		Transfer from Device (*1)			Loads data from a device

		Transfer to Device	Download All (*1)		Writes all parameters to a device
			Download Changed Parameters (*1)		Writes only changed parameters to a device
			Download Changed from Default (*1)		Writes a parameter that is changed from a factory default value to a device
View		Window	Channel List Window		Switches display and hide of the channel list window
			Output Window		Switches display and hide of the output window
			Parameter Property Window		Switches display and hide of the parameter property window
		Reset Window Layout			Resets a window layout to a default condition
		View Mode	Basic	Level	Displays basic parameters by levels on a workspace tree Displays only an operation outline on the output window

				Function	Displays basic parameters by levels such as input, output or control on a workspace tree Displays only operation outline on the output window
			Advanced	Level	Displays all parameters by levels on a workspace tree Displays communications command and response on the output window
				Function	Displays all parameters by levels such as input, output and control on a workspace tree Displays communications command and response on the output window
		Expand and Collapse	Expand All		Displays all parameters on a workspace tree
			Collapse Parameters		Displays all folders on a workspace tree

			Collapse All	Displays main groups of folders on a workspace tree
		Cell Size	Auto Adjustment	Automatically adjusts cell width to contents in a table-formatted parameter editing view Automatically adjusts cell width to contents in a workspace tree even after changing folders
			Fit Cell to Contents	Fits cell width to display contents on table-formatted parameter editing view
			Fit Spread in Window	Fits cell width to a window in table-formatted parameter editing view
TrendMonitor		TrendViewer (*1)		Starts TrendViewer

Options		Recover Temporary Settings	Resets a parameter value on CX-Thermo to a factory default value without changing a channel name The parameter value remains same
		Edit Channel name	Edits channel names
		The menu differs from a device selected. Refer to the "Option menu list" for details.	
Help		Help Contents	Displays the help contents on CX-Thermo
		Online Registration	Registers online
		About CX-Thermo	Introduces the newest version information

*1 Available only when CX-Thermo and temperature controllers are connected online.

■ **Option Menu List**

Submenu	Description	E5CN/ E5EN/ E5AN	E5CN-H/ E5EN-H/ E5AN-H	E5ER/ E5AR	E5ER-T/ E5AR-T	E5ZN	EJ1N-TC4/ EJ1N-TC2	EJ1N-HFU	EJ1G-TC4/ EJ1G-TC2	EJ1G-HFU
rameter Copy	Copies a parameter value to a different channel					●	●			●

ameter Mask tor (*1) (*2)	Hides an unnecessary parameter from a device display	●	●	●	●					
gic Operation tor (*2)	Sets logic operation	●	●							
nk parameter	Displays a bank parameter list			●						
py Bank PID	Copies a specified bank or a PID parameter value to an other bank or a PID group			●						
arm parameter	Displays an alarming parameter list				●					
py Alarm PID	Copies a specified alarm group or a PID parameter value to an other alarm or a PID group				●					
grammer tor (*2)	Sets a program				●					
tus Display 1)	Displays a device status						●	●	●	●
gramless mmunications ameter Editor 2)	Sets programless upload/download settings							●		●

nfiguration nagement 1)	Uploads or downloads multiple parameters that include EJ1N-HFU all at once							●		
s Assignment splay (*1)	Displays a bus layout status							●		
nfiguration d Group itor	Sets a basic unit formation and group									●

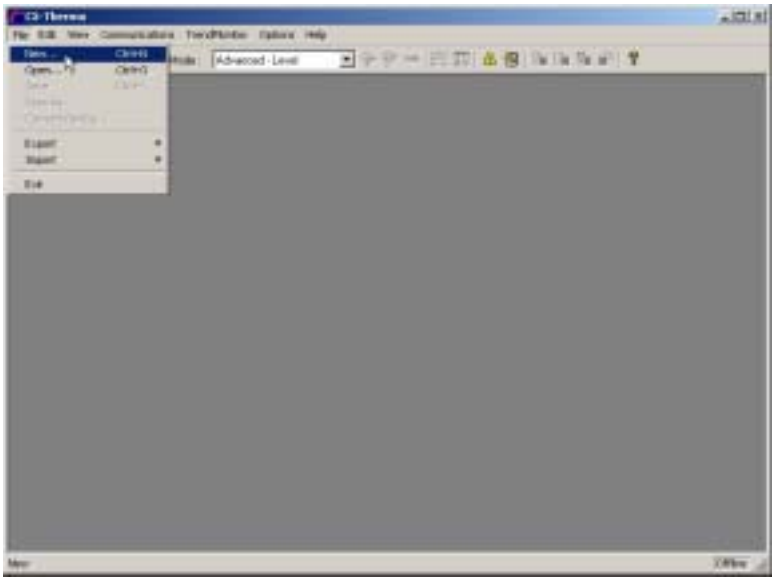
*1 Available only when CX-Thermo and temperature controllers are connected online.

*2 Exists as a parameter in a workspace tree. Select parameter, click ***Start*** to display the same setting dialog box.

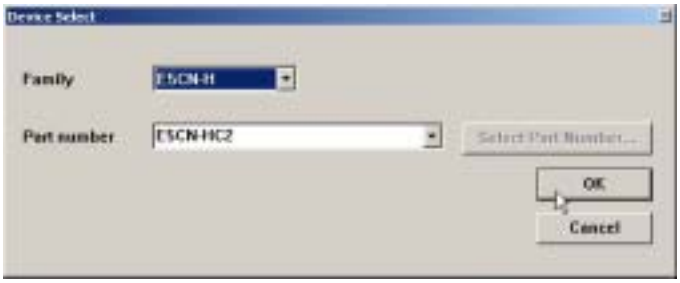
3.2 CX-Thermo Operation Procedures (offline)

3.2.1 Displaying a edit screen on a new project

1. Click ***File*** -> ***New*** from the menu bar on the CX-Thermo screen.



2. When the following ***Device Select*** dialog box is displayed, select "Family" and "Part number" from the list and click ***OK***.



Reference:

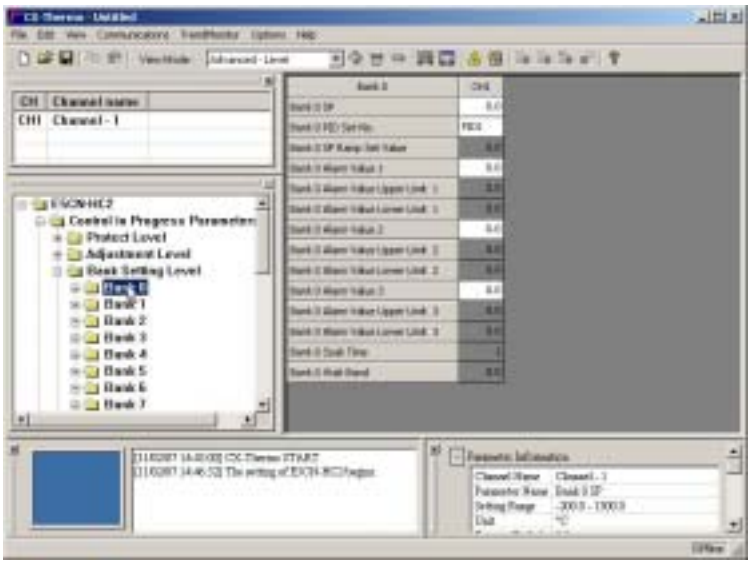
The part number of EJ1 is determined depeding on the number of G3ZA connected. Click "Select Part Number" button and select a part number from the screen which is displayed. Direct input to the format and copy-and-paste the format from e-catalog or website is also possible.

Reference:

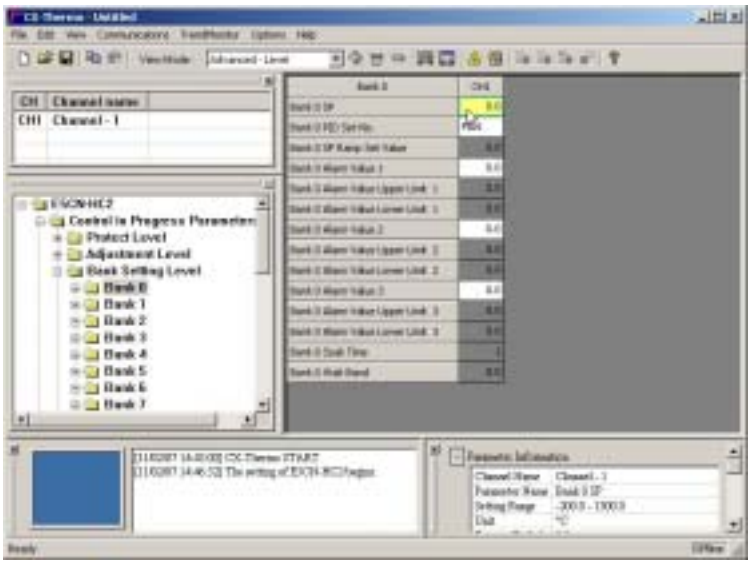
Click ***File*** -> ***Convert Device*** from the menu bar on the CX-Thermo screen. When the ***Device Select*** dialog box is displayed, select "Part number" from the list and click OK. The model can be changed keeping parameter values.

3.2.2 Editing a parameter value (setting data) on a CX-Thermo database

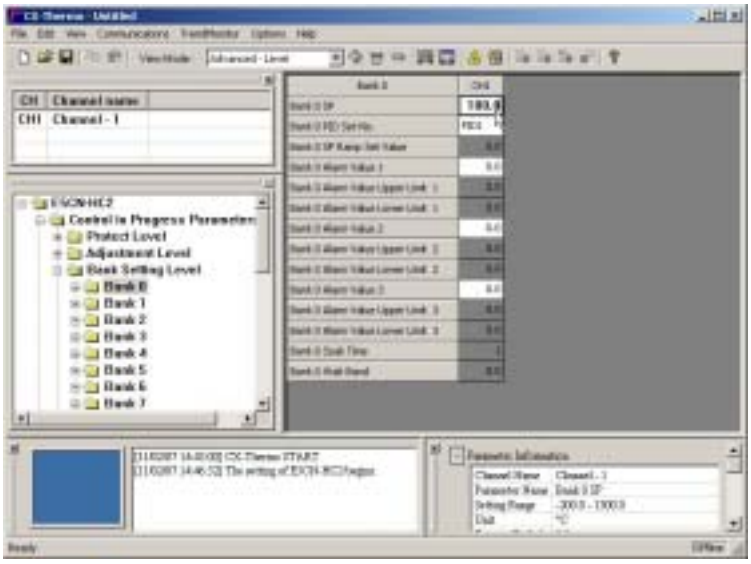
1. When selecting a folder that includes parameters in a workspace tree, a table-formatted parameter editing view will be displayed on a parameter editing and an operation command execution area, and parameters in the selected folder and parameter values will be showed in a list.



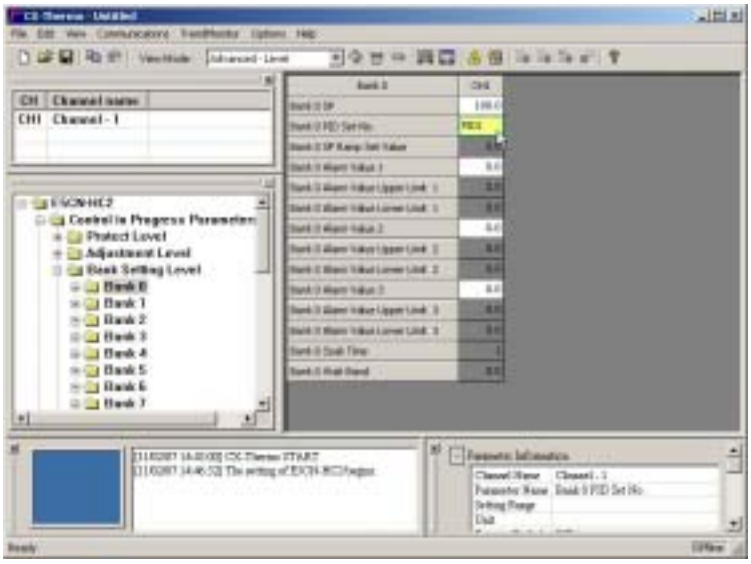
2. Select a parameter value to edit.



3. Enter a numeric value or select settings from a list.



4. Click other section or select ***Enter*** key to make the changed value effective on CX-Thermo.



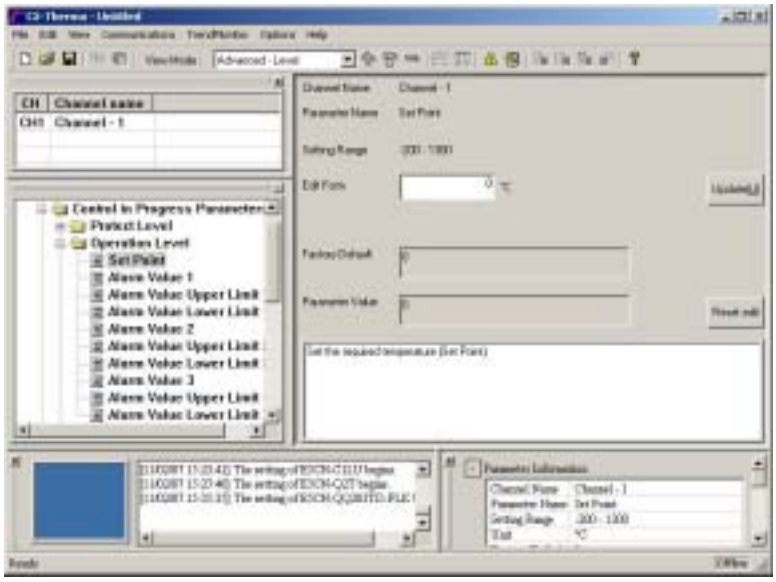
Note:

You can set a special parameter that differs depending on device models in a different screen. Select a parameter that starts a setting screen in a workspace tree and execute the setting from the dialog box after clicking ***Start***. You can also select a parameter from ***Options*** in the menu bar on CX-Thermo. Refer to the "Option Menu List" for target models and a parameters (function).

