

# Device Integrated Management Program **DAQMaster**

## USER MANUAL





# Preface

Thank you for purchasing an Autonics product.

This user manual contains information about the product and its proper use, and should be kept in a place where it will be easy to access.





# User Manual Guide

This user manual contains information about the product and its proper use, and should be kept in a place where it will be easy to access.

- Please familiarize yourself with the information in this manual before using the product.
- This manual provides detailed information on the product's features. It does not offer any guarantee concerning matters beyond the scope of this manual.
- This manual may not be edited or reproduced in either part or whole without permission.
- A user manual is not provided as part of the product package. Visit [www.autonics.com](http://www.autonics.com) to download a copy.
- The manual's content may vary depending on changes to the product's software and other unforeseen developments within Autonics, and is subject to change without prior notice.
- This manual is produced based on DAQMaster 2.0 version.



# User Manual Symbols

Symbol	Description
 <b>Note</b>	Supplementary information for a particular feature.
 <b>Warning</b>	Failure to follow instructions can result in serious injury or death.
 <b>Caution</b>	Failure to follow instructions can lead to a minor injury or product damage.
 <b>Ex.</b>	An example of the concerned feature's use.
※1	Annotation mark.



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# 1 DAQMaster Overview

## 1.1 Overview

DAQMaster is a comprehensive device management program that can be used with Autonics communication supporting products.

DAQMaster provides GUI control for easy and convenient management of parameters and multiple device data monitoring.



## 1.2 Features

DAQMaster has the following features:

### (1) Multiple Device Support

- Simultaneously monitor multiple devices and set parameters.
- Simultaneously connect units with different addresses in a single device.
- Multiple RS-233 ports are available for communications using Modbus remote terminal unit.

### (2) Device Scan

In cases of multiple units (with different addresses) connected together, the unit scan function automatically searches for units.

### (3) Convenient User Interface

Freely arrange windows for data monitoring, properties, and projects.  
Saving a project also saves the screen layout.

### (4) Project Management

You can save added device information, data monitoring screen layouts, and I/O source selection as project files. Opens project files to load the saved settings.  
Provides a project list for simple and easy project file management.

### (5) Monitoring Data Log

When monitoring, data log files can be saved as either DAQMaster data files (.ddf) or CSV (.csv) files. Open files saved in .csv format directly from Microsoft Excel.  
Define log data file naming/saving rules and destination folders to make file management convenient.

### (6) Data Analysis

Performs grid and graph analyses of data files (.ddf) using DAQMaster's data analysis feature. Saves grid data as .rtf, .txt, .html, or .csv files in Data Grid.

### (7) Print Modbus Map Table Report

Print address map reports of registered Modbus devices. Modbus map table reports can be saved as html (\*.html) and pdf (\*.pdf) formats.

### (8) Multilingual Support

Supports Korean, English, Japanese, Simplified Chinese. To add a different language, modify the files in the Lang folder, rename, and save.

### (9) Script Support

Uses the Lua Script language and deals with different I/O processes for individual devices.

## 2 Installing the Program

### 2.1 System Requirements

Item	Minimum specifications
System	IBM PC compatible computer with Intel Pentium III or above
Operations	Windows 98/NT/XP/Vista/7/8/10
Memory	256 MB+
Hard disk	1GB+ of available hard disk space
VGA	Resolution: 1024x768 or higher
Others	RS232C serial port (9-pin), USB port

### 2.2 Preparations

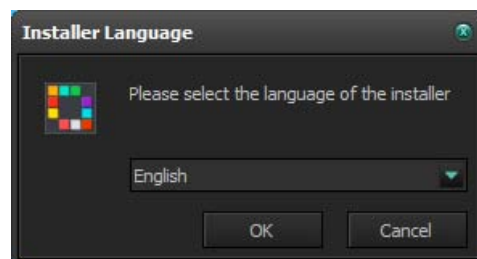
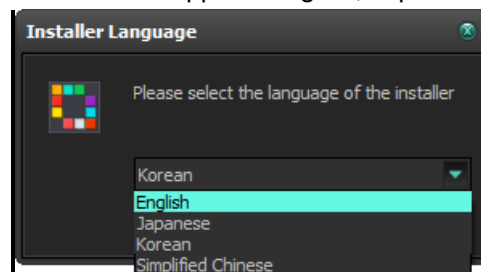
1st Download DAQMaster program at Autonics' web page([www.autonics.com](http://www.autonics.com)).

2nd Close all programs before you start DAQMaster installation.

Double-click DAQMaster setup.exe to start installation.

3rd Installer Language window appears. Select the language and click OK button.

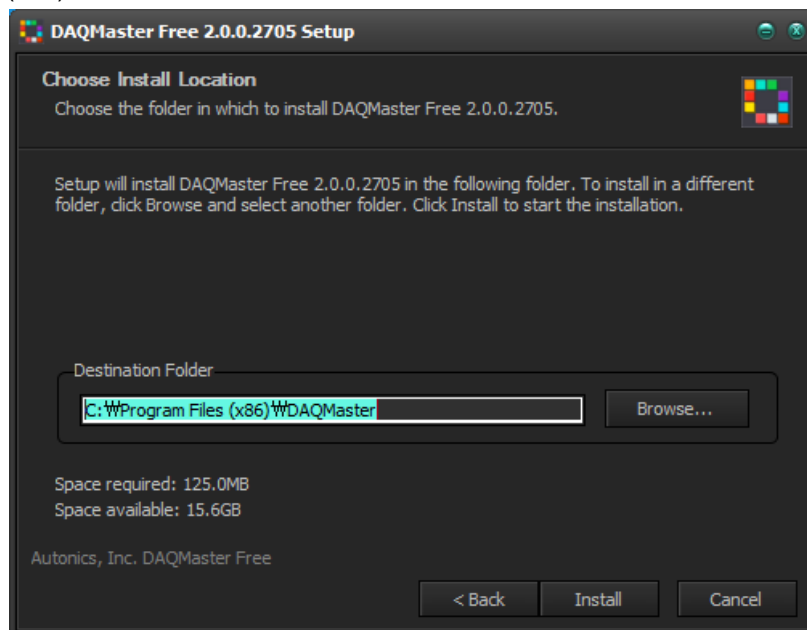
DAQMaster supports English, Japanese, Korean and Simplified Chinese.



4th Click Next in the installation welcome window.

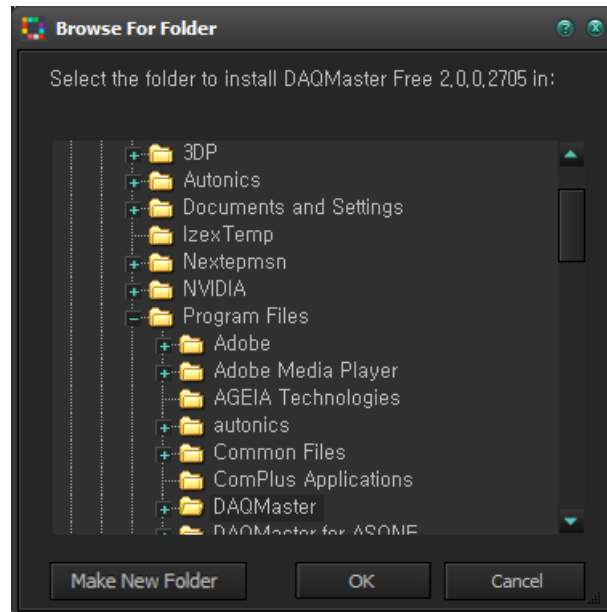


5th Choose Install Location window appears. Default installation path is C:\Program Files (x86)\DAQMaster.

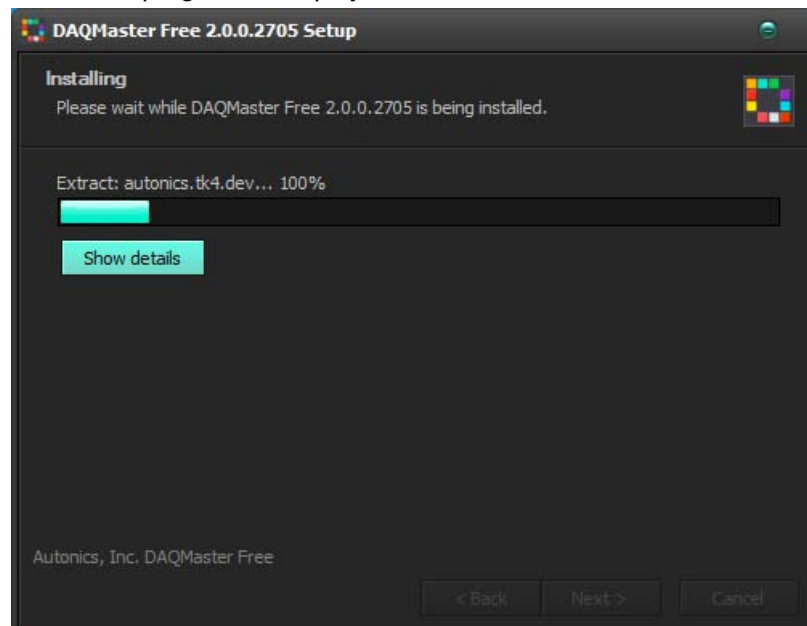




- 6th Click Install button to choose the default path for installation. Click Browse button to change the installation path. In the Browse Folder window, select the desired destination folder and then click OK to start installation.

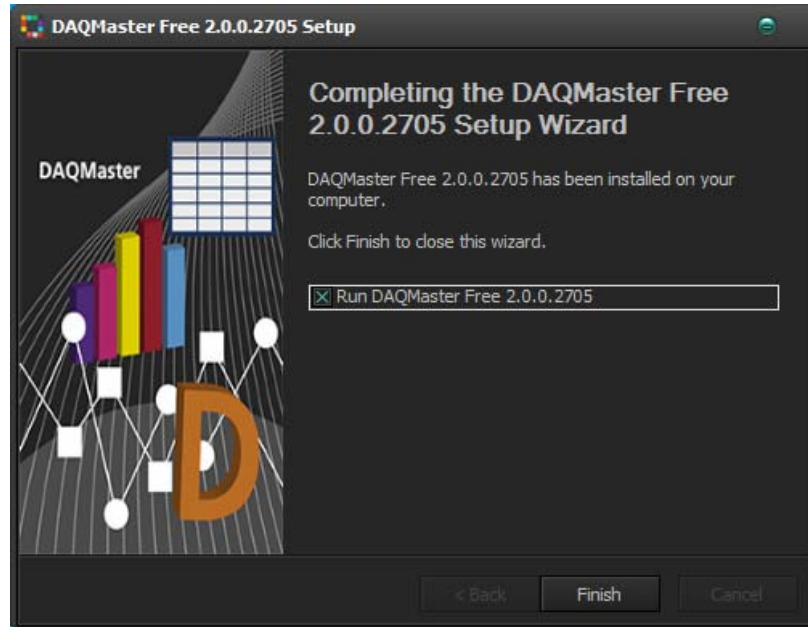


- 7th Installation progress is displayed in the status window as follows.

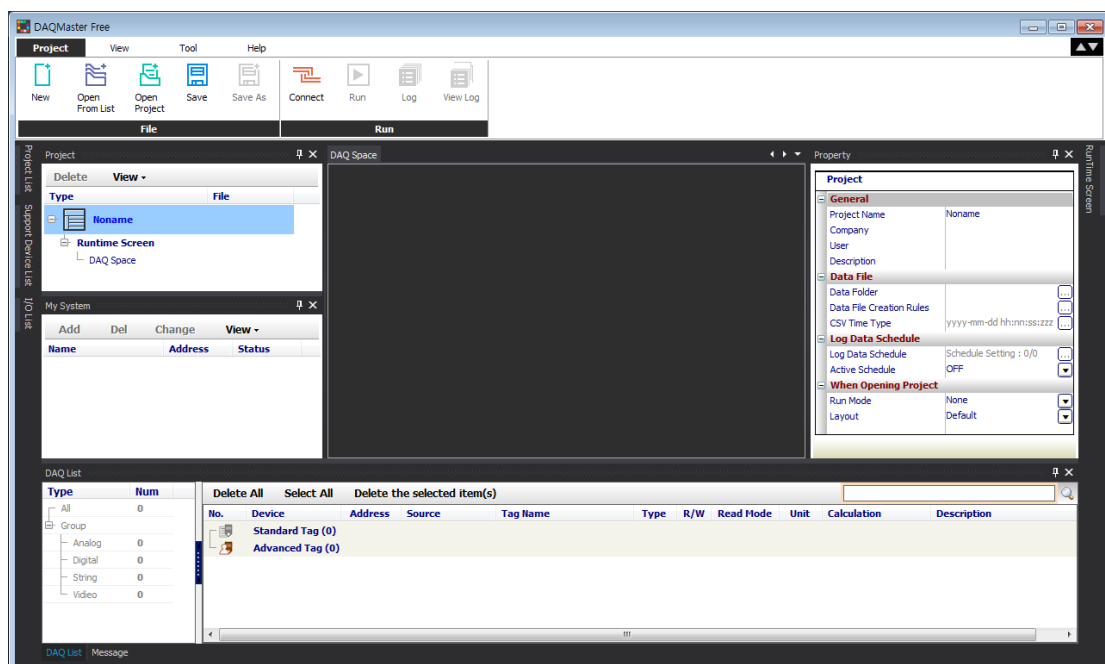


8th Installation Complete window appears after installation is completed.

If the check box in the Installation Complete window is checked, DAQMaster runs upon completion of installation. You can now run DAQMaster by double-clicking the DAQMaster icon on the desktop.



When running the program for the first time, the initial screen displays the following.

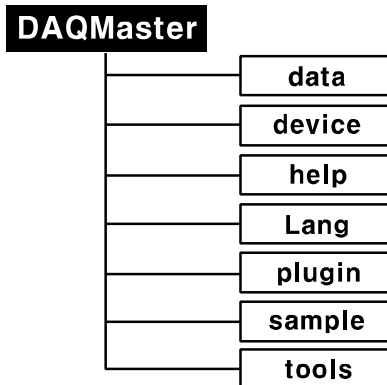


### 2.2.1 Installation Folder Structure

This section explains the folder structure created when you installed DAQMaster.

After DAQMaster installs completely, folders are created as below. The program and all relevant documents are stored in these folders.

If you selected the default installation path during installation, a DAQMaster folder is created under [C:\Program Files] as a subfolder. If you selected a new destination folder, DAQMaster folder is located in that folder.



#### (1) Device folder

Device folder contains the device information files (\*.dev), which can be monitored and set with DAQMaster. When the program is executed, the files in this folder automatically add related devices to the program.

If devices are added or upgraded after the program is installed, copy the device information file and put it into this folder. The list of available devices will be updated. However, if a communication related function is added or modified, it also changes the contents of the [plug-in] folder. Therefore changes may or may not be applied depending on the level of upgrade.

#### (2) Lang folder

The language information files (\*.lang) available in this program are contained here. The program reads all files in the folder and automatically adds them to the program when it runs. The language information files are written in a text file format, so you can modify and add text using XML Notepad. Korean, English, Japanese, Simplified Chinese language files are in this folder by default.

#### (3) Plug-in folder

This folder contains core library files (\*.dll) for ModBus communications as well as runtime screen files (\*.rpu). The [prop] folder under the [plug-in] folder stores library files that have special functions for each specific device.

## 2.2.2 Uninstalling the Program

There are procedures to uninstall DAQMaster. Select Start > Program > DAQMaster > Uninstall or Start > Setting > Control Panel > Add/Remove a Program > DAQMaster.

If you select Remove, a confirmation window will appear. Click Yes to remove DAQMaster from the computer.

## 2.3 Start and Exit

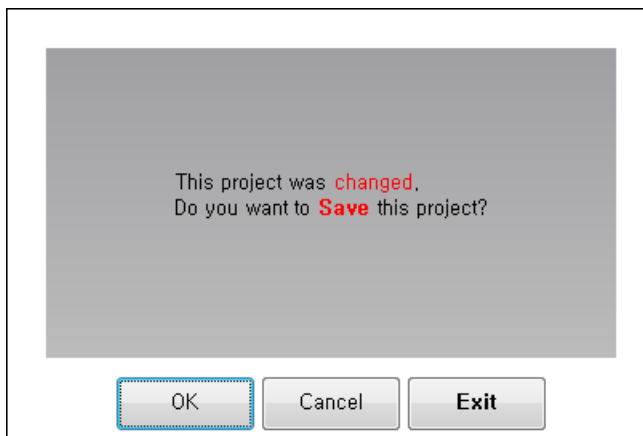
### 2.3.1 Start

Double-click DAQMaster on the desktop or select Start > Program > DAQMaster to start DAQMaster.

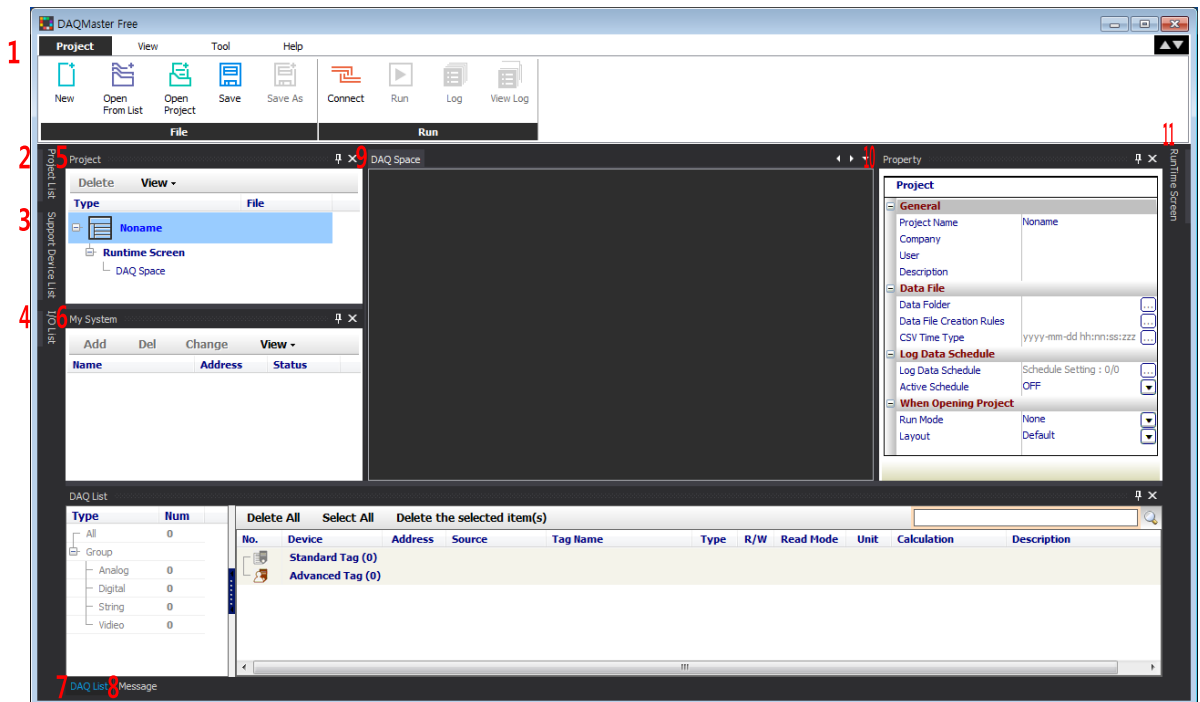
### 2.3.2 Exit

Click X button on the top right corner of the screen to end the program.

Projects are not saved automatically. Please make sure you save the project before you exit.



## 2.4 DAQMaster Screen Layout

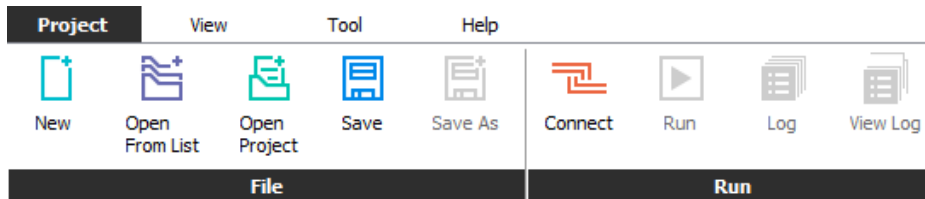


The program screen is divided into sections as shown in the preceding screenshot and each section is composed of the following items.

NO.	Item	Description
1	Menu	Displays DAQMaster menus by category. If you select a menu, submenus appear.
2	Project List	Displays recent projects or usually used project list to manage the files.
3	Support Device List	Displays a list of devices supported by DAQMaster.
4	I/O List	Displays parameter items of devices added to My System.
5	Project	Shows the basic information of the current project.
6	My System	Shows list and connection status of devices connected to DAQMaster.
7	DAQ List	Shows added parameter items in I/O List.
8	Message	Records events. It displays communication connection and disconnection, errors.
9	DAQ WorkSpace	Displays added UI items in RunTime Screen.
10	Property	Allows checking and modification of information for items in Project, My System, DAQ List and setting unit parameters.
11	Run Time Screen	Displays screen library for data monitoring.

## 2.4.1 Menu

### (1) Project



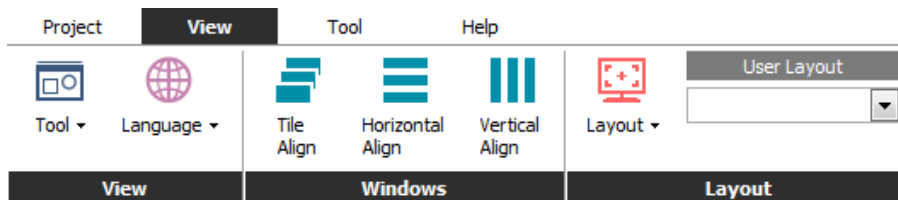
#### 1) File

- ◆ New: Creates a new project.
- ◆ Open From List: Opens a project from the project list.
- ◆ Open Project: Opens a saved project.
- ◆ Save: Saves the project you are working on.
- ◆ Save As: Saves the project as a file name.

#### 2) Run

- ◆ Connect/Disconnect: Connects or disconnects the device and communication.
- ◆ Run/Stop: Starts or stops monitoring data in the connected devices.
- ◆ Log/Stop logging: Saves or stops logging currently monitored data.
- ◆ View Log: Views log data during logging. Check the data from starting log to executing view log.

### (2) View



#### 1) View

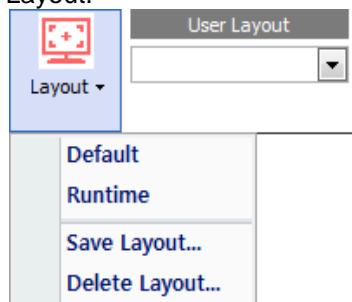
- ◆ Tool: Set for Property, Support Device List, My System, Project, I/O List, Run Time Screen, DAQ List, Message of the project.
- ◆ Language: Changes the program language.

#### 2) Windows

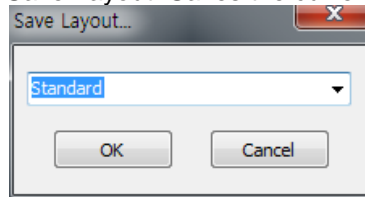
Chooses a screen align option from Horizontal Align and Vertical Align and aligns screens when multiple runtime screens (Data: Grid, Multi Panel, Panel, Line Graph, Bar Graph, Color Map Graph, Gauge Graph, Histogram Graph, Device: Alarm History Grid) are open.

#### 3) Layout

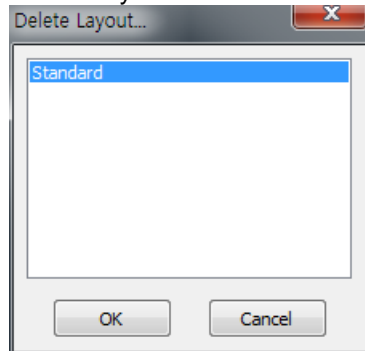
Executes saving, deleting, loading layout. You can select the saved layout at User Layout.



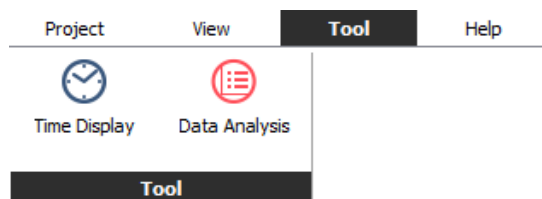
- ◆ Default: Changes docking screen layout to default layout.
- ◆ Runtime: Displays only run time screen. Select the hidden docking screen at View menu.
- ◆ Save Layout: Saves the current layout and adds it at User Layout.



- ◆ Delete Layout: Select the saved layout and delete it.



### (3) Tool



- Time Display: Displays monitoring time.
- Data Analysis: Runs the data analysis program. Allows analysis of DAQMaster data file (\*.ddf).

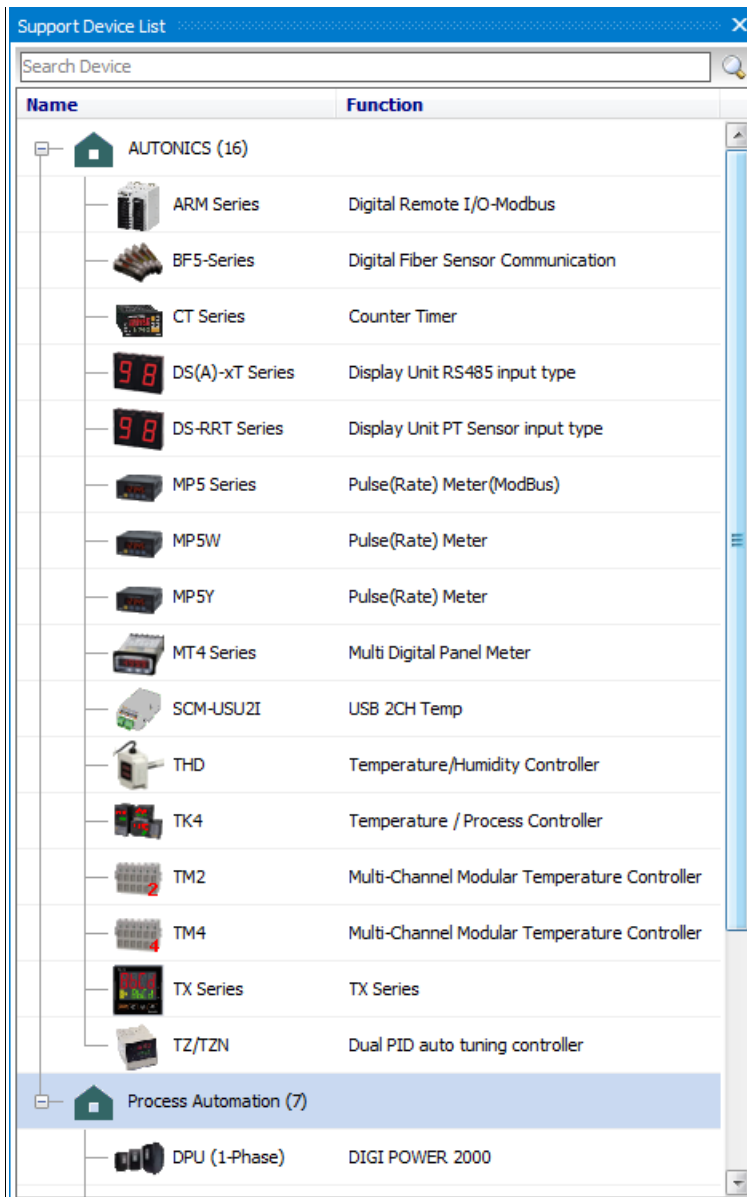
### (4) Help



- Help: Starts the help file.
- Check Update: Checks and automatically updates the latest version on the update server.
- About: Check the DAQMaster version.

## 2.4.2 Support Device List (Docking Screen)

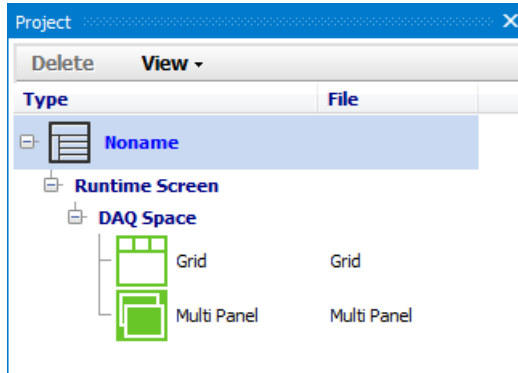
Support Device List shows list of devices supported by DAQMaster. The Support Device List will be updated continuously.





### 2.4.3 Project

Project saves runtime screen information and I/O source. Allows you to work in previously used environments again. In Property, you can change general information, data file, log data schedule, project open of project. For more information, refer to '2.4.9 Property'.

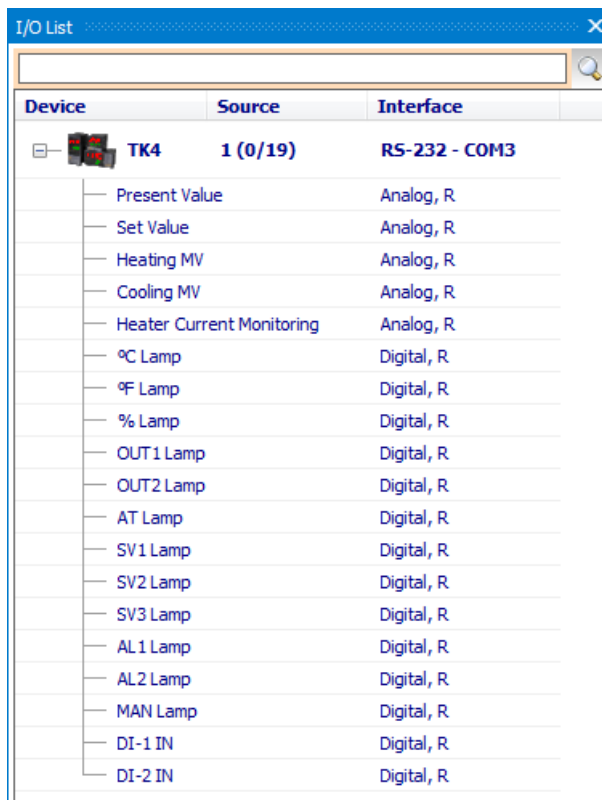


### 2.4.4 I/O List (Docking Screen)

I/O List shows parameters you can monitor for devices added to My System. I/O List appears depending on connected devices.

To monitor units of the connected device, parameter sources displayed in I/O List should be added to the DAQ List. You can search the desired I/O and add it.

Displays parameter sources added to DAQ List in gray.



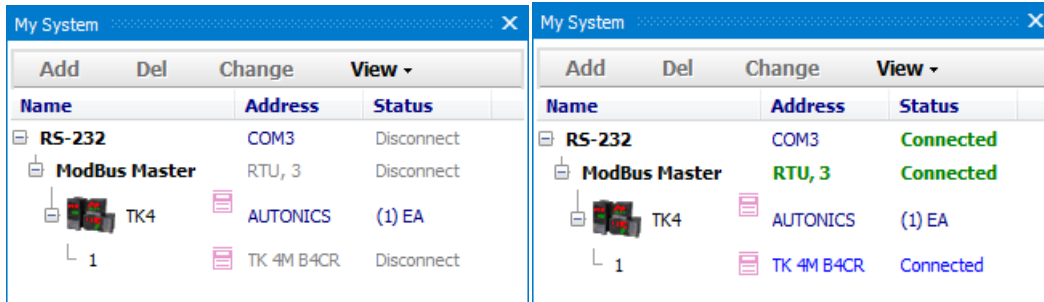
#### Note

I/O source cannot be added to DAQ List when the Status is Run.

### 2.4.5 My System

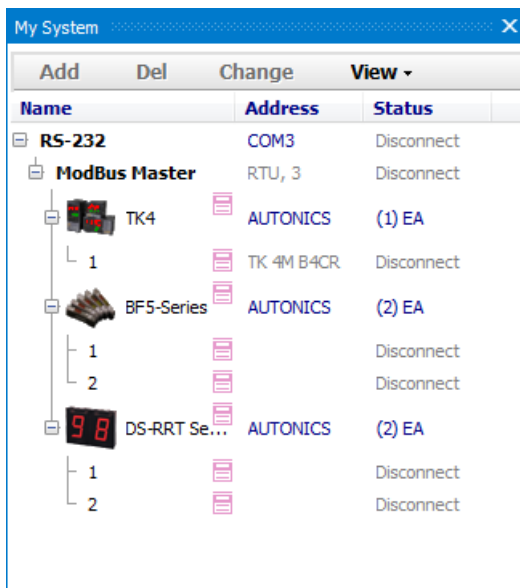
My System displays devices and units added from the device list in a tree structure. You can also check and configure connection status.

You can add, change or delete devices and units (addresses) added to My System.



- RS-232: Allows modification of RS-232 related communications in Property when disconnecting.
- ModBus Master: Allows property modification related to ModBus Master protocol while disconnected (mode and the number of re-try are displayed).
- Device (TK4): Allows you to see connected device information.
- Unit (1): Allows read and write of parameters as well as check the reading process while connected.

Connects a device to multiple communications ports as displayed in following image.



## 2.4.6 DAQ List

DAQ List is a list of I/O sources that will be communicated.

DAQ List displays the number of I/O sources by signal type on the left, and rearranges them on the right when selected.

Type	Num
All	19
Group	
Analog	5
Digital	14
String	0
Video	0

No.	Device	Address	Source	Tag Name	Type	R/W	Read Mode	Unit	Calculation	Description
Standard Tag (19)										
✓	COM3_TK4	1	Present Value	COM3_1_Present Value	Analog	R		Cont	,	
✓	COM3_TK4	1	Set Value	COM3_1_Set Value	Analog	R		Cont	,	
✓	COM3_TK4	1	Heating MV	COM3_1_Heating MV	Analog	R		Cont	%	,
✓	COM3_TK4	1	Cooling MV	COM3_1_Cooling MV	Analog	R		Cont	%	,
✓	COM3_TK4	1	Heater Current M...	COM3_1_Heater Current M...	Analog	R		Cont	A	,

You can search the desired tag (standard or user) at the right-top of the DAQList.

No.	Device	Address	Source	Tag Name	Type	R/W	Read Mode	Unit	Calculation	Description
Standard Tag (1)										
✓	COM3_TK4	1	Present Value	COM3_1_Present Value	Analog	R		Cont	,	
Advanced Tag (0)										



### Note

DAQ List cannot be added to a runtime screen when the Status is Run.

## 2.4.7 Message

Records events during executing program.

E.g.) Communication status (start/stop communication, communication error), log status (start/stop log), etc.





Ex.

The below two DAQ WorkSpaces are changed name as 'Gauge and Color' and 'Graph'.

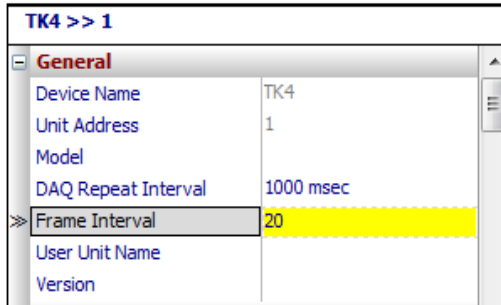


## 2.4.9 Property

The Property window allows item checking and modification of Project, My System and DAQ List.

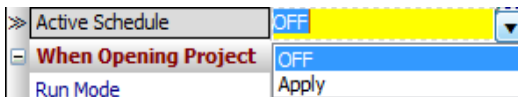
There are check-only items and modifiable items. Modifiable items are displayed as edit type, combo box type, run type and mixed edit/combo type.

### (1) Edit type



Allows number or text entry. Input range (if applicable) is displayed at the bottom.

### (2) Combo box type

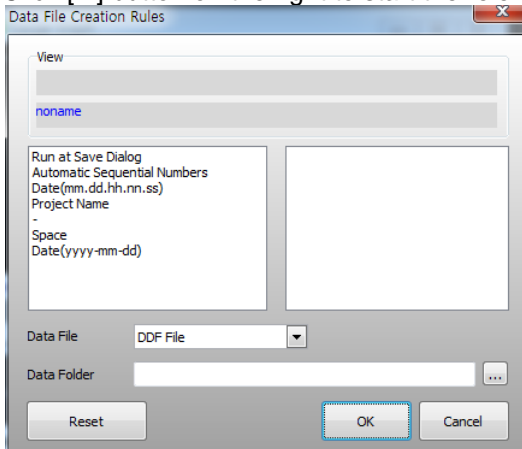


Click the combo button on the right to see a list of items to select.

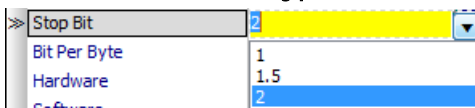
### (3) Run type



Click [...] button on the right to start the relevant function.