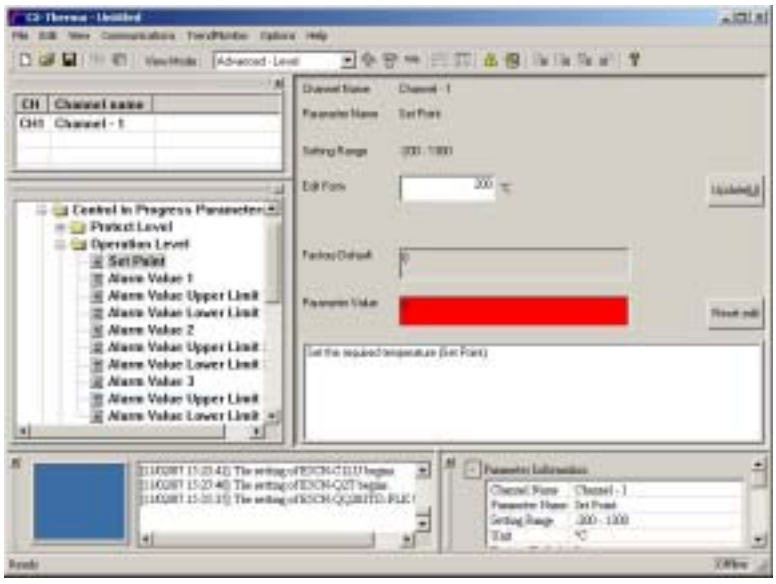
Reference:

Parameter information (1. Channel name, 2. Parameter name, 3. Setting range, 4. Unit, 5. Default value, 6. Parameter value) that is selected from a table-formatted parameter editing view and a parameter guide (an explanatory text on parameter) are displayed on the parameter property window. Use the following steps to edit a parameter one by one, examing above information.

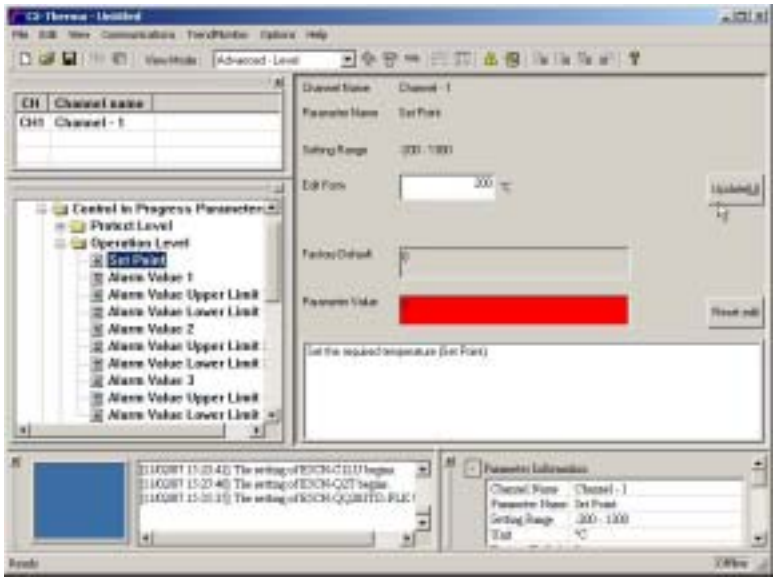
1. When selecting a parameter in a workspace tree, a separate parameter-editing view will be displayed on a parameter editing and an operation command execution area, and a setting form of the selected parameter, parameter information (1. Channel name, 2. Parameter name, 3. Setting range, 4. Unit, 5. Default value, 6. Parameter value) and a parameter guide (an explanatory text on parameter) will be displayed.



2. Enter a numeric parameter value or select settings from a list in the setting form.



3. Click ***Update*** to make the changed value effective on CX-Thermo.



Reference:

A parameter can be edited with using only keyboards (no need to use mouse).

When a workspace is in focus, press the "Tab" key and the focus moves to a parameter editing and an operation command area.

When the focus is in a parameter editing and an operation command area, hit "Shift" + "Tab" keys and the focus moves to a workspace.

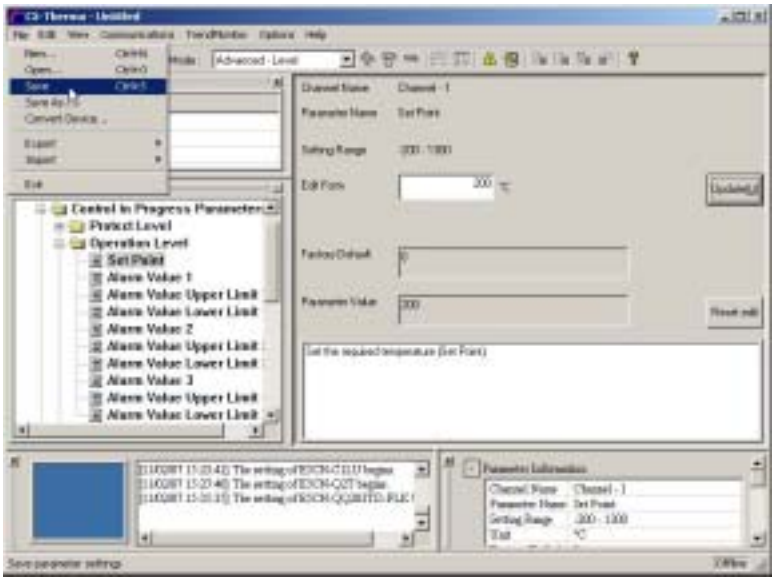
Reference:

Workspace, channel list window, output window and parameter property window can be freely laid out. Each window except for workspace can be displayed or hidden. Unnecessary windows can be closed or moved to a different area in response to operations . When letting default position be restored to execute a different operation, select ***View*** in the menu bar on CX-Thermo -> ***Reset Window layout***.

3.2.3 Saving a parameter value (setting data) on a CX-Thermo database

■ **Save a CX-Thermo data file (with file extension ".est")**

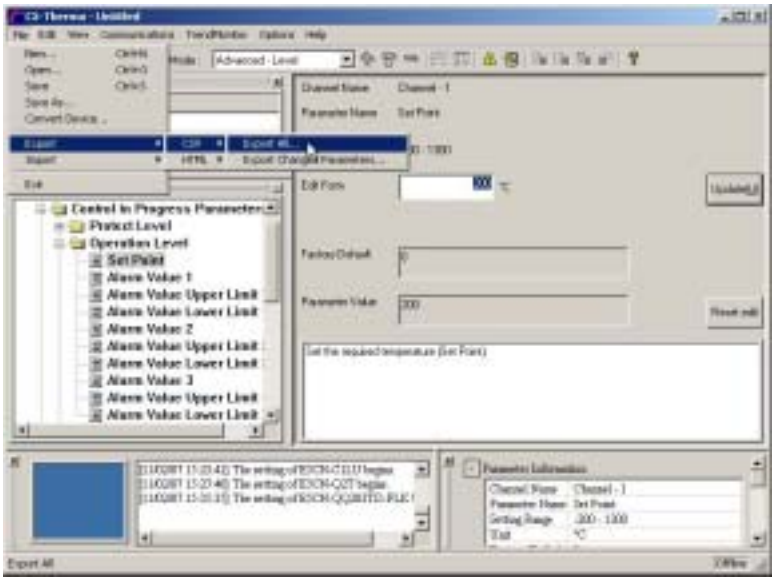
Select ***File*** -> ***Save*** in the menu bar on the CX-Thermo screen, or select ***Save as*** and specify a file name.



A CX-Thermo data file(with file extension ".est") will be created.

- **Save a CX-Thermo data file in CSV format**

Select ***File*** in the menu bar on the CX-Thermo screen -> ***Export*** -> ***CSV*** -> ***Export all*** or ***Export Changed Parameters***, and save the data with a file name.

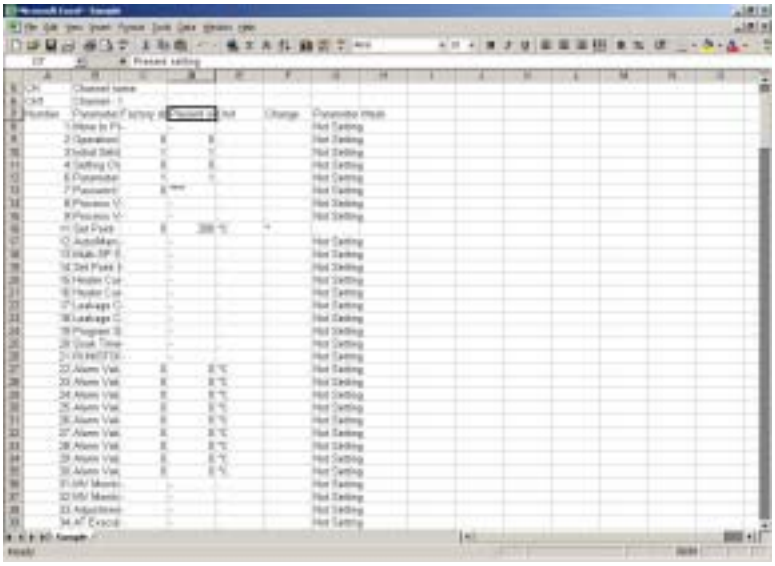


A CX-Thermo data file(with file extension ".csv") will be created.

Reference:

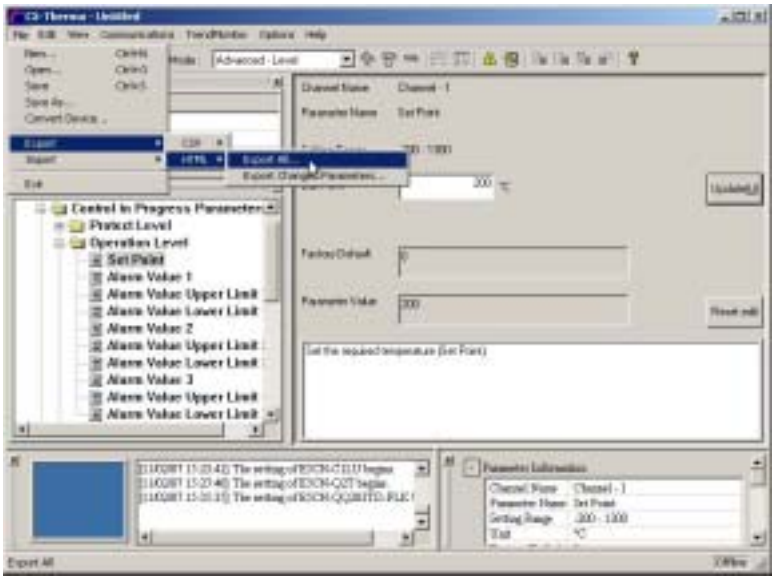
"Present settings" in the data saved by selecting ***Export all*** can be edited on Microsoft Excel and can be reloaded with import function on CX-Thermo.

However, when the data is out of setting range or the format is irregular, or, a file saved by selecting ***Export Changed Parameters*** cannot be imported.



■ **Save a CX-Thermo data file in HTML format**

Select ***File*** in the menu bar on the CX-Thermo screen -> ***Export*** -> ***HTML*** -> ***Export all*** or ***Export Changed Parameters***, and save the data with a file name.



A CX-Thermo data file(with file extension ".htm") will be created.

Reference:

7 segment or 11 segment fonts are used on a front panel display on a device in a CX-Thermo data file in HTML format.

When this display is set with a plain text, necessary fonts have to be installed.

Refer to the "Installing Fonts (7 segment/11 segment)" for instrucitons on how to install fonts.

Reference:

To print a parameter value (setting data), follow these steps.

- To print setting data that is saved as a CX-Thermo data file in CSV format.

  Open a saved file in Microsoft Excel.

  Select ***File*** in the menu bar in Microsoft Excel -> ***Print***.

- To print setting data that is saved as a CX-Thermo data file in HTML format.

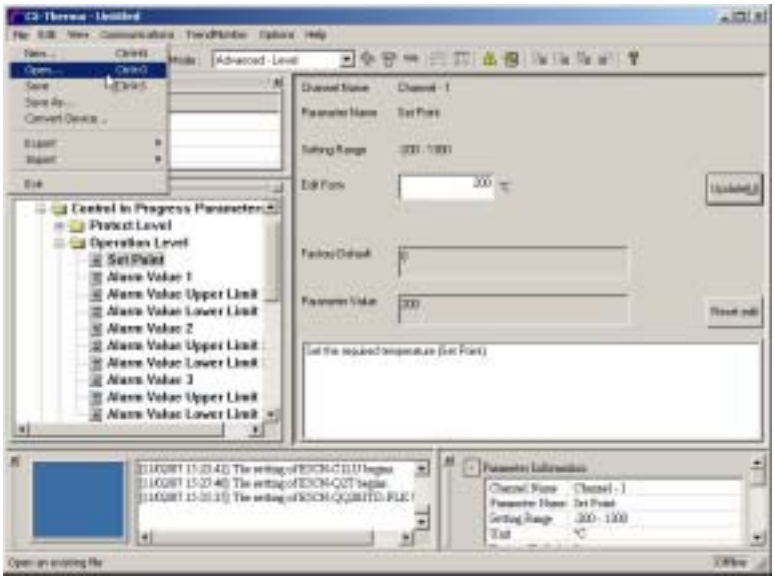
  Open a saved file in Microsoft Internet Explorer.

  Select ***File*** in the menu bar in Microsoft Internet Explorer -> ***Print***.

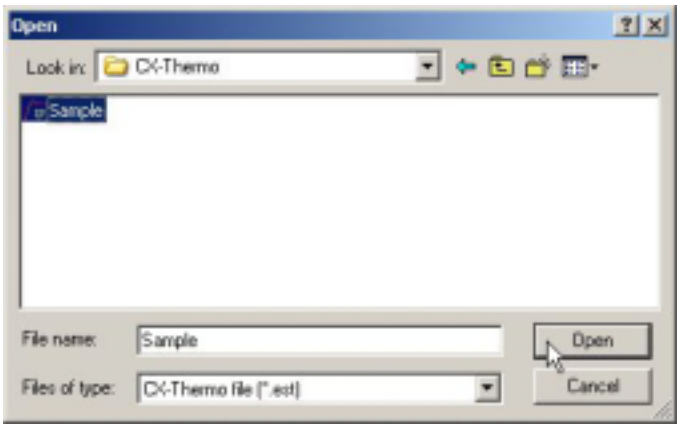
3.2.4 Loading a CX-Thermo data file

■ **Load a CX-Thermo data file (with file extension ".est")**

1. Select ***File*** in the menu bar on the CX-Thermo screen -> ***Open***.



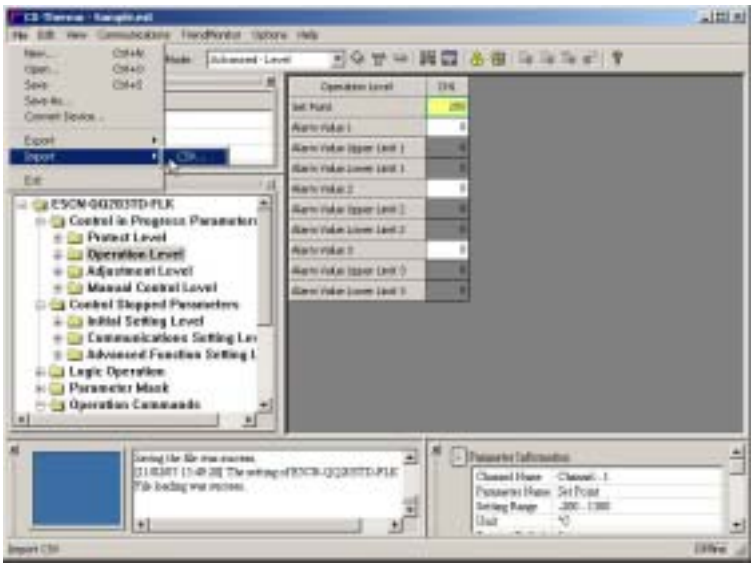
2. When the following ***Open*** dialog box is displayed, select a CX-Thermo data file (with file extension ".est") and click ***Open***.