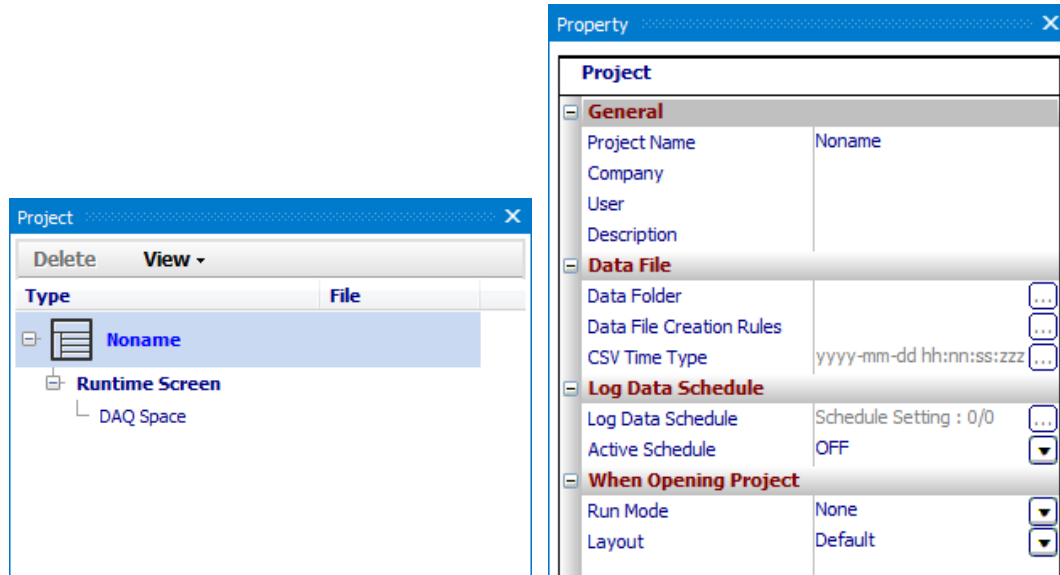
### (4) Mixed edit-combo type



Allows number or text entry (within the range specified at the bottom) and selection of a value from the list. Items out of range can only be selected from the combo box list.

### 2.4.9.1 Project Properties

Clicking Project Name (initial status: Noname) allows you to set and enter general (project name, company, worker, description), data file (data folder, data file creation rules, CSV time type, etc.), log data schedule (log data schedule, active schedule), and project open (run mode, layout).



#### (1) General

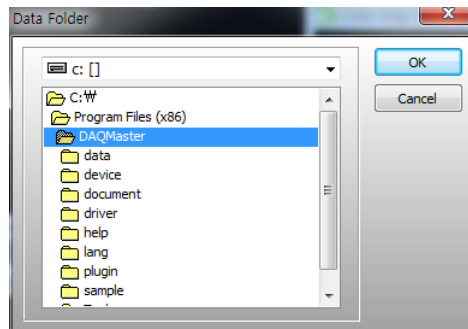
You can enter project name, company, worker, description for project management.

#### (2) Data File

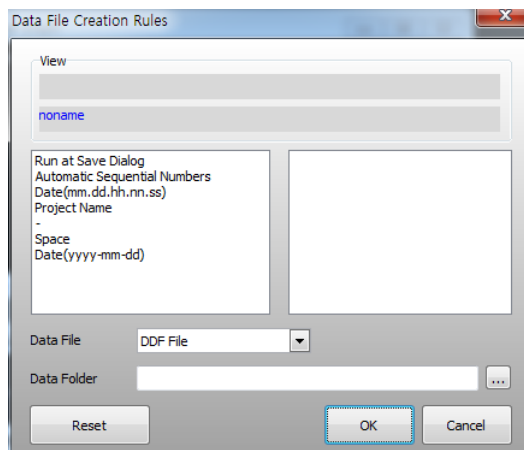
Designates the folder to save log data and log data file's creation rules, CSV time type when it is created automatically.

Log data is available to save as \*.csv or \*.ddf file type.

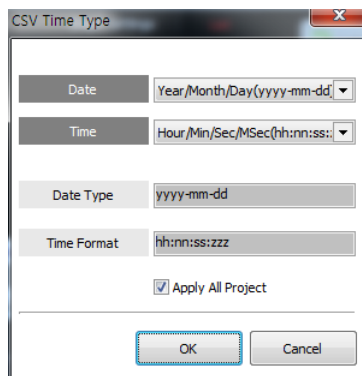
- Data Folder: Designates the folder to save project data.



- Data File Creation Rules: Designates data file's creation rules.



- CSV Time Type: Sets CSV time type.

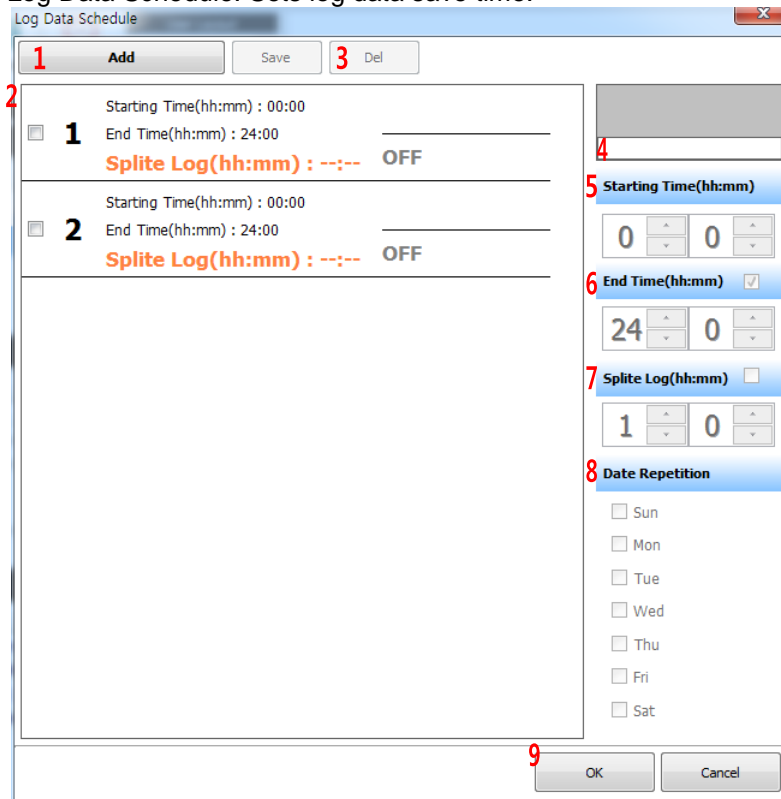




(3) Log Data Schedule

Saves log data when the set scheduled time automatically.

- Log Data Schedule: Sets log data save time.



No	Description
1	Adds log data schedule items.
2	Displays scheduled log data items. You can delete the scheduled item by checking the left check box and clicking 3. 'Delete' button.
3	Saves or deletes the set items.
4	Designates log data name. The file name of data file creation rule is displayed next to the data name.
5	Designates start time.
6	Designates end time.
7	Designates split save time. When you set 1 hour 30 minutues, it saves the file for 1 hour 30 min. and creates another file and saves it.
8	Designates repetition day of week.
9	Checks log data schedule items.

- Active Schedule: Designates whether to active log data schedule.

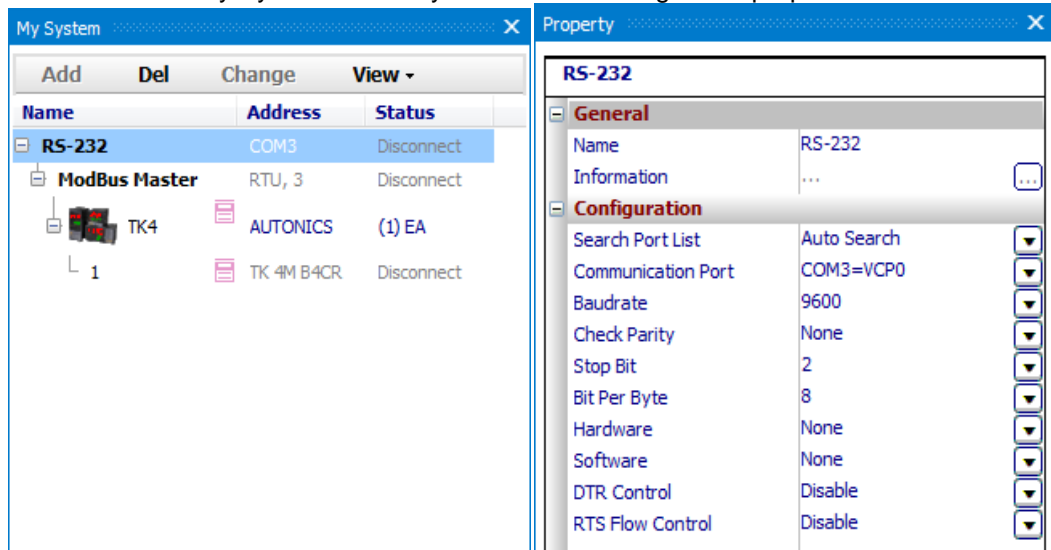
(4) When Opening Project

- Run Mode: Sets run mode when opening the saved project file.
- Layout : Designates the screen layout (default, runtime, current layout) when opening the project.

## 2.4.9.2 My System Properties

## (1) RS-232

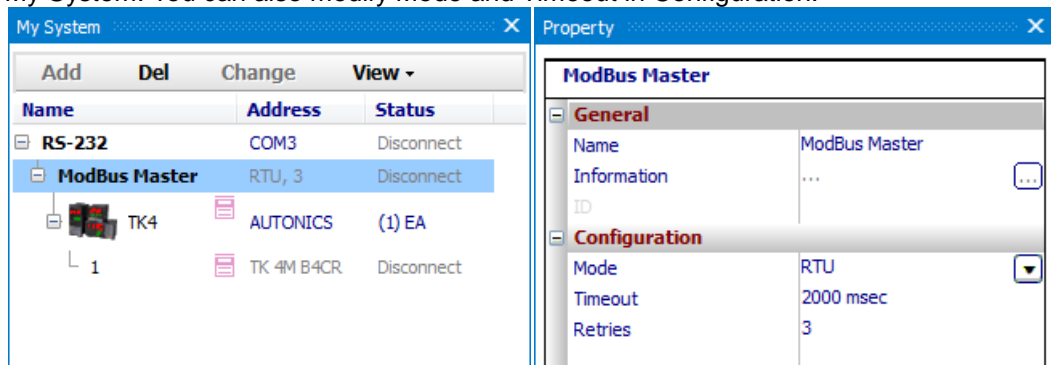
Click RS-232 in My System to modify Name in RS-232 general properties.



You can also modify Search Port List, Communication Port, Baudrate, Check Parity, Stop Bit, Per Byte, Hardware, Software, DTR Control, RTS Flow Control in Configuration.

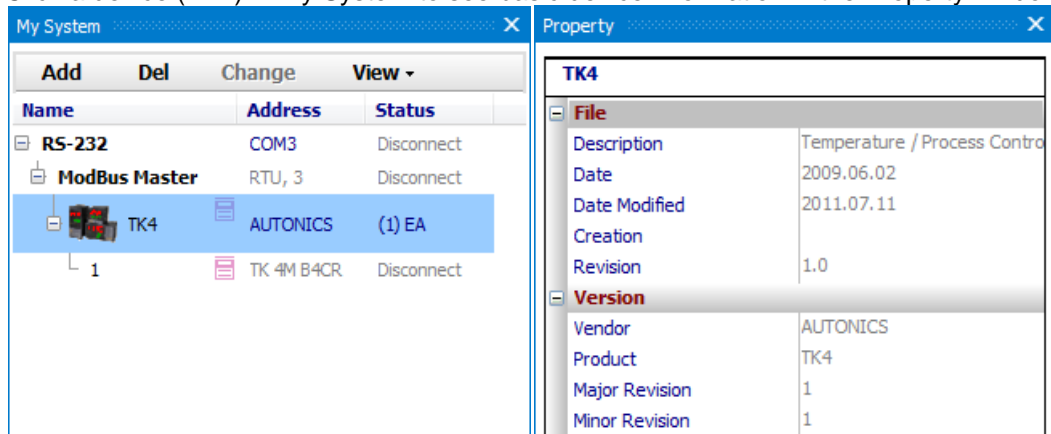
## (2) Modbus Master

You can modify Name in Modbus Master general properties by clicking Modbus Master in My System. You can also modify Mode and Timeout in Configuration.



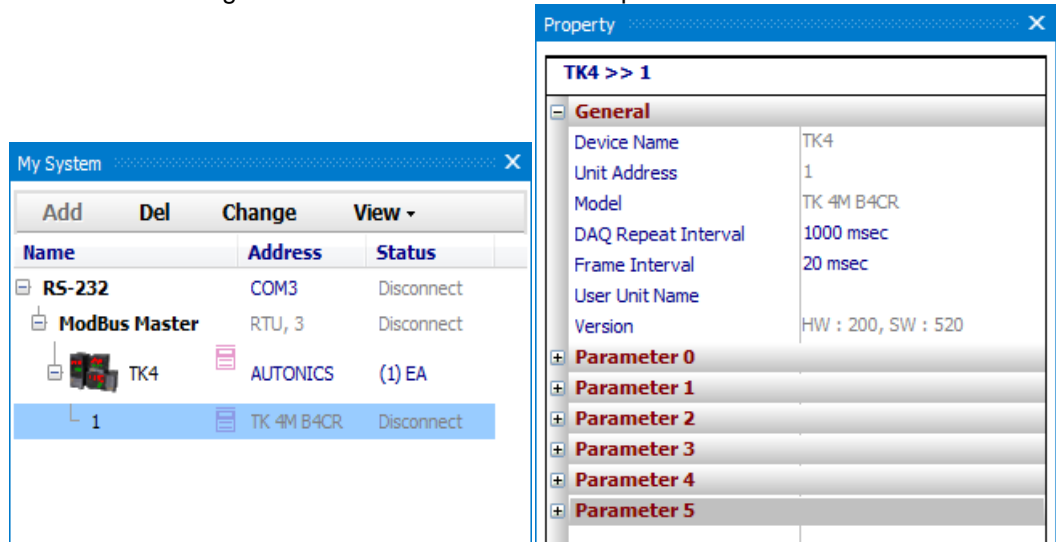
## (3) Device (TK4)

Click a device (TK4) in My System to see basic device information in the Property window.



(4) Address (1)

Click the device address (1) in My System to see detailed device information. You can also change Device Name and set DAQ Repeat Interval.

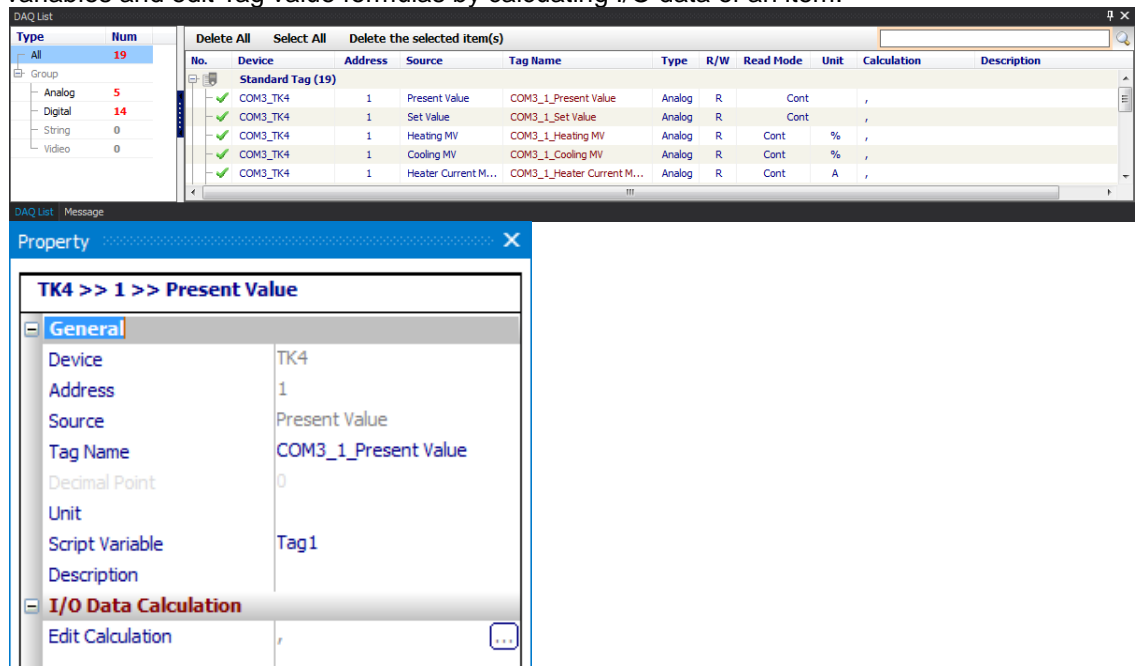


You can check and modify device parameters by reading parameters while connected.

2.4.9.3 DAQ List Properties

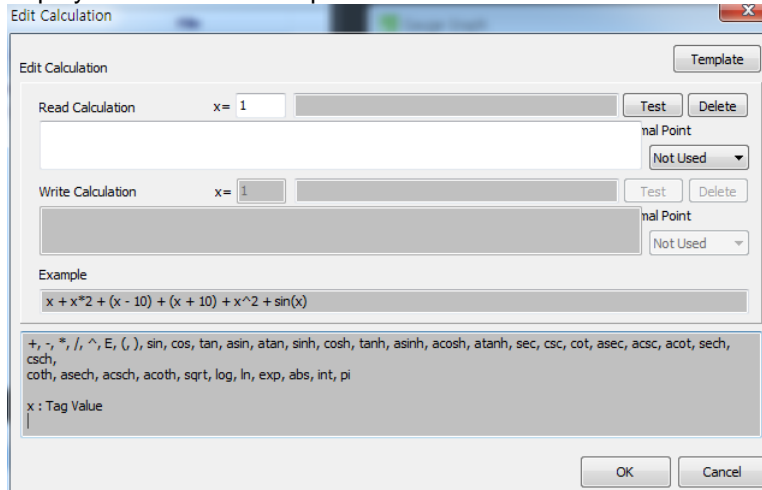
(1) General

If you select items that were added from I/O List for communication, the Property window displays item information. You can change Tag Name, Decimal Point and Unit, Script variables and edit Tag value formulas by calculating I/O data of an item.

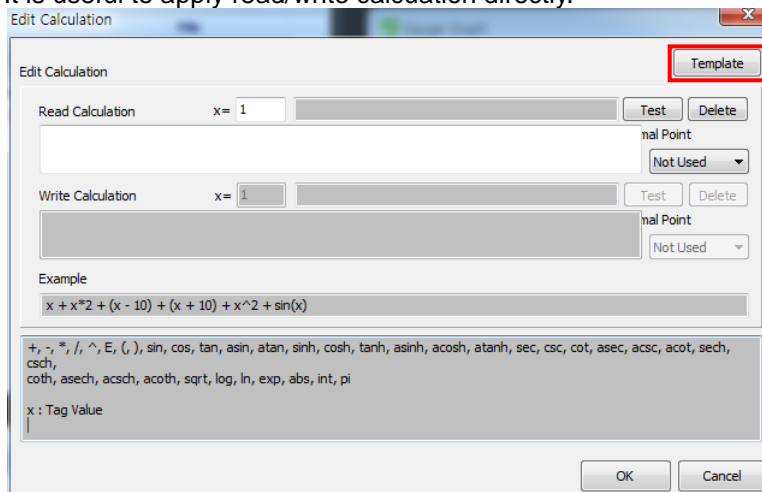


**(2) I/O Data Calculation**

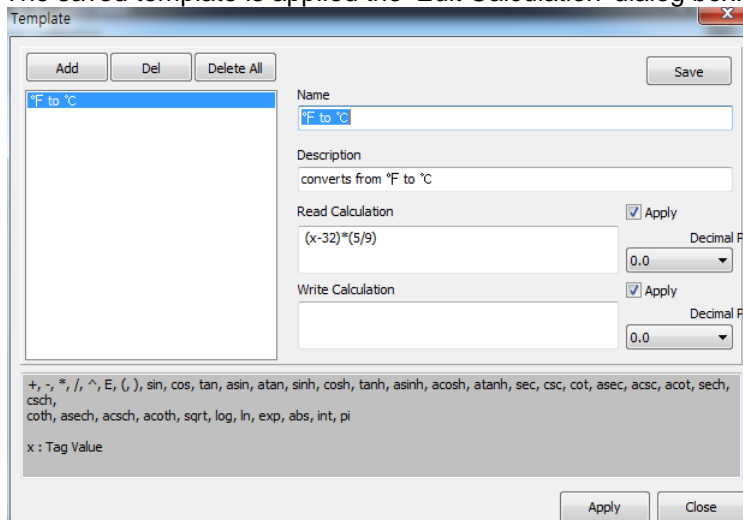
You can edit tag values at “Property > I/O Data Calculation > Edit Calculation”. When reading the tag value via editing calculation at DAQMaster, you can get the desired data by applying the calculation at data. ‘x’ means the output tag value from device. This function displays the calculated output value at DAQMaster.

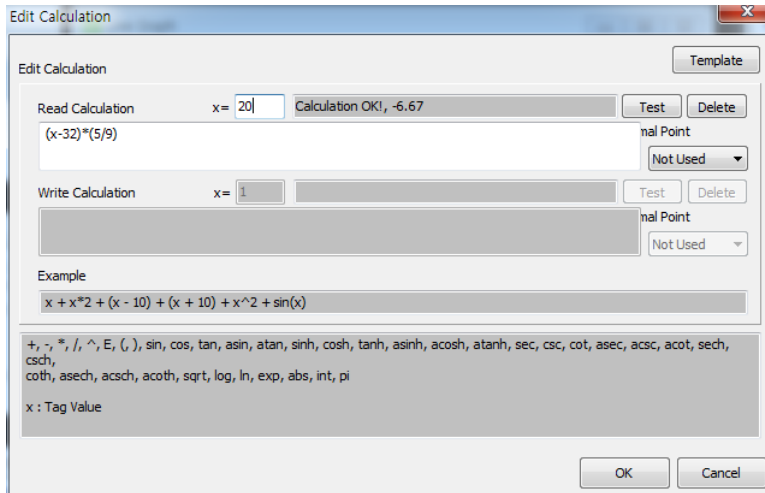


Click ‘Template’ to edit at the top-right of the dialog and save the usually used calculations. It is useful to apply read/write calculation directly.



Enter the desired formular and click the ‘Save’ and ‘Apply’.  
The saved template is applied the ‘Edit Calculation’ dialog box.

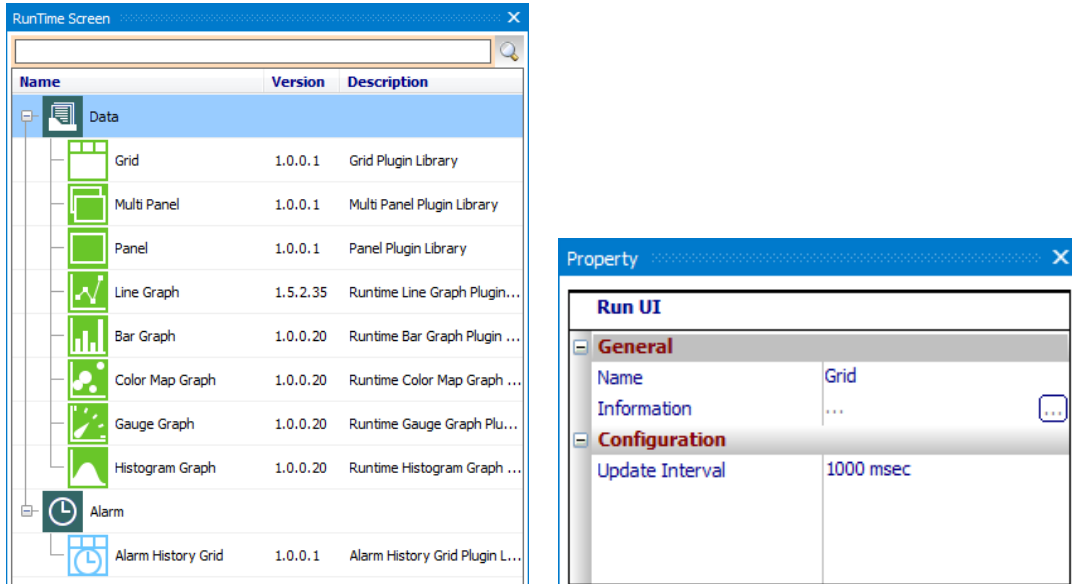




#### 2.4.9.4 Runtime Properties

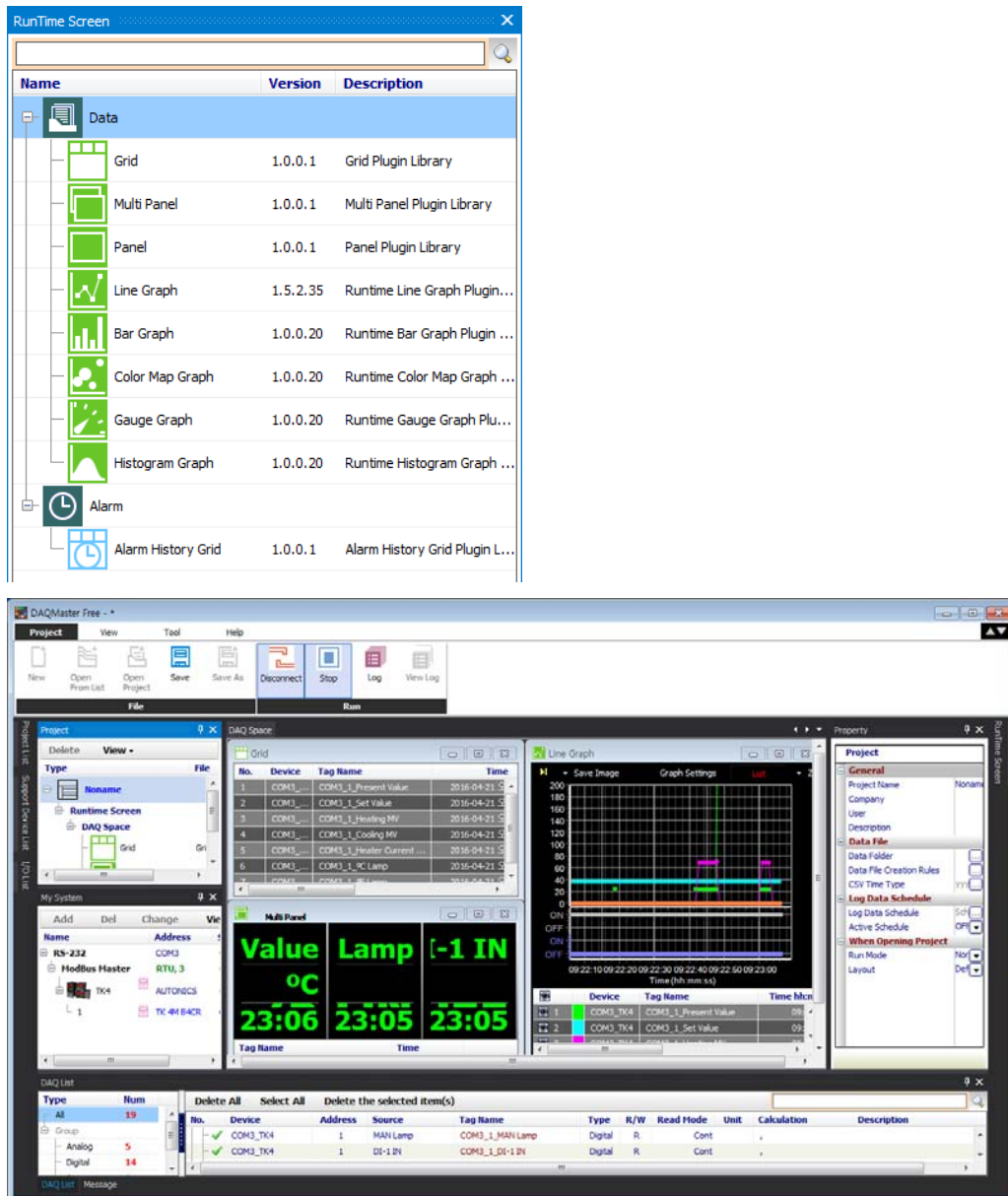
You can designate added runtime screen (Data: Grid, Multi Panel, Panel, Line Graph, Bar Graph, Color Map Graph, Gauge Graph, Histogram Graph, Device: Alarm History Grid) name, update interval, and the others.

You can modify the name of the Grid in Run UI general properties by clicking Grid on the project's runtime screen. You can also modify Update Interval time in Config. (Default: 1,000 ms.)



## 2.5 Runtime Screen Library

Double-click UI item in Runtime Screen Library and the item is added in DAQ WorkSpace.



Runtime Screen Library is a list of runtime screens for data monitoring.

Runtime screens support Data: Grid, Multi Panel, Panel, Line Graph, Bar Graph, Color Map Graph and Gauge Graph, Histogram Graph, Device: Alarm History Grid. You can open multiple screens at the same time for monitoring. Information such as screen position, screen size and I/O source is saved when saving the project.

## 2.5.1 Data

### (1) Grid

No.	Device	Tag Name	Time	Data	Unit
1	COM3_...	COM3_1_Present Value	2016-04-20...	25	°C
2	COM3_...	COM3_1_Set Value	2016-04-20...	38	°C
3	COM3_...	COM3_1_°C Lamp	2016-04-20...	ON	-
4	COM3_...	COM3_1_°F Lamp	2016-04-20...	OFF	-

### (2) Multi panel

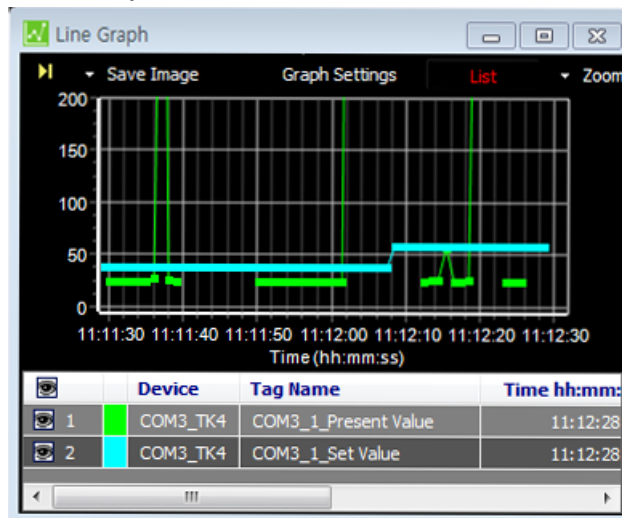
Tag Name	Time
COM3_COM3_1_Present Value	2016-04-20 ...
COM3_COM3_1_°C Lamp	2016-04-20 ...

### (3) Panel

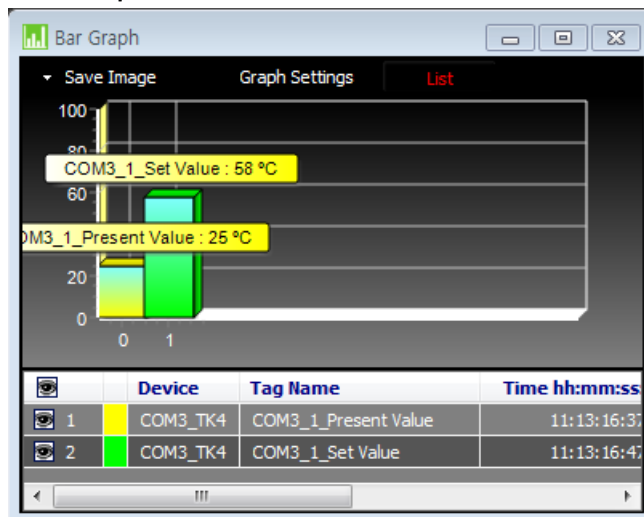
Tag Name	Time
COM3_COM3_1_Present Value	2016-04-20 ...



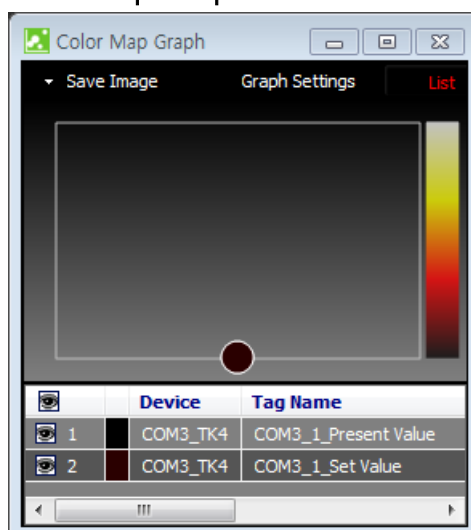
(4) Line Graph



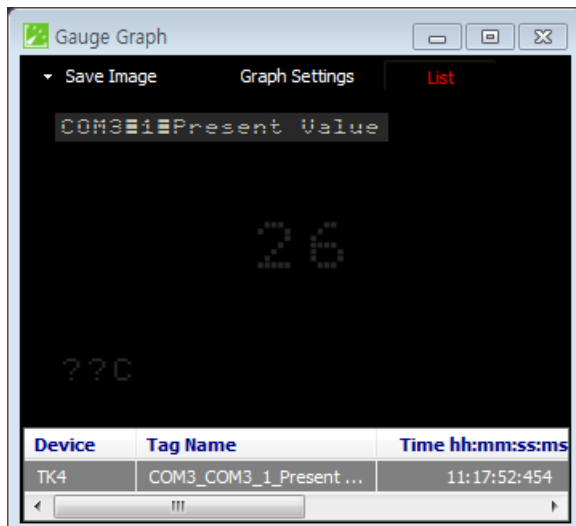
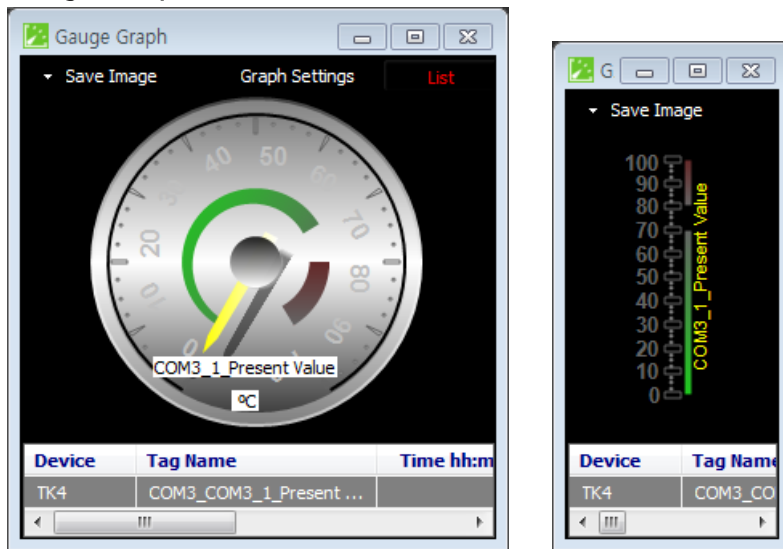
(5) Bar Graph



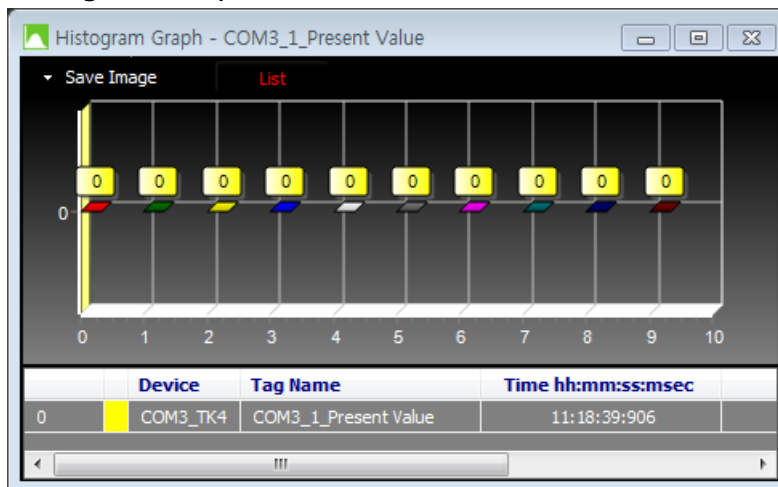
(6) Color Map Graph



(7) Gauge Graph

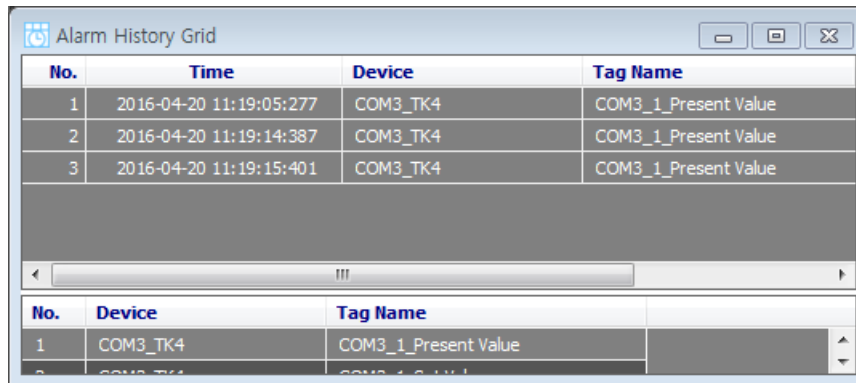


(8) Histogram Graph



## 2.5.2 Alarm

### (1) Alarm History Grid



The screenshot shows a window titled "Alarm History Grid" with a table of alarm events. The table has four columns: No., Time, Device, and Tag Name. There are three rows of data. Below the table is a horizontal scrollbar. At the bottom, there is a partial view of another table with three columns: No., Device, and Tag Name.

No.	Time	Device	Tag Name
1	2016-04-20 11:19:05:277	COM3_TK4	COM3_1_Present Value
2	2016-04-20 11:19:14:387	COM3_TK4	COM3_1_Present Value
3	2016-04-20 11:19:15:401	COM3_TK4	COM3_1_Present Value

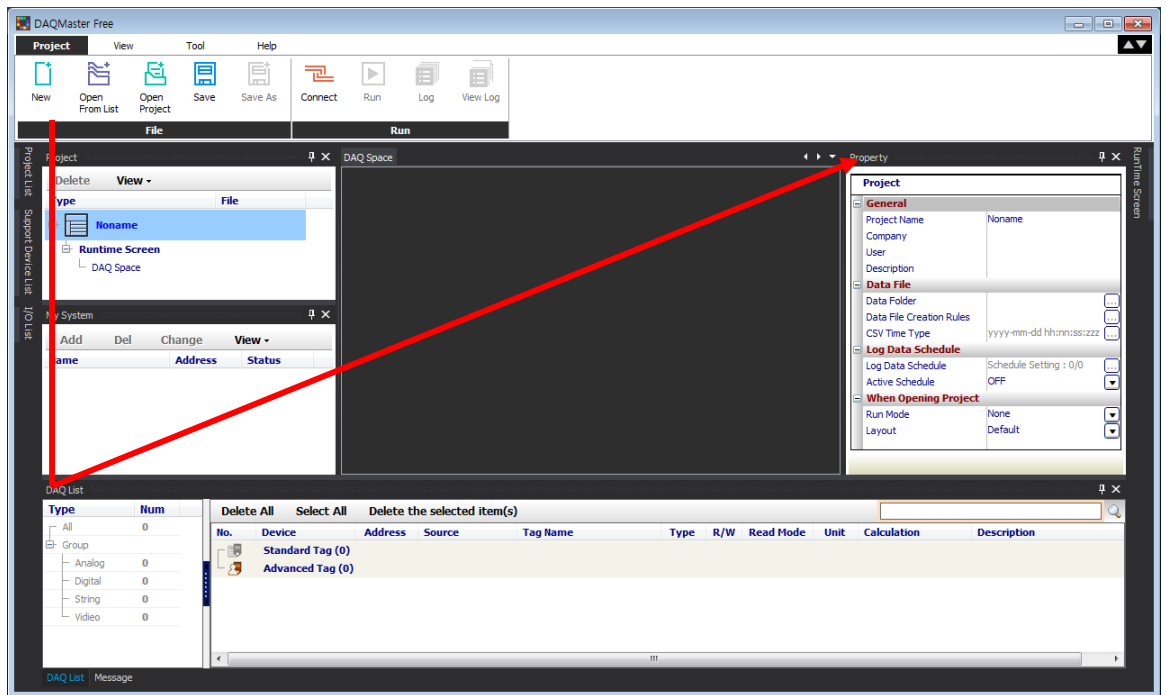
  

No.	Device	Tag Name
1	COM3_TK4	COM3_1_Present Value
2	COM3_TK4	COM3_1_Present Value



## 3 Getting Started

On a default layout screen, you generally work from left to right.



The basic work order is as follows:

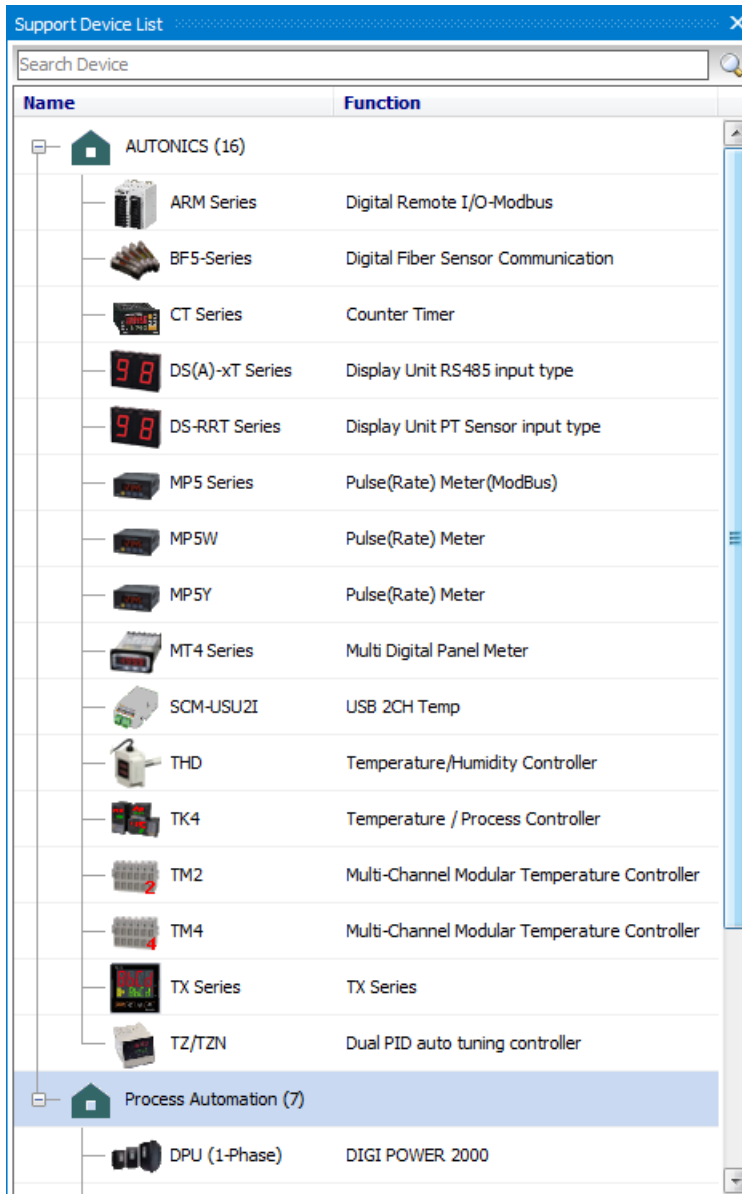
- 1st Select a device from the support device list on the top left and add it to My System.
- 2nd Select a device from My System and add a relevant unit (address).
- 3rd From the top left I/O List, add I/O for monitoring to DAQ List at the bottom.
- 4th Select a monitoring screen from runtime screen library on the top right.
- 5th Drag an I/O source from DAQ List and drop it onto the runtime screen.
- 6th Configure RS-232 or Modbus TCP environment.
- 7th Connect (you can read and set the device parameters).
- 8th Run (data file logging is available).

### 3.1 Support Device List - Selecting a Device

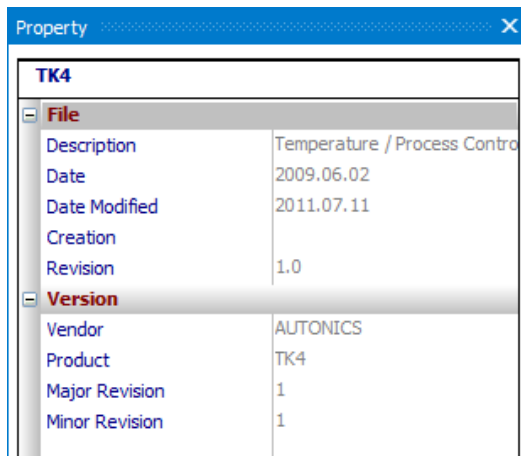
For example: TK4 (Address 4) is connected to RS-232 Port 1.

First, select the device to communicate with from the Supported Device List. The Support Device List (docking screen) is a list of devices supported by DAQMaster. You can only communicate with listed devices.(The Support Device List will be updated continuously).

Below is the example screen for the currently supported devices(as of April, 2016).

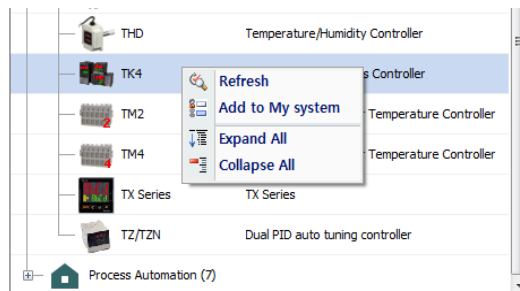


When a device is selected, you can see basic information about the device in Property window as follows.



If you click or double-click the device expand button (+), the support device list will appear.

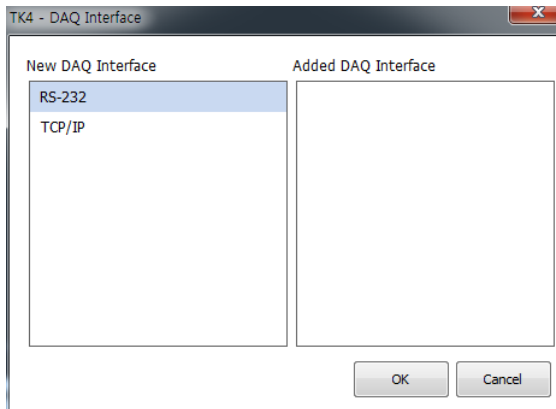
Select the device you want to add to My System (Temperature Controller TK4). Double-click or mouse right-click the selected device and select Add to My System to add the device.



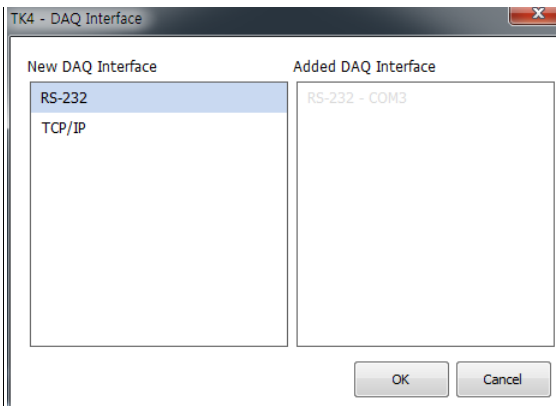
- Refresh: Updates Support Device List when device files (\*.dev) are added.
- Add to my system: Adds device to communicate with to My System.
- Expand all: Shows the list of all supported devices.
- Collapse all: Hides the list of all supported devices.

Double-click RS-232 or TCP/IP on the new DAQ interface, or select it and click OK.  
(TK4 supports RS-232 communication and it displays only RS-232.)

You can modify the configuration of the added RS 232 or TCP/IP in properties.



If My System has added devices, you can see added RS-232-COM1 on the Added DAQ Interface.

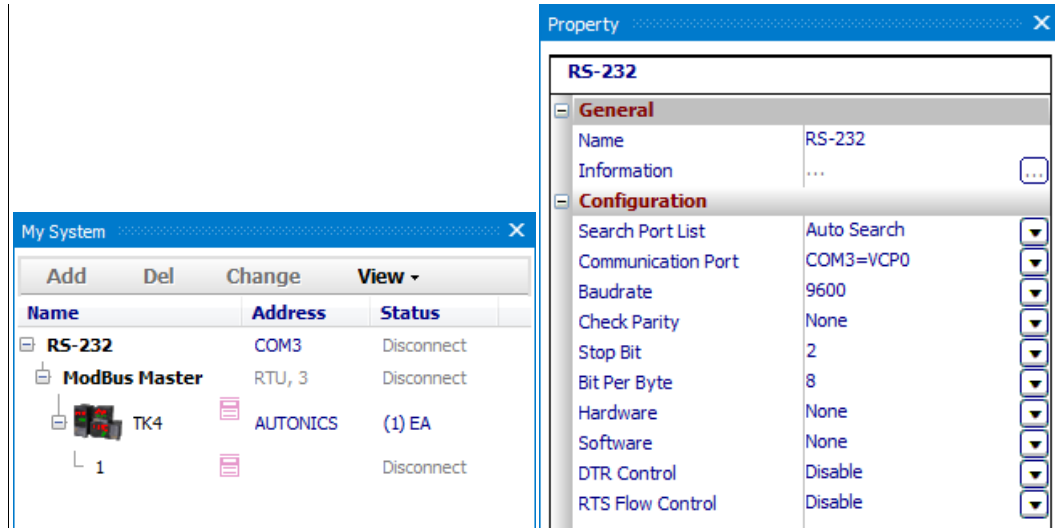




## 3.2 Setting RS-232, TCP/IP

### 3.2.1 RS-232C

Set up RS-232 for communication. Select RS-232 in My System and check Property window.



Property window displays information about the communication port currently in use.

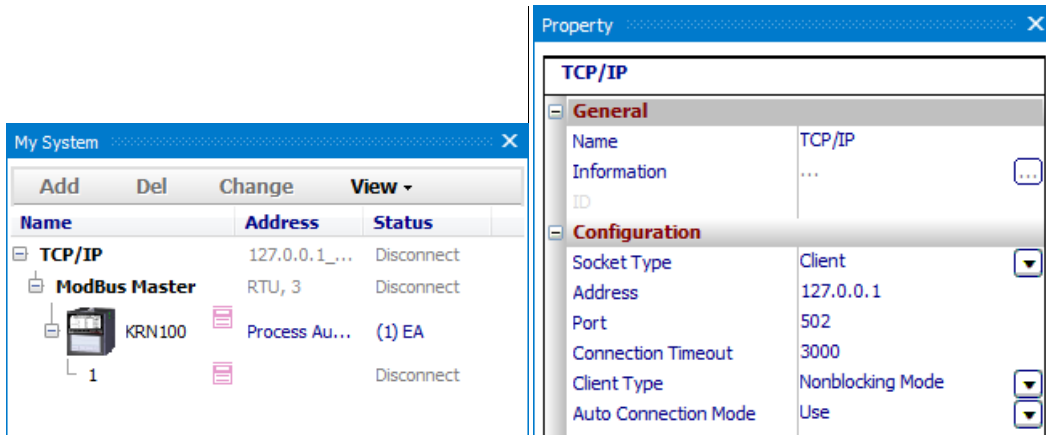
If you want to change the name in My System, modify Name in Property window.

The items are under Config.

Item		Description
Search Port List	Fix Init List	Gets computer's communication port list at the point when RS-232 is added, saves it to the Port List and then fixes it.
	Auto Search	If the computer's port list (such as USB 232) has changed, this rearranges the list.
Communication Port		Shows choice of connectable COM Ports. Designate the connected COM Port.
Baudrate		1,200, 2,400, 4,800, 9,600, 19,200, 38,400, 57,600, 115,200 bps
Check Parity		Allows communication parity selection. (none, odd, even, mark, space)
Stop Bit		Selects Stop Bits. (1, 1.5, 2)
Bit Per Byte		Selects Byte Size. (5, 6, 7, 8)
Hardware		None, RTS/CTS
Software		None, XON/XOFF
DTR Control		Disable, enable, handshake
RTS Flow Control		Disable, enable, handshake, toggle

### 3.2.2 TCP/IP

Set up TCP/IP for communication. Select TCP/IP in My System and check Property window.



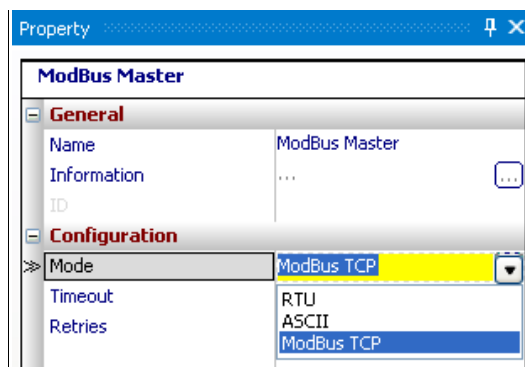
Property window displays information about the communication port currently in use.

If you want to change the name in My System, modify Name in Property window.

The items are under Config.

Item		Description
Socket Type	Client	Sets as client mode (when connecting KRN100)
	Server	Sets as server mode.
Address		Enters the designated IP Address from the main device.
Port		Sets port number.
Connection Timeout		Connection Timeout
Client Type	Non Blocking	After transmission, next transmission is available to process without response.
	Blocking	After transmission, this mode waits for response. After receiving the response, next transmission is available to process.
Auto Connection Mode	Use	Uses auto connection mode.
	Not used	Not use auto connection mode.

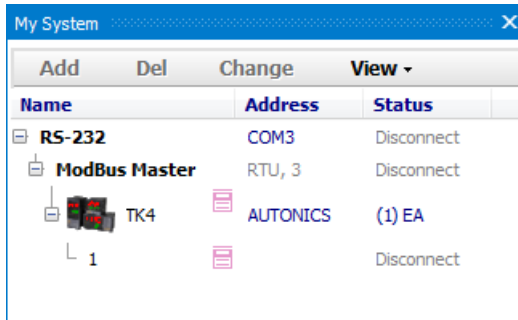
At ModBus Master property, set Mode of Config as ModBus TCP.



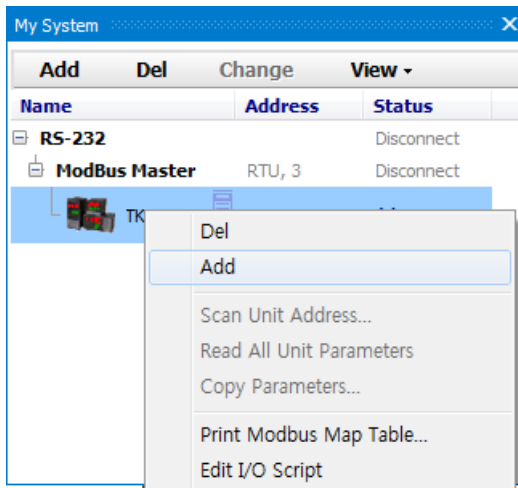
### 3.3 Adding a Unit to My System

My System displays device and communication interfaces added from the support device list in a tree structure. It also displays connection status, and you can add, change and delete device units (addresses).

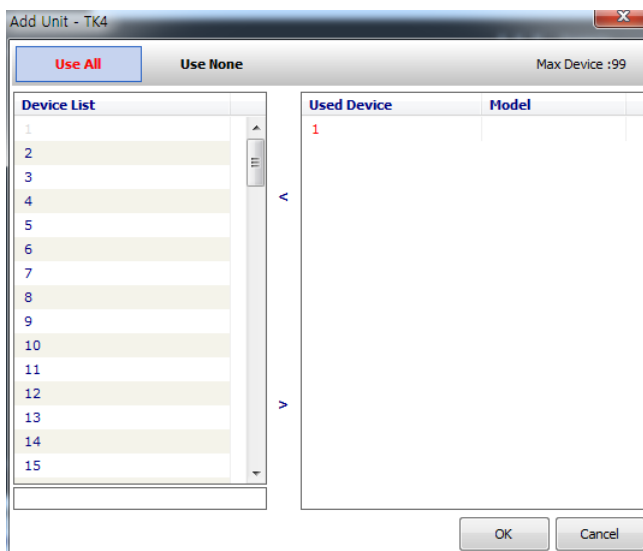
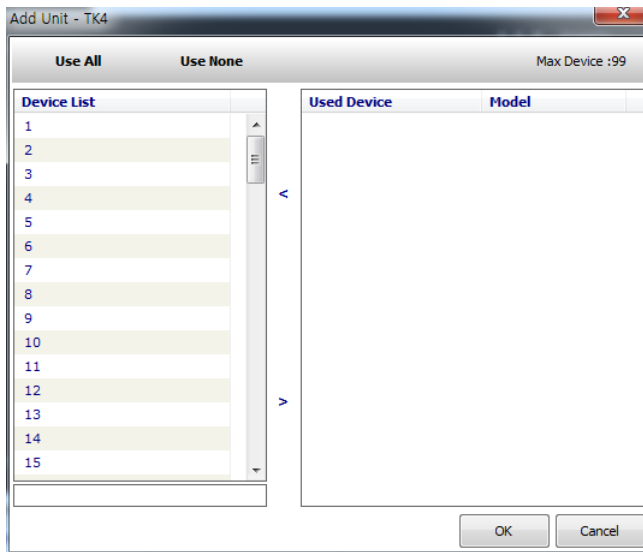
By selecting an item, you can set or modify it in Property window.



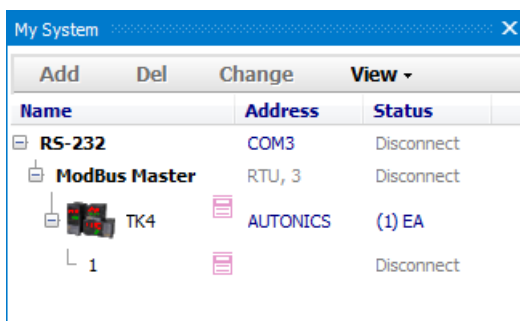
Selecting TK4 device enables Add button. To add a unit(address), click the Add button on the tab or right-click on mouse to select Add.



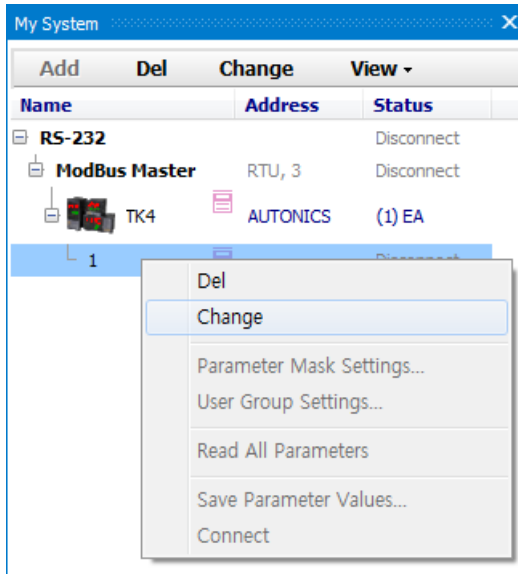
Select address (number 1) set to TK4 device. Double-click or use '>' button to add, then click OK button.



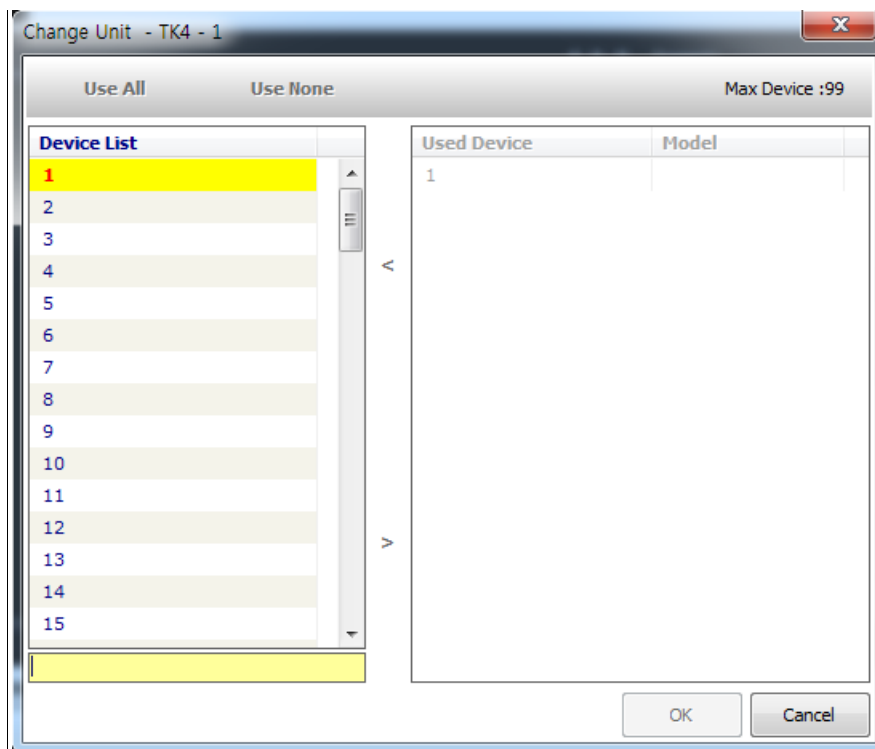
You will see the unit (address: 1) added under the device in My System. If you want add more than one of the same type of device, click Add button. (Up to 99 devices can be added.)



Selecting the unit address (1) enables Change button. To change the unit address, click the Change button on the tab or right-click on mouse to select Change.



If you click Change button, the current address (1) highlights in yellow. Select a new address and click OK to change the unit address.



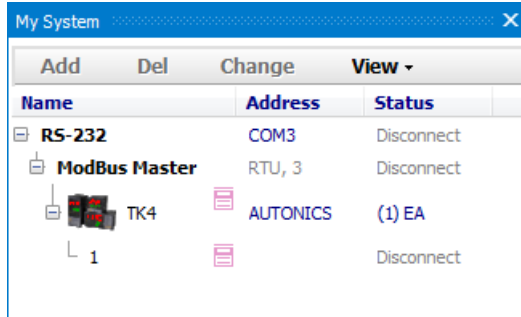
**Note**

Unit (address) cannot be deleted, changed or added while the Status is Connect.

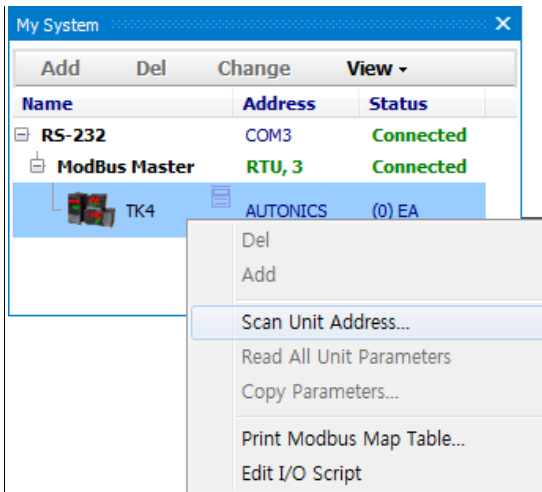
### 3.4 Scan Unit

Scan Unit feature scans multiple connected device units. You can check the detected units and add them to My System by using this feature.

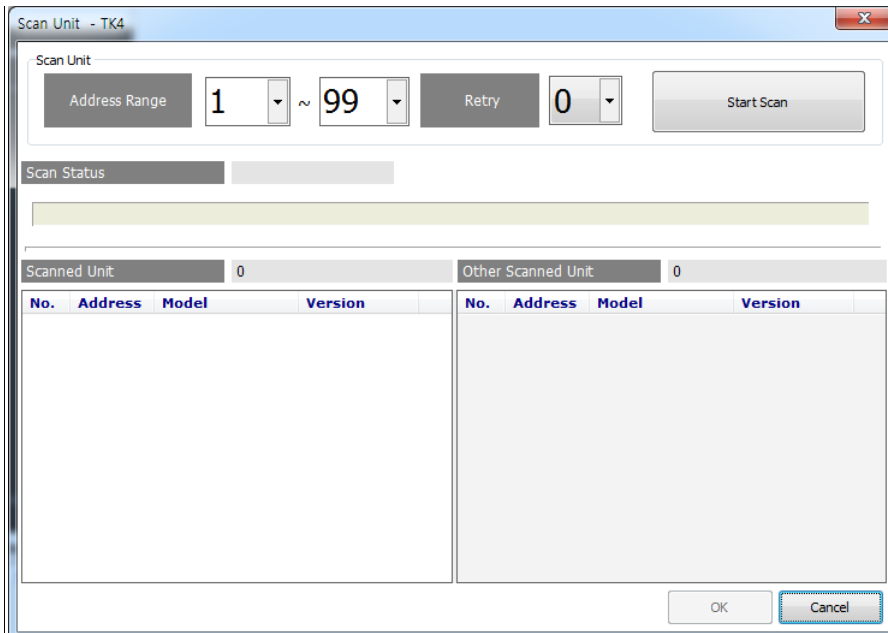
1st Add TK4 device and configure RS-232 environment as below. And then connect.



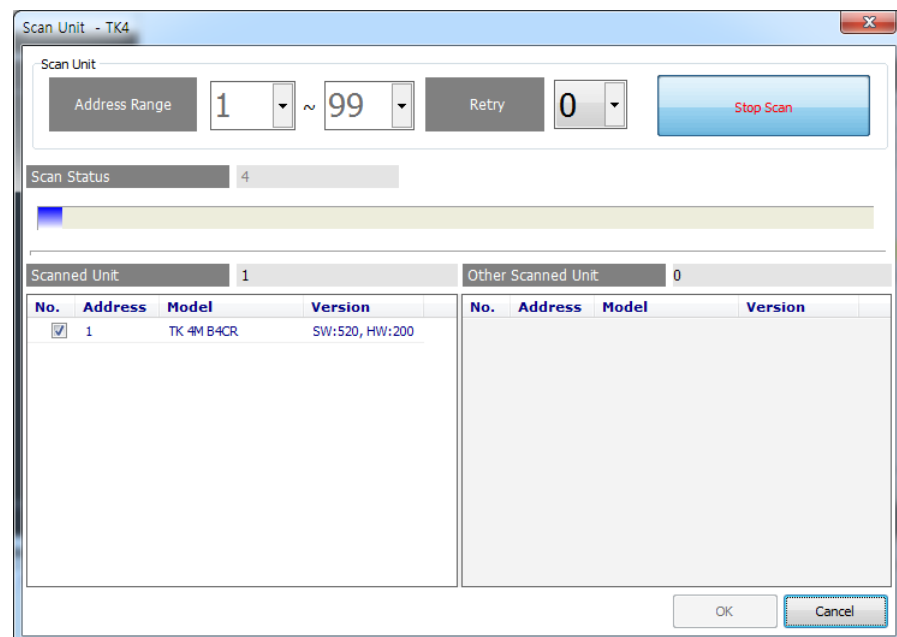
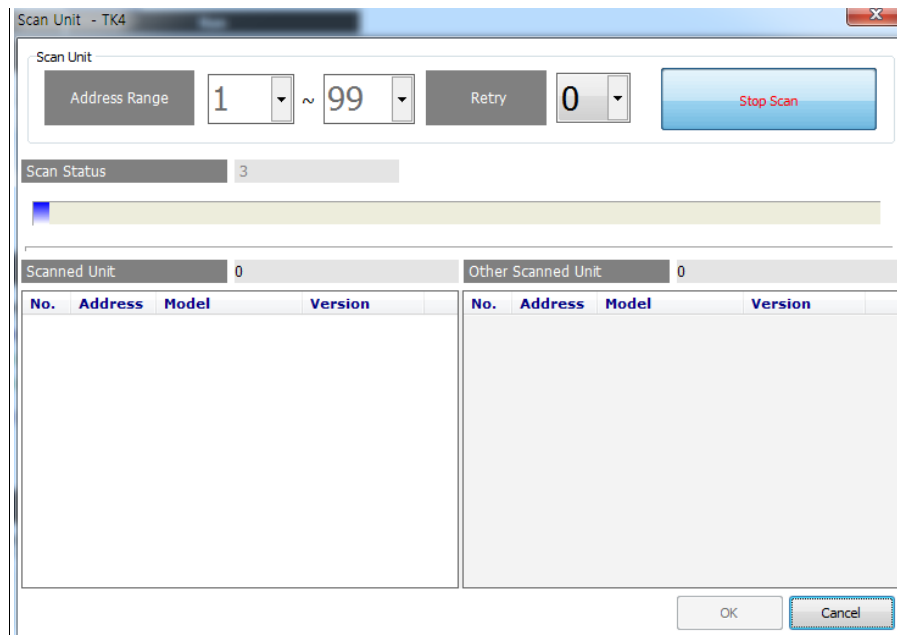
2nd When connected, select TK4 device, and right-click to select Scan Unit Address.



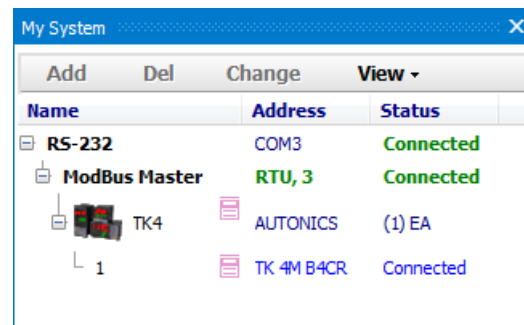
3rd If you select Scan Unit Address menu, the following Scan Unit dialog appears.



4th Set an address range to scan and click Start Scan button to automatically scan units. Scanned units are listed on the left side. Other searched units are listed on the right side.



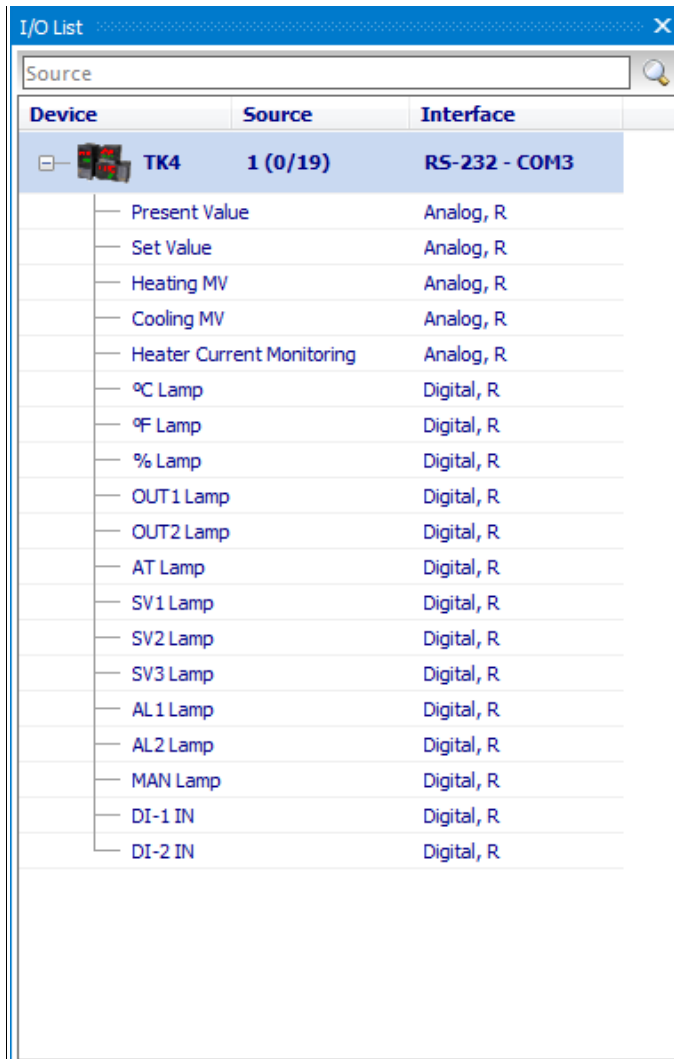
5th Check a unit to add from the list and click OK. It is added and marked as Connected.



### 3.5 Adding an I/O to the I/O List

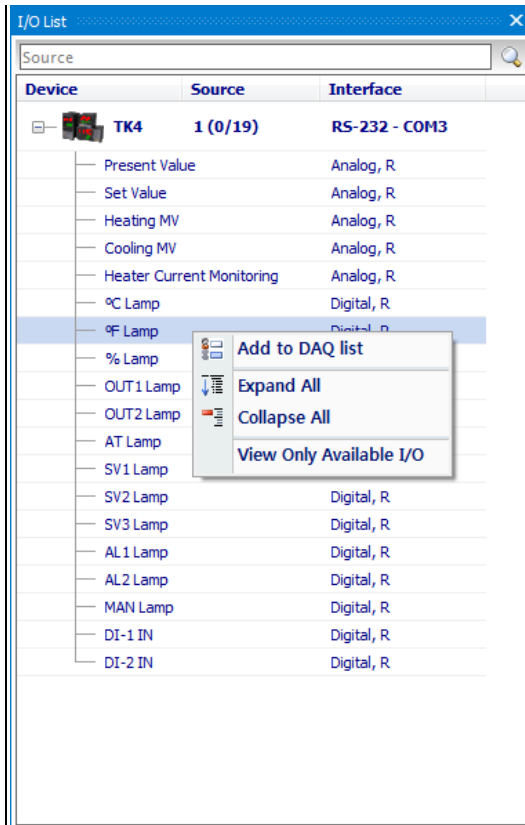
I/O sources are used to read and control data. To monitor a source listed in the I/O List, you must add the source to DAQ List.

I/O List shows which units are added to My System. If you click expand button (+), it displays a list of available I/O sources to add. You can search the desired I/O and add it.

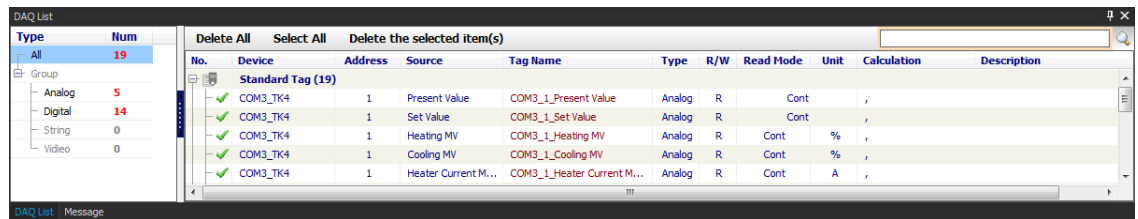


Double-click or right-click sources you want to communicate, and select Add to DAQ List.