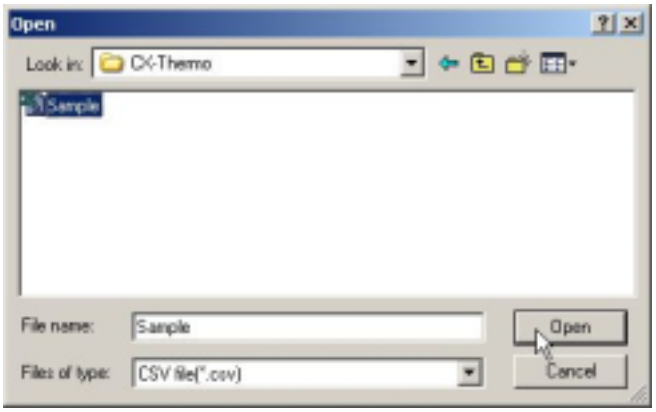
3. A CX-Thermo data file (with file extension ".est") will be loaded.

■ Load a CX-Thermo data file in CSV format

1. Select ***File*** in the menu bar on the CX-Thermo screen -> ***Import*** -> ***CSV***.



2. When the following ***Open*** dialog box is displayed, select a CX-Thermo data file in CSV format and click ***Open***.



3. A CX-Thermo data file in CSV format will be loaded.

Note:

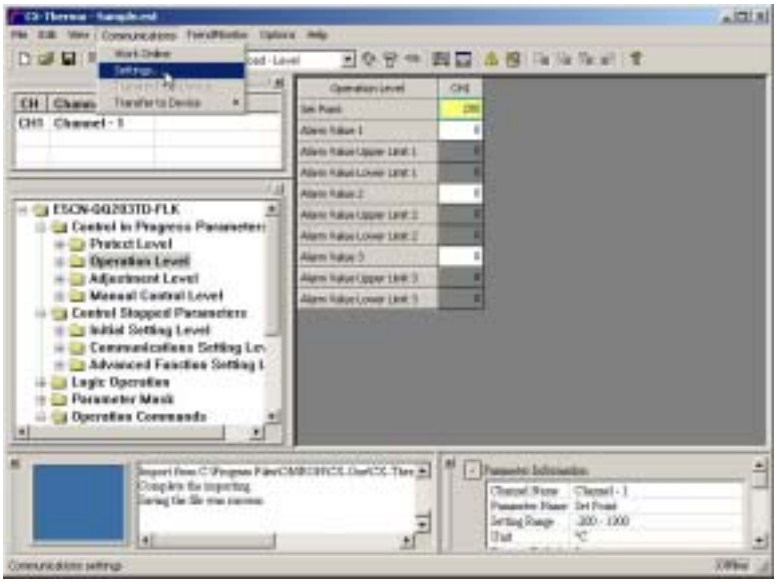
A CX-Thermo data file that is created on Japanese CX-Thermo (with file extension ".est") cannot display units correctly on English CX-Thermo. Similarly, a CX-Thermo data file that is created in English CX-Thermo (with file extension ".est") cannot display units correctly in Japanese CX-Thermo.

A CX-Thermo data file in CSV format that is created in Japanese CX-Thermo displays units correctly in English CX-Thermo. Similarly, a CX-Thermo data file in CSV format that is created in English CX-Thermo displays units correctly in Japanese CX-Thermo. However, in case that OS with different decimal separator and boundsymbols are used to save/open the file, units cannot be correctly displayed.

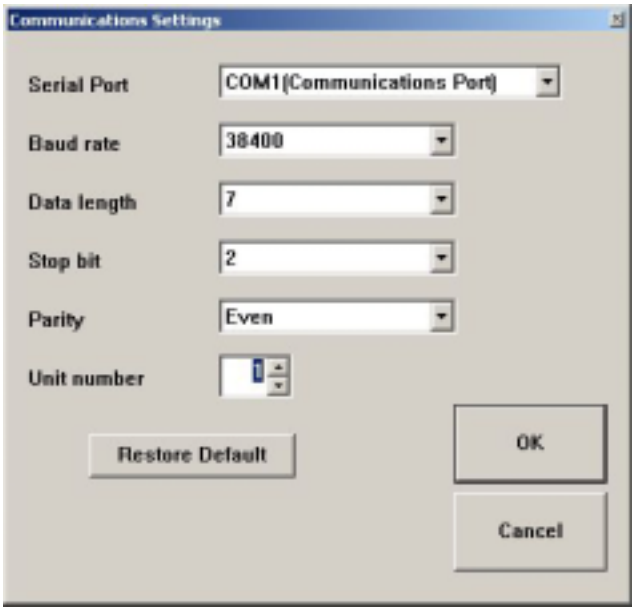
3.3 CX-Thermo Operation Procedures (online)

3.3.1 Communications Settings

1. Click ***Communications*** on the CX-Thermo screen -> ***Settings***.



2. When the following ***Communications Settings*** dialog box is displayed, set communications parameters, and then click ***OK***.

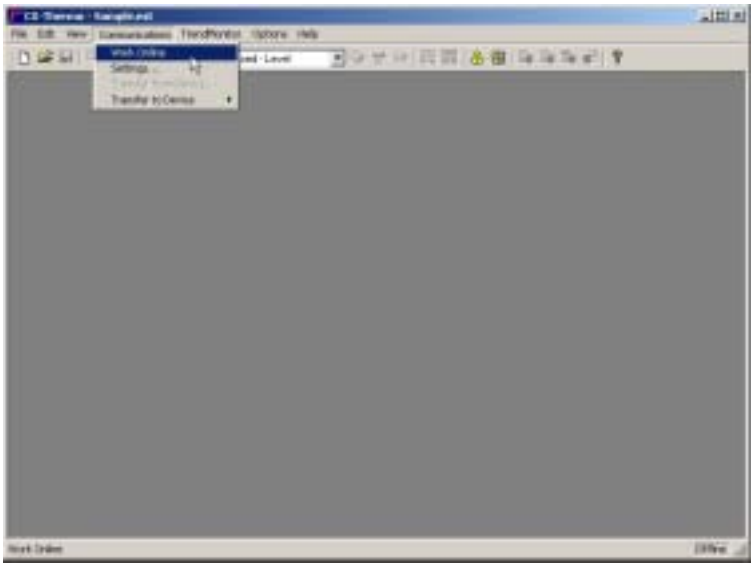


■ **Communications Settings List**

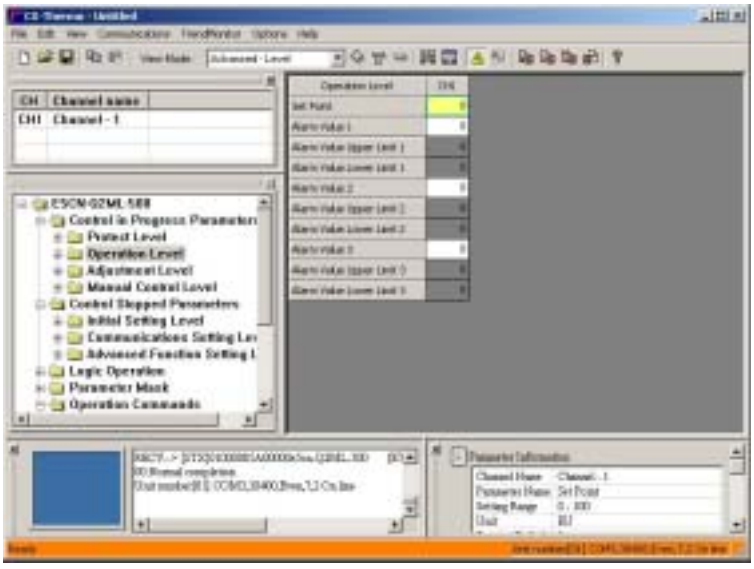
Setting Item	Description
Serial Port	Selects a serial port in a computer (a serial port that connects a cable) Displays a COM port number and a name of communications cable (Interface converter) such as E58-CIFQ1 or K3SC
Baud rate	Adapts to a connecting device or interface converter settings Fixes the settings to a default value "38400" for the following ports; - port A in EJ1 - a setting tool port in E5CN, E5EN, E5AN (after renewed in January of 2008), E5CN-H, E5EN-H or E5AN-H - an Infrared communications port in E5EN-H or E5AN-H
Data length	Adapts to a connecting device or interface converter settings Fixes the settings to a default value "7" for the following ports; - port A in EJ1 - a setting tool port in E5CN, E5EN, E5AN (after renewed in January of 2008), E5CN-H, E5EN-H or E5AN-H - an Infrared communications port in E5EN-H or E5AN-H
Stop bit	Adapts to a connecting device or interface converter settings Fixes the settings to a default value "2" for the following ports; - port A in EJ1 - a setting tool port in E5CN, E5EN, E5AN (after renewed in January of 2008), E5CN-H, E5EN-H or E5AN-H - an Infrared communications port in E5EN-H or E5AN-H
Parity	Adapts to a connecting device or interface converter settings Fixes the settings to a default value "Even" for the following ports; - port A in EJ1 - a setting tool port in E5CN, E5EN, E5AN (after renewed in January of 2008), E5CN-H, E5EN-H or E5AN-H - an Infrared communications port in E5EN-H or E5AN-H
Unit number	Adapts to a connecting device Fixes the settings to a default value "1" for the following ports; - a setting tool port in E5CN, E5EN, E5AN (after renewed in January of 2008), E5CN-H, E5EN-H or E5AN-H - an Infrared communications port in E5EN-H or E5AN-H

3.3.2 Online Connection

1. Click ***Communications*** in the menu bar on the CX-Thermo screen -> ***Work Online***.



2. The status bar changes to orange while the system is online as the screen shown below.



Note:

Online is a status that confirms communications between CX-Thermo and a device. It also confirms that a editing model on CX-Thermo corresponds with a model of a device connected. Parameter transfer or some option functions require communications and only work online. Even when online, a parameter value on CX-Thermo is not synchronized with a parameter value on a device. Parameter values correspond by transferring from/to device and computer.

Reference:

A connected device model will be recognized automatically when matching communications settings and you do

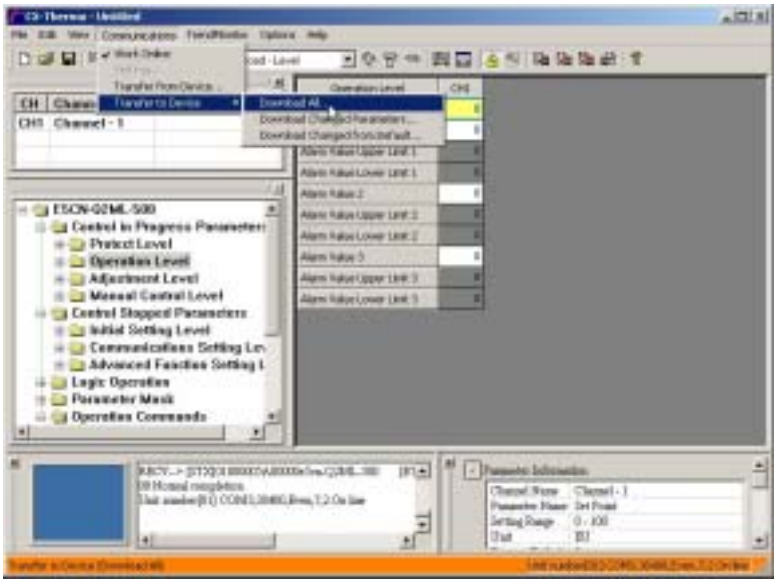
not need to select models in the dialog box ***Device Select***.

If there is no parameter value (setting data) on CX-Thermo, perform automatic upload after connecting online and synchorinize a parameter value in a device.

3.3.3 Transferring a parameter value (setting data) to a device (download)

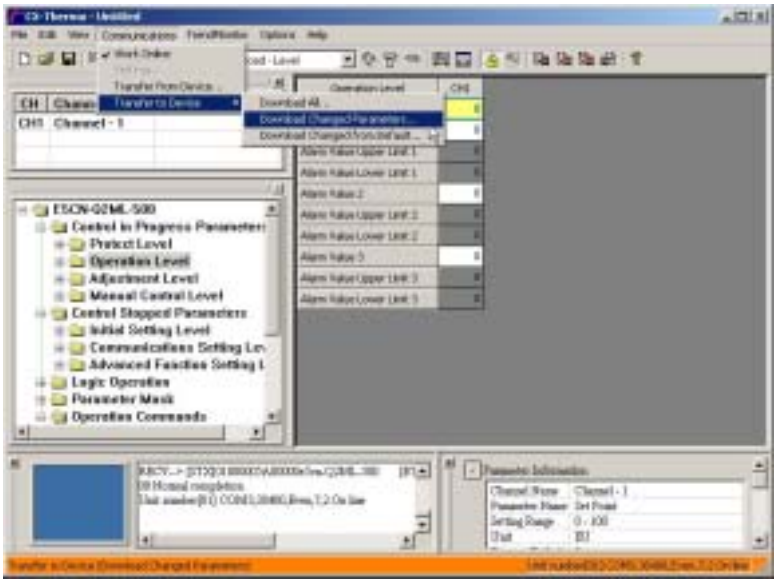
- **Transfer all parameter values (setting data)**

Select ***Communications*** in the menu bar on a CX-Thermo screen -> ***Transfer to Device*** -> ***Download All***.



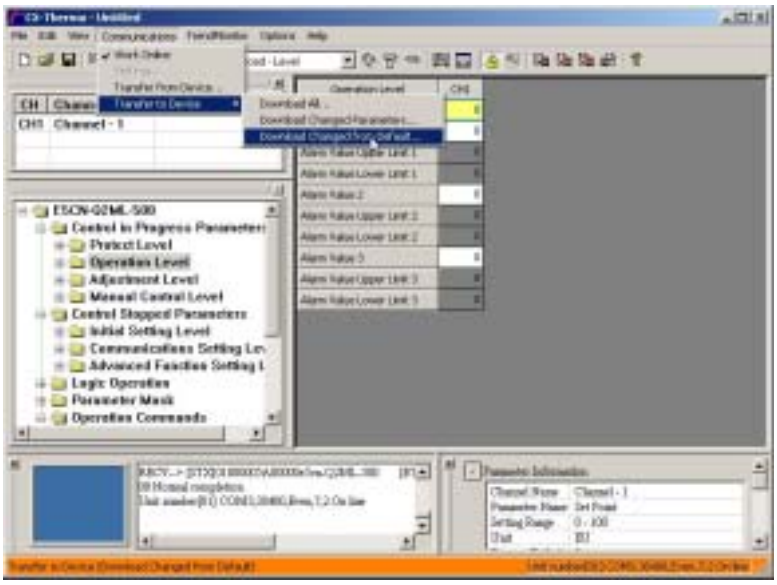
- **Transfer a changed parameter value (setting data) after opening a file or transferring a parameter value (setting data)**

Select ***Communications*** in the menu bar on CX-Thermo -> ***Transfer to Device*** -> ***Download Changed Parameters***.