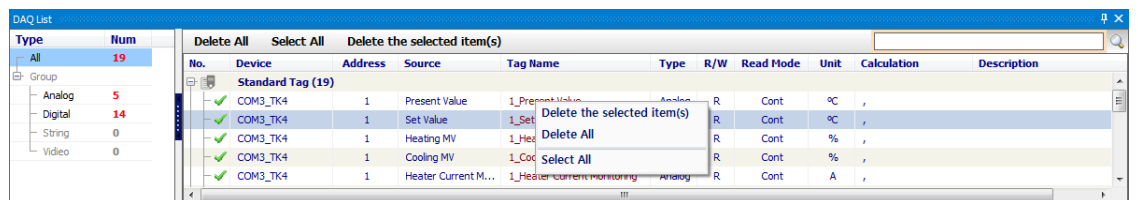
I/O sources are added to DAQ List as below.



**Note**

I/O source cannot be added to DAQ List when the Status is Run.

To delete resources added to DAQ List, select and right-click the sources. If you select a source or sources you want to delete and right-click on mouse, a pop-up menu will appear as below. Then click 'Delete the selected item(s)', 'Remove all' or 'Select All' to delete.



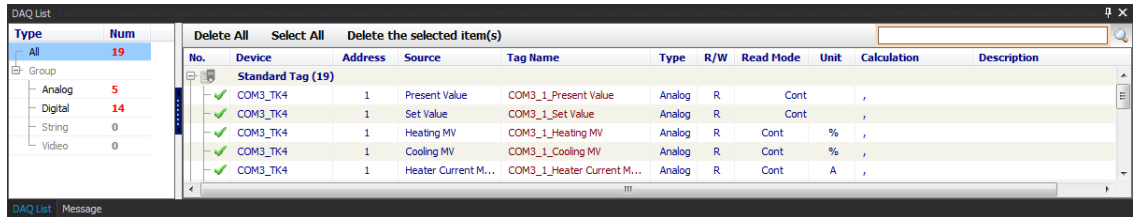
Sources added to DAQ List are grayed out in the I/O List. The image below shows Present Value, Set Value, Heater Current Monitoring, OUT1 Lamp, OUT2 Lamp, AL1 Lamp, and AL2 Lamp added to DAQ List.

The screenshot shows a window titled "I/O List" with a search bar at the top. Below the search bar is a table with three columns: "Device", "Source", and "Interface". The table lists various I/O points for a device named "TK4".

Device	Source	Interface
TK4	1 (11/19)	RS-232 - COM3
—	Present Value	Analog, R
—	Set Value	Analog, R
—	Heating MV	Analog, R
—	Cooling MV	Analog, R
—	Heater Current Monitoring	Analog, R
—	°C Lamp	Digital, R
—	°F Lamp	Digital, R
—	% Lamp	Digital, R
—	OUT1 Lamp	Digital, R
—	OUT2 Lamp	Digital, R
—	AT Lamp	Digital, R
—	SV1 Lamp	Digital, R
—	SV2 Lamp	Digital, R
—	SV3 Lamp	Digital, R
—	AL1 Lamp	Digital, R
—	AL2 Lamp	Digital, R
—	MAN Lamp	Digital, R
—	DI-1 IN	Digital, R
—	DI-2 IN	Digital, R

## 3.6 DAQ List

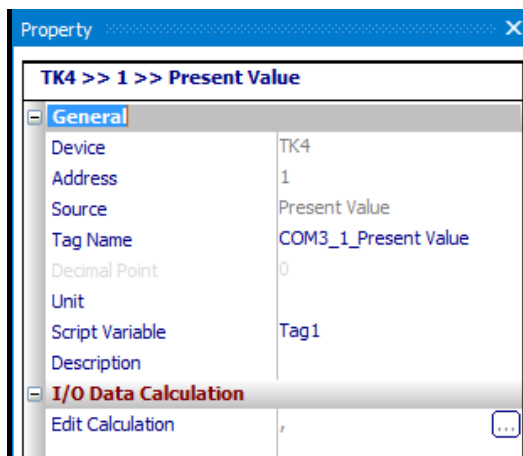
DAQ List shows a list of sources added from I/O List.



No.	Device	Address	Source	Tag Name	Type	R/W	Read Mode	Unit	Calculation	Description
Standard Tag (19)										
✓	COM3_TK4	1	Present Value	COM3_1_Present Value	Analog	R	Cont	Cont	,	
✓	COM3_TK4	1	Set Value	COM3_1_Set Value	Analog	R	Cont	Cont	,	
✓	COM3_TK4	1	Heating MV	COM3_1_Heating MV	Analog	R	Cont	%	,	
✓	COM3_TK4	1	Cooling MV	COM3_1_Cooling MV	Analog	R	Cont	%	,	
✓	COM3_TK4	1	Heater Current M...	COM3_1_Heater Current M...	Analog	R	Cont	A	,	

To add I/O sources in the DAQ List to the runtime screen, select the sources to add, then drag and drop them onto the screen. Make sure to place the mouse cursor on the text of the source when selecting a source to drag and drop.

You can select a source in the DAQ List and check/modify it in Property window.



TK4 >> 1 >> Present Value	
<b>General</b>	
Device	TK4
Address	1
Source	Present Value
Tag Name	COM3_1_Present Value
Decimal Point	0
Unit	
Script Variable	Tag1
Description	
<b>I/O Data Calculation</b>	
Edit Calculation	,

General items of Property is as below.

- Device: Device name
- Address: Unit address
- Source: I/O source name
- Tag name: Saves tag name as 'address\_I/O source name' and is changeable.
- Decimal point: Changes the decimal point of data.
- Unit: Allows you to change the unit of data.
- Script Variable: Tag value
- Description: Allows you to enter the description. (Read/write mode)

I/O Data Calculation items of Property is as below.

- Edit Calculation: When reading tag value, apply the data formular to get the desired data.

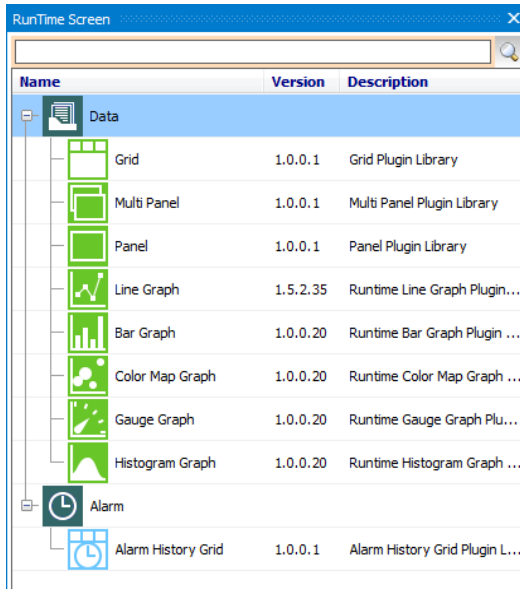


### Note

For certain I/O sources, decimal point and unit will be set automatically. In this case, they conform to the parameter set values.

### 3.7 Adding from DAQ List to Runtime Screen Library

Runtime screens monitor data and support 4 types of screen, Data: Grid, Multi Panel, Panel, Line Graph, Bar Graph, Color Map Graph, Gauge Graph, and Histogram Graph, Alarm: Alarm History Grid. You can search the desired runtime screen and select it. Runtime screens can be set and added according to the user environment. If an error occurs while adding Panel to Runtime Screen Library, install Adobe Flash Player.



To add a runtime screen to runtime screen library, double-click the type as required.

Below is an example runtime screen library. (Grid, Multi Panel, Line Graph are applied.)



### 3.7.1 Data

#### 3.7.1.1 Grid

Grid displays multiple I/O source data as text for monitoring.

Whenever data is updated in Run status, the color of Time column inverts.

No.	Device	Tag Name	Time	Data	Unit	Min	Max	Average
1	COM3_...	1_Present V...	2016-04-20 ...	27	°C	27	28	
2	COM3_...	1_Set Value	2016-04-20 ...	38	°C	38	38	
3	COM3_...	1_Heating MV	2016-04-20 ...	54.4	%	0.0	54.4	
4	COM3_...	1_Cooling MV	2016-04-20 ...	0.0	%	0.0	0.0	
5	COM3_...	1_Heater C...	2016-04-20 ...	0.0	A	0.0	0.0	
6	COM3_...	1_°C Lamp	2016-04-20 ...	ON	-	-	-	
7	COM3_...	1_°F Lamp	2016-04-20 ...	OFF	-	-	-	
8	COM3_...	1_OUT2 Lamp	2016-04-20 ...	OFF	-	-	-	
9	COM3_...	1_SV1 Lamp	2016-04-20 ...	OFF	-	-	-	
10	COM3_...	1_SV3 Lamp	2016-04-20 ...	OFF	-	-	-	

If you did not check Show When Updated from the pop-up menu (see below), the color does not invert upon update. If you selected Init Min/Max Values in the pop-up menu of data that has Min and Max columns, it shows Min/Max values from that point on.

No.	Device	Tag Name	Time	Data	Unit	Min	Max	Average
1	COM3_...	1_Present V...	2016-04-20 ...				28	
2	COM3_...	1_Set Value	2016-04-20 ...				38	
3	COM3_...	1_Heating MV	2016-04-20 ...				55.3	
4	COM3_...	1_Cooling MV	2016-04-20 ...				0.0	
5	COM3_...	1_Heater C...	2016-04-20 ...				0.0	
6	COM3_...	1_°C Lamp	2016-04-20 ...				-	
7	COM3_...	1_°F Lamp	2016-04-20 ...				-	
8	COM3_...	1_OUT2 Lamp	2016-04-20 ...				-	
9	COM3_...	1_SV1 Lamp	2016-04-20 ...				-	
10	COM3_...	1_SV3 Lamp	2016-04-20 ...				-	

If a parameter value causes an alarm (see Device Specifications), it flashes as below.

No.	Device	Tag Name	Time	Data	Unit	Min	Max	Average
1	COM3_...	1_Present V...	2016-04-20 ...	OPEN	°C	26	28	
2	COM3_...	1_Set Value	2016-04-20 ...	38	°C	38	38	
3	COM3_...	1_Heating MV	2016-04-20 ...	0.0	%	0.0	66.2	
4	COM3_...	1_Cooling MV	2016-04-20 ...	0.0	%	0.0	0.0	
5	COM3_...	1_Heater C...	2016-04-20 ...	0.0	A	0.0	0.0	
6	COM3_...	1_°C Lamp	2016-04-20 ...	ON	-	-	-	
7	COM3_...	1_°F Lamp	2016-04-20 ...	OFF	-	-	-	
8	COM3_...	1_OUT2 Lamp	2016-04-20 ...	OFF	-	-	-	
9	COM3_...	1_SV1 Lamp	2016-04-20 ...	OFF	-	-	-	
10	COM3_...	1_SV3 Lamp	2016-04-20 ...	OFF	-	-	-	

In case of ARM Series, when Input IO, Output IO is added, the output by bit is available.

No	Device	Tag Name	Time	Data	Unit	Min	Max	Average
1	ARM Slim	1_Input IO#1				-	-	-
2	ARM Slim	1_Input IO#2				-	-	-
3	ARM Slim	1_Input IO#3				-	-	-
4	ARM Slim	1_Input IO#4				-	-	-
5	ARM Slim	1_Output IO#1				-	-	-

Double-click the data (number) and you can edit the data and control it.

1\_OutputIO#1

Bit Data

HEX:  0

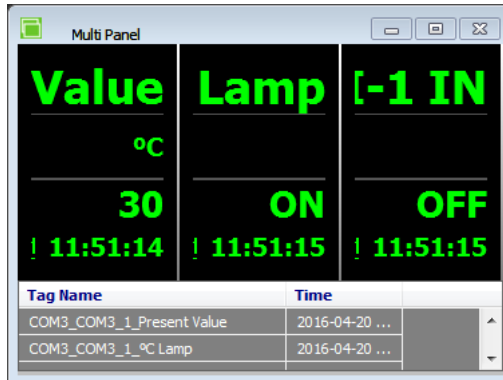
DEC:  0000

HEX DATA: LOW  HIGH

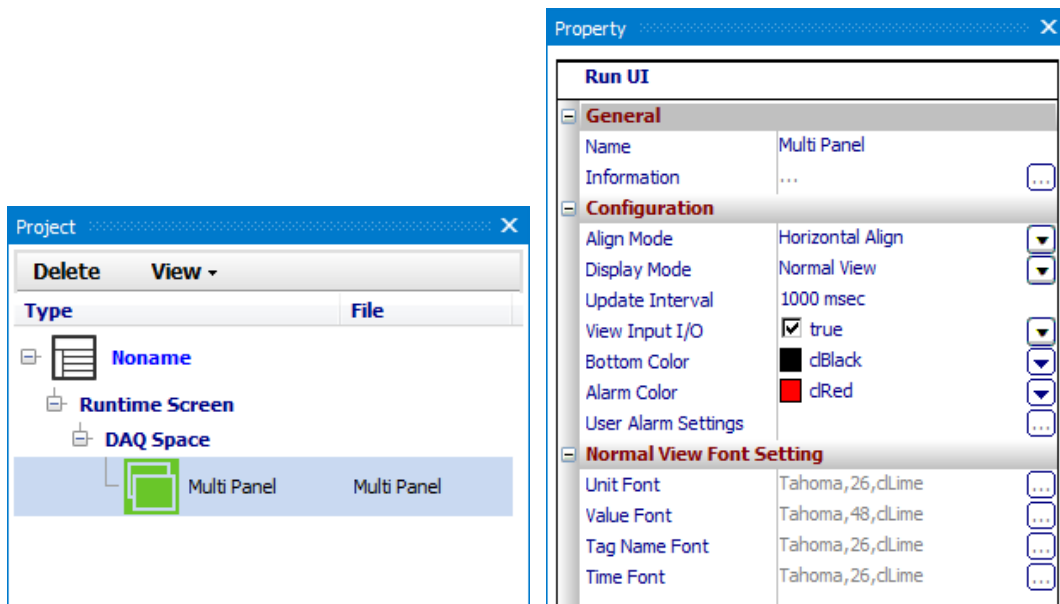
OK Cancel

### 3.7.1.2 Multi panel

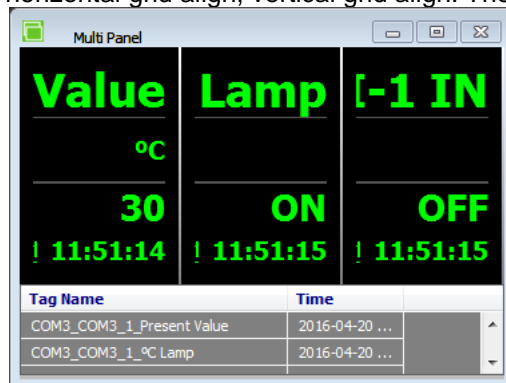
It displays I/O source data as Flash type. Multi Panel Viewer can display several I/O source one time. If alarm of parameter value occurs among data (refer to the specifications of the device) and it flashes in the set alarm color.



You can change align mode, color, update interval, etc. at Property.



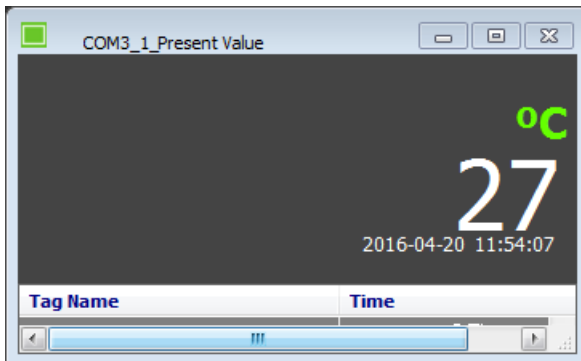
- Align mode: Set the align mode for several I/O source. It supports horizontal, vertical, horizontal grid align, vertical grid align. The below is the vertical grid align (grid: 3).



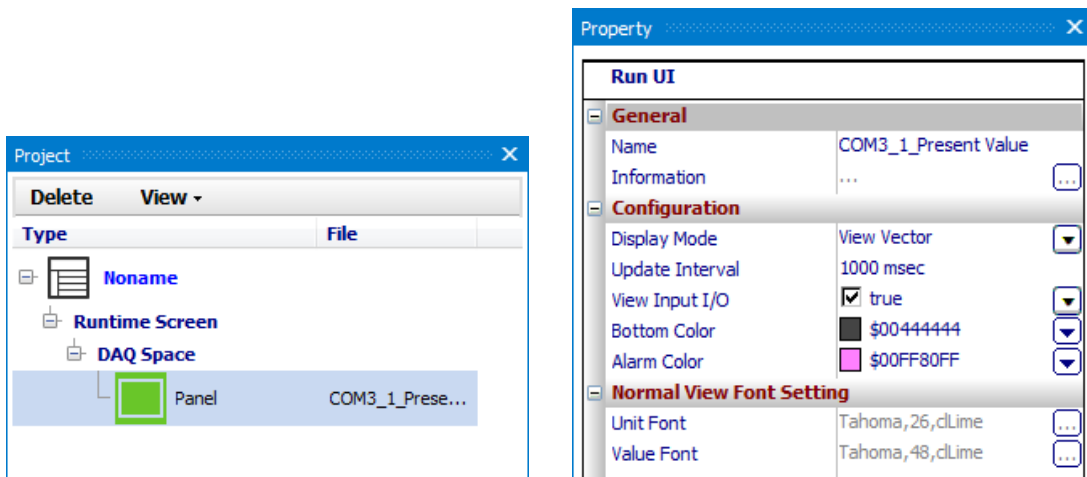
※The other settings are same as Panel graph. Refer to the '3.7.3 Panel'.

## 3.7.1.3 Panel

Panel displays I/O source data in Flash. A Panel can display only one I/O source. If a parameter value causes an alarm (see Device Specifications), it flashes as the set alarm color.

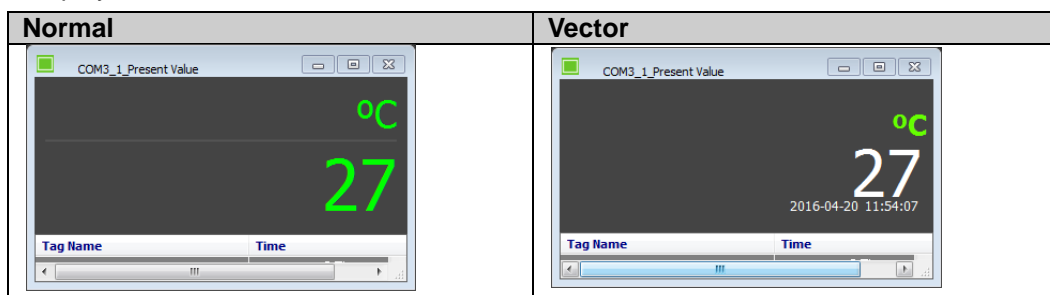


Select Panel on the runtime screen in the project window to modify properties (such as color, update interval) in the Property window.



Config section in the Property window contains the following items:

- Display Mode: You can select Normal or Vector.



- Update Interval: Panel update interval.
- View Input I/O: Show/hide settings of the input source list.
- Bottom Color: Background color of the panel.
- Alarm Color: Invert color when an alarm is issued.


Normal View Text Font section in the Property window contains the following items:

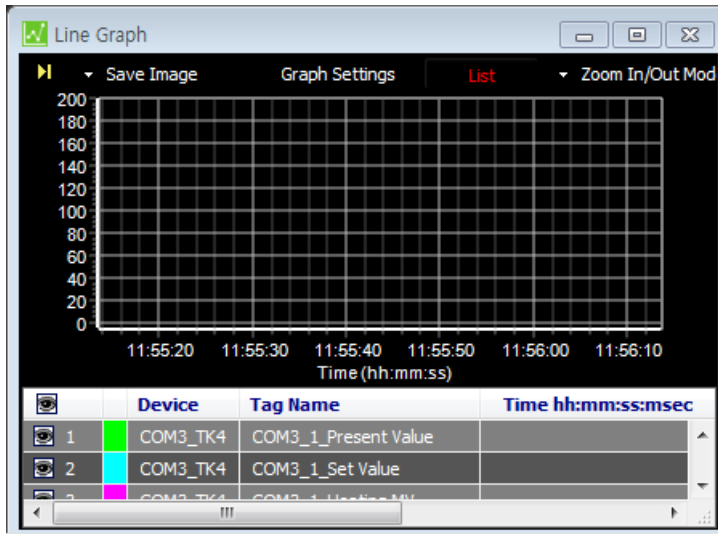
- Unit Font: Unit font setting for normal view of display mode.
- Value Font: Value font setting for normal view of display mode.



### 3.7.1.4 Line Graph

Line Graph displays multiple I/O source data as a graph for monitoring.

At the bottom is added I/O source list. Use the checkbox for  item to show/hide the graph.

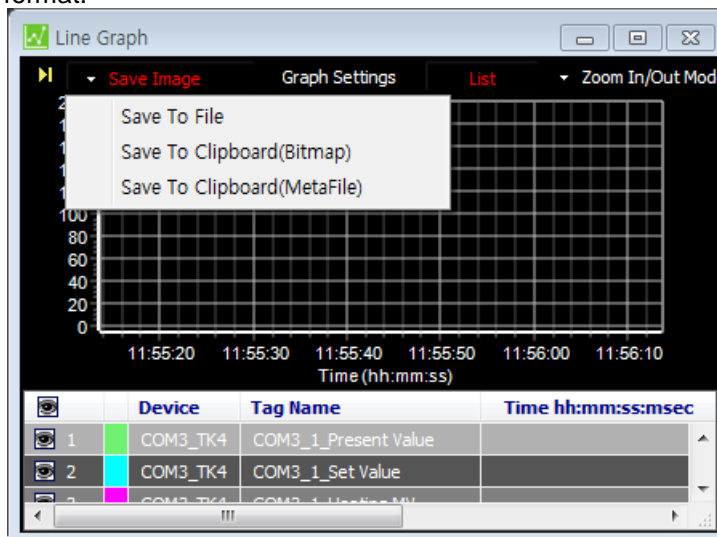


To change the color by each I/O source, double-click the color front of device.



### (1) Save Image

Save Image feature saves the current graph screen as an image. Save Image dialog appears when Save Image button is clicked. Images can be saved as '\*.bmp', or '\*.wmf' format.



- Save To File: Saves as Bitmap (\*.bmp) or Windows metafile (\*.wmf).
- Save To Clipboard (Bitmap): To use this image directly for other application program, saves as Bitmap (\*.bmp) file on clipboard.
- Save To Clipboard (MetaFile): To use this image file directly for other application program, saves as MetaFile (\*.wmf) on clipboard.

## (2) Graph settings

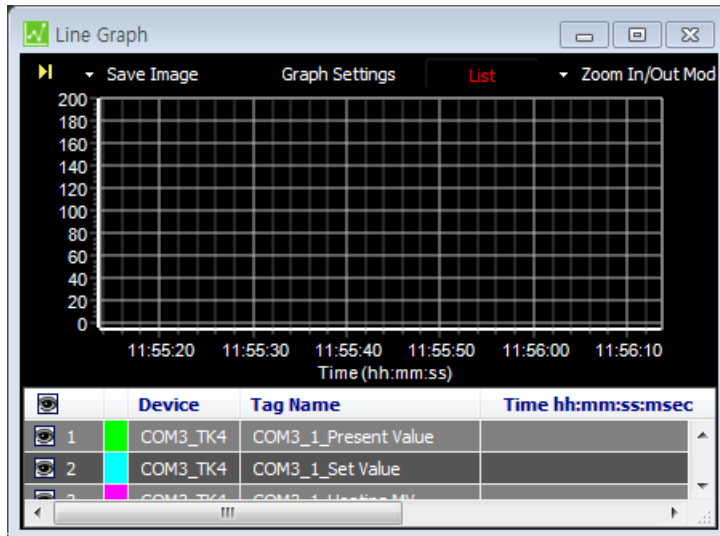
Graph Settings allows you to change the general Graph environment.

No	Item	Description
1	Axis Settings	<ul style="list-style-type: none"> <li>Time Axis Settings: sets time (Hours, Min and Sec).</li> <li>Y Axis: sets the range of Min and Max values</li> </ul>
2	Time Format	Sets time expression for the Time Axis (X Axis)
3	View Point	Shows data when selected (hides data when not selected).
4	Point Type	Sets point type.
5	Line Width	Sets thickness of the graph line.
6	Point	Sets point size.
7	View Data	Shows data value when selected (hides data value when not selected).
8	Digital Axis (%)	Sets digital axis as a percentage.
9	Line	Sets upper limit, reference, lower limit line's Y value, color, width, etc.

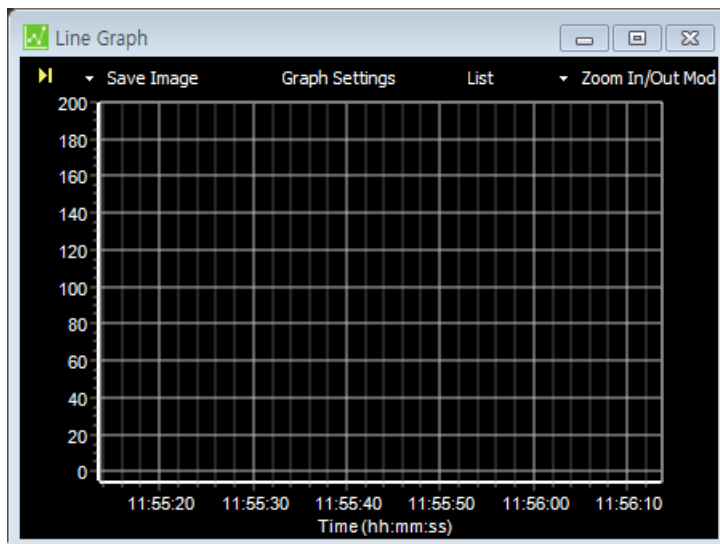
## (3) List

List displays or hides I/O source list items at the bottom of the graph. Clicking the List button toggles item display on and off.

- List ON

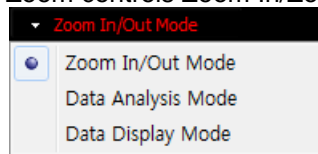


- List OFF



## (4) Zoom

Zoom controls Zoom In/Zoom Out of the graph.



- Zoom

- Zoom In



On the graph, hold left mouse button and drag to lower right-hand corner to enlarge the selected area.

- Zoom Out



On the graph, hold left mouse button and drag to upper left-hand corner to return to default scale.

- Change X/Y Axis



On the graph, hold right mouse button and drag to change positions of X/Y axes. If the graph is enlarged or X/Y axes positions have changed, X axis does not automatically move when data has updated.

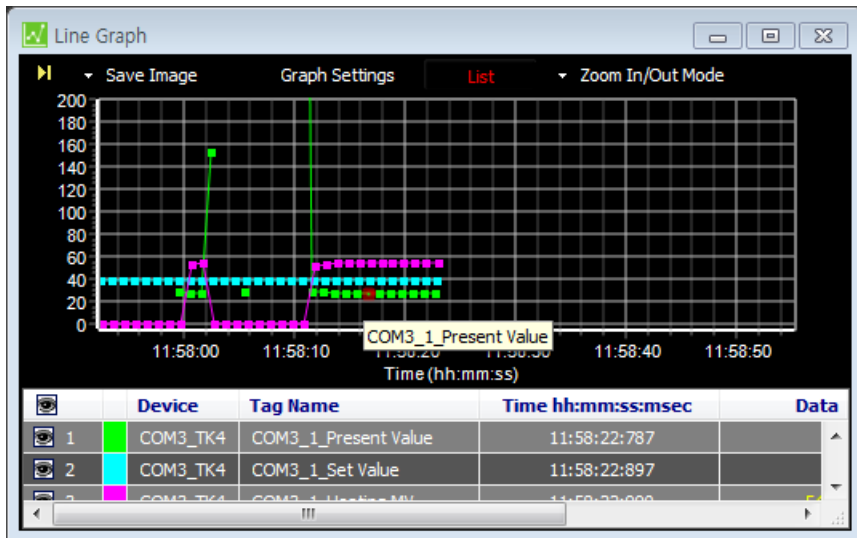
The program preserves user-changed graph scale and axes positions. It considers this as graph analysis mode.

- Mouse wheel functions

Operation	Function
Ctrl + mouse wheel up	Increases X axis
Ctrl + mouse wheel down	Decreases X axis
Shift + mouse wheel up	Increases Y axis
Shift + mouse wheel down	Decreases Y axis
Mouse wheel	Increases/decreases X/Y axes at the same time.

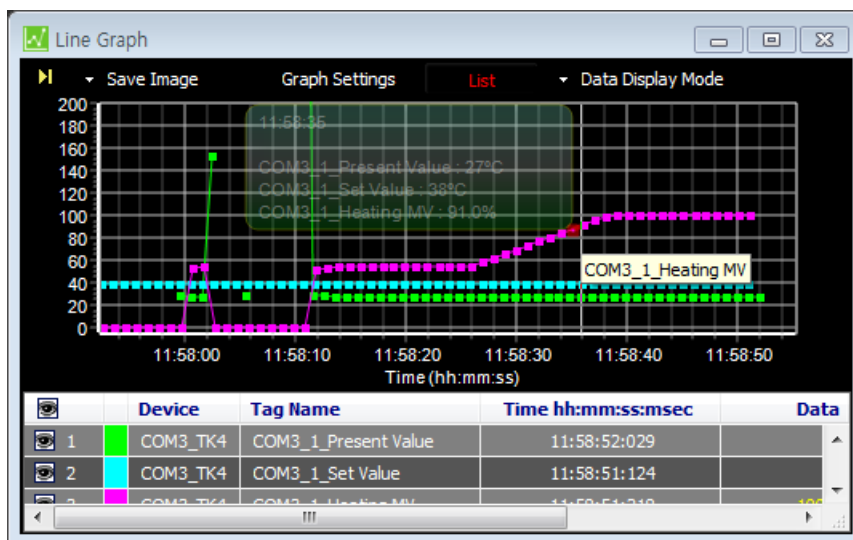
- Data Analysis Mode

Shows X axis (Time) and Y axis values of the mouse position on the graph.

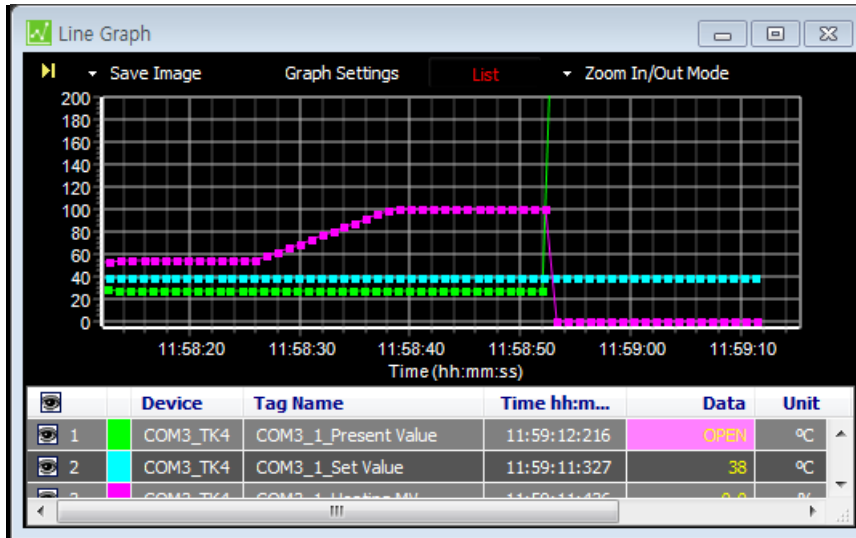


- Data Display Mode

Displays all data values of the mouse position.




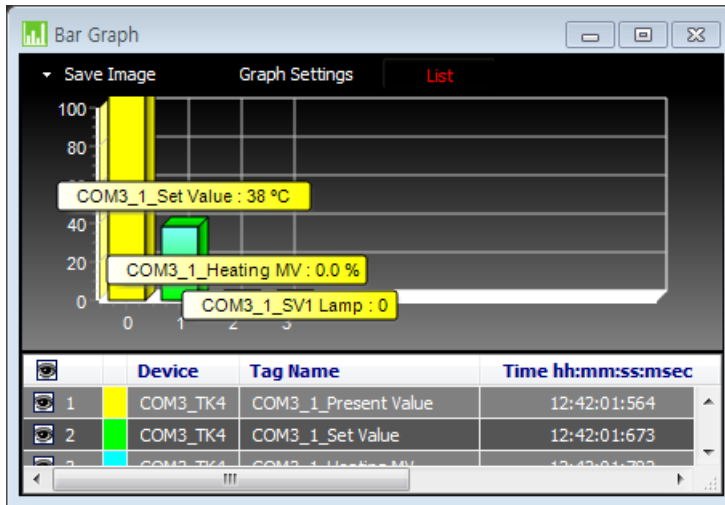
If any parameter value causes an alarm (see Device Specifications), it flashes as below.



### 3.7.1.5 Bar Graph

Bar Graph displays multiple I/O source data as a graph for monitoring.

At the bottom is added I/O source list. Use the checkbox for  item to show/hide the graph.



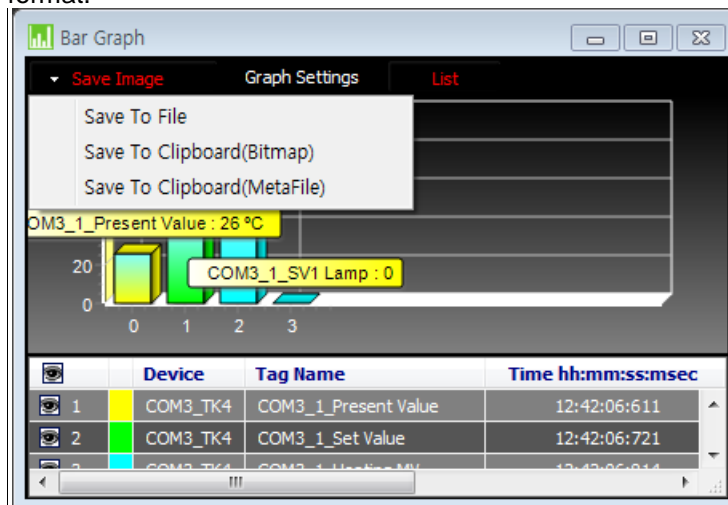
To change the color by each I/O source, double-click the color front of device.





### (1) Save image

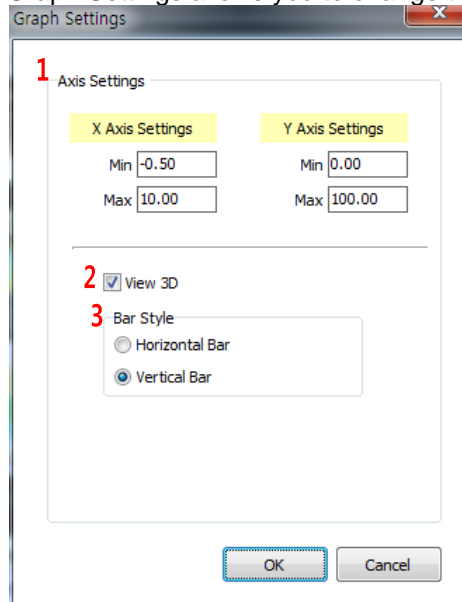
Save Image feature saves the current graph screen as an image. Save Image dialog appears when Save Image button is clicked. Images can be saved as '\*.bmp', or '\*.wmf' format.



- Save To File: Saves as Bitmap (\*.bmp) or Windows metafile (\*.wmf).
- Save To Clipboard (Bitmap): To use this image directly for other application program, saves as Bitmap (\*.bmp) file on clipboard.
- Save To Clipboard (MetaFile): To use this image file directly for other application program, saves as MetaFile (\*.wmf) on clipboard.

### (2) Graph settings

Graph Settings allows you to change the general Graph environment.

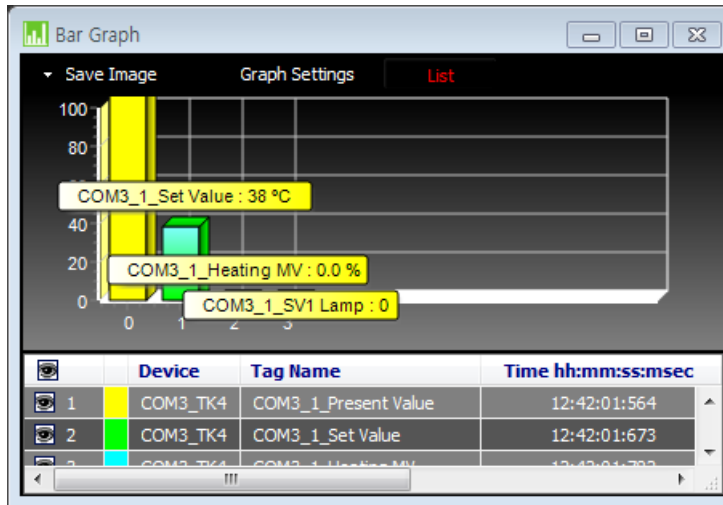


No	Item	Description
1	Axis Set	Sets the range of Min. and Max. values for the X/Y axis.
2	3D View	Sets the display status of the bar.
3	Bar Style	Sets the horizontal and vertical styles of the bar.

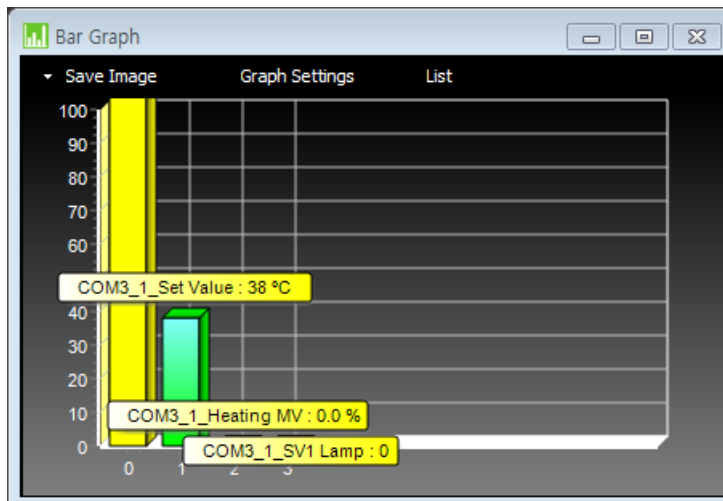
## (3) List

List displays or hides list items at the bottom of the graph. Clicking the List button toggles item display on and off.

- List ON




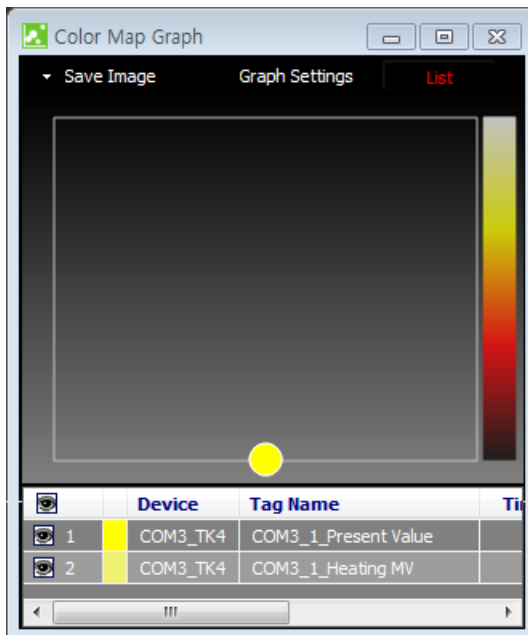
- List OFF



### 3.7.1.6 Color Map Graph

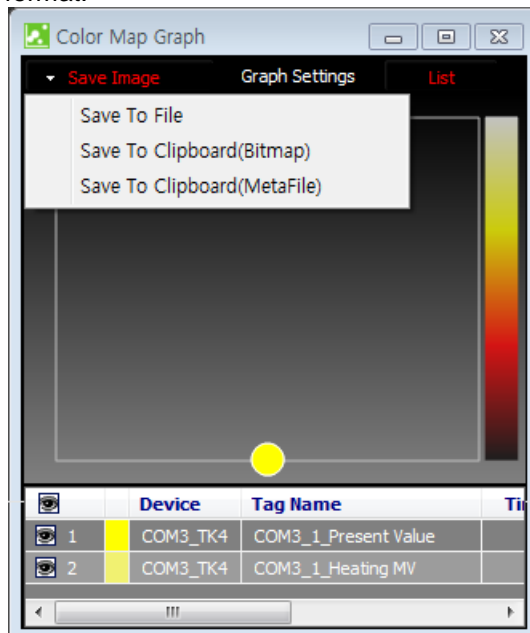
Color Map Graph displays multiple I/O source data as a graph for monitoring.

At the bottom is added I/O source list. Use the checkbox for  item to show/hide the graph.



#### (1) Save image

Save Image feature saves the current graph screen as an image. Save Image dialog appears when Save Image button is clicked. Images can be saved as '\*.bmp', or '\*.wmf' format.



- Save To File: Saves as Bitmap (\*.bmp) or Windows metafile (\*.wmf).
- Save To Clipboard (Bitmap): To use this image directly for other application program, saves as Bitmap (\*.bmp) file on clipboard.
- Save To Clipboard (MetaFile): To use this image file directly for other application program, saves as MetaFile (\*.wmf) on clipboard.

(2) Graph settings

Graph Settings

1 Graph Type: Normal

2 X Axis Settings: Min 0.00, Max 100.00; Y Axis Settings: Min 0.00, Max 100.00

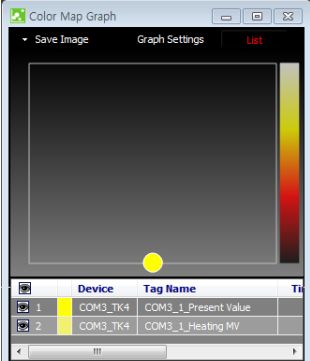
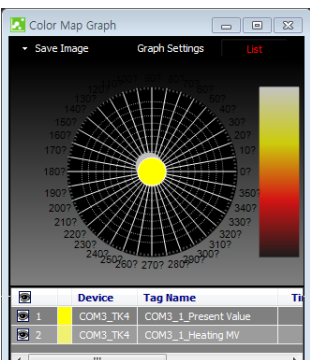
3 Circle Size: 10

4 Tag Name, X Po..., Y Po..., Min, Max

	Tag Name	X Po...	Y Po...	Min	Max
0	COM3_1_Present Value	0.00	0.00	-1999.00	9999.00
1	COM3_1_Heating MV	0.00	0.00	0.00	1000.00

5 Color Map: HOT

OK Cancel

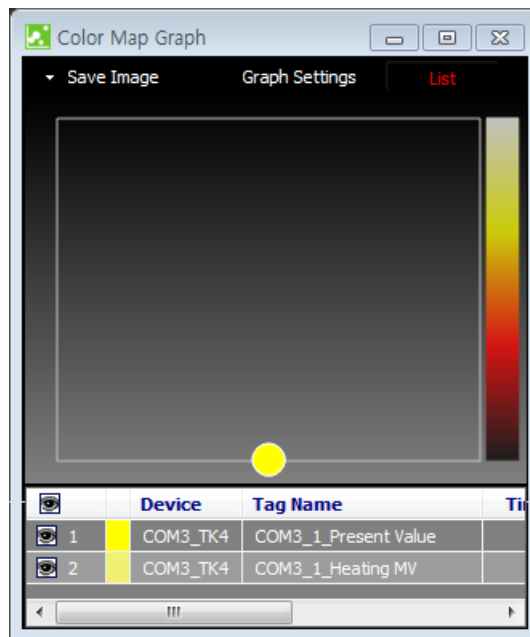
No	Item	Description
1	Graph Type	<ul style="list-style-type: none"> <li>Normal                              </li> <li>Polar                              </li> </ul>

No	Item	Description
2	X/ Y Axis set	Sets max./min. value of X/Y axis range.
3	Circle size	Sets displayed circle size.
4	List	Displays added I/O source list. Double-click the item to set X,Y coordinate (Normal) or angle and distance (Polar Bar) depending on graph type setting.
5	Color Map	Sets color map. Color map supports HSV, JET, HOT, COOL, and GRAY.

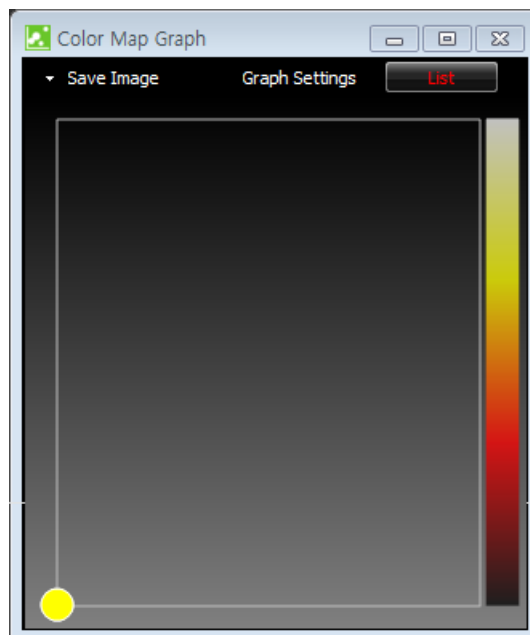
### (3) List

List displays or hides list items at the bottom of the graph. Clicking the List button toggles item display on and off.

- List ON

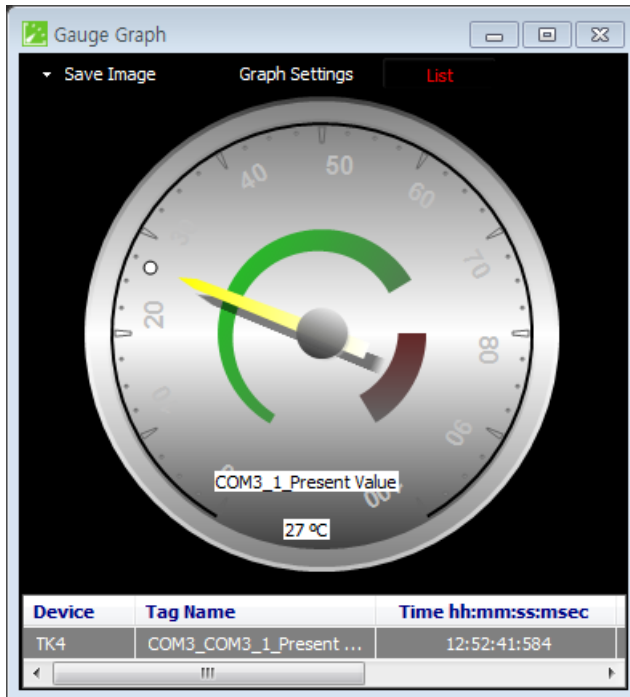


- List OFF

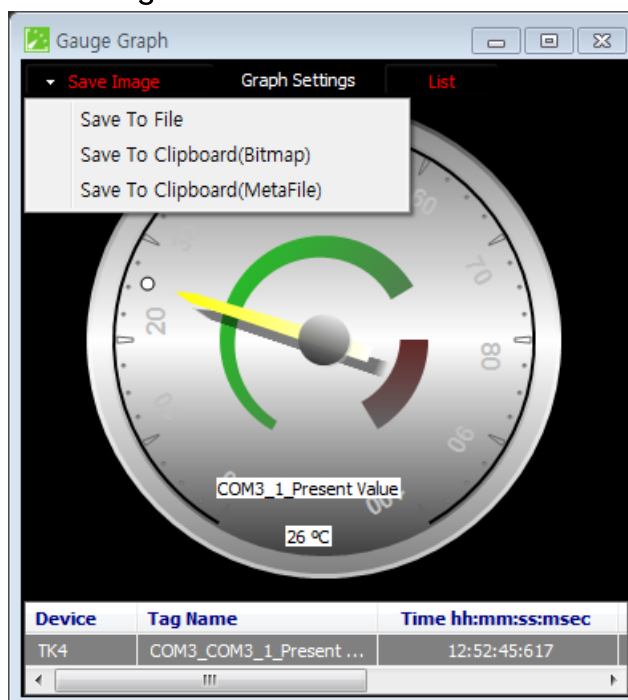


### 3.7.1.7 Gauge Graph

A Gauge Graph can display only one I/O source.

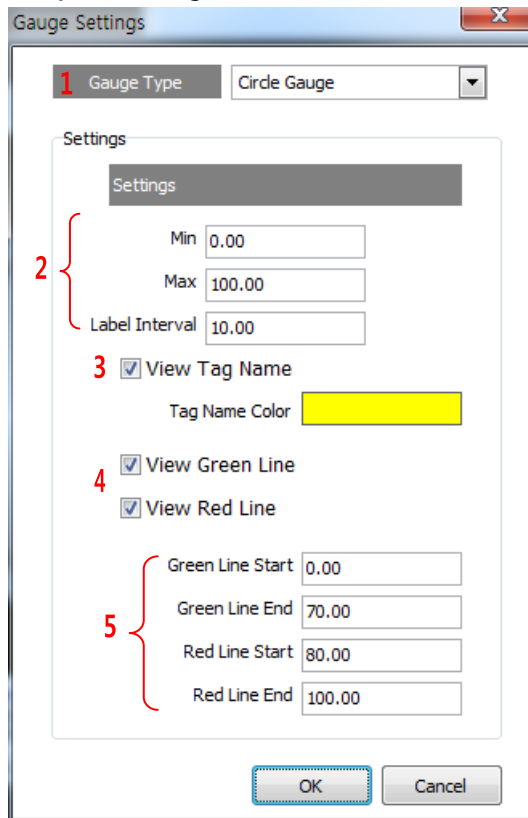


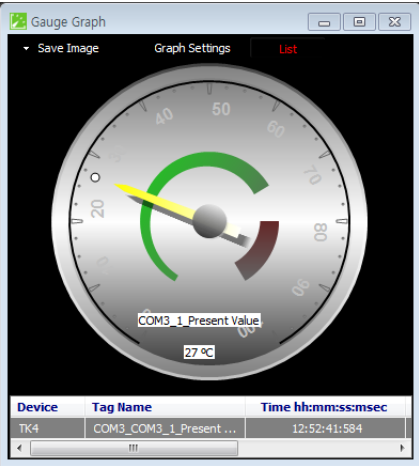
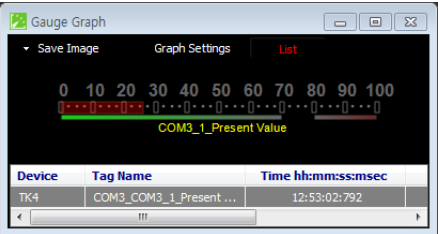
#### (1) Save Image

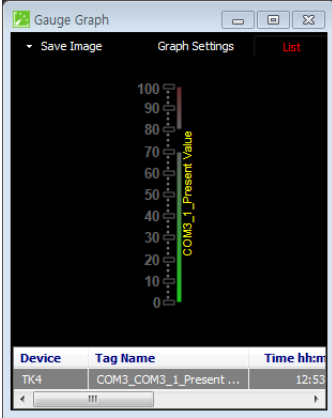
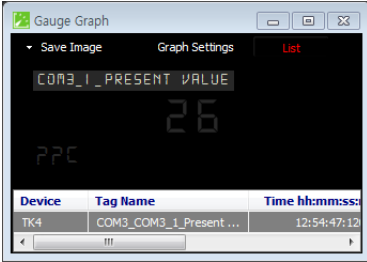
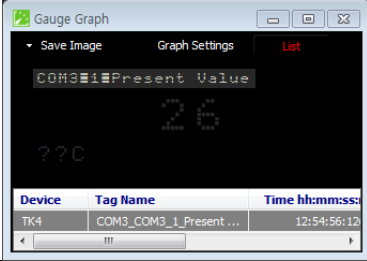


- Save To File: Saves as Bitmap (\*.bmp) or Windows metafile (\*.wmf).
- Save To Clipboard (Bitmap): To use this image directly for other application program, saves as Bitmap (\*.bmp) file on clipboard.
- Save To Clipboard (MetaFile): To use this image file directly for other application program, saves as MetaFile (\*.wmf) on clipboard.

(2) Graph settings



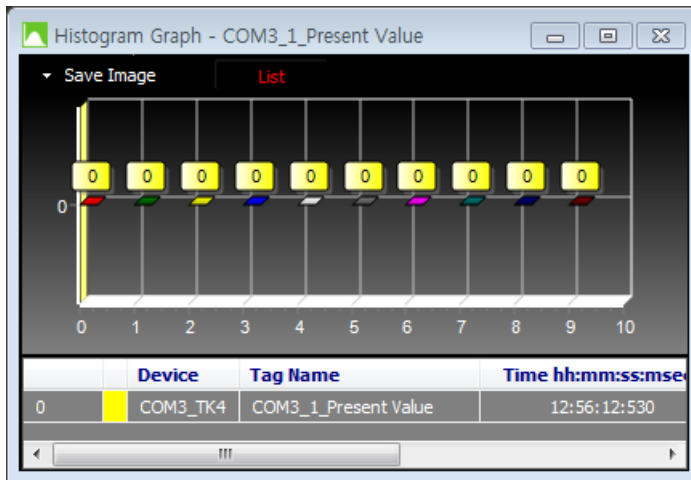
No	Item	Description
1	Gauge Type	<p>Sets gauge graph type.</p> <ul style="list-style-type: none"> <li>Circle Gauge                              </li> <li>Horizontal Liner                              </li> </ul>

No	Item	Description
		<ul style="list-style-type: none"> <li>Vertical Linear                              </li> <li>Numeric Gauge                              </li> <li>LED Gauge                              </li> </ul>
2	Minimum, Maximum, Label Interval	Sets minimum/maximum value and label interval displayed on graph.
3	TagName Visible	Sets tagname of added I/O source display and color.
4	Green/Red Line Visible	Sets green/red line of graph display.
5	Green/Red Line Setting	Sets start/end value of green/red line.



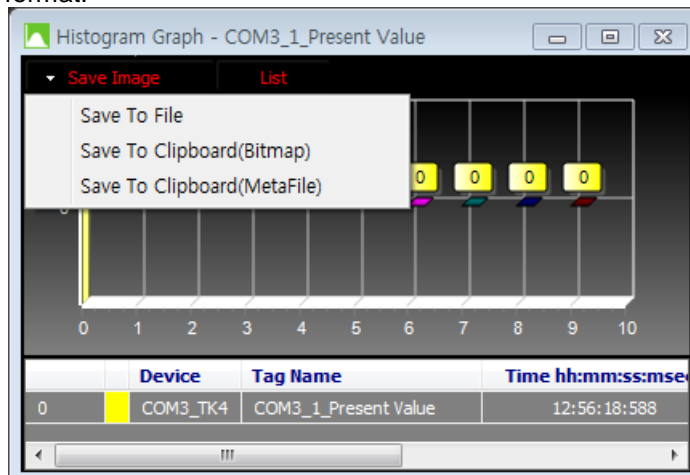
### 3.7.1.8 Histogram graph

It displays deviced data by the set update interval and deviced number.  
You can set the update interval, upper/lower limit and deviced number at Property.



#### (1) Save image

Save Image feature saves the current graph screen as an image. Save Image dialog appears when Save Image button is clicked. Images can be saved as '\*.bmp', or '\*.wmf' format.

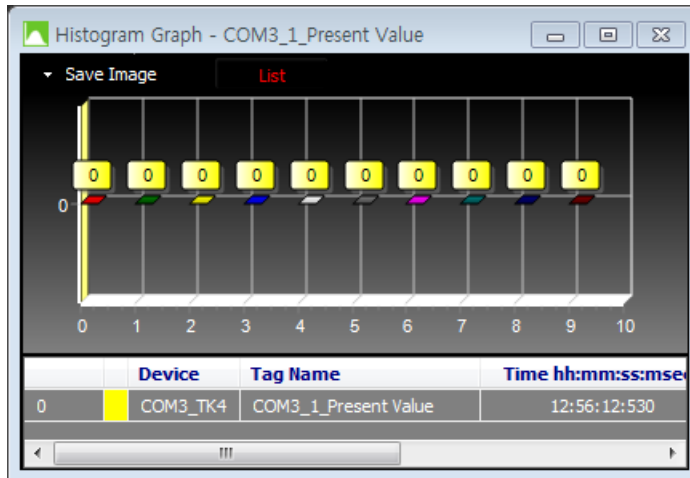


- Save To File: Saves as Bitmap (\*.bmp) or Windows metafile (\*.wmf).
- Save To Clipboard (Bitmap): To use this image directly for other application program, saves as Bitmap (\*.bmp) file on clipboard.
- Save To Clipboard (MetaFile): To use this image file directly for other application program, saves as MetaFile (\*.wmf) on clipboard.

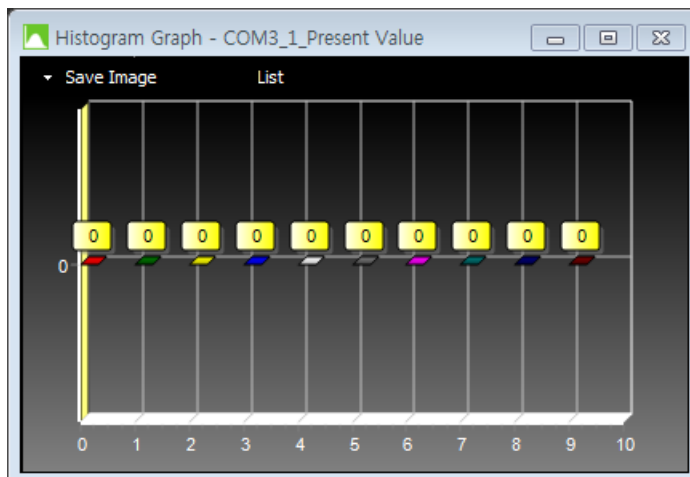
## (2) List

List displays or hides list items at the bottom of the graph. Clicking the List button toggles item display on and off.

- List ON



- List OFF

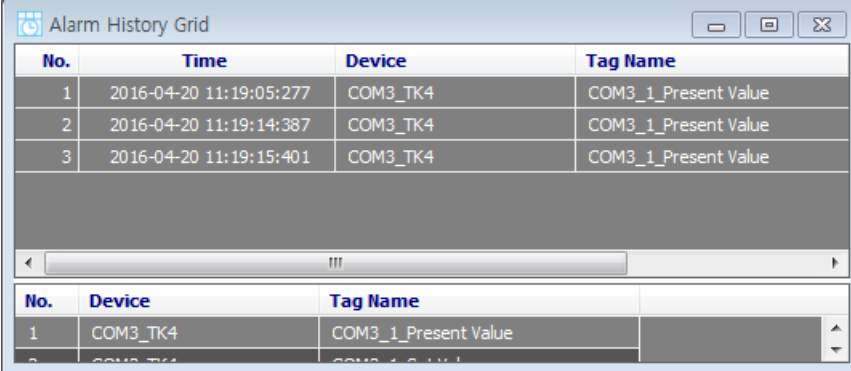


## 3.7.2 Alarm

### 3.7.2.1 Alarm History Grid

Alarm History Grid displays alarm data of I/O source data as text for monitoring.

Whenever alarm data is updated in Run status, the data is added.



The screenshot shows a window titled "Alarm History Grid" with a table containing three rows of alarm data. The table has four columns: No., Time, Device, and Tag Name. Below the main table is a horizontal scrollbar and a smaller table showing a subset of the data.

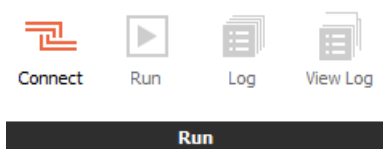
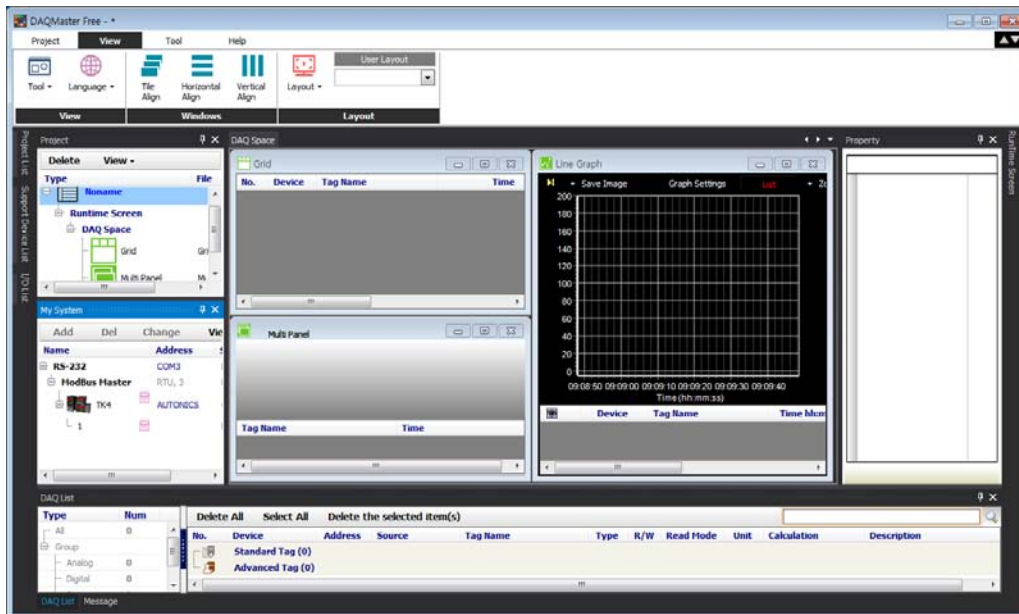
No.	Time	Device	Tag Name
1	2016-04-20 11:19:05:277	COM3_TK4	COM3_1_Present Value
2	2016-04-20 11:19:14:387	COM3_TK4	COM3_1_Present Value
3	2016-04-20 11:19:15:401	COM3_TK4	COM3_1_Present Value

No.	Device	Tag Name
1	COM3_TK4	COM3_1_Present Value

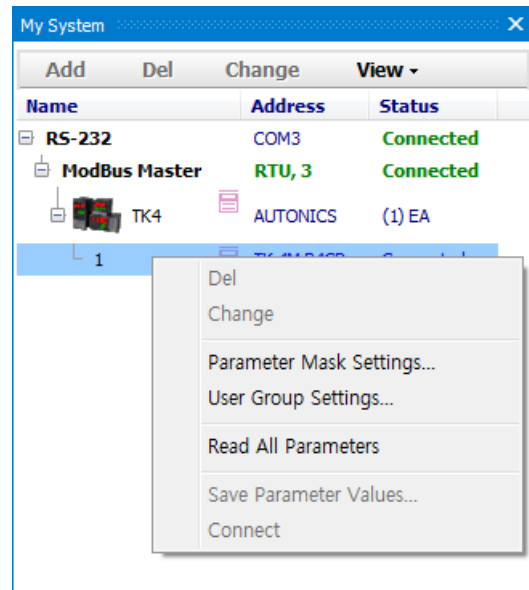
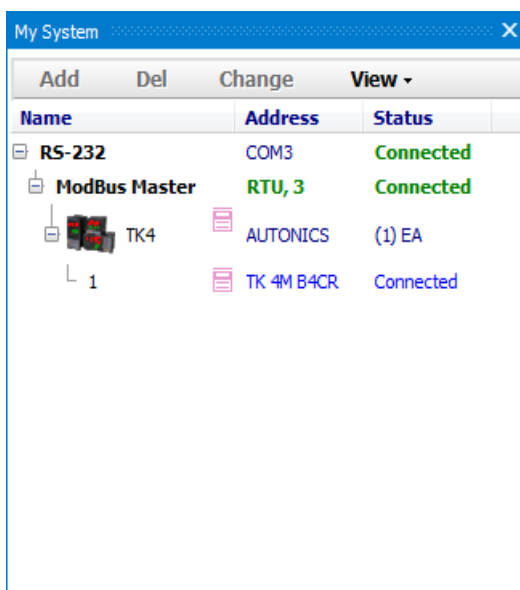
### 3.8 Connection

The screenshot below shows all necessary settings for complete connection with a device.



Click the Connect button on the toolbar and check the connection status in My System. If the connection is successful, Status displays Connected.

To set the DAQMaster Program parameters, you should load the parameters of connected unit. Select TK4 Unit 1 in My System and then right-click it to execute the 'Read All Parameters'.



When the reading is completed, the Property window displays the parameters. Parameter change is also available.



If you only want to monitor (and not change parameters), click Run button on the toolbar.

When parameter values are changed in the Property window, changed values are immediately applied through communication to the device. While a parameter change request is in progress, all property values are displayed in gray (not modifiable). They are restored to the original color after the resulting values are received.

To apply the changed value, change the value and press Enter (for edit type), or select an item with the mouse or the Alt + arrow keys, and press enter (for list type).

If a unit related item in a parameter is changed, all unit values of the related parameter will change. If a range related item is changed, this range will be applied to all items for the parameter.

If an out-of-range value is entered for a property with a value range, the input is ignored and original value restored. The range is displayed at the below.

The parameter which input format is set only available to input in a specified format.

Parameters in Disabled status do not have displayed values and the names are grayed out. In Reading mode, parameters, names and values are grayed out.

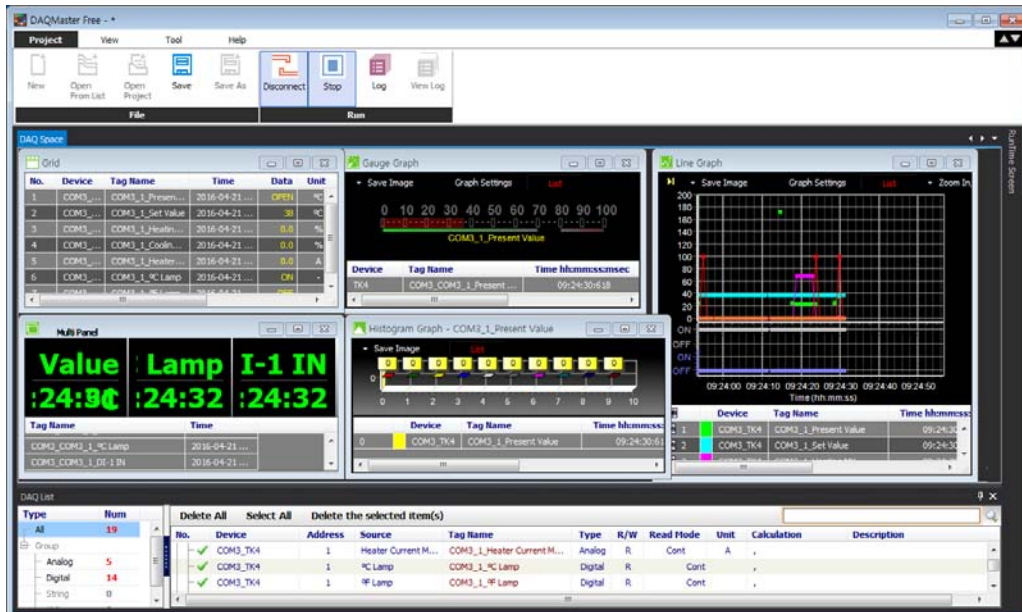
The language of the parameters does not change (regardless of the language selected when installing the program).

### 3.9 Running the Program

Below is an image of the program in progress.



If you changed the layout from default to runtime on the toolbar, the monitoring screen displays as below.



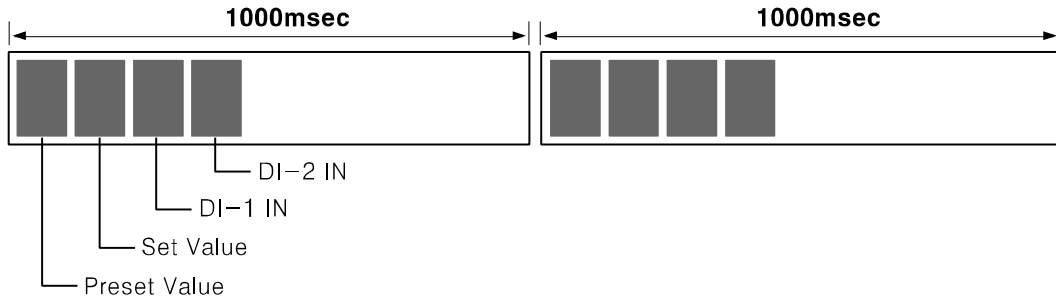


**Note**

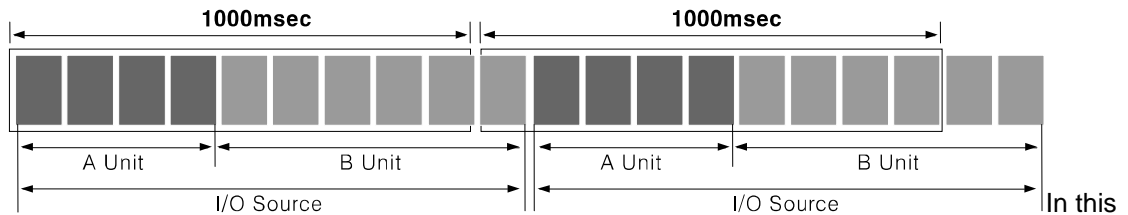
**Setting a repeat reading for the unit**

The Repeat Interval (under General in the Property window) of a unit sets an interval of repeated reading of I/O source for the unit connected when run. The default value is 1000 ms.

If four I/O sources are added to DAQ List, it gets data for four I/O sources and another four after 1000 ms as shown in the diagram below. If I/Os do not exceed the defined Repeat Interval (1000 ms), it brings data according to the set Repeat Interval.



A large number of added I/O sources may exceed the defined Repeat Interval as in the image below.



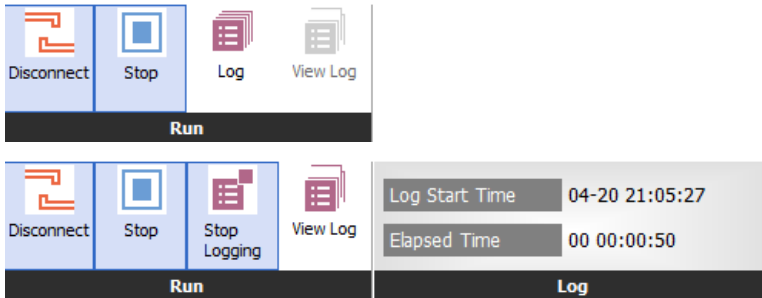
In this case, communication occurs at the minimum interval instead of the preset Repeat Interval.

Therefore, if reading time exceeds the range of the set Repeat Interval value, extra communication occurs at the minimum required time to read I/O sources.

If the environment requires a precise set value, add RS-232 port(s) and split the device connection.

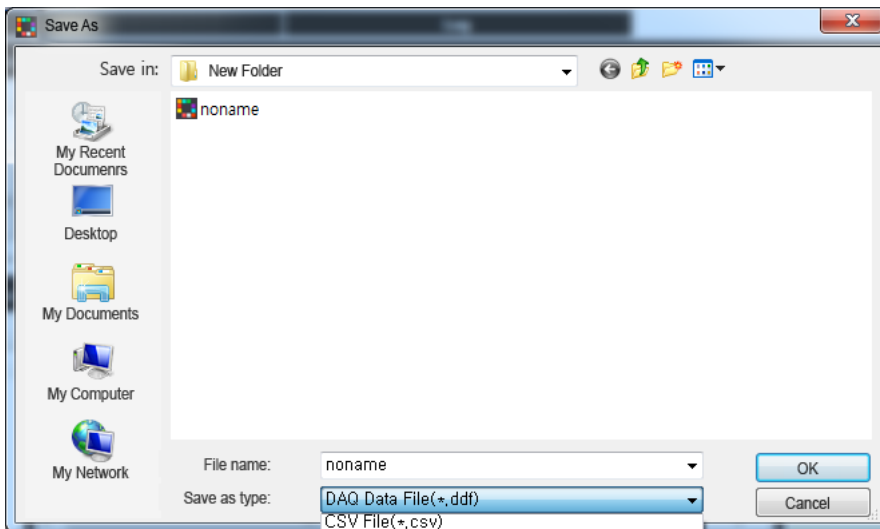
## 3.10 Logging

When the Status is Run, the Log button on the toolbar is enabled.

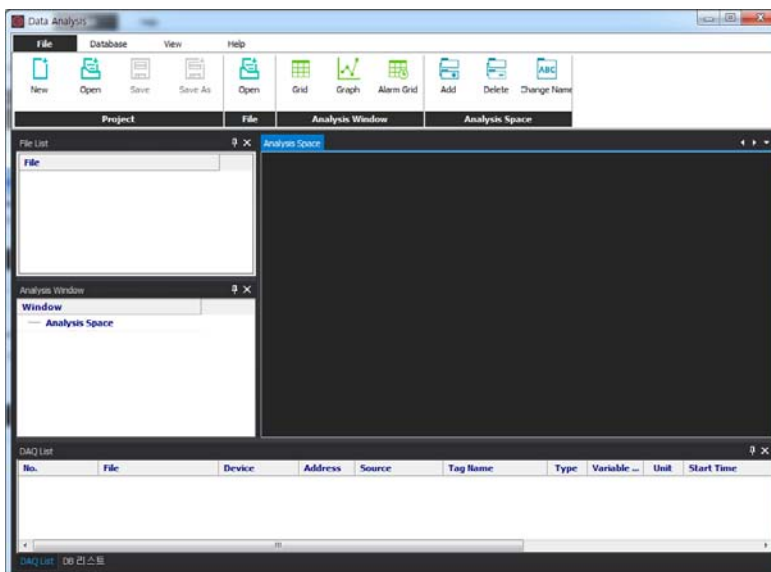


If you start logging, log start time and elapsed time display on the right side.

If you click Stop Logging, the Save As window appears. Files are saved as DAQ Data File (\*.ddf) and CSV File (\*.csv) format.



DAQ Data Files (\*.ddf) can be analyzed using Tool > Data Analysis in DAQMaster Program.