■ **Transfer a changed parameter value (setting data) that is changed from a factory default value (default value)**

Select ***Communications*** in the menu bar on CX-Thermo -> ***Transfer to Device*** -> ***Download Changed from Default***.



Note:

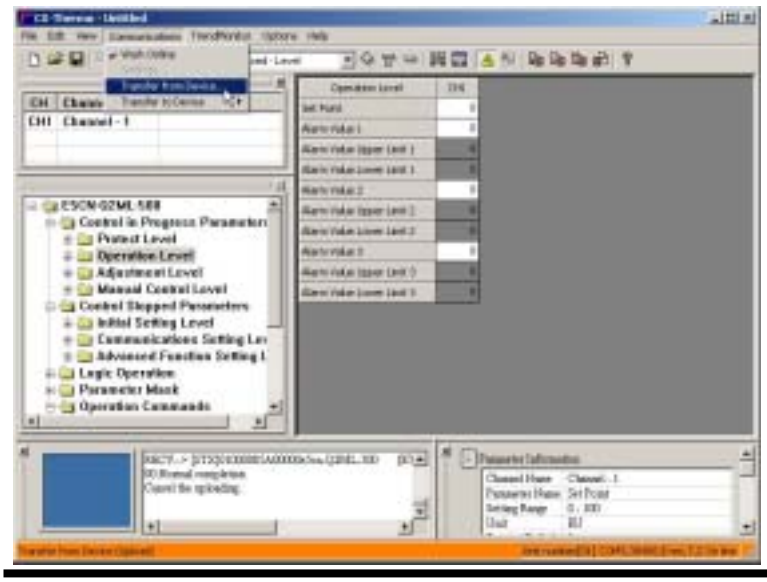
When executing ***Download Changed Parameters*** transfer or ***Download Changed from Default*** transfer from a computer to a device, the transfer time will be shorten compared to ***Download All***, but parameter values on CX-Thermo may not match fully with parameter values on a device.

After executing a transfer from a device to a computer, be sure to edit parameter values (setting data) and perform ***Download Changed Parameters*** transfer from a computer to a device.

Be sure to check that a device is under a factory parameter default value first and execute ***Download Changed from Default*** transfer from a computer to a device.

3.3.4 Transferring a parameter value (setting data) from a device (upload)

Select ***Communications*** in the menu bar on CX-Thermo -> ***Transfer from Device***.



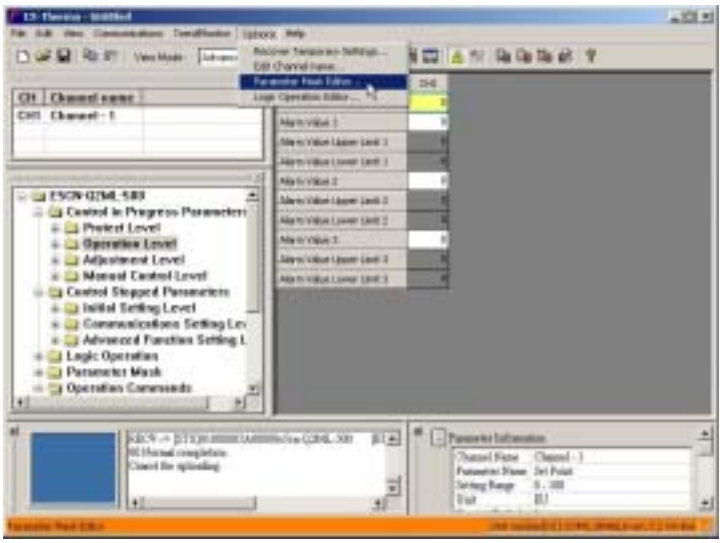
3.3.5 Parameter Mask Editor (*1)

*1 Available only for E5CN, E5EN, E5AN, E5CN-H, E5EN-H, E5AN-H, E5ER, E5AR, E5ER-T or E5AR-T.

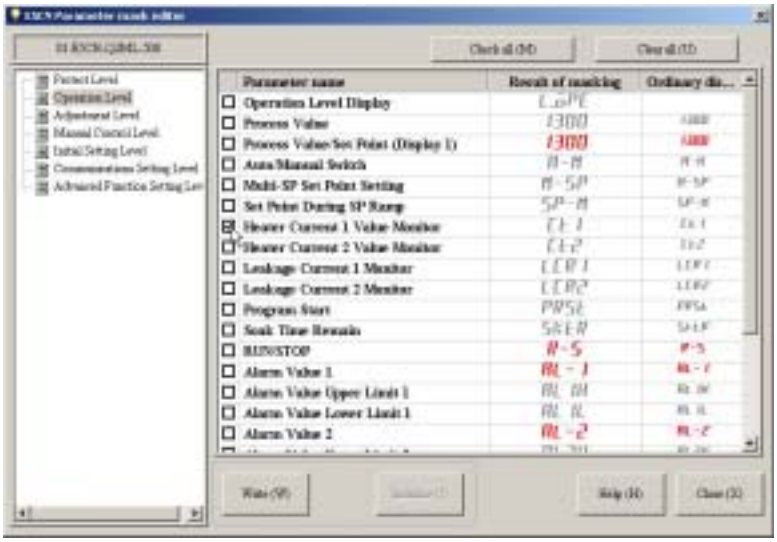
Reference:

Parameter mask editor is a function that hides unnessary parameters from parameters displayed on a device. This function is useful when to display only nessesary parameters and to hide particular parameters so that final users cannot make modifications.

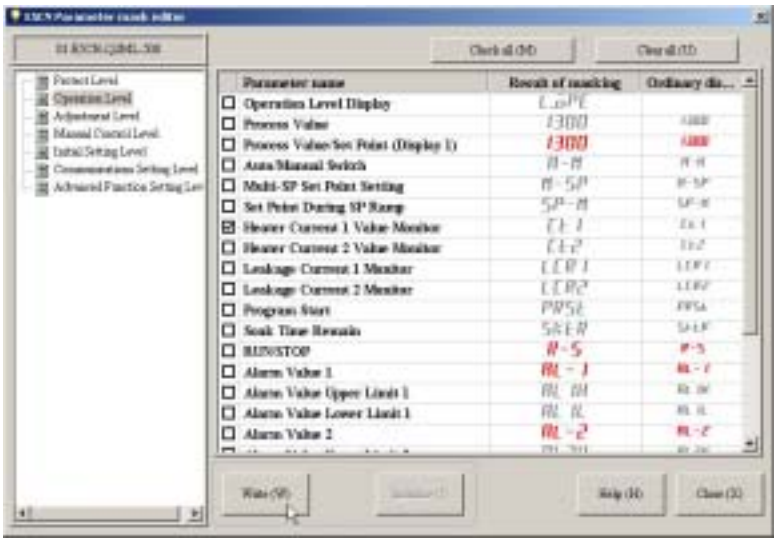
1. Select ***Options*** in the menu bar on CX-Thermo -> ***Parameter Mask Editor***.



2. When the ***Parameter mask editor*** box is displayed, select a check box on the left side of parameter names to activate parameter mask editor (hidden during front key operation).



3. When clicking ***Write***, setting data of a parameter mask editor will be written into a device and will be updated on CX-Thermo.



Note:

In parameter mask editor dialogue box, parameter mask settings (condition of check boxes on the left side of parameter names) in a connected device and a settings without parameter mask (default display) are displayed. The condition of check boxes on the left side of parameter names does not display parameter mask settings on CX-Thermo data file.

Reference:

When clicking ***Write***, setting data of a parameter mask editor will be written into a device and will be reflected on CX-Thermo. If you want to transfer the same parameter mask editor to a different device, execute a transfer from a computer to a device, select ***Download All*** or ***Download Changed from Default*** and the data in parameter mask editor will be written into a device. The setting data in parameter mask editor will be saved in a CX-Thermo data file.

To restore parameter mask settings to a factory default condition, click ***Initialize.***

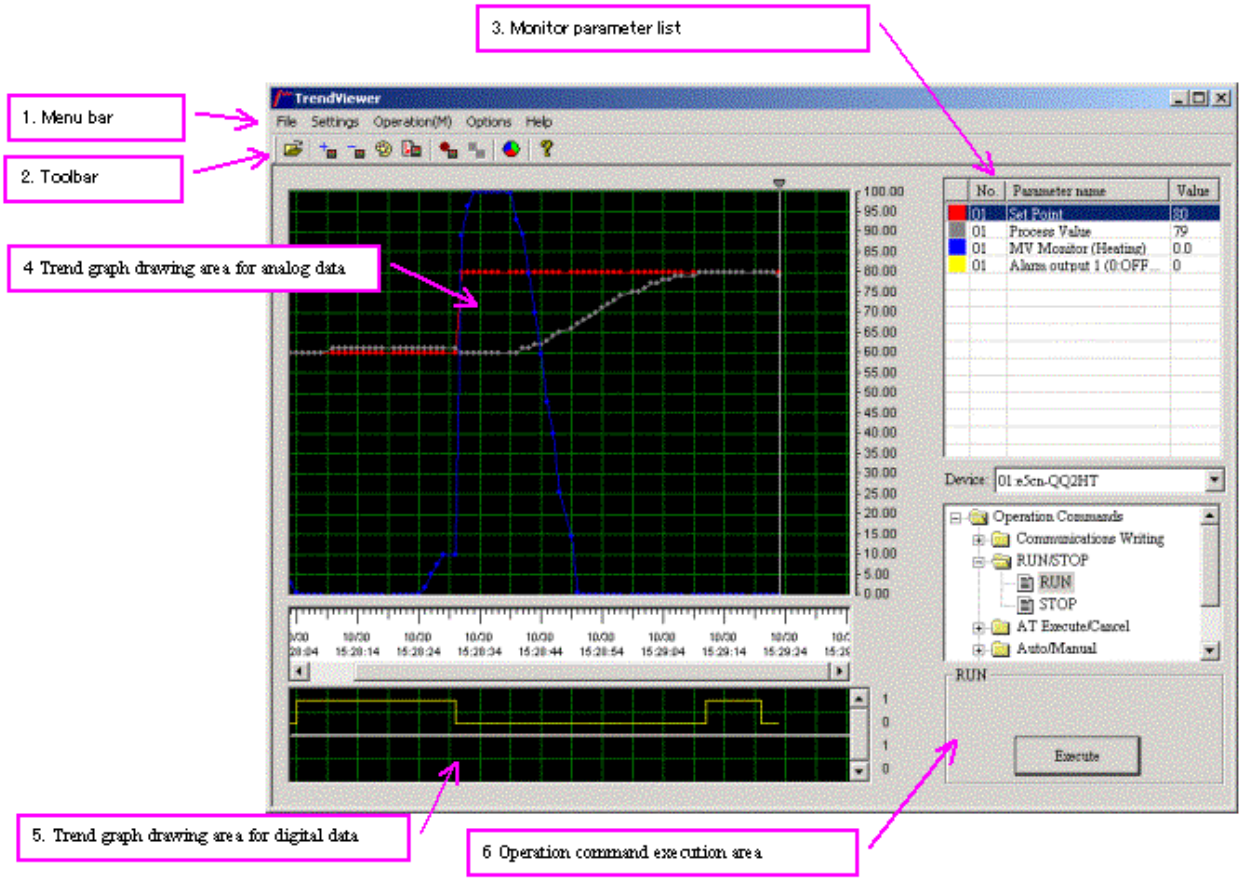
7 segment or 11 segment fonts are used on a front panel display in a device in parameter mask setting dialog box. When this display is set with a plain text, necessary fonts have to be installed.

Refer to the "Installing Fonts (7 segment/11 segment)" for instructions on how to install fonts.

Chapter 4 TrendMonitor

4.1 The TrendViewer Screen

■ **Items on TrendViewer screen**



Name	Functions
1. Menu bar	Select operations from the menu bar.
2. Toolbar	Displays frequently used operations in the menu bar with buttons.
3. Monitor parameter list	Displays a parameter name to monitor, drawing display color of a trend graph and a monitor value
4. Trend graph drawing area for analog data	Displays analog data graph such as a process value or a set point. When mark in the upper graph is dragged while the monitor is down, the current monitor value will be displayed on monitor parameter list. When a communications error occurs, a large mark will be plotted.
5. Trend graph drawing area for digital data	Displays digital data (0/1) graph such as alarm ON/OFF status.

6. Operation command execution area	Select a device from the operation command execution list, select operation commands in the tree, and then click ***Execute*** to run operation commands and change the device status.

■ **Menu List**

Menu	Icon	Submenu		Description
File		Open		Loads a saved trend data file. (*1)
		Exit		Closes TrendViewer. (*1)
Settings		Trend Setting		Sets a trend graph scale, logging intervals, an output direction folder of trend data file. (*1) (*2)
		Item	Add	Adds a parameter to monitor. (*1)
			Deletion	Deletes a parameter to monitor. (*1)
			Change Color	Changes a drawing display color of trend graph. (*1)
			Change Value	Changes a parameter setting value.
Operation		Start Monitor		Starts monitoring. (*1) A trend data file will be automatically generated.
		Stop Monitor		Stops monitoring. A trend data file will be automatically saved.
Options		Fine Tuning		Performs fine-tuning.
		Send Open Command		Sends specified commands.
Help		Help Contents		Displays the CX-Thermo help screen.
		About TrendViewer		Explains the newest version of CX-Thermo.

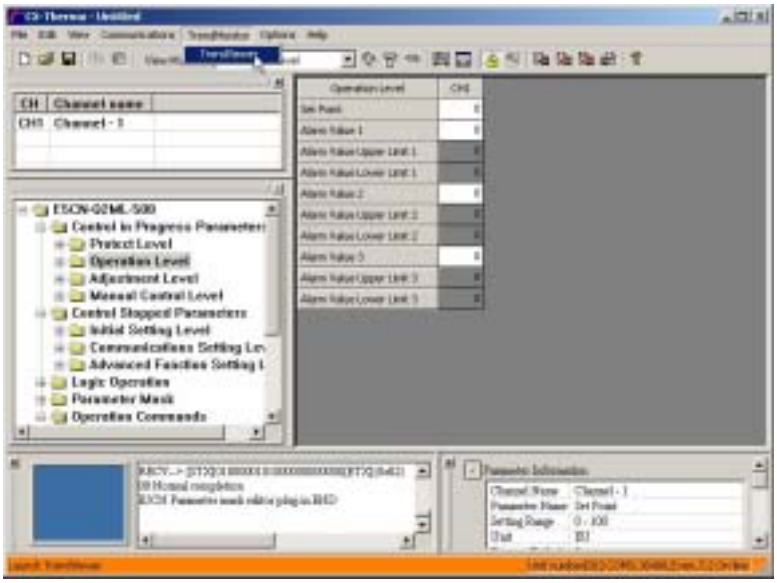
*1 Available only when monitoring is stopped.

*2 A vertical scale in trend graph can be changed while on monitoring.

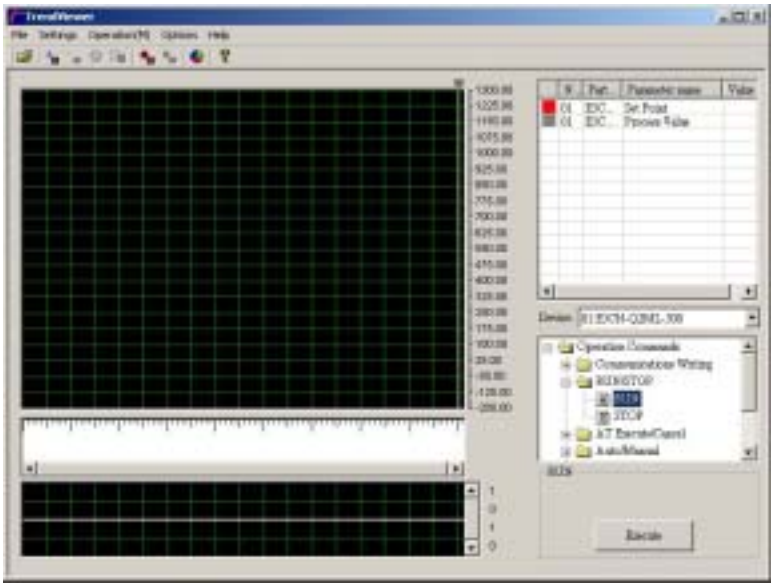
4.2 TrendViewer Operation Procedures

4.2.1 Starting TrendViewer

1. Follow the "Online Connection" procedure to set online and select ***TrendMonitor*** in the menu bar on CX-Thermo -> ***TrendViewer***.



2. TrendViewer will be started and the screen appears as below.

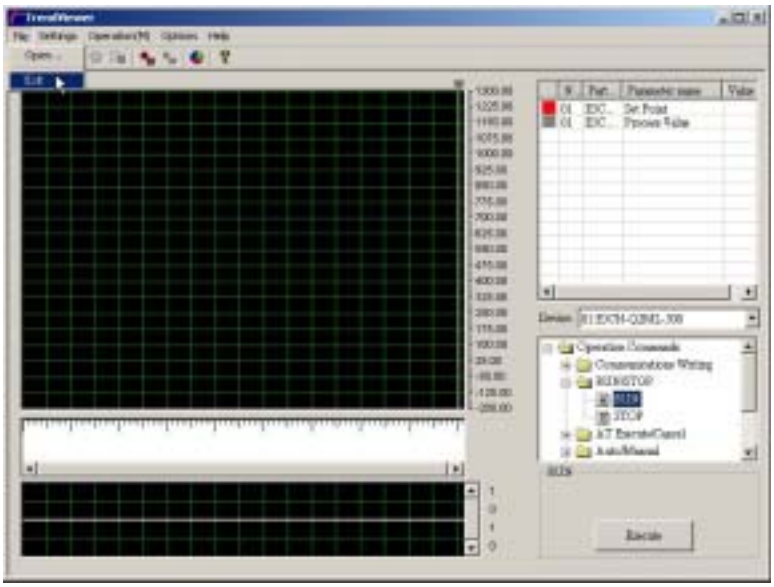


Note:

You cannot operate the CX-Thermo screen, while TrendViewer is running.

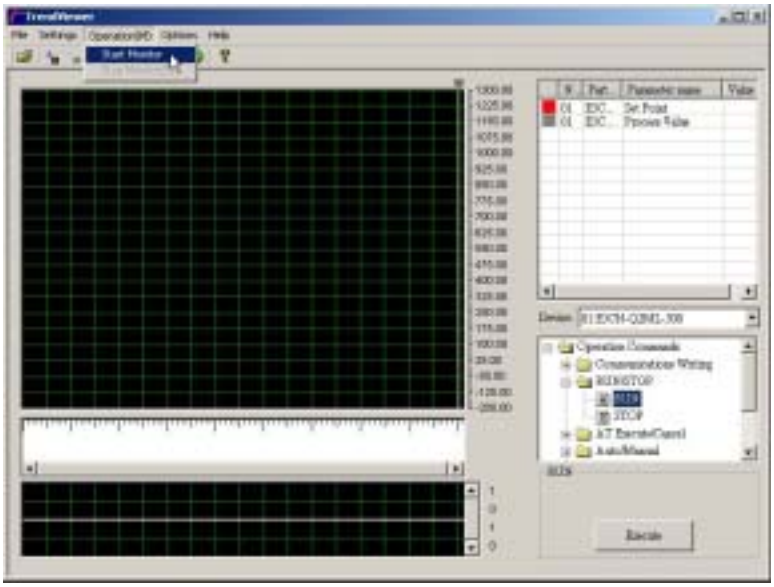
4.2.2 Closing TrendViewer

Select ***File*** in the menu bar on the TrendViewer screen -> ***Exit***.



4.2.3 Starting TrendMonitor

Select ***Operation*** in the menu bar on the TrendViewer screen -> ***Start monitor***.

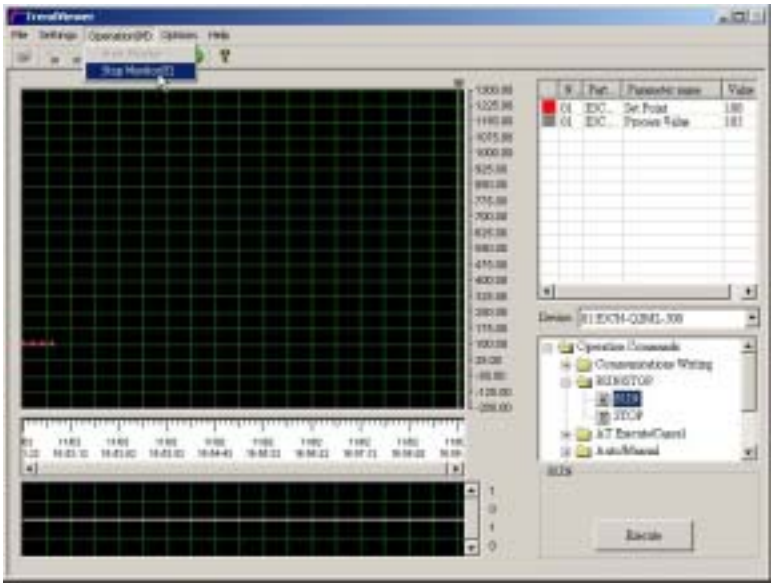


Reference:

When the monitoring is started, the data will be automatically output to trend data file.

4.2.4 Stopping TrendMonitor

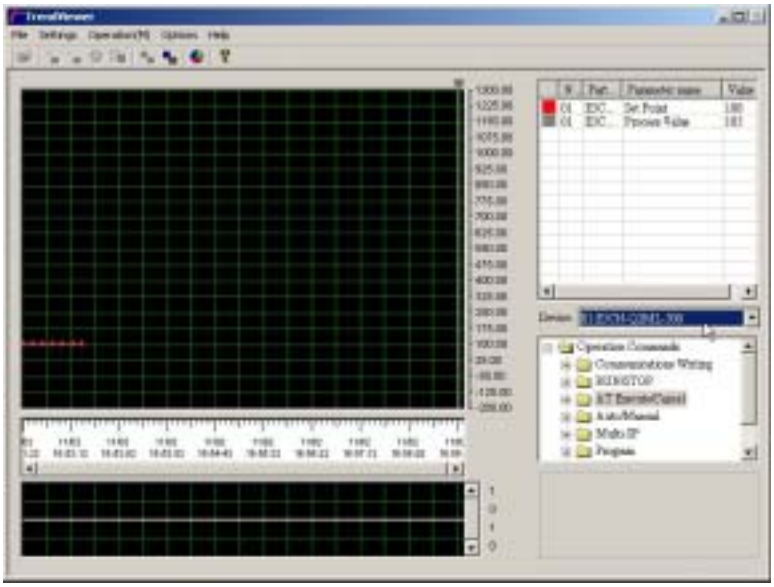
Select ***Operation*** in the menu bar on the TrendViewer screen -> ***Stop monitor***.



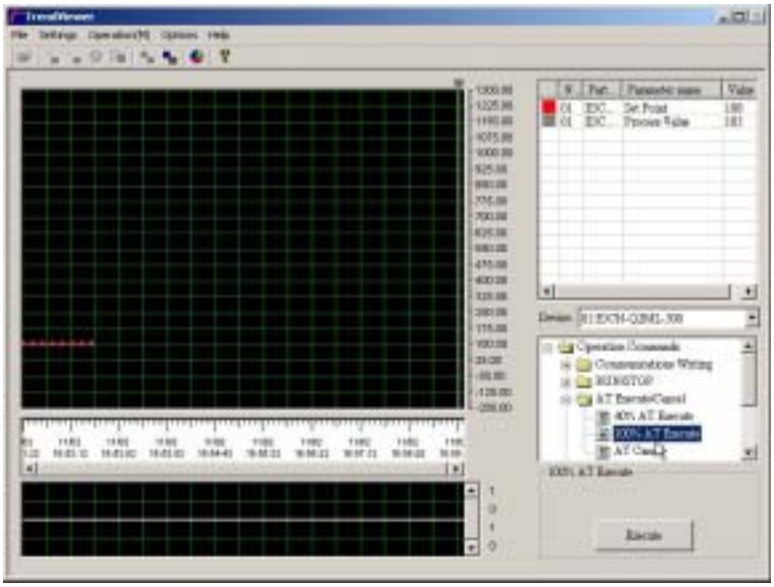
4.2.5 PID parameter tuning

■ **Auto-tuning (AT)**

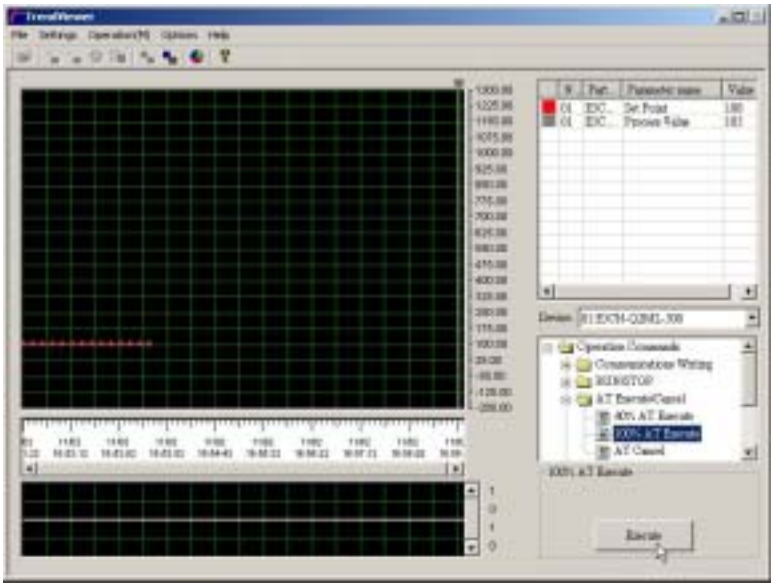
1. Select a device to execute auto-tuning.



2. Click ***AT Execute***.



3. Click ***Execute*** and auto-tuning in a device will be started.



Reference:

Select ***AT cancel*** and click ***Execute*** to stop auto-tuning.

■ **Fine-tuning**

Reference:

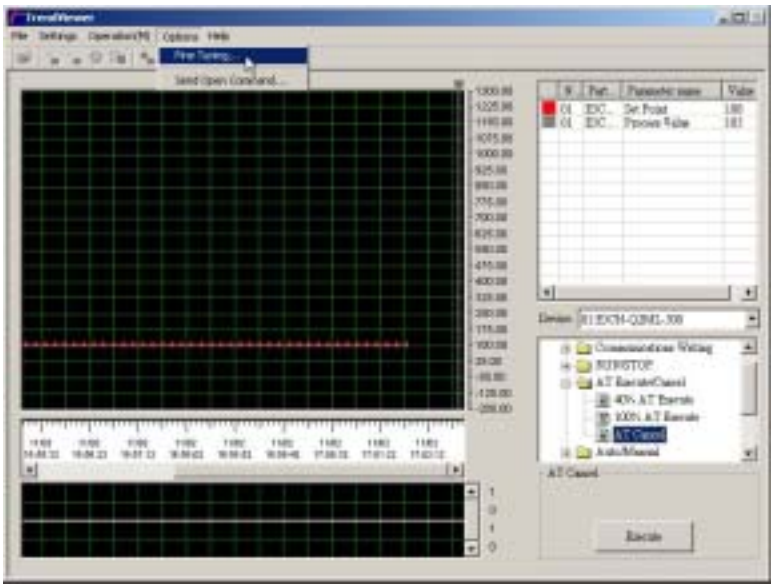
When Fine-tuning is executed, CX-Thermo automatically calculates a new PID parameter depending on each command level enterd by users. It can improve control response condition, such as overshoot curving or temperature rise speed.

Note:

Recommend to run fine-tuning after auto-tuning in a device is finished using"Auto-tuning (AT)" instruction.

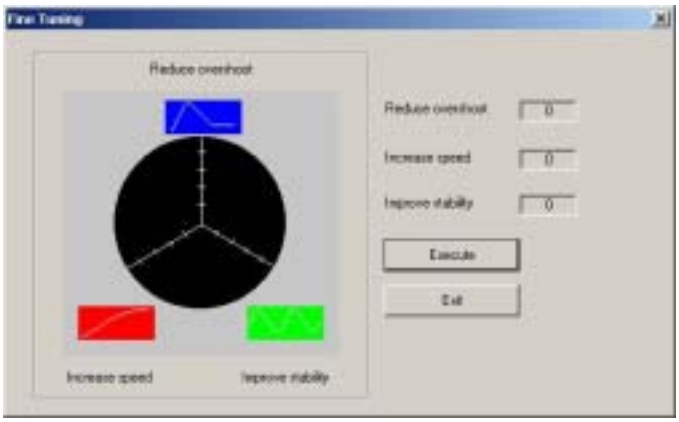
You cannot use fine-tuning for ON/OFF control or for a channel controlled by gradient temperature control.