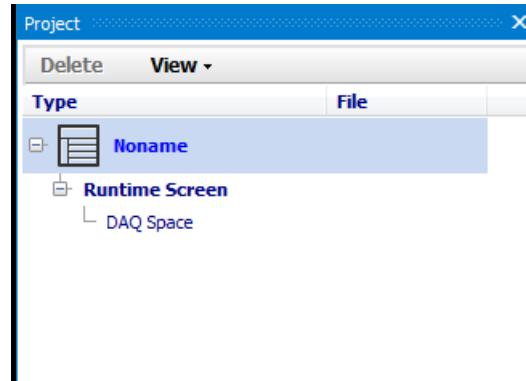


## 3.11 Saving Project

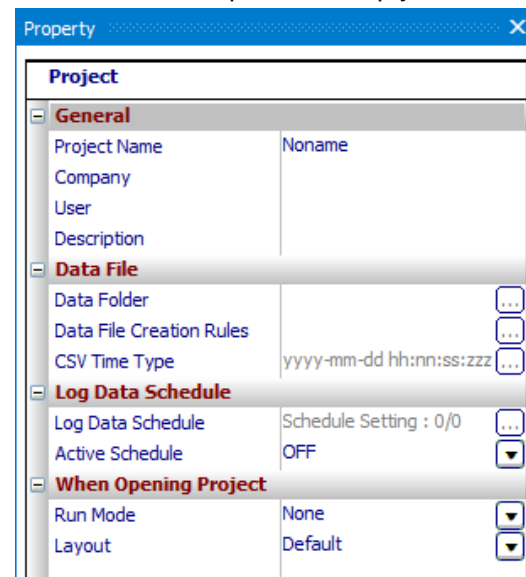
You can save the project you were monitoring.

Device, RS-232 configuration, repeat interval, runtime screen set values are saved. Specify project properties as follows before saving.

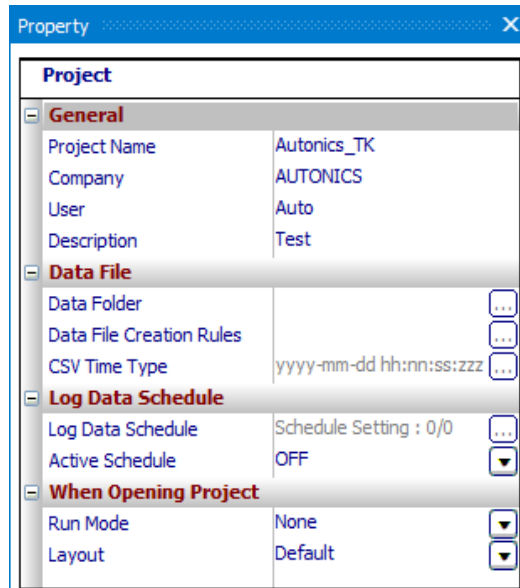
1st Select Noname at the top of the project tree.



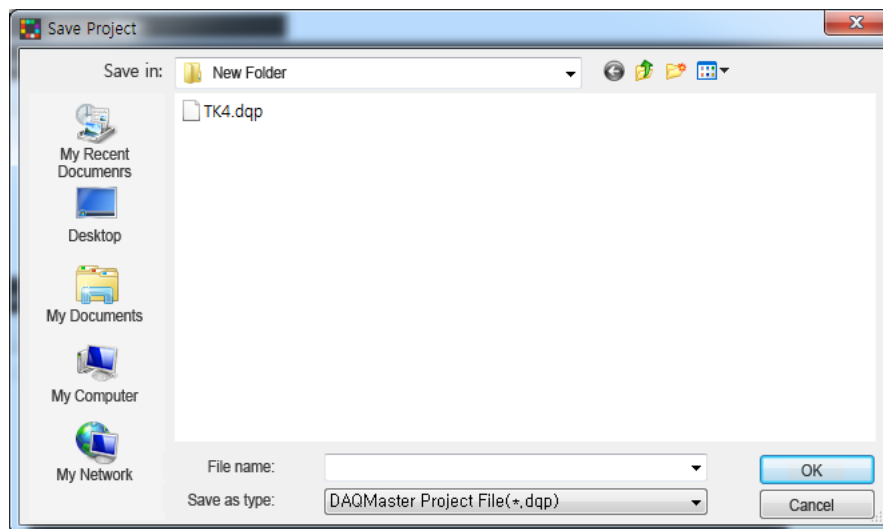
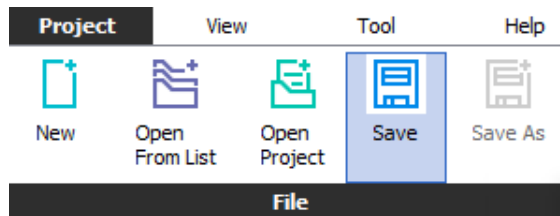
2nd In the Property window, the project name is marked as Noname. Company name, worker, and description are empty.



Enter basic project information, such as company name, worker, and other descriptions as below.



3rd Select Project > File > Save Project from main menu to save the project in the desired location.



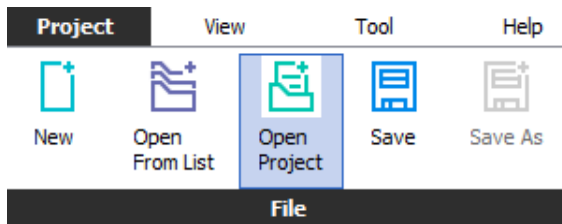
## 3.12 Opening a Project

Opens a saved project.

There are two ways to open a project: Open Project and Open Project List. You can only open a project when communications are not connected.

### 3.12.1 Open Project

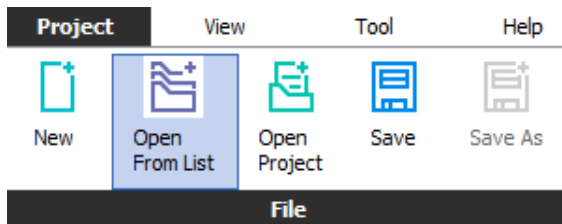
Directly selecting a project file is the most common way to open a project file.



### 3.12.2 Open Project List:

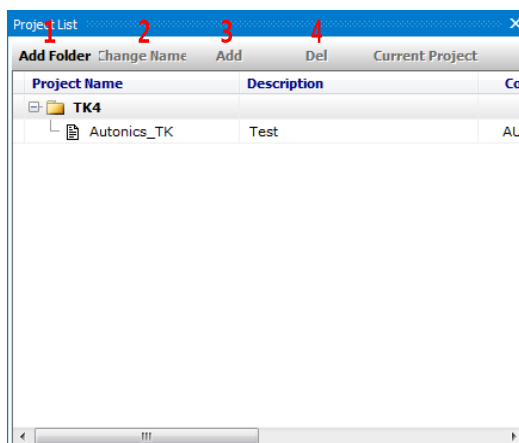
This method opens a file from a list of frequently used projects.

This is a convenient project file management system. Similar to a favorites menu on an Internet browser, you can add frequently used projects to the list.



You can even add a folder to the project list and project files to the subfolder. You can also change folder/file names as well as add or delete folders/files.

Selecting a folder enables Add Folder, Change Name, Add, Delete menus. Selecting a project file enables Add and Delete menus.



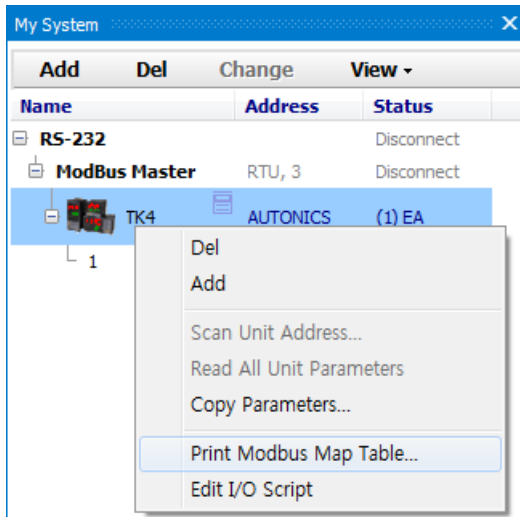
No	Item	Description
1	Add Folder	Adds a folder.
2	Change Name	Changes the name of folder.
3	Add	Adds a project file. Click the Add and the Add Project List window is open.
4	Delete	Removes selected folder or file.

### 3.13 Modbus Map Table Report

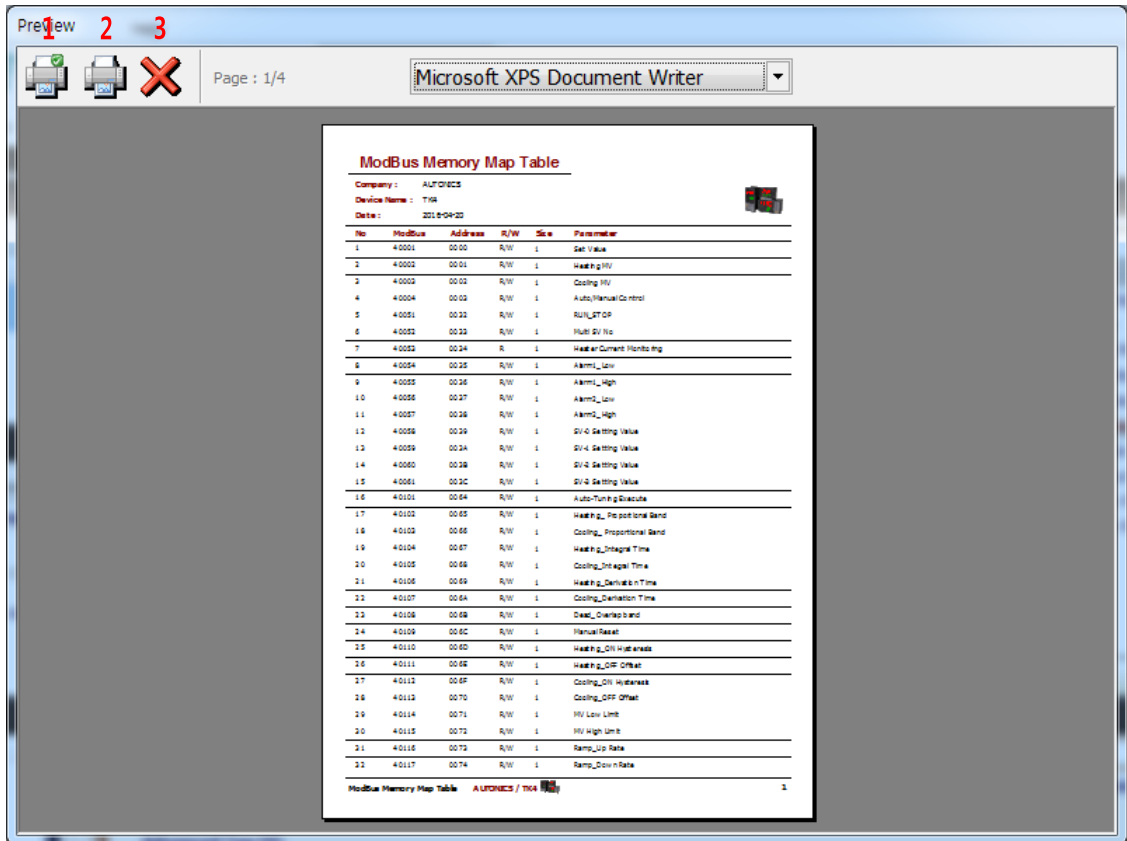
This feature outputs ModBus map table of a device, which uses ModBus communications as a report.

Direct print out is available and you can save as a PDF File (\*.pdf) or Html File (\*.html) format.

Right-click the device in My System after the device is added. Select Print ModBus Map Table from the pop-up menu.



Below is a preview window.



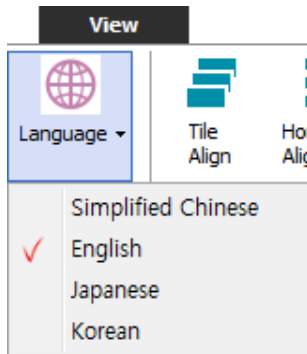
No	Item	Description
1	Printer Setup	Configures the printer environment for printing. Printer environment varies according to user's printer.
2	Print	Prints the ModBus map table.
3	Close	Closes the print preview window.



## 4 Changing Program Language

### 4.1 Change Language

Changes the program language. Language is set based on the language selected at program installation.



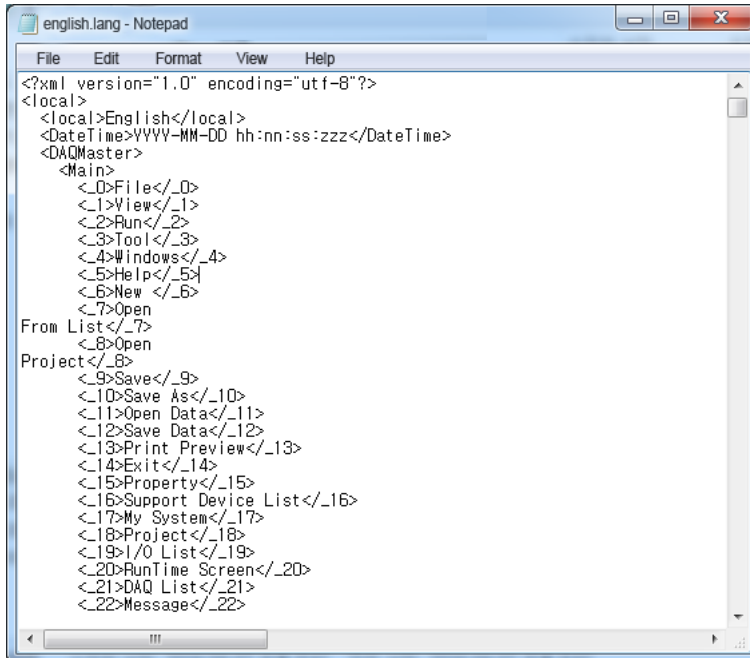
Select Tool > Language > from the main menu. It is applied immediately and changes to the selected language.



## 4.2 Modifying and Adding Languages

DAQMaster program allows you to add and modify the language. Language files reside in lang folder in the installation folder. Its default format is XML.

To modify language, open the file in Notepad as below, modify and save.



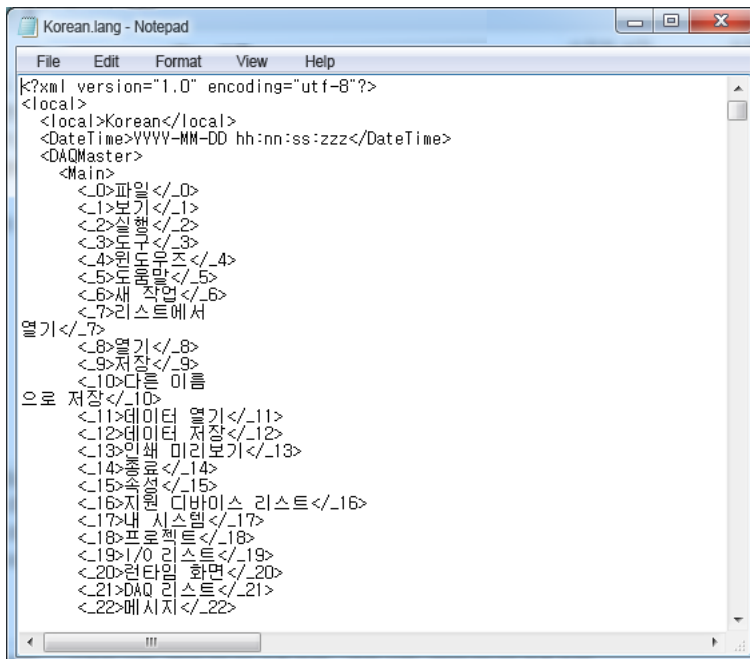
```

english.lang - Notepad
File Edit Format View Help
<?xml version="1.0" encoding="utf-8"?>
<local>
<local>English</local>
<DateTime>YYYY-MM-DD hh:nn:ss:zzz</DateTime>
<DAQMaster>
  <Main>
    <.0>File</_0>
    <.1>View</_1>
    <.2>Run</_2>
    <.3>Tool</_3>
    <.4>Windows</_4>
    <.5>Help</_5>
    <.6>New </_6>
    <.7>Open
From List</_7>
    <.8>Open
Project</_8>
    <.9>Save</_9>
    <.10>Save As</_10>
    <.11>Open Data</_11>
    <.12>Save Data</_12>
    <.13>Print Preview</_13>
    <.14>Exit</_14>
    <.15>Property</_15>
    <.16>Support Device List</_16>
    <.17>My System</_17>
    <.18>Project</_18>
    <.19>I/O List</_19>
    <.20>RunTime Screen</_20>
    <.21>DAQ List</_21>
    <.22>Message</_22>
  
```

To add a language, copy and rename the existing file.

In <local>English</local> section (highlighted with a square in the image below), change the English contents to your desired language and save. (For example, to change to Korean:

Change 'File' to '파일'.)

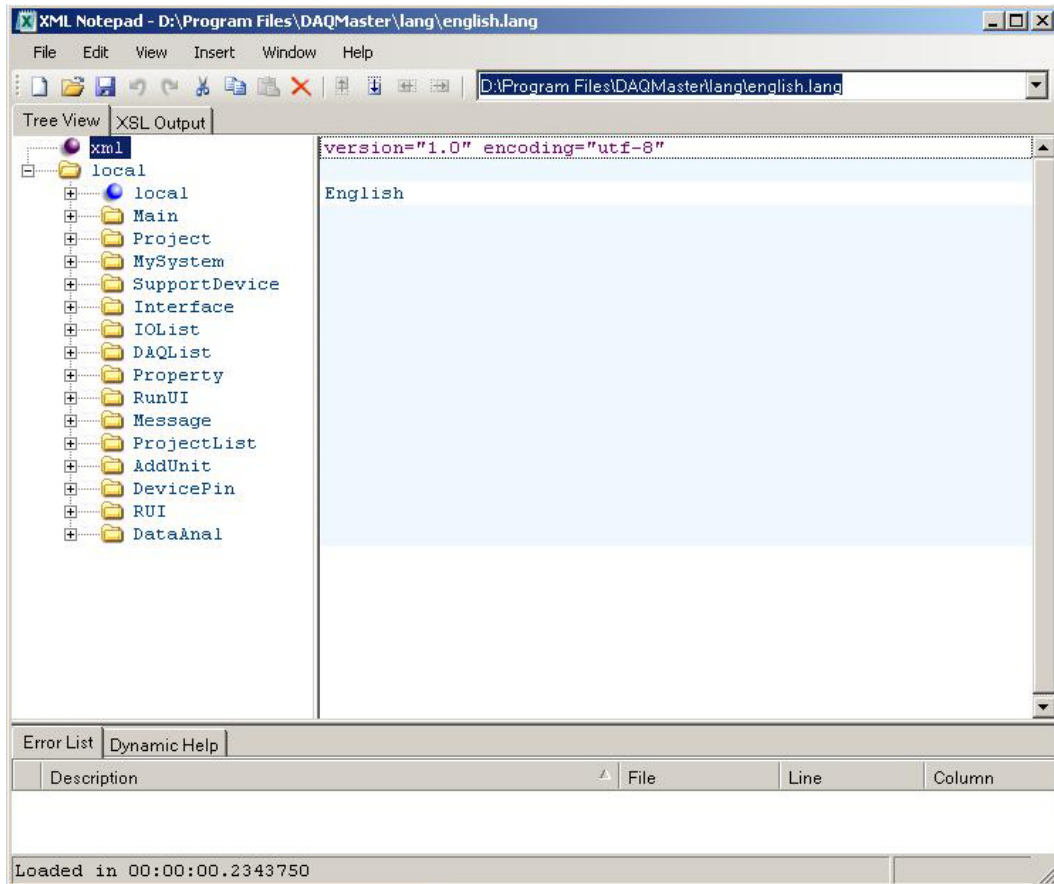


```

Korean.lang - Notepad
File Edit Format View Help
<?xml version="1.0" encoding="utf-8"?>
<local>
<local>Korean</local>
<DateTime>YYYY-MM-DD hh:nn:ss:zzz</DateTime>
<DAQMaster>
  <Main>
    <.0>파일</_0>
    <.1>보기</_1>
    <.2>실행</_2>
    <.3>도구</_3>
    <.4>윈도우즈</_4>
    <.5>도움말</_5>
    <.6>새 작업</_6>
    <.7>리스트에서
열기</_7>
    <.8>열기</_8>
    <.9>저장</_9>
    <.10>다른 이름
으로 저장</_10>
    <.11>데이터 열기</_11>
    <.12>데이터 저장</_12>
    <.13>인쇄 미리보기</_13>
    <.14>종료</_14>
    <.15>속성</_15>
    <.16>지원 디바이스 리스트</_16>
    <.17>내 시스템</_17>
    <.18>프로젝트</_18>
    <.19>I/O 리스트</_19>
    <.20>런타임 화면</_20>
    <.21>DAQ 리스트</_21>
    <.22>메시지</_22>
  
```



The default language file format is XML, so you can edit the file as below using XML Notepad (a freeware provided by Microsoft).





# 5 Data Analysis

With this program you can analyze monitored data files (\*.ddf) through Grid or Graph screen.

You can save monitored data files as a different file name.

The screen below shows data analysis in progress.

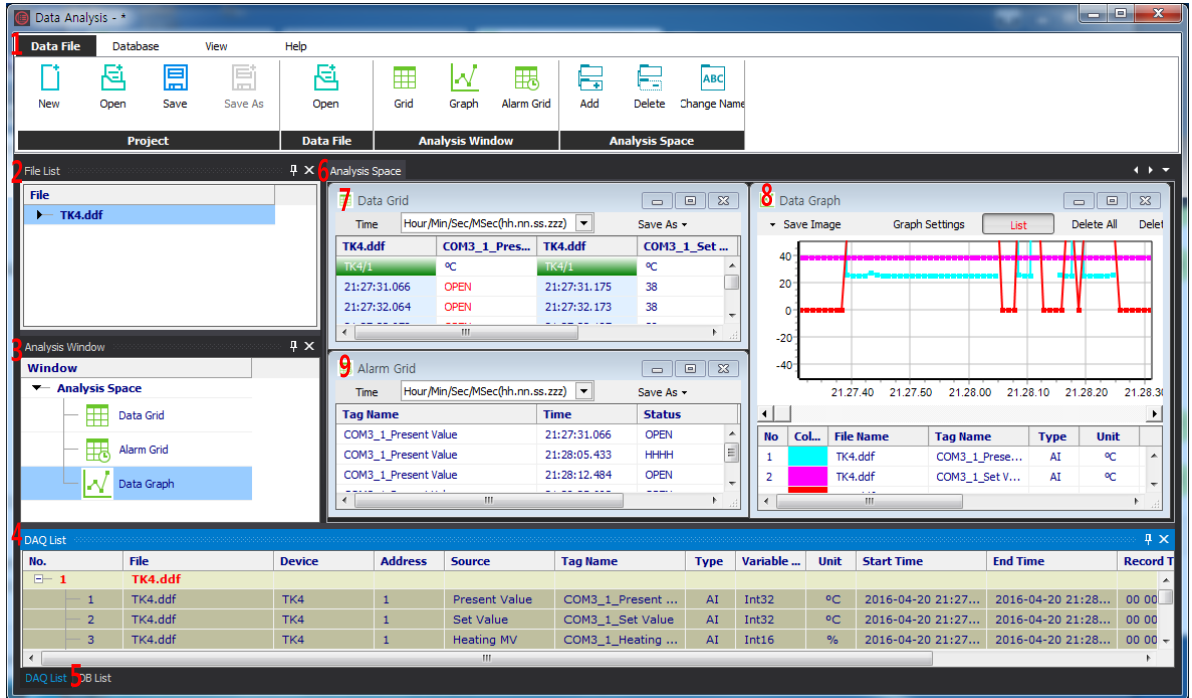
The screenshot displays the 'Data Analysis' software interface. At the top, there is a menu bar with 'Data File', 'Database', 'View', and 'Help'. Below the menu is a toolbar with icons for 'New', 'Open', 'Save', 'Save As', 'Open', 'Grid', 'Graph', 'Alarm Grid', 'Add', 'Delete', and 'Change Name'. The main workspace is divided into several panes:

- File List:** Shows a single file named 'TK4.ddf'.
- Analysis Space:** Contains three sub-panels:
  - Data Grid:** A table showing data points for 'TK4/1' with columns for Time, Value, and Unit. It shows two 'OPEN' events.
  - Alarm Grid:** A table with columns for Tag Name, Time, and Status. It lists 'COM3\_1\_Present Value' and 'COM3\_1\_Set Value' with their respective times and 'OPEN' status.
  - Data Graph:** A line graph showing the data points over time, with a y-axis ranging from -40 to 40 and an x-axis showing time from 21:27:40 to 21:28:30.
- DAQ List:** A table at the bottom of the interface listing data acquisition records.

No.	File	Device	Address	Source	Tag Name	Type	Variable ...	Unit	Start Time	End Time	Record T
1	TK4.ddf	TK4	1	Present Value	COM3_1_Present ...	AI	Int32	°C	2016-04-20 21:27...	2016-04-20 21:28...	00 00
2	TK4.ddf	TK4	1	Set Value	COM3_1_Set Value	AI	Int32	°C	2016-04-20 21:27...	2016-04-20 21:28...	00 00
3	TK4.ddf	TK4	1	Heating MV	COM3_1_Heating ...	AI	Int16	%	2016-04-20 21:27...	2016-04-20 21:28...	00 00

## 5.1 Screen Layout

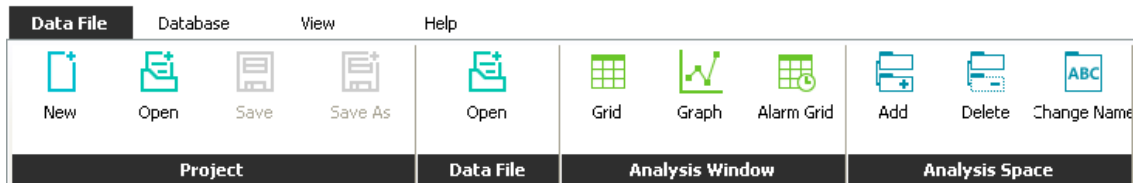
DAQMaster's data analysis screen is divided into sections as shown in the below screenshot and each section is composed of following items.



No	Item	Description
1	Menu	Menus are displayed by category. Select a menu to display submenus.
2	File List	Shows a list of project files to analyze.
3	Analysis Window	Shows items at the Analysis Space.
4	DAQ List	Shows I/O source list is saved in the data file.
5	DB List	Shows DB list.
6	Analysis Space	Space for displaying data grid, data graph, Alarm Grid.
7	Data Grid	Shows I/O data as grid data.
8	Data Graph	Shows I/O data as graph data.
9	Alarm Grid	Shows alarm data as grid data.

## 5.1.1 Menu

### 5.1.1.1 Data File



#### (1) Project

- New: Initializes the opened Data file and the analysis screen.
- Open: Opens the saved data file (\*.dap).
- Save: Saves the opened data file or analysis windows.
- Save As: Saves the opened data file or analysis windows as other file name.

#### (2) File

- Open: Opens DAQMaster log file (\*.ddf, \*.krd, \*.t5d).

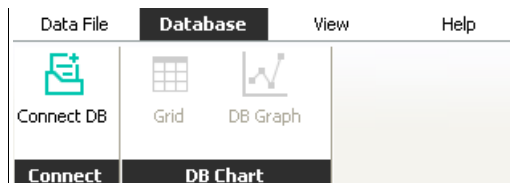
#### (3) Analysis Window

You can add the items (grid, graph, alarm grid) for displaying Analysis Space.

#### (4) Analysis Space

You can add and delete a tap, or change the tap name at the Analysis Space.

### 5.1.1.2 Database



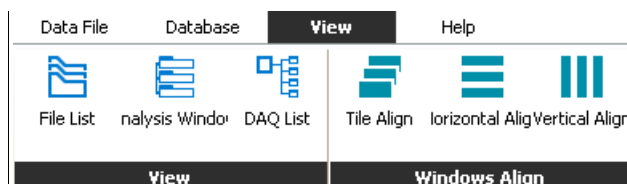
#### (1) Connect

You can check the data of connected database.

#### (2) DB Chart

It displays database data as grid or graph via field setting, etc.

### 5.1.1.3 View



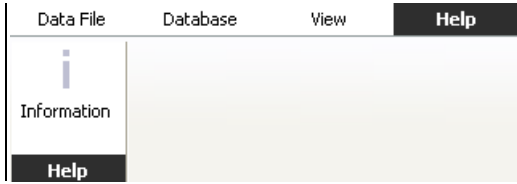
#### (1) View

Opens file list, analysis window, DAQ List at Data Analysis.

#### (2) Align Windows

Aligns analysis forms. Select Tile Align, Horizontal Align, or Vertical Align according to the environment.

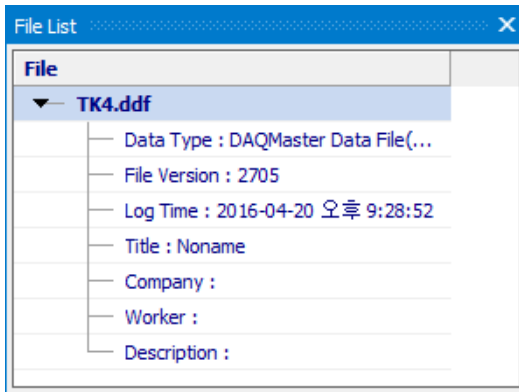
### 5.1.1.4 Help



Information for DAQMaster data analysis program.

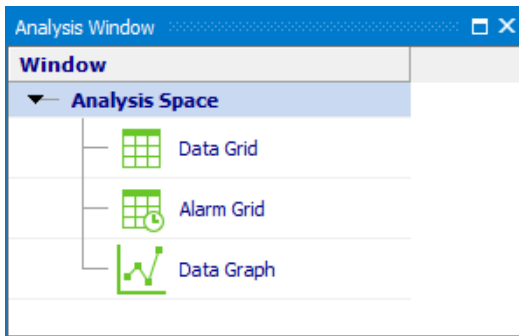
### 5.1.2 File List

Shows a list of opened Data Files (\*.ddf).



### 5.1.3 Analysis Window

Shows items at the Analysis Space.



### 5.1.4 DAQ List

DAQ List shows I/O source list saved in the data file.

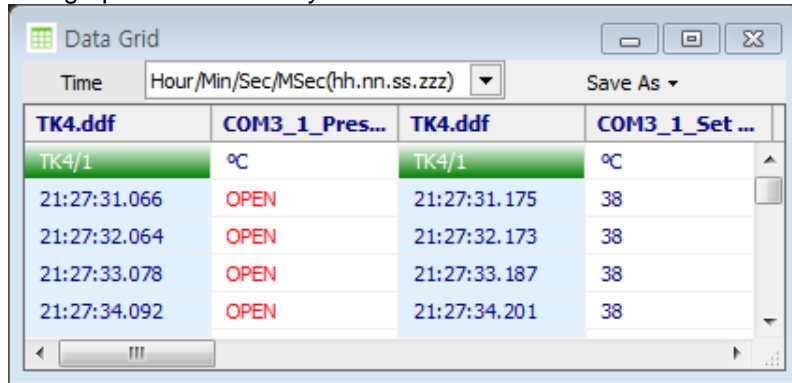
I/O sources can be analyzed through the analysis screen.

No.	File	Device	Address	Source	Tag Name	Type	Variable ...	Unit	Start Time	End Time	Record Tir
1	TK4.ddf	TK4	1	Present Value	COM3_1_Present ...	AI	Int32	°C	2016-04-20 21:27...	2016-04-20 21:28...	00 00:...
2	TK4.ddf	TK4	1	Set Value	COM3_1_Set Value	AI	Int32	°C	2016-04-20 21:27...	2016-04-20 21:28...	00 00:...
3	TK4.ddf	TK4	1	Heating MV	COM3_1_Heating ...	AI	Int16	%	2016-04-20 21:27...	2016-04-20 21:28...	00 00:...

### 5.1.5 Analysis Space

#### (1) Grid

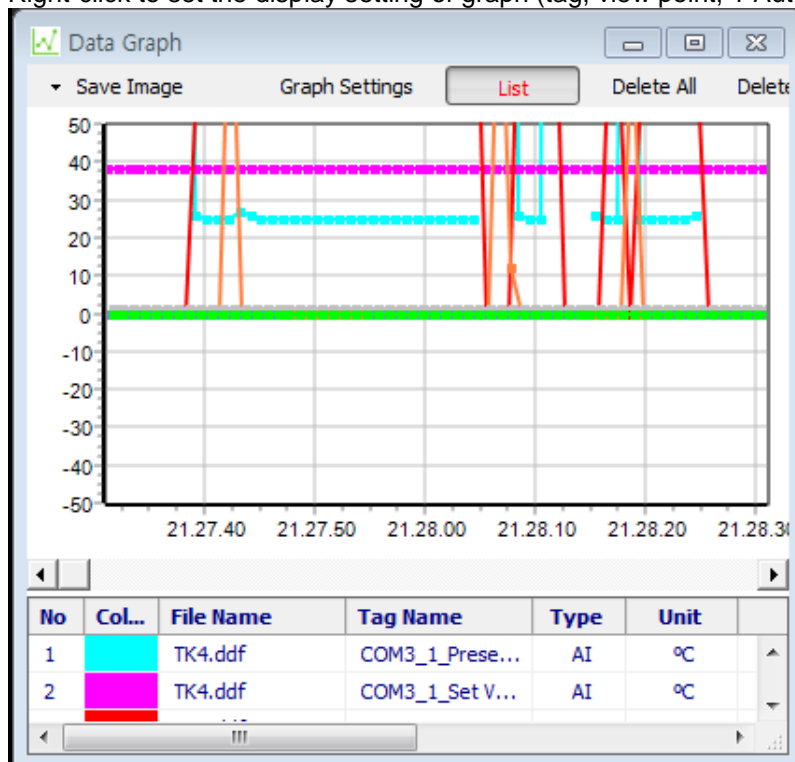
Analyzes I/O data as grid data. Drag the I/O source from the DAQ List and drop onto the data graph screen to analyze it.



#### (2) Graph

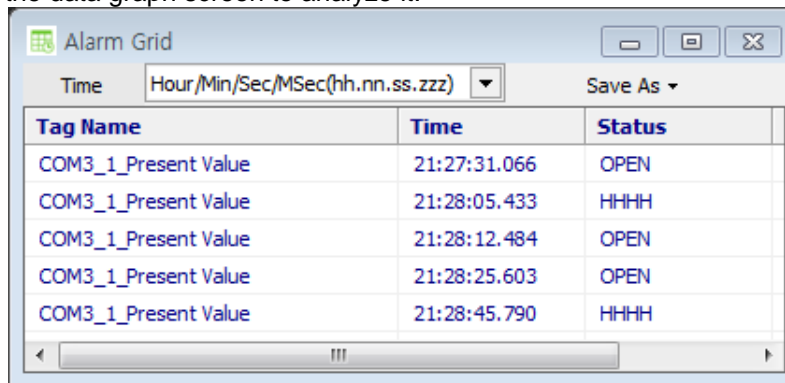
Analyzes I/O data as graph data. Drag the I/O source from the DAQ List and drop onto the data graph screen to analyze it.

Right-click to set the display setting of graph (tag, view point, Y Auto scale).



### (3) Alarm Grid

Analyzes alarm data as grid data. Drag the alarm source from the DAQ List and drop onto the data graph screen to analyze it.

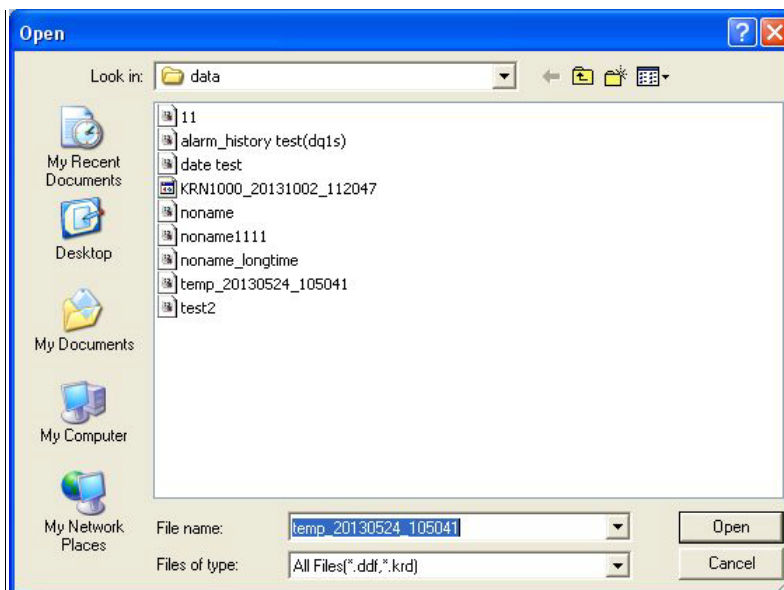


Tag Name	Time	Status
COM3_1_Present Value	21:27:31.066	OPEN
COM3_1_Present Value	21:28:05.433	HHHH
COM3_1_Present Value	21:28:12.484	OPEN
COM3_1_Present Value	21:28:25.603	OPEN
COM3_1_Present Value	21:28:45.790	HHHH

## 5.2 Analyzing Data

### 5.2.1 Opening Data Files

Select Data File > Data File > Open to open a data file.