1. Select ***Option*** in the menu bar on the TrendViewer screen -> ***Fine Tuning***.

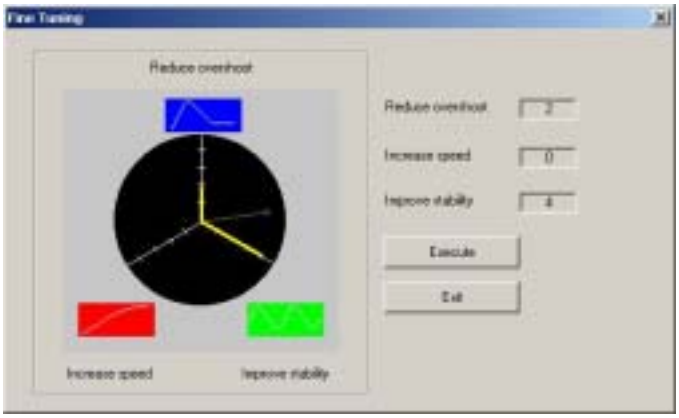


2. When the following ***Select channel for Fine Tuning*** dialog box is displayed, select ***Device*** and ***Channel,*** and then click ***OK***.

3. When the following ***Fine Tuning*** dialog box is displayed, move the mouse pointer to the circle graph that sets fine-tuning level and click it or drag it. The fine-tuning allows to select up to two commands to improve from ***Reduce overshoot***, ***Increase speed*** and ***Inprove stability*** .

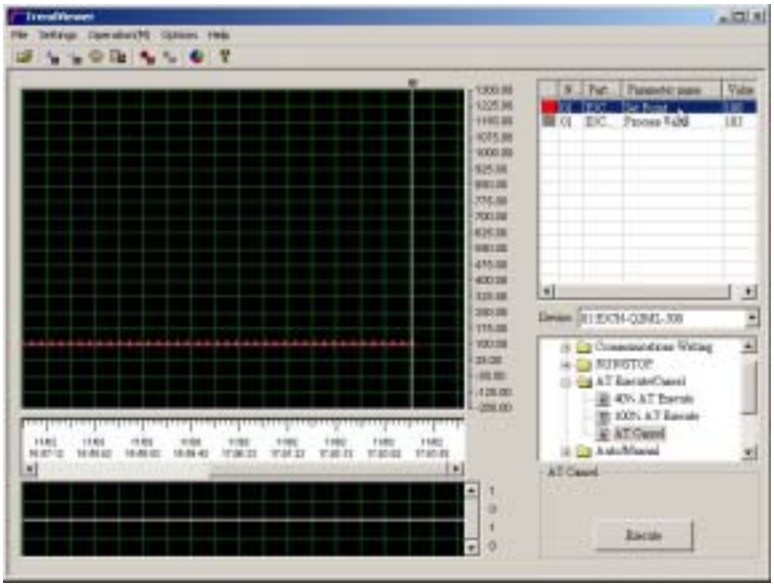


4. After tuning level is entered, click ***Execute*** to set a new PID parameter in a device.

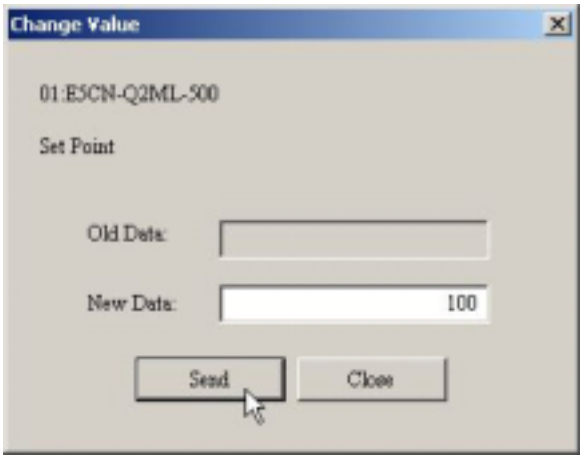


4.2.6 Changing a parameter setting value

1. Double-click the parameter in monitoring parameter list to change a parameter setting value.

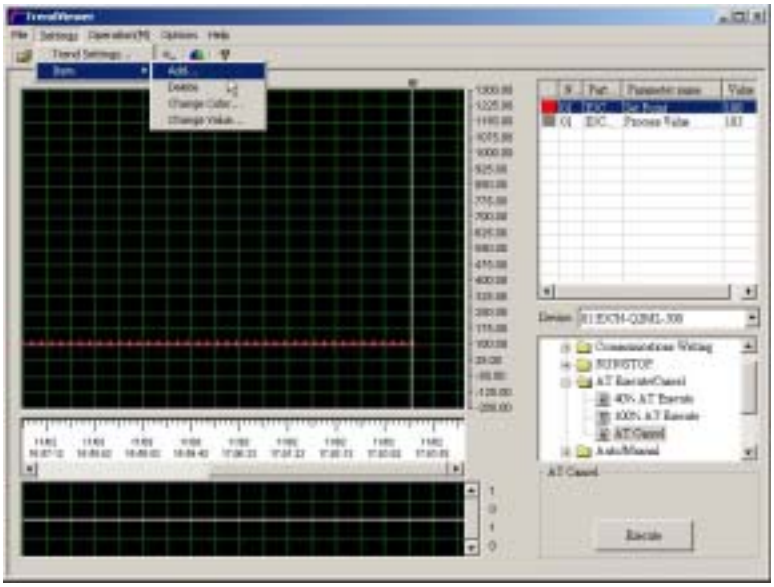


2. When the following ***Change Value*** dialog box is displayed, enter ***New Data*** and then click ***Send***.

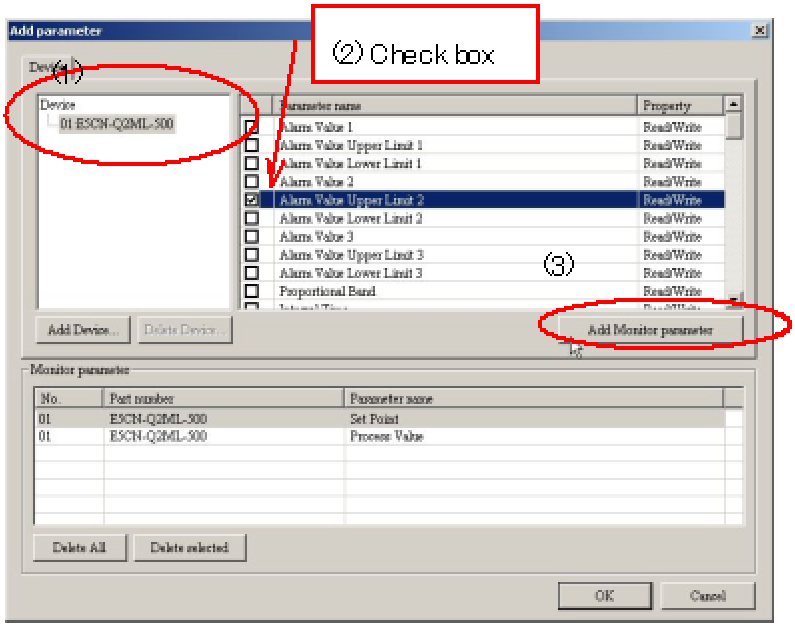


4.2.7 Changing parameters to monitor

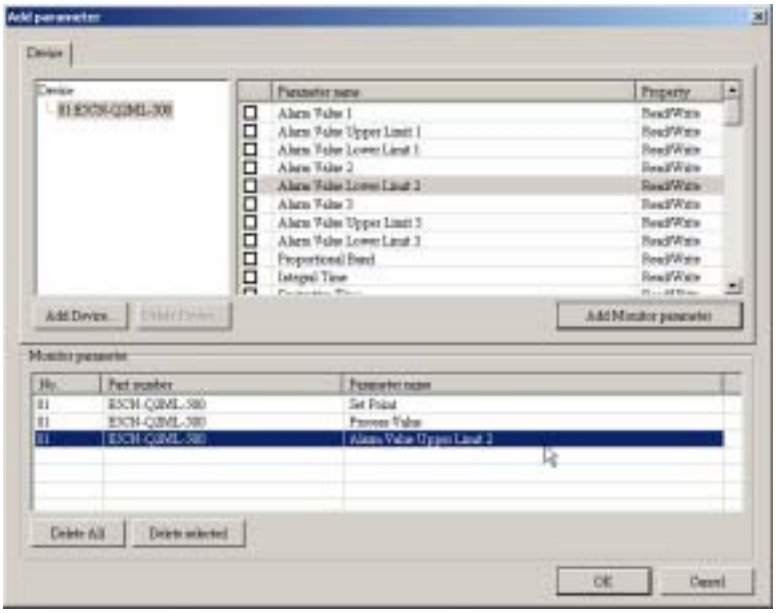
1. Select ***Settings*** in the menu bar on the TrendViewer screen -> ***Item*** -> ***Add.***



2. When the following box ***Add Parameter*** dialog is displayed, select a device (see 1), check a checkbox on a parameter name (see 2) to choose which parameter to monitor, and then click ***Add Monitor parameter.*** (see 3).



3. The checked parameter will be added in the ***Monitor Parameter*** list.

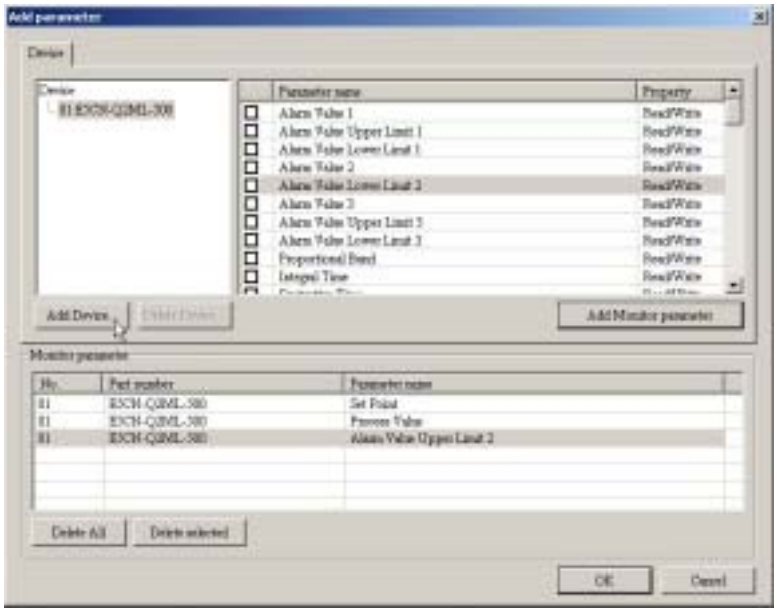


Reference:

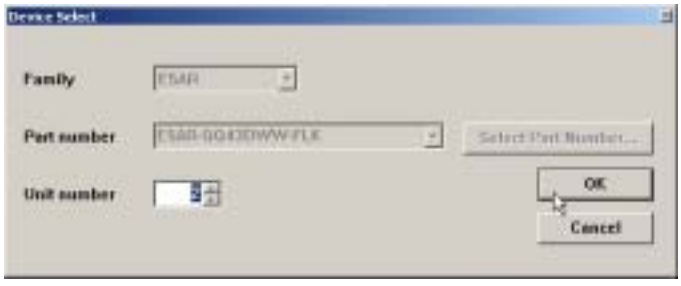
Up to 127 parameters can be monitored.

To monitor a parameter in other device with a different unit number, follow the steps below.

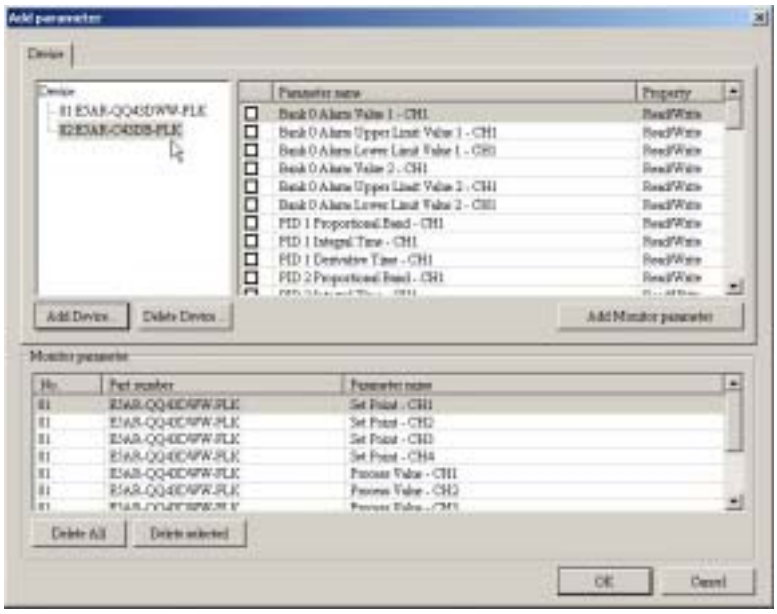
1. Click ***Add Device*** in the ***Add parameter*** dialog box.



2. When the following ***Device select*** dialog box is displayed, Select ***Unit number*** and click ***OK***.

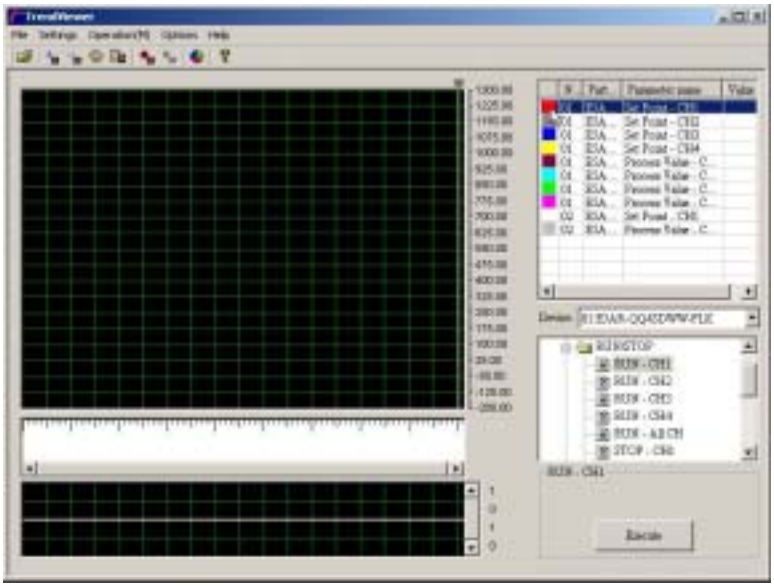


3. The device will be added.

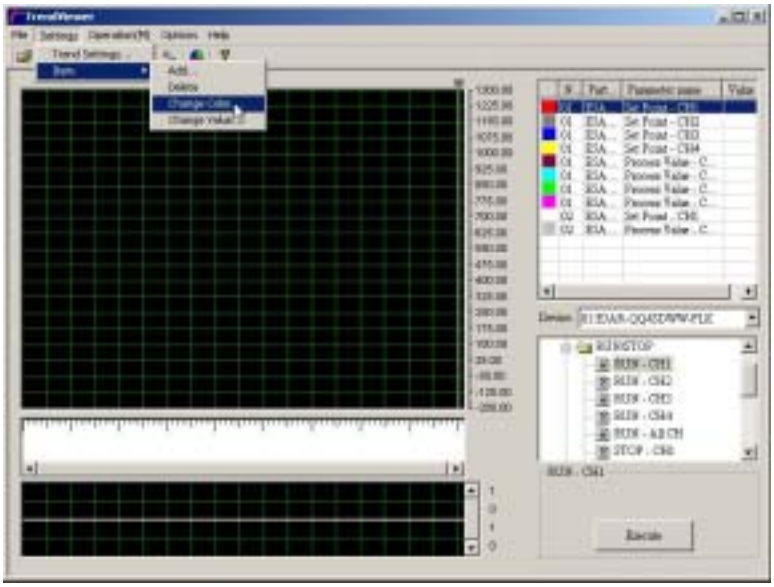


4.2.8 Changing a drawing color of trend graph

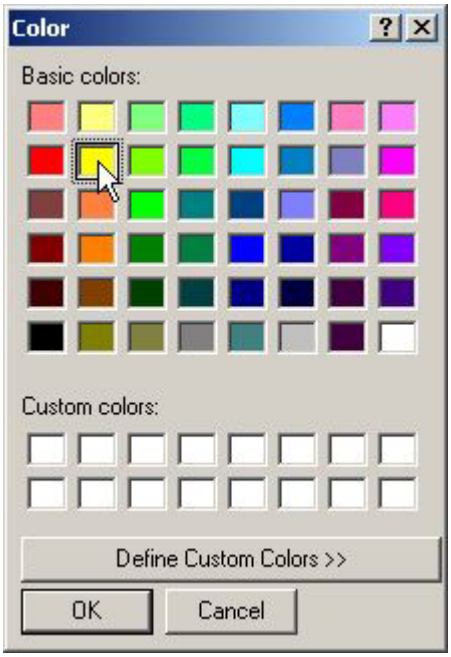
1. Select a parameter on the monitor parameter list to change a drawing display color.



2. Select ***Settings*** in the menu bar on the TrendViewer screen -> ***Item*** ->***Change Color***.

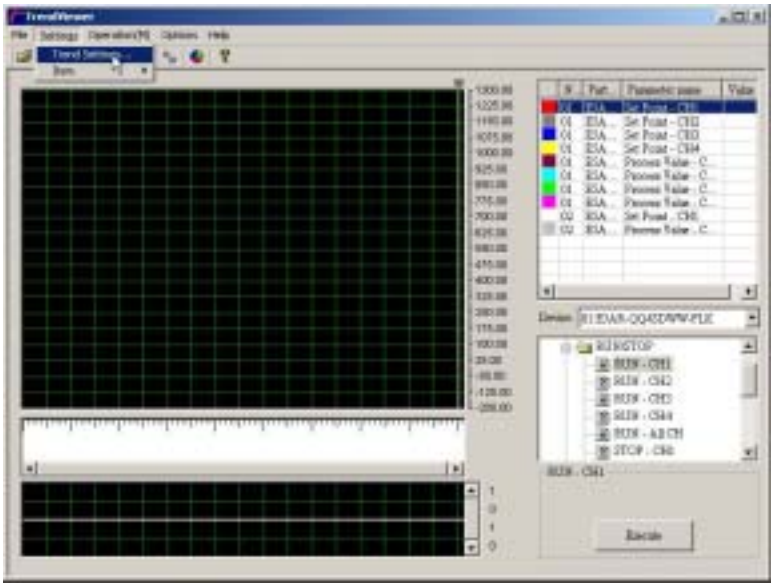


3. When the following ***Color*** dialog box is displayed, select a color and click ***OK***.

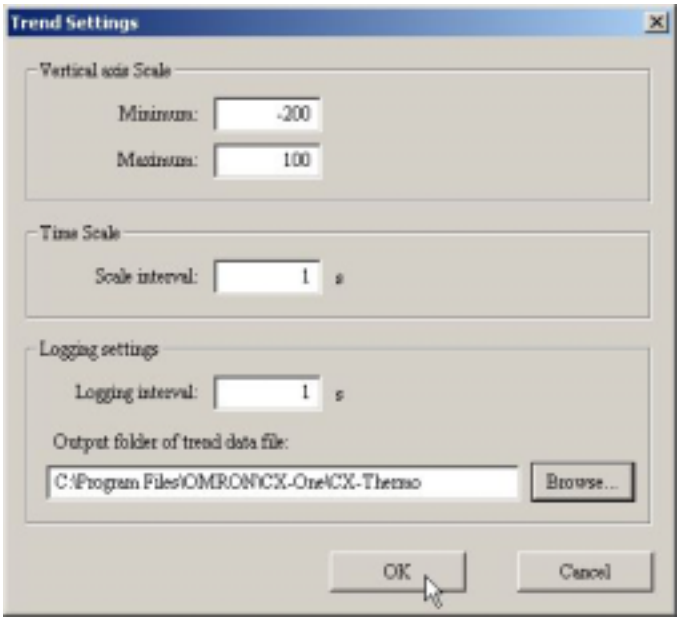


4.2.9 Settings for trend graph and a logging

1. Select ***Settings*** in the menu bar on the TrendViewer screen -> ***Trend settings***.



2. When the following dialog box ***Trend Settings*** is displayed, set ***Vertical axis Scale***, ***Time Scale***, and ***Logging settings*** and then click ***OK***.



Note:

You may not be able to collect the data in specified logging intervals, depending on operating conditions (such as computer processing speed, communications speed, a number of parameter to monitor, or communications retry). In such case, the data will be collected with the shortest intervals in the use environment.

Reference:

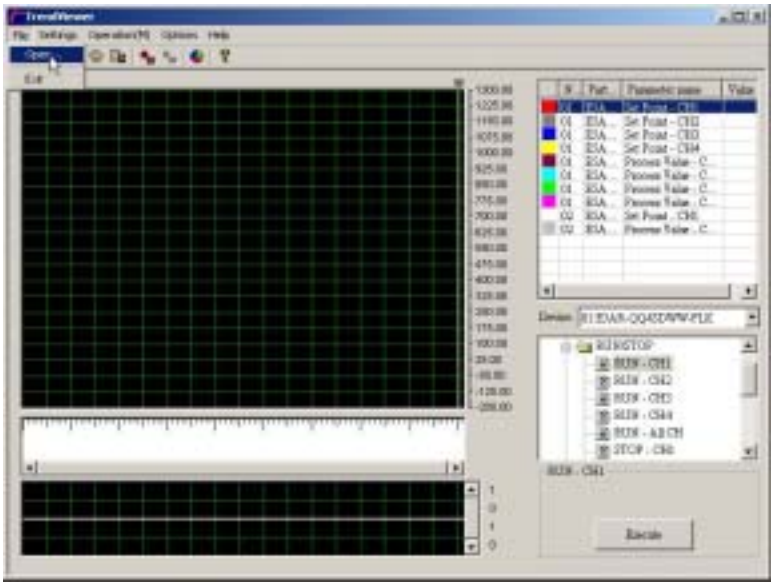
- The logging intervals can be set from 1 to 7200 seconds.
- The trend data file that is set in the ***Output folder of the trend data file*** would be saved in the "LOGFILEyyyymmddhhmmss.txt" format.

For instance, a file generated at 1:23PM with 45seconds on January 2nd 2007 would be saved as "LOGFILE20070102012345.txt".

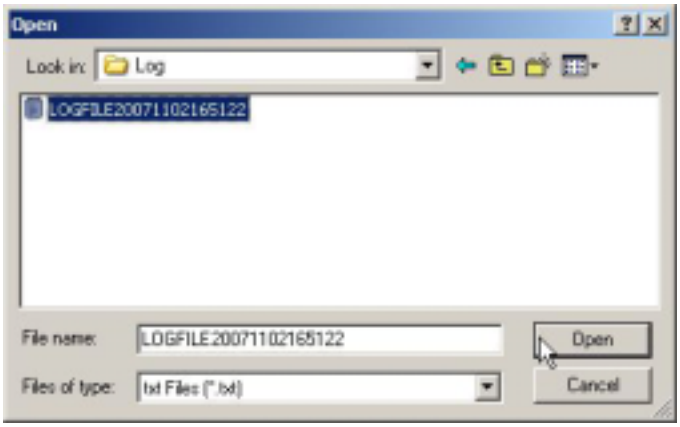
- A defaulted trend data file would be saved in "C:\Program Files\OMRON\CX-One\CX-Thermo\Log".
- A new trend data file will be created every two hours.
- A trend data file is a tab-deliminated text file.
  Follow the Graph display on a trend data file in Microsoft Excel instruction to create a graph display in Microsoft Excel.

4.2.10 Displaying previously performed trend data

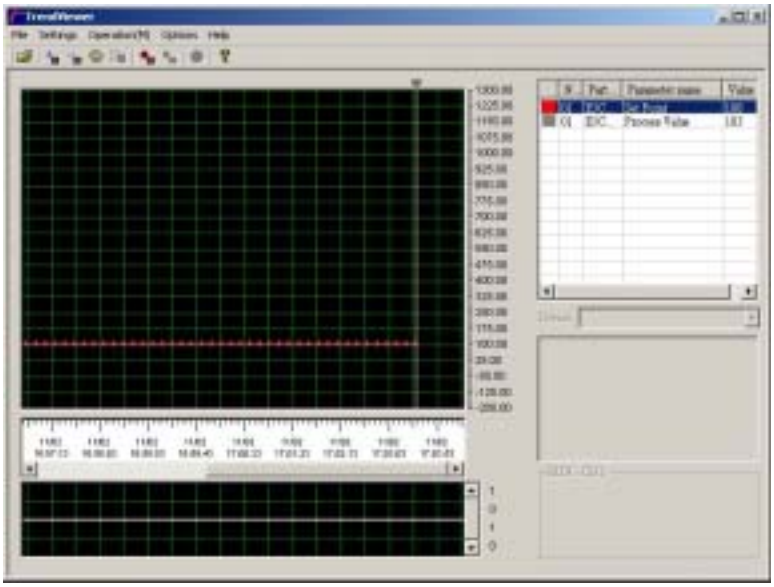
1. Select ***File*** in the menu bar on the TrendViewer screen -> ***Open***.



2. When the ***Open*** dialog box is displayed, select trend data file -> click ***Open***.

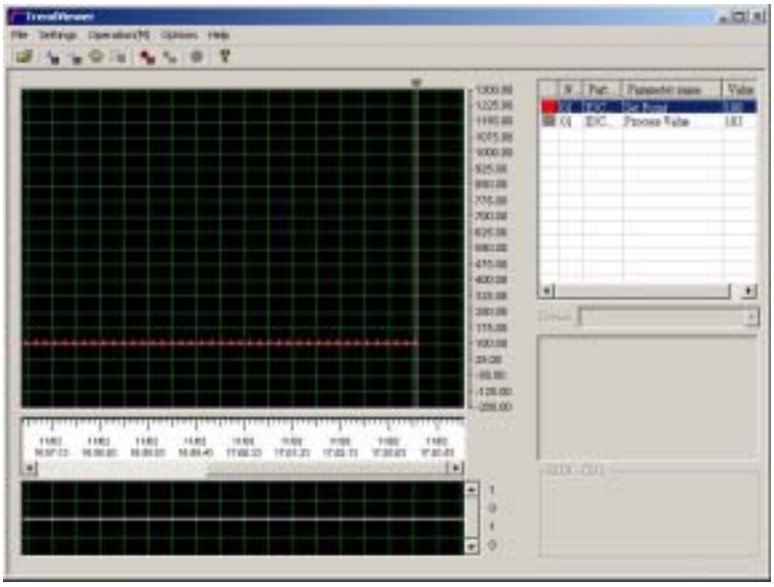


3. A trend data file will be loaded.

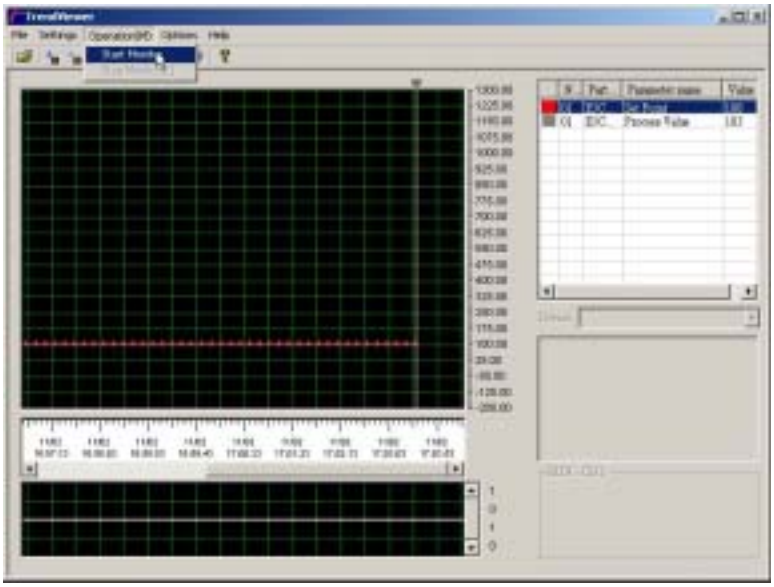


4.2.11 Performing TrendMonitor with previously performed TrendMonitor file

1. Follow the steps in Displaying previously performed trend data to load a trend data file.



2. Select ***Operation*** in the menu bar on the TrendViewer screen -> ***Start Monitor***.



Chapter 5 Other Information

5.1 Precaution for Use

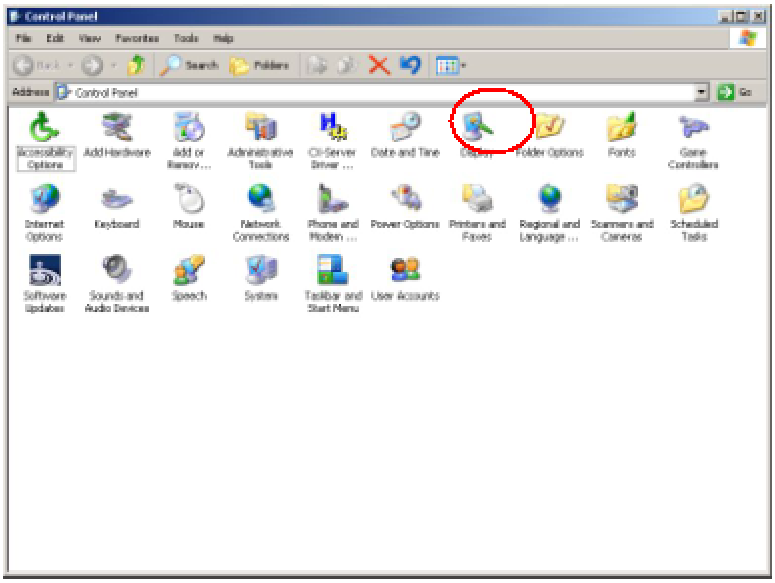
- Refer to the ***Install Guide*** supplied with this software for information on how to install and uninstall.
- The CX-Thermo Software does not load the parameter file in ThermoTools software.
  The mutually supported models can be converted into a file for CX-Thermo by using the ***FileConversion*** software.
  To start the ***FileConversion***, select ***Program*** in ***Start*** menu in Microsoft Windows -> ***Omron*** -> ***CX-One*** -> ***CX-Thermo*** -> ***FileConvEST2***.
- TrendViewer has an easy logging system that can record up to 2 hours to adjust the control parameter such as PID parameter.
  When collecting continuous data for prolonged periods of time, the amount of time to collect is different depending on the computer hardware specifications (such as amount of memory and free hard disc space).
  A new trend data file is created every two hours.
- Do not unplug a USB cable while online. CX-Thermo must be offline to unplug a USB cable. CX-Thermo does not restore online status by just plugging back in a USB cable. CX-Thermo must be offline once, plug back in a USB cable and then connect CX-Thermo to online again.
- When other model is connected on the same communications line with E5ZN, the last digit of hexadecimal term in unit number must be a different number.
  If the last digit of hexadecimal term in unit number is duplicated, CX-Thermo may not operate normally.