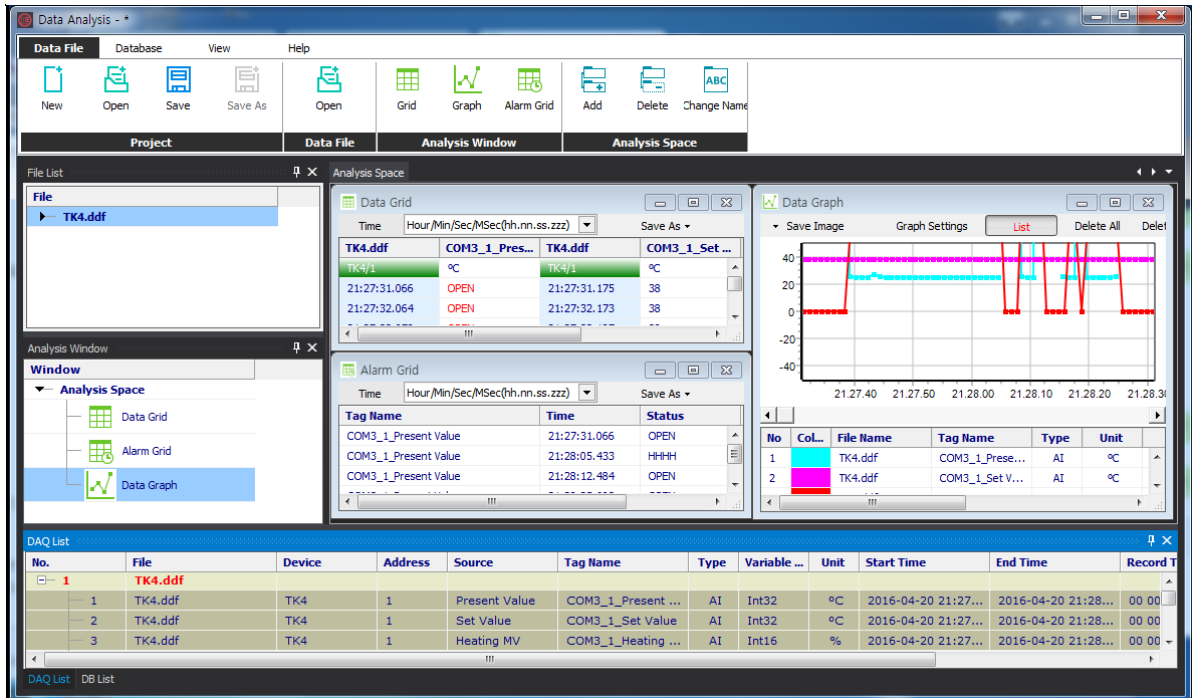




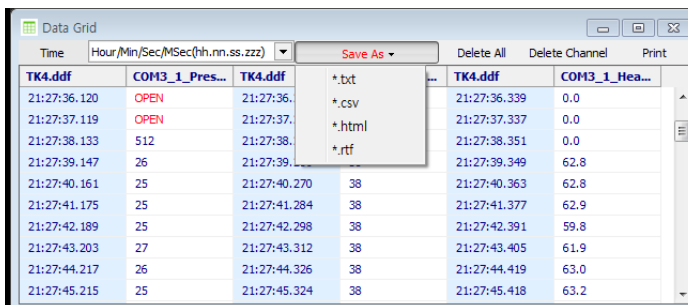
### 5.2.2 Add Analysis Screen

DAQ List contains I/O source list of the file. At 'Data File > Analysis Window', select the added Data Grid, Data Graph, Alarm Grid for Analysis Space.

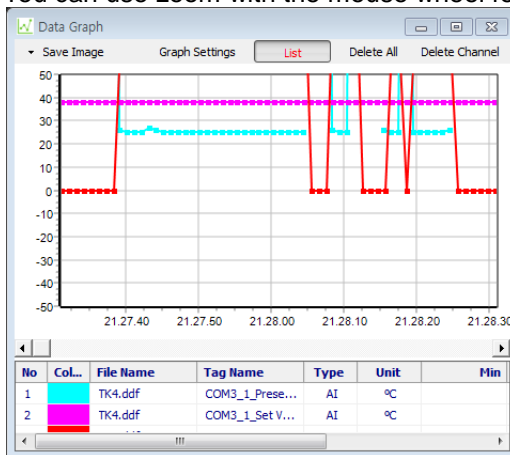
Select I/O source on the DAQ List screen, then drag and drop onto the Data Grid, Data Graph, Alarm Grid.



The file displayed on the Data Grid screen and the Alarm Grid can be saved as a different file name in \*.txt, \*.csv, \*.html or \*.rtf formats.



You can use zoom with the mouse wheel feature on the data graph screen for analysis.



You can set time axis, time format, graph line width, etc for the graph.

The 'Graph Settings' dialog box is shown with the following settings:

- Axis Settings:**
  - Time Axis Settings:** Hour: 0, Min: 1, Sec: 0
  - Y Axis Settings:** Min: -50.00, Max: 50.00
  - Time Format:** hh.nn.ss (selected), Hour/Min(hh.nn)
  - View Point
  - Line Width:** 2, **Point:** 2
  - DI Axis(%):** 30
- Line:**

	Y Value	Color	Width
<input type="checkbox"/> Upper Limit	0.00	Red	2
<input type="checkbox"/> Reference	0.00	Red	2
<input type="checkbox"/> Lower Limit	0.00	Red	2
- View Tag Name Panel
- View Tag Check Box

Buttons: OK, Cancel

### 5.2.3 Print

Data Analysis program supports printing graph, grid, etc.

Time	Hour/Min/Sec/MSec(hh.mm.ss.zzz)	Save As	Delete All	Delete Channel	Print
TK4.dff	COM3_1_Pres...	TK4.dff	COM3_1_Set...	TK4.dff	COM3_1_Hea...
TK4/1	°C	TK4/1	°C	TK4/1	%
21:27:31.066	OPEN	21:27:31.175	38	21:27:31.284	0.0
21:27:32.064	OPEN	21:27:32.173	38	21:27:32.283	0.0
21:27:33.078	OPEN	21:27:33.187	38	21:27:33.297	0.0
21:27:34.092	OPEN	21:27:34.201	38	21:27:34.311	0.0
21:27:35.106	OPEN	21:27:35.215	38	21:27:35.325	0.0

Click the 'Print' and the 'Preview' dialog box appears.

Preview

Page : 1/3

Send To OneNote 2013

**Data Analysis**

Time.dff	COM3_1_Presens Value.dff	COM3_1_Set Value.dff	COM3_1_Heating MV
21:27:31.066	OPEN	21:27:31.175	38
21:27:32.064	OPEN	21:27:32.173	38
21:27:33.078	OPEN	21:27:33.187	38
21:27:34.092	OPEN	21:27:34.201	38
21:27:35.106	OPEN	21:27:35.215	38
21:27:36.120	OPEN	21:27:36.229	38
21:27:37.134	OPEN	21:27:37.258	38
21:27:38.148	38	21:27:38.284	38
21:27:39.162	38	21:27:39.298	38
21:27:40.176	38	21:27:40.312	38
21:27:41.190	38	21:27:41.326	38
21:27:42.204	38	21:27:42.340	38
21:27:43.218	38	21:27:43.354	38
21:27:44.232	38	21:27:44.368	38
21:27:45.246	38	21:27:45.382	38
21:27:46.260	38	21:27:46.396	38
21:27:47.274	38	21:27:47.410	38
21:27:48.288	38	21:27:48.424	38
21:27:49.302	38	21:27:49.438	38
21:27:50.316	38	21:27:50.452	38
21:27:51.330	38	21:27:51.466	38
21:27:52.344	38	21:27:52.480	38
21:27:53.358	38	21:27:53.494	38
21:27:54.372	38	21:27:54.508	38
21:27:55.386	38	21:27:55.522	38
21:27:56.399	38	21:27:56.536	38
21:27:57.413	38	21:27:57.550	38
21:27:58.427	38	21:27:58.564	38
21:27:59.441	38	21:27:59.578	38
21:28:00.454	38	21:28:00.592	38
21:28:01.468	38	21:28:01.606	38
21:28:02.482	38	21:28:02.620	38

Data Analysis 1



## 6 Special Features

This chapter describes special features when connecting the device and DAQMaster. Each special feature is different by the device, refer to the below descriptions of each device.

### 6.1 TK Series(high accuracy standard PID control temperature controller)

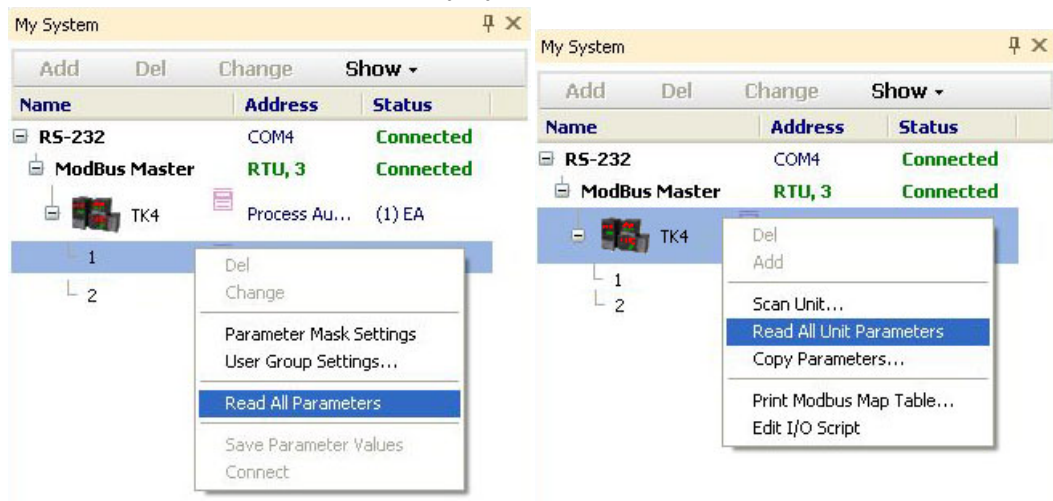
Save parameter values, copy parameters, parameter mask and user parameter group is available by DAQMaster.

#### (1) Save parameter values

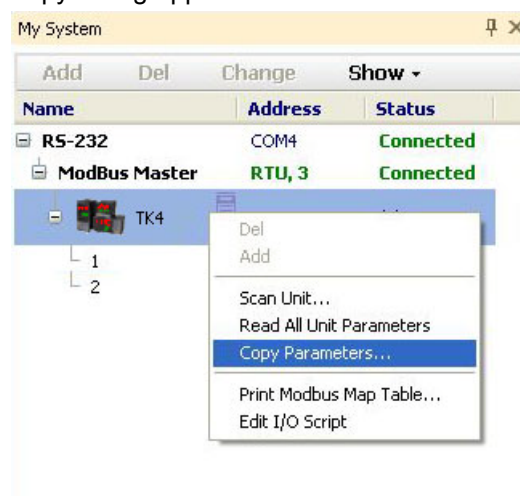
When several same model units cannot be connected to DAQMaster at once and parameter copy is not available, you can save the setting of the device as a file and utilize the file at a later.

1st Connect the TK device which parameters are saved.

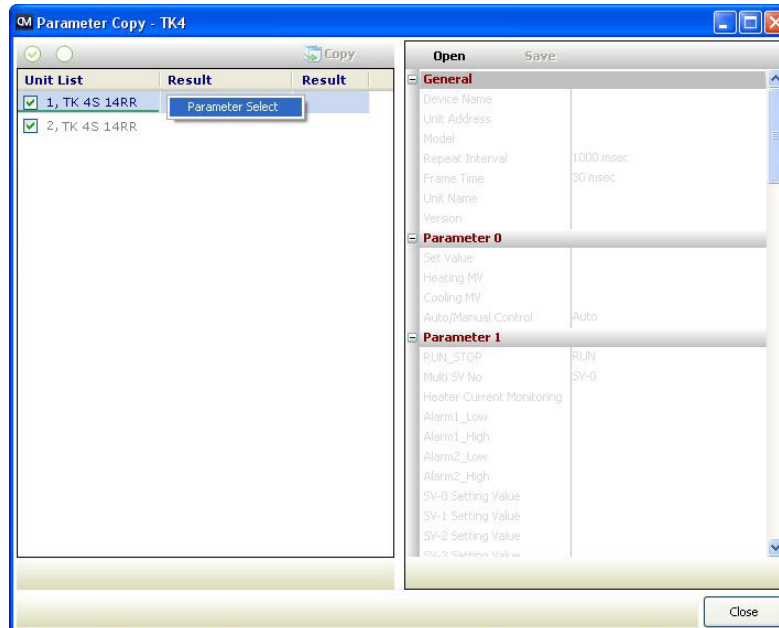
2nd Click 'Read All Parameters' of the unit device which parameters are saved or 'Read All Unit Parameters' of TK at My System.



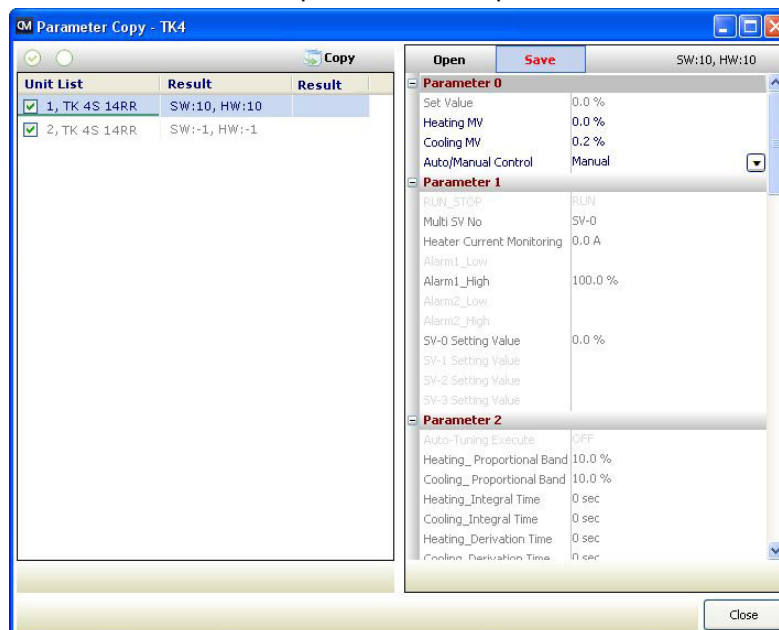
3rd Select TK at My System and right-click to select 'Copy Parameters' and Parameter Copy dialog appears.



- 4th Right-click the unit which parameters are saved and select 'Parameter Select'. The parameter values of the unit is loaded at the right side of the dialog.



- 5th Click 'Save' and it saves parameters as \*.prx file.



## (2) Copy parameters

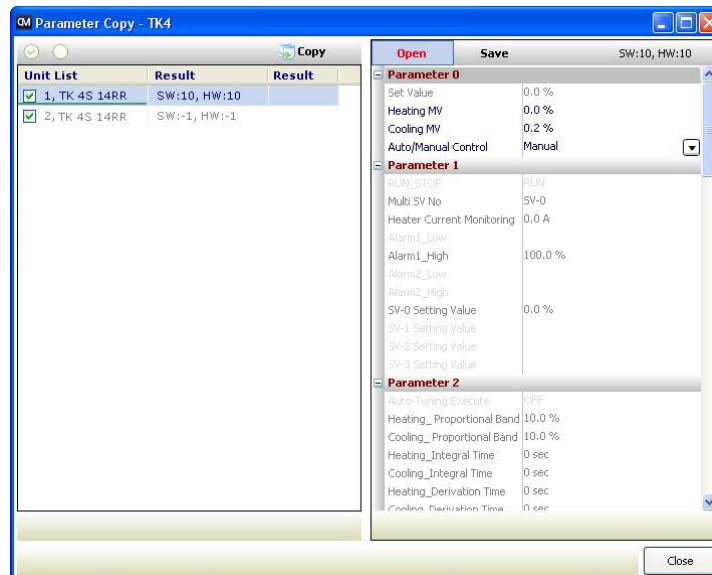
To connect the several same model units at once, you can copy the parameters. You can copy the saved parameter file or the parameter settings of the dedicated device(standard unit) to the other devices(target units).

- To copy the saved parameter file,

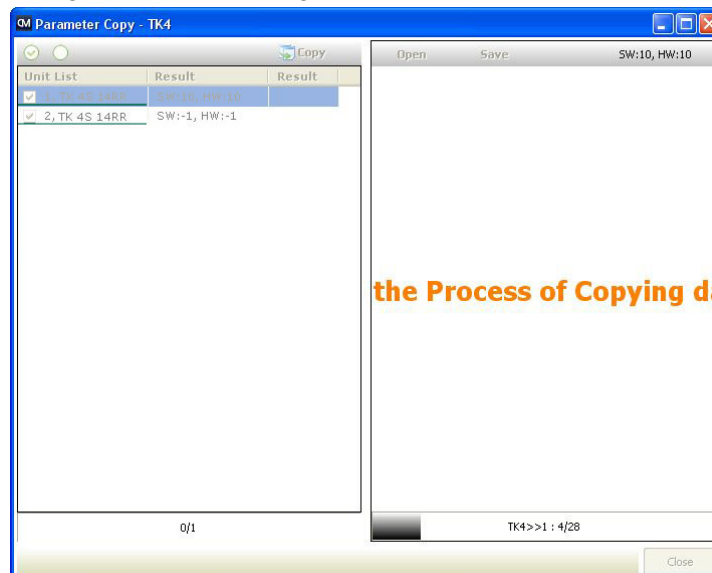
1st Same orders 1st to 3rd of the Save parameter values.

2nd Check the units to be copied at the check box of the left side of the dialog.

3rd Click 'Open' and select the parameter file and it loads at the right side of the dialog.

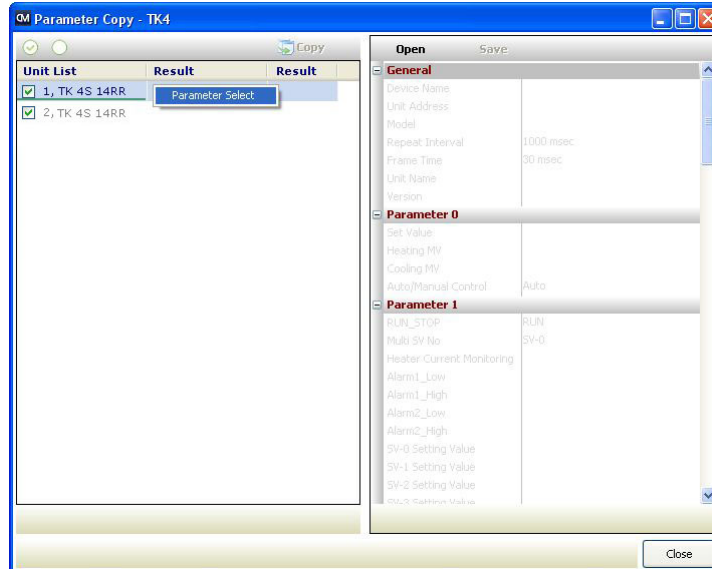


4th Click 'Copy' and copy is progressing. 'the Process of Copying data' text appears at the right side of the dialog.

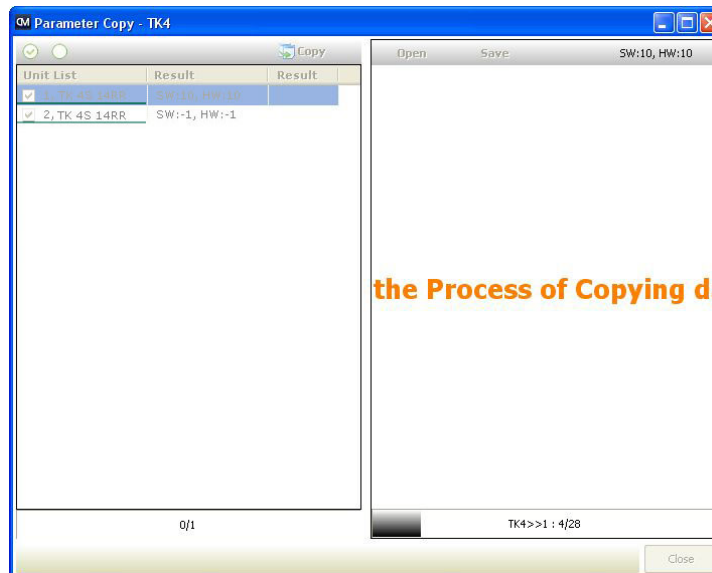


5th After completing copy, 'Copy Complete!' dialog box appears. Click 'OK' and copy is finish.

- To copy the parameter settings of the dedicated device(standard unit) to the other devices(target units),
  - Same orders 1st to 3rd of the Save parameter values.
  - Check the units to be copying (standard unit) and to be copied (target unit) at the check box of the left side of the dialog.
  - Right-click the unit to be copying(standard unit) and select 'Parameter Select'. The parameter values of the unit is loaded at the right side of the dialog.



- Click 'Copy' and copy is progressing. 'the Process of Copying data' text appears at the right side of the dialog.



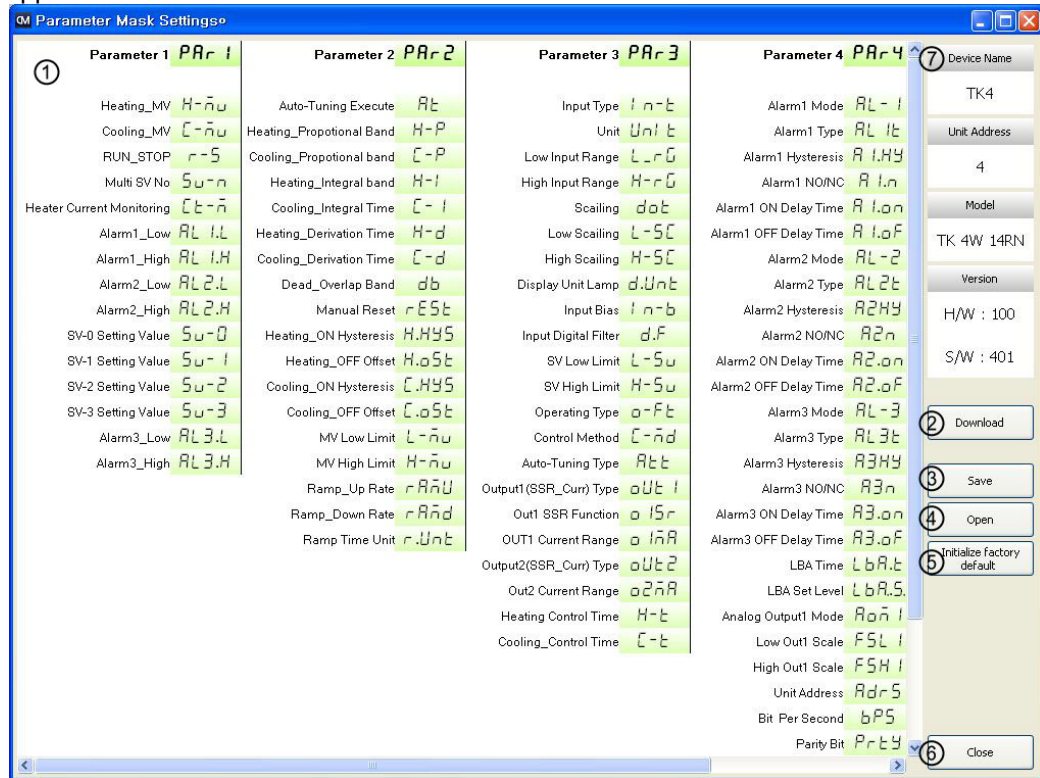
- After completing copy, 'Copy Complete!' dialog box appears. Click 'OK' and copy is finish.



### (3) Parameter mask

This feature is able to hide unnecessary parameters to user environment or less frequently used parameters in parameter group.

Masked parameters are not only displayed. The set value of masked parameters are applied.



No	Item	Description
①	Parameter mask selection	Select the to-be masked parameters. Right-click the to-be masked parameters and they turn gray.
②	Download	Applies the set masked parameters to the device.
③	Save	Saves the set masked parameters as a mask information file.
④	Open	Opens the saved mask information file.
⑤	Initialize factory default	Clears the set for the masked parameters. Download this setting to apply it to the device.
⑥	Close	Closes the Parameter Mask Settings dialog.
⑦	Device information	Displays device name, unit address, model name, and version.



Parameter Mask Settings

Parameter 1	Parameter 2	Parameter 3	Parameter 4
Heating_MV H-nu	Auto-Tuning Execute Rt	Input Type l-n-b	Alarm1 Mode RL-1
Cooling_MV C-nu	Heating_Proportional Band H-P	Unit Unit	Alarm1 Type RL-1t
RUN_STOP r-5	Cooling_Proportional band C-P	Low Input Range L-r0	Alarm1 Hysteresis R1HY
Multi SV No 5u-n	Heating_Integral band H-I	High Input Range H-r0	Alarm1 NO/NC R1n
Heater Current Monitoring Ct-n	Cooling_Integral Time C-I	Scaling dot	Alarm1 ON Delay Time R1on
Alarm1_Low RL1L	Heating_Derivation Time H-d	Low Scaling L-5C	Alarm1 OFF Delay Time R1of
Alarm1_High RL1H	Cooling_Derivation Time C-d	High Scaling H-5C	Alarm2 Mode RL-2
Alarm2_Low RL2L	Dead_Overlap Band db	Display Unit Lamp d.Unt	Alarm2 Type RL2t
Alarm2_High RL2H	Manual Reset rEST	Input Bias l-n-b	Alarm2 Hysteresis R2HY
SV-0 Setting Value 5u-0	Heating_ON Hysteresis H.HYS	Input Digital Filter d.F	Alarm2 NO/NC R2n
SV-1 Setting Value 5u-1	Heating_OFF Offset H.o5t	SV Low Limit L-5u	Alarm2 ON Delay Time R2on
SV-2 Setting Value 5u-2	Cooling_ON Hysteresis C.HYS	SV High Limit H-5u	Alarm2 OFF Delay Time R2of
SV-3 Setting Value 5u-3	Cooling_OFF Offset C.o5t	Operating Type o-Ft	Alarm3 Mode RL-3
Alarm3_Low RL3L	MV Low Limit L-nu	Control Method C-nd	Alarm3 Type RL3t
Alarm3_High RL3H	MV High Limit H-nu	Auto-Tuning Type Rtt	Alarm3 Hysteresis R3HY
	Ramp_Up Rate rRnU	Output1(SSR_Cur) Type oUt1	Alarm3 NO/NC R3n
	Ramp_Down Rate rRnd	Out1 SSR Function o1Sr	Alarm3 ON Delay Time R3on
	Ramp Time Unit r.Unt	OUT1 Current Range o1nA	Alarm3 OFF Delay Time R3of
		Output2(SSR_Cur) Type oUt2	LBA Time LbA.t
		Out2 Current Range o2nA	LBA Set Level LbA.S
		Heating Control Time H-t	Analog Output1 Mode RAn1
		Cooling_Control Time C-t	Low Out1 Scale F5L1
			High Out1 Scale F5H1
			Unit Address Rd-5
			Bit Per Second bPS
			Parity Bit p-tB

Device Name: TK4  
 Unit Address: 4  
 Model: TK 4W 14RN  
 Version: H/W : 100  
 S/W : 401

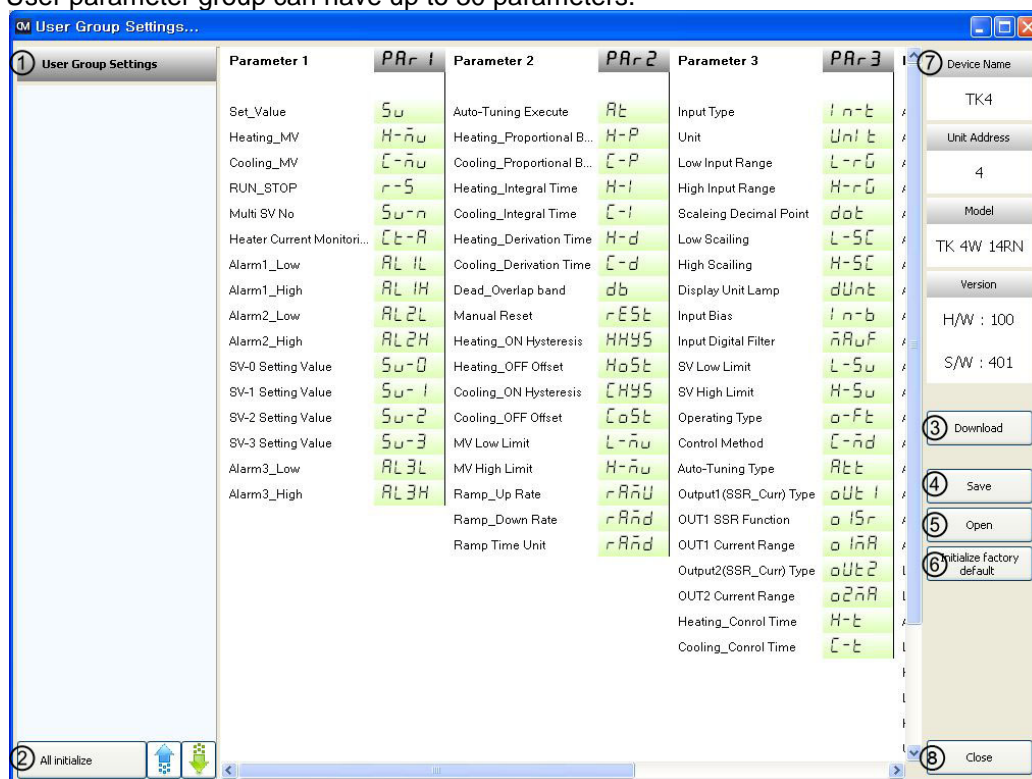
Buttons: Download, Save, Open, Initialize factory default, Close

Example of masking alarm, SV setting parameters of parameter 1 group, input type, unit of parameter 3 group, and all of parameter 4 group.

## (4) User parameter group [PAR-U]

This feature is able to set the frequently used parameters to the user parameter group. You can quickly and easily set parameter settings.

User parameter group can have up to 30 parameters.



No	Item	Description
①	User parameter group	Displays the selected parameters as user group parameter Double-click the parameters for the user group, and these parameters turn gray. To delete the parameters at the user group, double-click the parameters.
②	User group selection	- All initialize: Initializes the set user group. - ↑, ↓: Changes the selected parameter order up/down.
③	Download	Applies the set user group to the device.
④	Save	Saves the set user group as a user group information file.
⑤	Open	Opens the saved user group file.
⑥	Initialize factory default	Clears the set for the user group. Download this setting to apply it to the device.
⑦	Close	Closes the User Group Settings dialog.
⑧	Device information	Displays device name, unit address, model name, and version.



QM User Group Settings...

User Group Settings	Parameter 1	PAR-1	Parameter 2	PAR-2	Parameter 3	PAR-3	Parameter 4	PAR-4
Set_Value	Su	Auto-Tuning Execute	AL	Input Type	In-t	Alarm1 Mode	AL-1	
RUN_STOP	r-S	Heating_MV	H-āu	Unit	Unit	Alarm1 Type	AL-1b	
SV-0 Setting Value	Su-0	Cooling_MV	C-āu	Low Input Range	L-rG	Alarm1 Hysteresis	AL-1H	
SV-1 Setting Value	Su-1	RUN_STOP	r-S	High Input Range	H-rG	Alarm1 NO/NC	AL-1n	
SV-2 Setting Value	Su-2	Multi SV No	Su-n	Scaling Decimal Point	dot	Alarm1 ON Delay Time	AL-1o	
SV-3 Setting Value	Su-3	Heater Current Manibori...	Ct-R	Low Scaling	L-5C	Alarm1 OFF Delay Time	AL-1oF	
Manual Reset	r-ES	Alarm1_Low	AL-1L	High Scaling	H-5C	Alarm2 Mode	AL-2	
Input Bias	In-b	Alarm1_High	AL-1H	Display Unit Lamp	dUnit	Alarm2 Type	AL-2	
Alarm1 Mode	AL-1	Alarm2_Low	AL-2L	Input Bias	In-b	Alarm2 Hysteresis	AL-2H	
Alarm1 Type	AL-1t	Alarm2_High	AL-2H	Input Digital Filter	āuF	Alarm2 NO/NC	AL-2n	
Alarm1 Hysteresis	AL-1HY	Manual Reset	r-ES	SV Low Limit	L-5u	Alarm2 ON Delay Time	AL-2o	
Alarm1 NO/NC	AL-1n	Heating_ON Hysteresis	HHYS	SV High Limit	H-5u	Alarm2 OFF Delay Time	AL-2oF	
Alarm1 ON Delay...	AL-1o	Heating_OFF Offset	HOSt	Operating Type	o-Ft	Alarm3 Mode	AL-3	
Alarm1 OFF Delay...	AL-1oF	Cooling_ON Hysteresis	CHYS	Control Method	C-ā	Alarm3 Type	AL-3t	
		SV-0 Setting Value	Su-0	Auto-Tuning Type	ā	Alarm3 Hysteresis	AL-3HY	
		SV-1 Setting Value	Su-1	Output1 (SSR_Cur) Type	oUt1	Alarm3 NO/NC	AL-3n	
		SV-2 Setting Value	Su-2	OUT1 SSR Function	o15r	Alarm3 ON Delay Time	AL-3o	
		SV-3 Setting Value	Su-3	OUT1 Current Range	o1āā	Alarm3 OFF Delay Time	AL-3oF	
		Alarm2_Low	AL-2L	Output2 (SSR_Cur) Type	oUt2	LBA Time	LbAt	
		Alarm2_High	AL-2H	OUT2 Current Range	o2āā	LBA Band	LbAb	
				Heating_Control Time	H-t	Analog Output Mode	āoā1	
				Cooling_Control Time	C-t	Low Out1 Scale	F5L1	
						High Out1 Scale	F5H1	
						Low Out2 Scale	F5L2	
						High Out2 Scale	F5H2	
						Unit Address	ād-5	
						Bit Per Second	bP5	

Device Name: TK4  
Unit Address: 4  
Model: TK-4W 14RN  
Version: H/W : 100  
S/W : 401

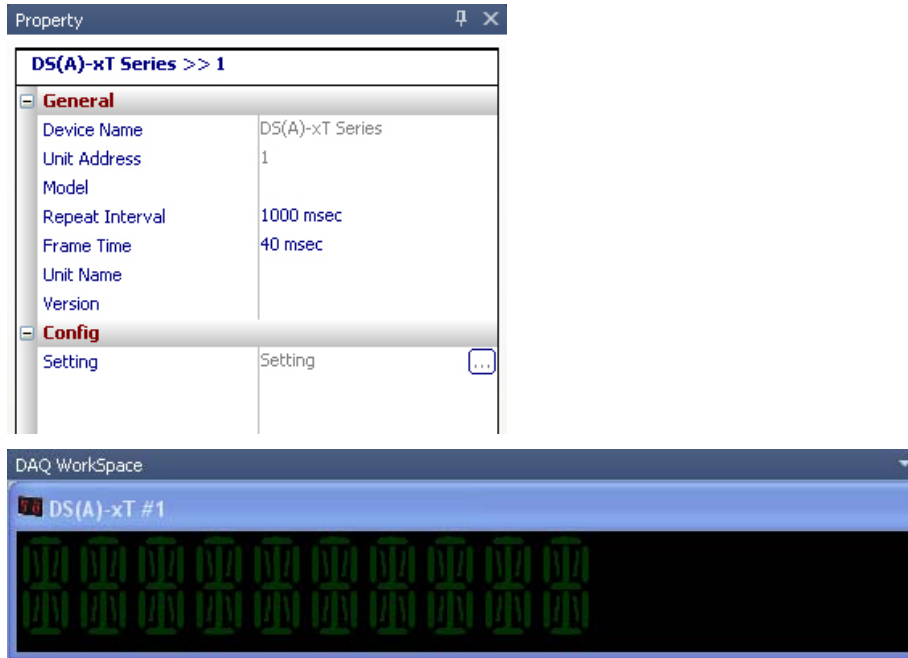
Buttons: Download, Save, Open, Initialize factory default, Close

Example of the set user group with SV setting, control output RUN/STOP, alarm output 1 low/high-limit, SV-0/1/2/3 set value, manual reset, input correction, alarm output 1 mode/option/hysteresis/contact type/ON delay time/OFF delay time parameters.