5.2 Installing Fonts (7 segment/11 segment)

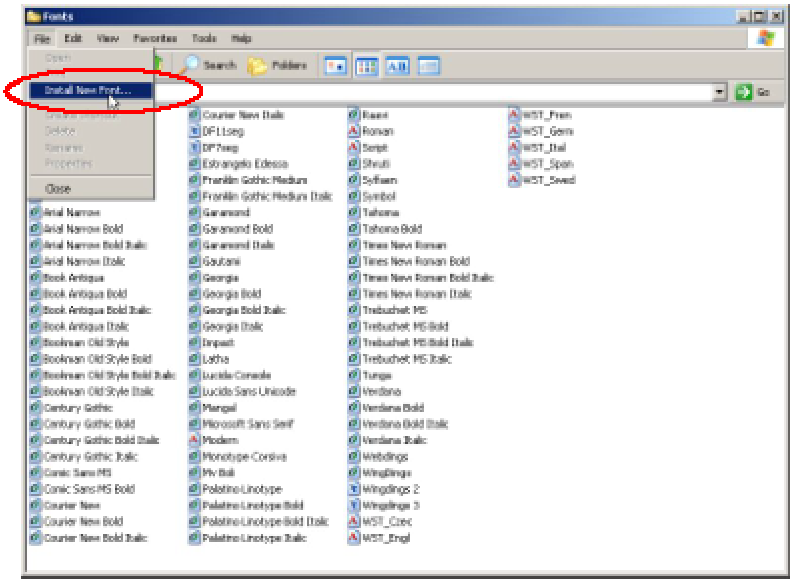
7 segment or 11 segment fonts are used to display front panel on a device on CX-Thermo data file in HTML format or the parameter mask setting dialog box. When this display is set with a plain text, necessary fonts have to be installed as explained below.

1. Select ***Settings*** in ***Start*** menu in Microsoft Windows -> ***Control Panel***.

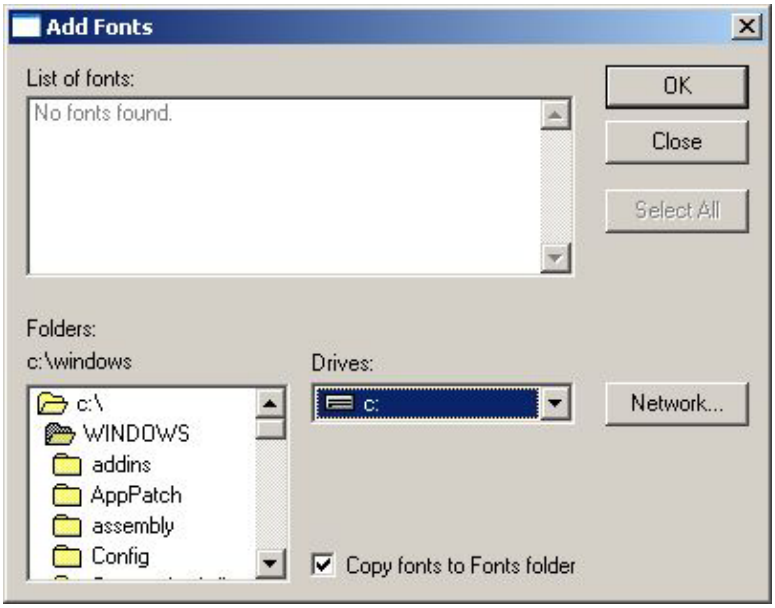
2. Double-click the ***Fonts*** icon.



3. Click ***File*** in the menu bar -> ***Install New Font***.



4. The following dialog box ***Add Fonts*** will be displayed.



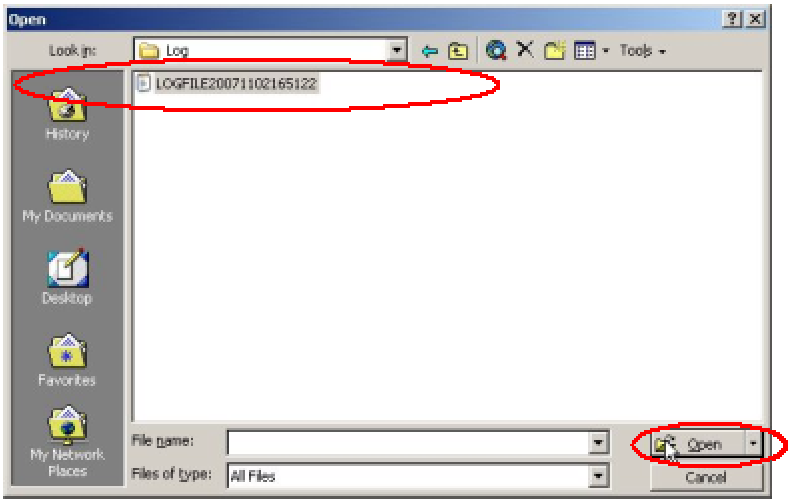
5. Insert CX-Thermo CD into CD-ROM drive and select CX-Thermo CD in ***Drives***.
6. Select ***DF7seg*** and ***DF11seg*** in the ***List of fonts***, and then click ***OK***.

5.3 Graph display on a trend data file in Microsoft Excel

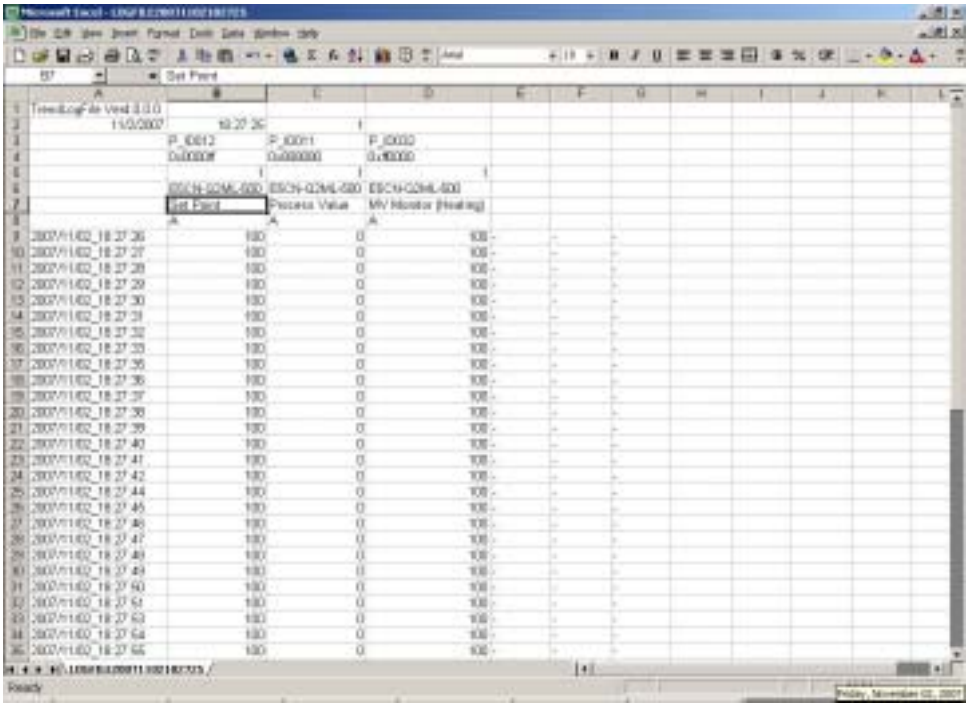
Refer to this instruction for graph display or analysis on a trend data file in Microsoft Excel graph.

1. Start Microsoft Excel and click ***File*** in the menu bar -> ***Open***.

2. Select ***All Files*** in the ***Files of type***, select trend data, and then click ***Open***.



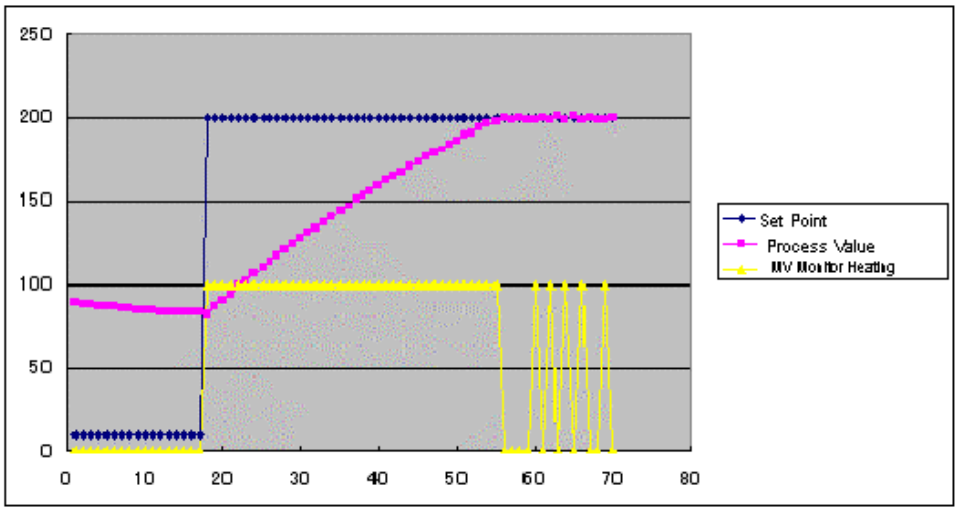
3. A trend data file in Microsoft Excel will be loaded.



Each data defines as follows;

- 5th line: monitored parameter unit number
- 6th line: monitored parameter in Part number
- 7th line: monitored parameter name
- 9th line: time and monitor value

4. Create a graph using above data. (Refer to the Microsoft Excel help for instructions)



5.4 How to install a driver when using a USB cable

When E58-CIFQ1, E58-CIFIR, or K3SC and a USB cable is used to connect a device with a computer, driver is required.

This section explains the procedures to use a USB cable for the first time. The installation procedures differ depending on computer operating system. The folowing procedures are explained for Windows XP.

1. Connect E58-CIFQ1 or E58-CIFIR to a USB port in a computer. For K3SC, turn on the power, connect a USB port in K3SC and a USB port in a computer with a USB cable.

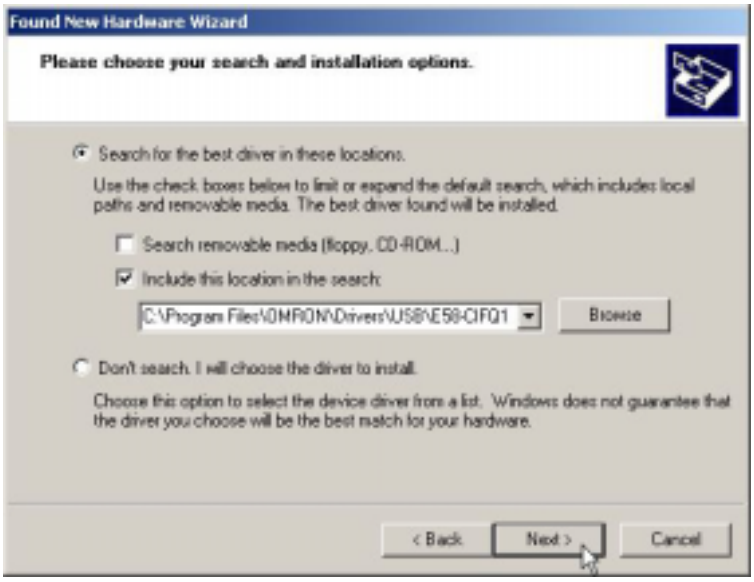
2. When the following screen is displayed, select ***Inatall from a list or specified location*** and click ***Next***.

3. When the following screen is displayed, make sure that the below directory is displayed in ***Include this location in the search*** and click ***Next***.

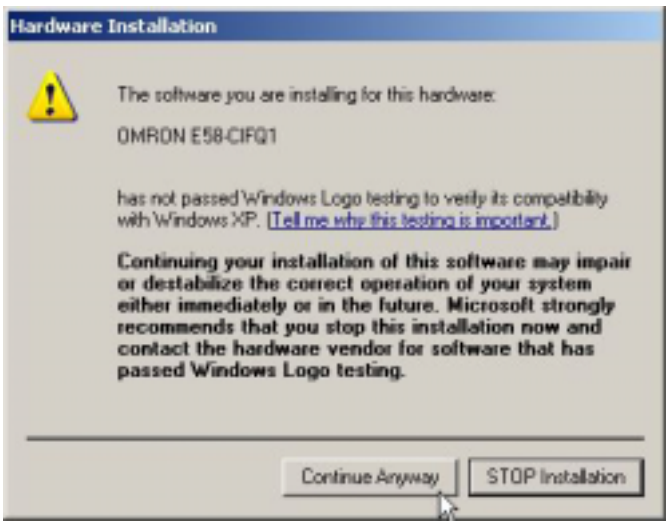
For E58-CIFQ1, C:\Program Files\OMRON\Drivers\USB\E58-CIFQ1

For E58-CIFIR, C:\Program Files\OMRON\Drivers\USB\E58-CIFIR

For K3SC, C:\Program Files\OMRON\Drivers\USB\K3SC



4. If the screen below appears, click ***Continue Anyway***.



5. When the installing of a driver is finished normally, the following screen will be displayed. Click ***Finish***.

6. For E58-CIFQ1 or E58-CIFIR, the screen same as 2 will be displayed and then follow the procedures from 3 to 5 for installation.