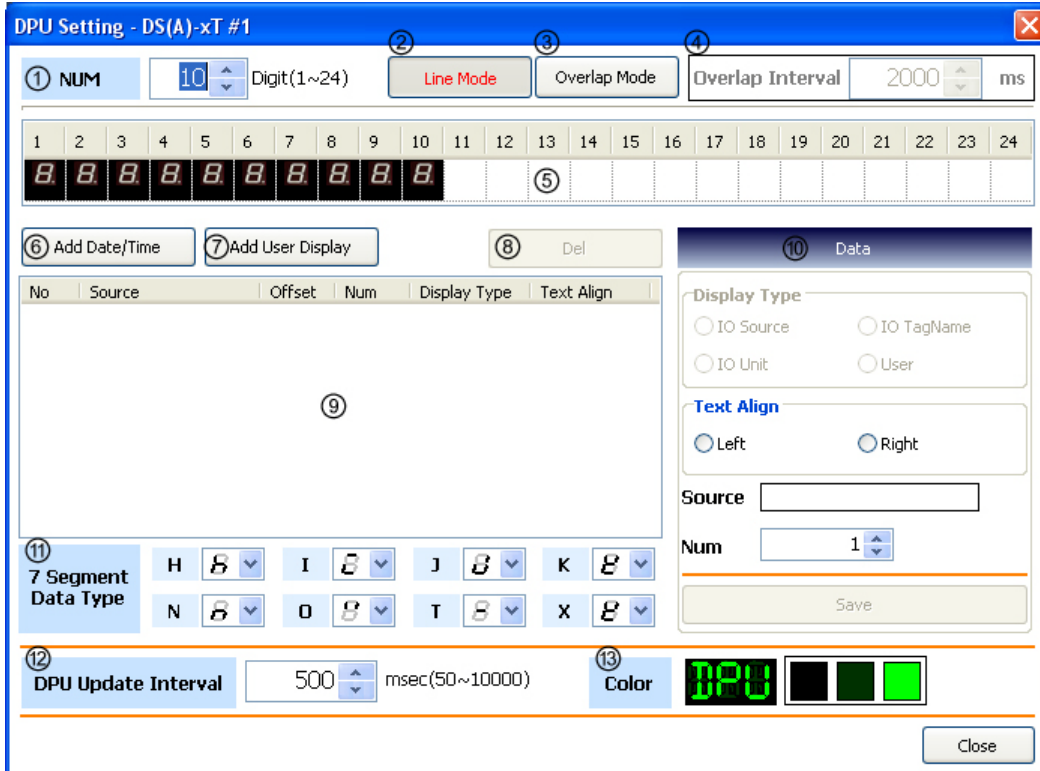
## 6.2 DS/DA-□T

DS/DA displays I/O source value, unit, and user set value by DAQMaster.

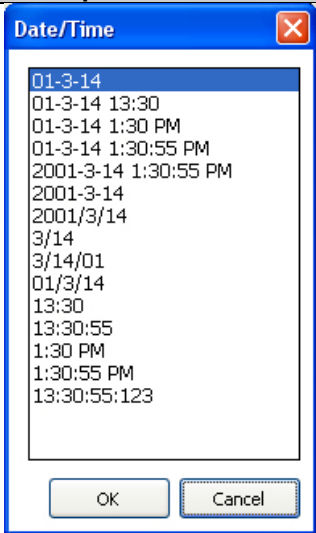
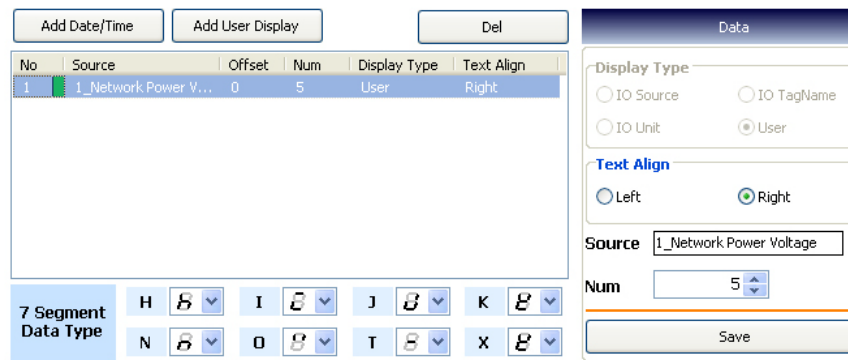
Connect DAQMaster and DS, DA(RS485 input type) and click '...' button located on the right of Setting at Config in the Property window. A display unit screen is open at DAQ Workspace.



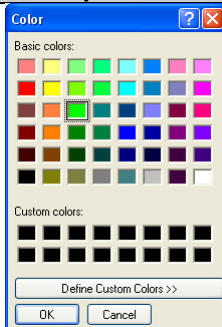
Double-click a monitoring screen of a display unit screen at DAQ Workspace and Setting dialog appears.



No.	Item	Description
①	NUM	Set the number of display units. Set range is 1 to 24.
②	Line Mode	Displays the added sources of list at the connected display units in a line.
③	Overlap Mode	Displays the added sources of list at the connected display units by overlapping at the set interval time.
④	Overlap Interval	Activated for overlap mode. Set the interval time for overlap display.
⑤	Display parts	Displays the connected display units and that source in the set color. Right-click this parts and select the segment. <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p> 7 segment</p> <p> 16 segment</p> <p> unit segment</p> </div> <p>When selecting unit segment, unit type dialog box appears to select the unit display mode.</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p><b>Unit Type</b></p> <p><input checked="" type="radio"/> none unit    <input type="radio"/> Upper Unit ON    <input type="radio"/> Flash Up Unit</p> <p><input type="radio"/> Upper-Lower Unit OFF    <input type="radio"/> Lower Unit ON    <input type="radio"/> Flash Down Unit</p> <p><input type="radio"/> Upper-Lower Unit ON    <input type="radio"/> Flash Up/Down Unit</p> <p style="text-align: right;"><input type="button" value="OK"/></p> </div>
⑥	Add Date/Time	Select one of date and time information types.

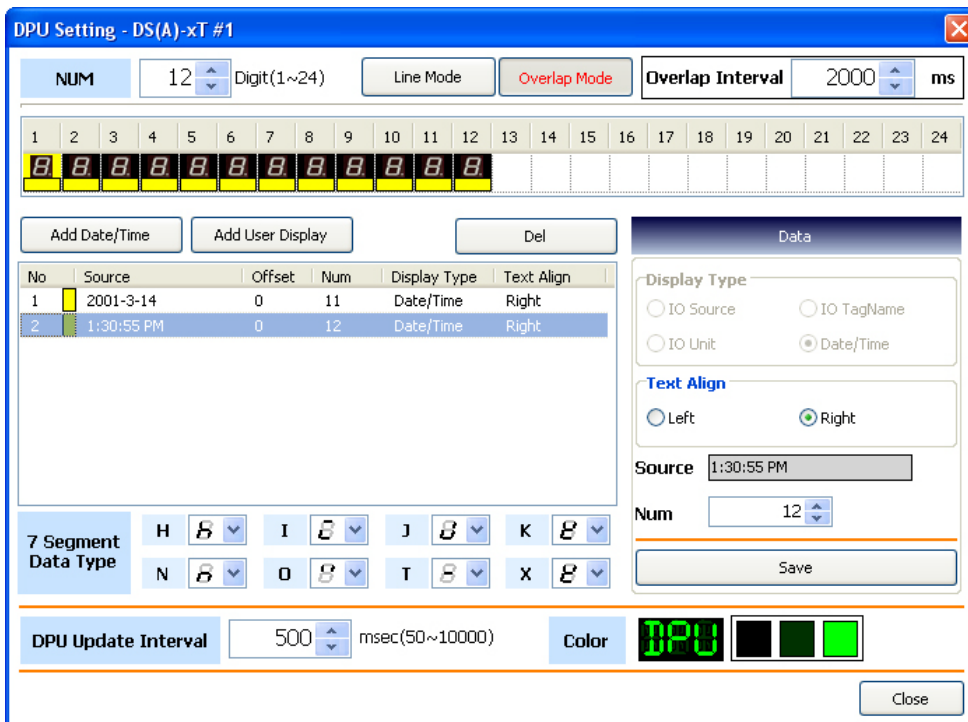
No.	Item	Description
		
⑦	Add User Display	Add the desired characters. Enter the characters at Source of DPU Data.
⑧	Del	Delete the added source of list.
⑨	List	Displays the added I/O sources. Add I/O sources by dragging them at DAQ list. Press 'Ctrl+ ↑ or ↓' to change the order of sources.
⑩	Data	 <ul style="list-style-type: none"> <li>▪ Display type <ul style="list-style-type: none"> <li>- IO Source: Displays the value of the source.</li> <li>- IO TagName: Displays the name of the source.</li> <li>- IO Unit: Displays the unit of the source.</li> </ul> </li> <li>▪ Text Align: Sets the alignment at the display units.</li> <li>▪ Source: Displays the name of I/O source and it is editable.</li> <li>▪ Num: Sets the desired number of display units.</li> <li>▪ Save: Saves the settings.</li> </ul>
⑪	7 Segment Data Type	Sets the display type for H, I, J, K, N, O, T, X characters.
⑫	DPU Update Interval	Sets the update interval for data value.
⑬	Color	Sets the displayed color at run time screen.



No.	Item	Description
		

 Ex.

Example of adding two date/time sources, overlap mode and 2000ms of overlap interval.



It displays 2012-04-13 for 2 sec.(2000ms) at first then displays 03:20:06 PM for 2 sec. alternately.





## 6.3 KPN Series (high performance, high accuracy process controller)

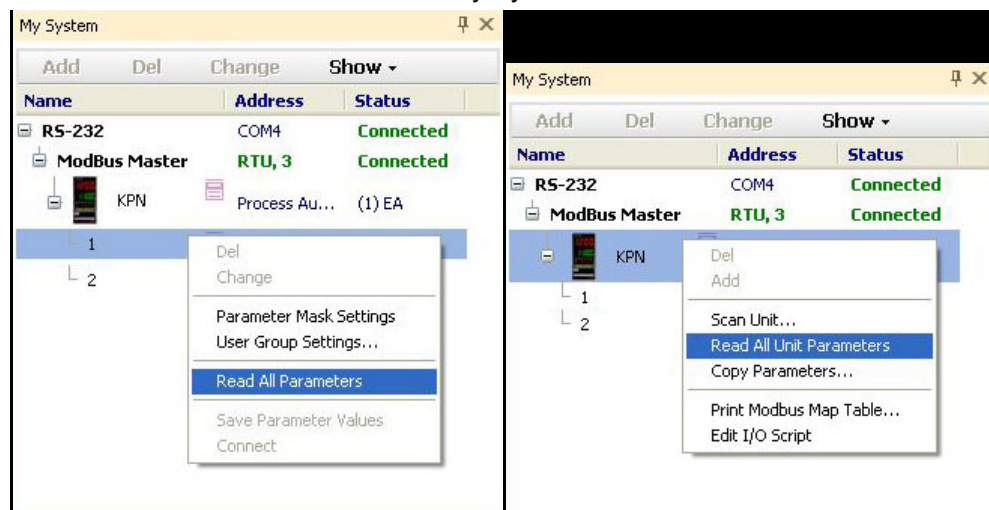
Save parameter values, copy parameters, parameter mask and user parameter group is available by DAQMaster.

### (1) Save parameter values

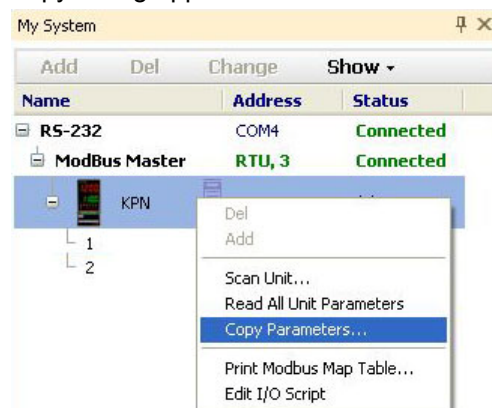
When several same model units cannot be connected to DAQMaster at once and parameter copy is not available, you can save the setting of the device as a file and utilize the file at a later.

1st Connect the KPN device which parameters are saved.

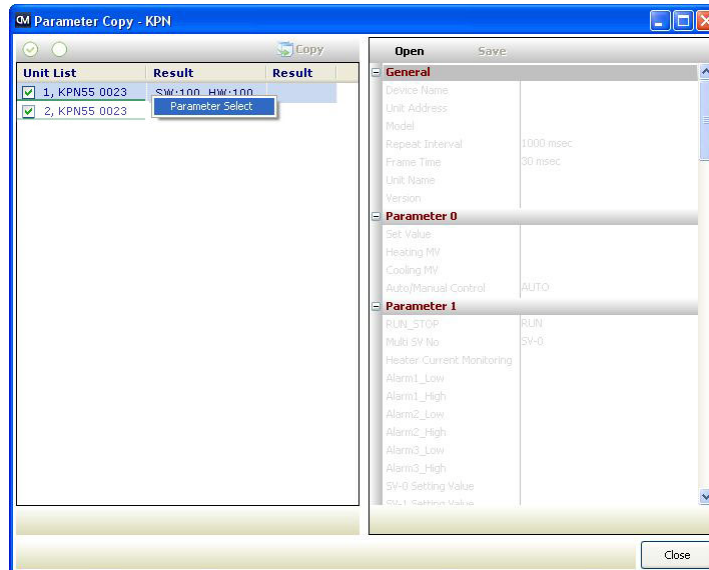
2nd Click 'Read All Parameters' of the unit device which parameters are saved or 'Read All Unit Parameters' of KPN at My System.



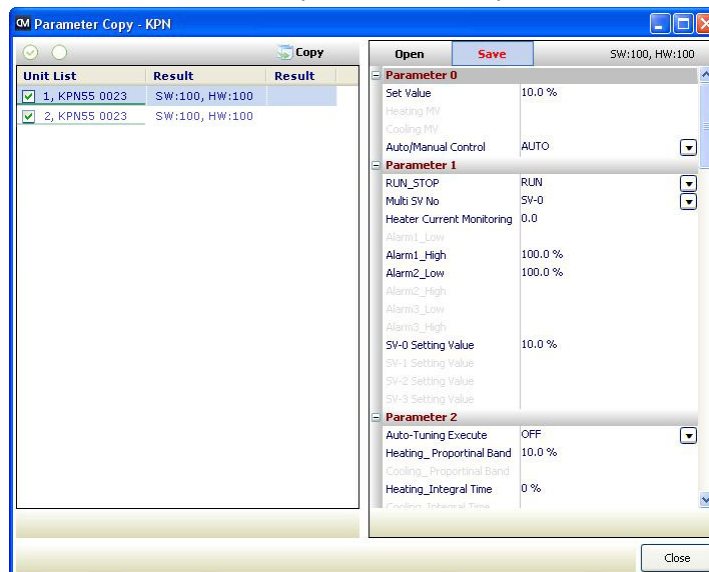
3rd Select KPN at My System and right-click to select 'Copy Parameters' and Parameter Copy dialog appears.



4th Right-click the unit which parameters are saved and select 'Parameter Select'. The parameter values of the unit is loaded at the right side of the dialog.



5th Click 'Save' and it saves parameters as \*.prx file.



## (2) Copy parameters

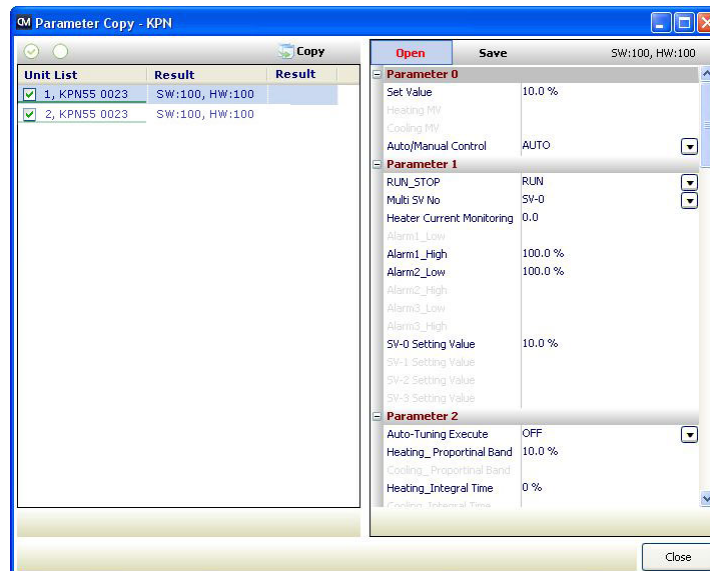
To connect the several same model units at once, you can copy the parameters. You can copy the saved parameter file or the parameter settings of the dedicated device(standard unit) to the other devices(target units).

- To copy the saved parameter file,

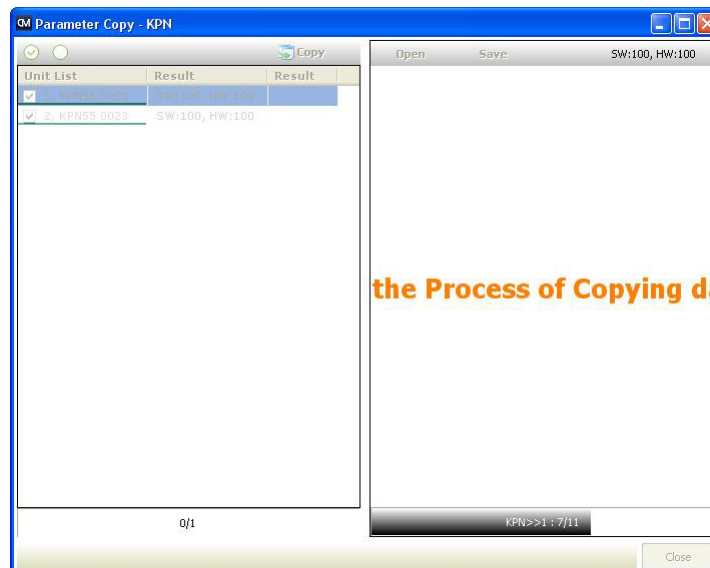
1st Same orders 1st to 3rd of the Save parameter values.

2nd Check the units to be copied at the check box of the left side of the dialog.

3rd Click 'Open' and select the parameter file and it loads at the right side of the dialog.

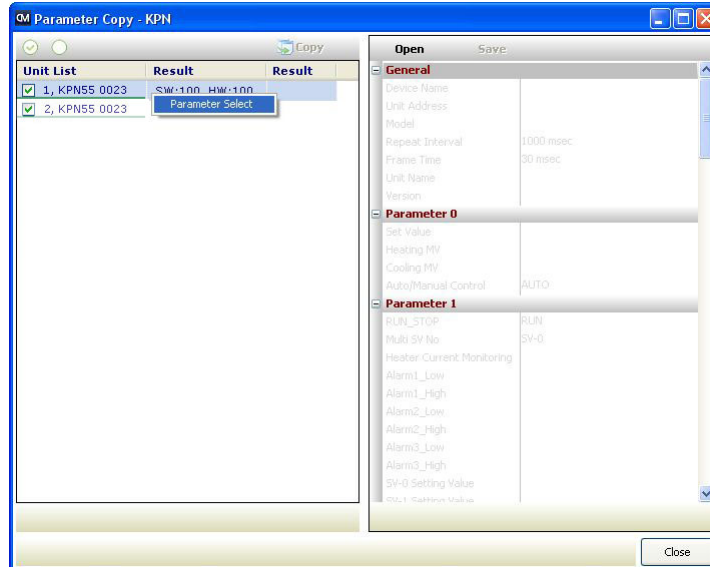


4th Click 'Copy' and copy is progressing. 'the Process of Copying data' text appears at the right side of the dialog.

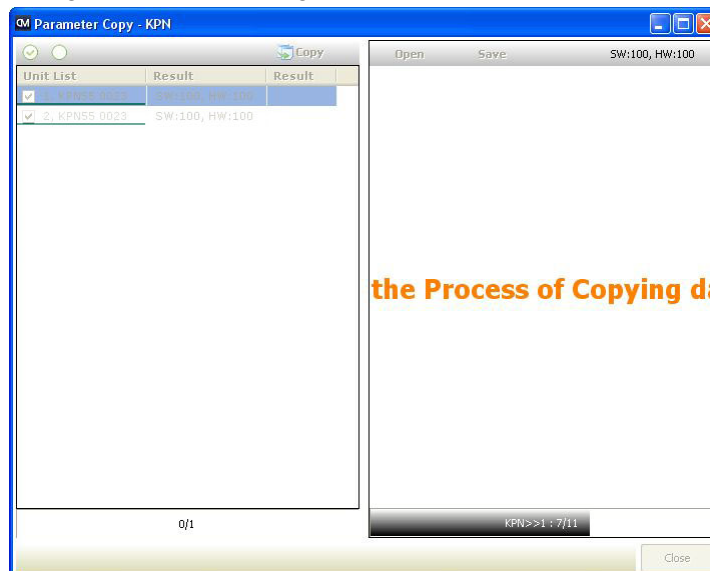


5th After completing copy, 'Copy Complete!' dialog box appears. Click 'OK' and copy is finish.

- To copy the parameter settings of the dedicated device(standard unit) to the other devices(target units),
  - Same orders 1st to 3rd of the Save parameter values.
  - Check the units to be copying (standard unit) and to be copied (target unit) at the check box of the left side of the dialog.
  - Right-click the unit to be copying(standard unit) and select 'Parameter Select'. The parameter values of the unit is loaded at the right side of the dialog.



- Click 'Copy' and copy is progressing. 'the Process of Copying data' text appears at the right side of the dialog.

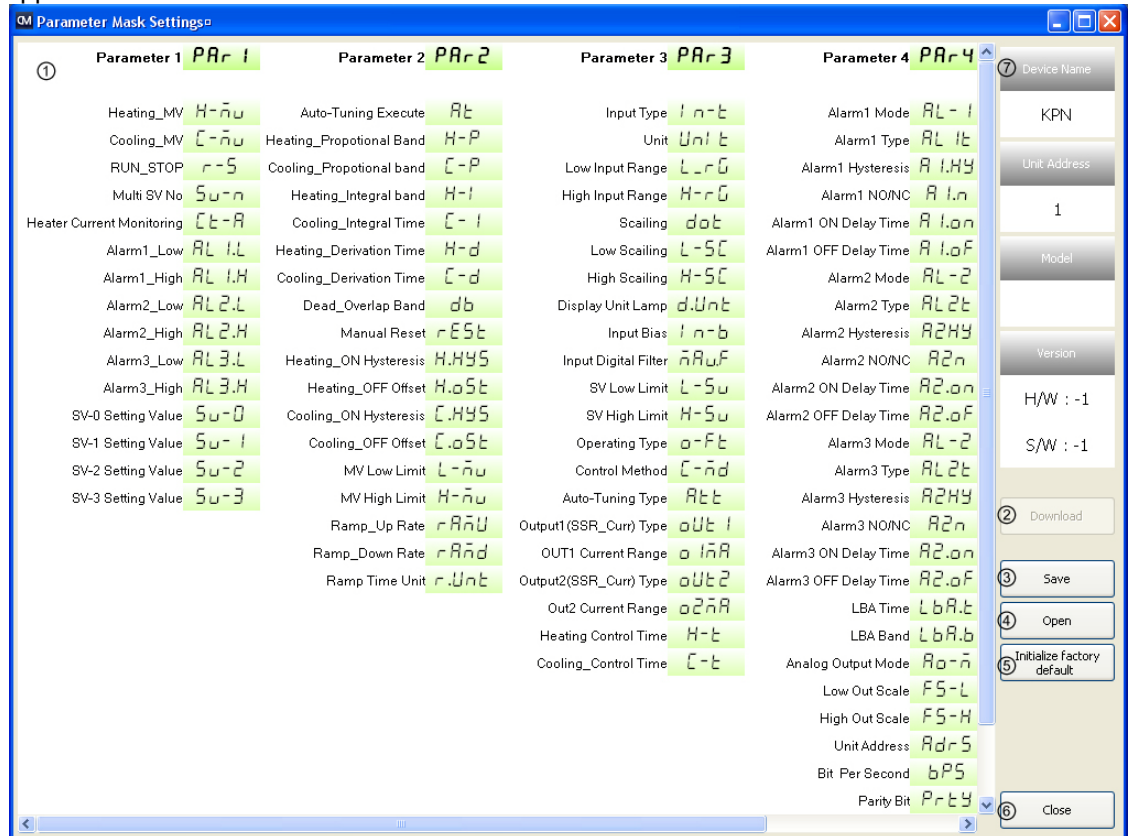


After completing copy, 'Copy Complete!' dialog box appears. Click 'OK' and copy is finish.

(3) Parameter mask

This feature is able to hide unnecessary parameters to user environment or less frequently used parameters in parameter group.

Masked parameters are not only displayed. The set value of masked parameters are applied.



No	Item	Description
①	Parameter mask selection	Select the to-be masked parameters. Right-click the to-be masked parameters and they turn gray.
②	Download	Applies the set masked parameters to the device.
③	Save	Saves the set masked parameters as a mask information file.
④	Open	Opens the saved mask information file.
⑤	Initialize factory default	Clears the set for the masked parameters. Download this setting to apply it to the device.
⑥	Close	Closes the Parameter Mask Settings dialog.
⑦	Device information	Displays device name, unit address, model name, and version.



Parameter Mask Settings

Parameter 1	Parameter 2	Parameter 3	Parameter 4
Heating_MV H-nu	Auto-Tuning Execute Rt	Input Type i-n-b	Alarm1 Mode AL-1
Cooling_MV C-nu	Heating_Proportional Band H-P	Unit Unit	Alarm1 Type AL-1b
RUN_STOP r-5	Cooling_Proportional band C-P	Low Input Range L-rG	Alarm1 Hysteresis R.1H4
Multi SV No 5u-n	Heating_Integral band H-I	High Input Range H-rG	Alarm1 NO/NC R.1n
Current Monitoring Ct-R	Cooling_Integral Time C-I	Scaling dot	Alarm1 ON Delay Time R.1on
Alarm1_Low AL.1L	Heating_Derivation Time H-d	Low Scailing L-5C	Alarm1 OFF Delay Time R.1of
Alarm1_High AL.1H	Cooling_Derivation Time C-d	High Scailing H-5C	Alarm2 Mode AL-2
Alarm2_Low AL.2L	Dead_Overlap Band db	Display Unit Lamp d.Unt	Alarm2 Type AL.2b
Alarm2_High AL.2H	Manual Reset rESb	Input Bias i-n-b	Alarm2 Hysteresis R.2H4
Alarm3_Low AL.3L	Heating_ON Hysteresis H.H45	Input Digital Filter nRwF	Alarm2 NO/NC R.2n
Alarm3_High AL.3H	Heating_OFF Offset H.o5b	SV Low Limit L-5u	Alarm2 ON Delay Time R.2on
SV-0 Setting Value 5u-0	Cooling_ON Hysteresis C.H45	SV High Limit H-5u	Alarm2 OFF Delay Time R.2of
SV-1 Setting Value 5u-1	Cooling_OFF Offset C.o5b	Operating Type o-Fb	Alarm3 Mode AL-2
SV-2 Setting Value 5u-2	MV Low Limit L-nu	Control Method C-n-d	Alarm3 Type AL.2b
SV-3 Setting Value 5u-3	MV High Limit H-nu	Auto-Tuning Type Rt	Alarm3 Hysteresis R.2H4
	Ramp_Up Rate rRnU	Output1(SSR_Curr) Type oUb1	Alarm3 NO/NC R.2n
	Ramp_Down Rate rRnd	OUT1 Current Range o1nA	Alarm3 ON Delay Time R.2on
	Ramp Time Unit r.Unt	Output2(SSR_Curr) Type oUb2	Alarm3 OFF Delay Time R.2of
		Out2 Current Range o2nA	LBA Time LbR.b
		Heating Control Time H-b	LBA Band LbR.b
		Cooling_Control Time C-b	Analog Output Mode R.o-n
			Low Out Scale F5-L
			High Out Scale F5-H
			Unit Address R.d-5
			Bit Per Second bP5
			Parity Bit P.r-b

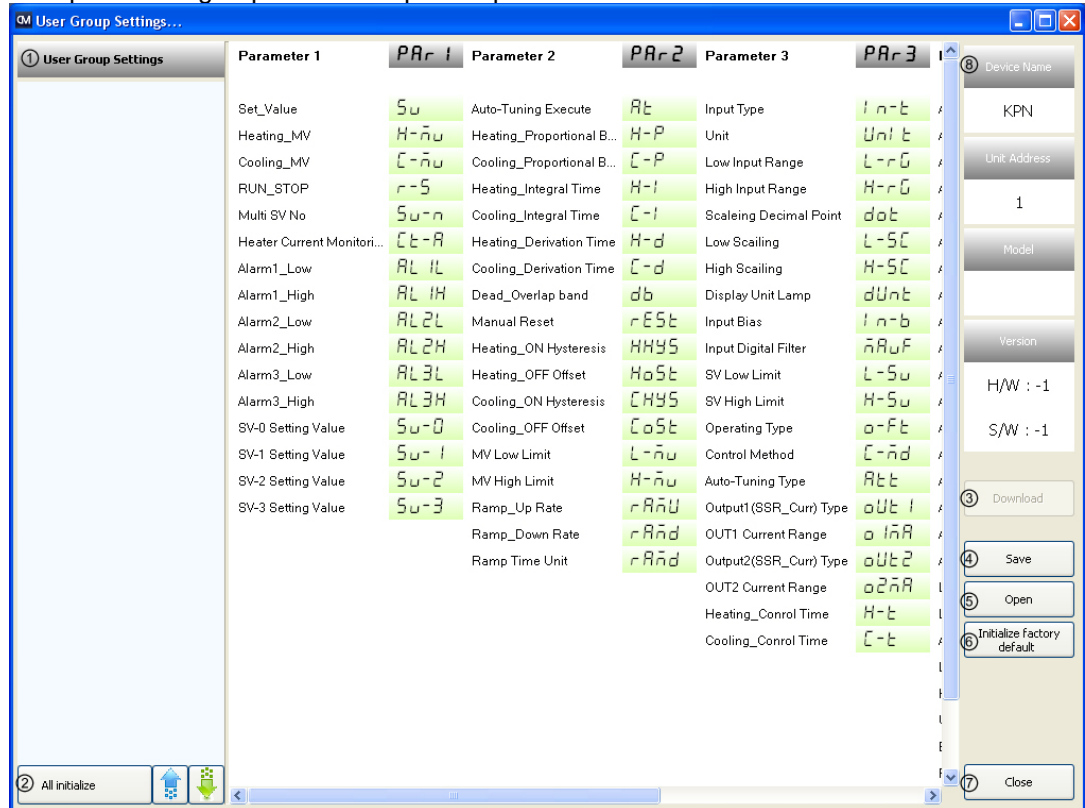
Device Name: KPN  
 Unit Address: 1  
 Model:  
 Version:  
 H/W : -1  
 S/W : -1  
 Download  
 Save  
 Open  
 Initialize factory default  
 Close

Example of masking alarm, SV setting parameters of parameter 1 group, input type, unit of parameter 3 group, and all of parameter 4 group.

(4) User parameter group [PAR-U]

This feature is able to set the frequently used parameters to the user parameter group. You can quickly and easily set parameter settings.

User parameter group can have up to 30 parameters.



No	Item	Description
①	User group parameters	Displays the selected parameters as user group parameter Double-click the parameters for the user group, and these parameters turn gray. To delete the parameters at the user group, double-click the parameters.
②	User group selection	- All initialize: Initializes the set user group. - ↑, ↓: Changes the selected parameter order up/down.
③	Download	Applies the set user group to the device.
④	Save	Saves the set user group as a user group information file.
⑤	Open	Opens the saved user group file.
⑥	Initialize factory default	Clears the set for the user group. Download this setting to apply it to the device.
⑦	Close	Closes the User Group Settings dialog.
⑧	Device information	Displays device name, unit address, model name, and version.



QM User Group Settings...

User Group Settings	Parameter 1	PAR 1	Parameter 2	PAR 2	Parameter 3	PAR 3	Parameter 4	PAR 4
Set_Value	Set_Value	Su	Auto-Tuning Execute	Rt	Input Type	in-b	Alarm1 Mode	AL-1
RUN_STOP	Heating_MV	r-s	Heating_Proportional B...	H-P	Unit	Unit	Alarm1 Type	AL-1t
SV-0 Setting Value	Cooling_MV	Su-0	Cooling_Proportional B...	C-P	Low Input Range	L-rG	Alarm1 Hysteresis	A1HY
SV-1 Setting Value	RUN_STOP	Su-1	Heating_Integral Time	H-I	High Input Range	H-rG	Alarm1 NO/NC	A1n
SV-2 Setting Value	Multi SV No	Su-2	Cooling_Integral Time	C-I	Scaling Decimal Point	dot	Alarm1 ON Delay Time	A1on
SV-3 Setting Value	Heater Current Monitori...	Su-3	Heating_Derivation Time	H-d	Low Scailing	L-SC	Alarm1 OFF Delay Time	A1oF
Manual Reset	Alarm1_Low	r-ESr	Cooling_Derivation Time	C-d	High Scailing	H-SC	Alarm2 Mode	AL-2
Input Bias	Alarm1_High	in-b	Dead_Overlap band	db	Display Unit Lamp	dUnit	Alarm2 Type	AL-2
Alarm1 Mode	Alarm2_Low	AL-1	Manual Reset	r-ESr	Input Bias	in-b	Alarm2 Hysteresis	A2HY
Alarm1 Type	Alarm2_High	AL-1t	Heating_ON Hysteresis	HHYS	Input Digital Filter	nAUF	Alarm2 NO/NC	A2n
Alarm1 Hysteresis	Alarm3_Low	A1HY	Heating_OFF Offset	HoSt	SV Low Limit	L-Su	Alarm2 ON Delay Time	A2on
Alarm1 NO/NC	Alarm3_High	A1n	Cooling_ON Hysteresis	CHYS	SV High Limit	H-Su	Alarm2 OFF Delay Time	A2oF
Alarm1 ON Delay ...	SV-0 Setting Value	A1on	Cooling_OFF Offset	CoSt	Operating Type	o-rFt	Alarm3 Mode	AL-3
Alarm1 OFF Delay...	SV-1 Setting Value	A1oF	MV Low Limit	L-nu	Control Method	C-rnd	Alarm3 Type	AL-3t
	SV-2 Setting Value		MV High Limit	H-nu	Auto-Tuning Type	Rt	Alarm3 Hysteresis	A3HY
	SV-3 Setting Value		Ramp_Up Rate	rRnU	Output1(SSR_Curr) Type	oUt1	Alarm3 NO/NC	A3n
			Ramp_Down Rate	rRnD	OUT1 Current Range	o1nR	Alarm3 ON Delay Time	A3on
			Ramp Time Unit	rRnD	Output2(SSR_Curr) Type	oUt2	Alarm3 OFF Delay Time	A3oF
					OUT2 Current Range	o2nR	LBA Time	LbAt
					Heating_Control Time	H-t	LBA Band	LbAb
					Cooling_Control Time	C-t	Analog Output Mode	Ao~1
							Low Out Scale	F5L1
							High Out Scale	F5H1
							Unit Address	Adr5
							Bit Per Second	bP5

Device Name: KPN  
Unit Address: 1  
Model:  
Version: H/W : -1, S/W : -1  
Download  
Save  
Open  
Initialise factory default  
Close

All Initialize

Example of the set user group with SV setting, control output RUN/STOP, alarm output 1 low/high-limit, SV-0/1/2/3 set value, manual reset, input correction, alarm output 1 mode/option/hysteresis/contact type/ON delay time/OFF delay time parameters.

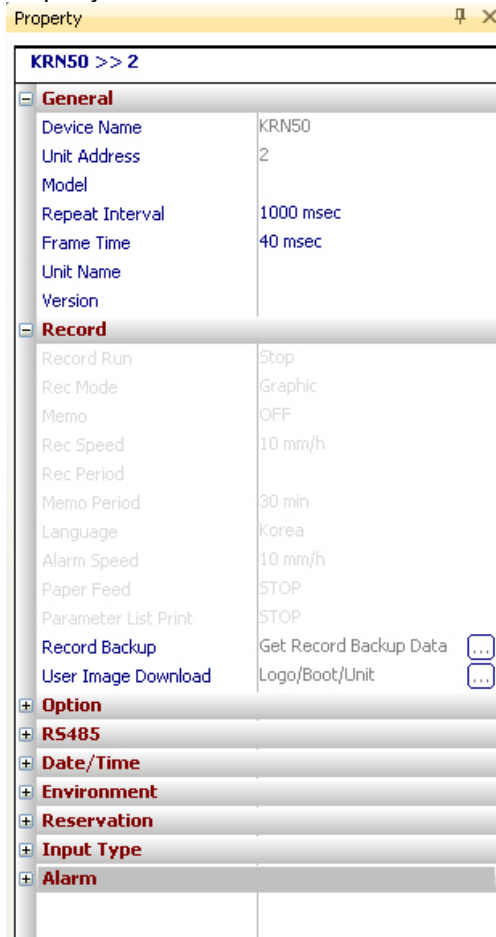


## 6.4 KRN50 (50mm compact hybrid recorder)

The following are special features for KRN50 while in communication with DAQMaster.

### (1) Accessing Record Backup Data

To get the recorded data, click '...' button located on the right of Record Backup in the Property window.



To read memory information, the device status must be Connected and not Run. There are also cases in which you cannot read from memory depending on KRN50 parameter setting. (Refer to 'KRN50 user manual'.)

**KRN50 Record Memory Data**

Memory Information      Upload Data

**Memory Information**

Start Time

End Time

**UpLoad Data Size**

Start Time 12 Mon 12 Day 12 Hour 12 Min

End Time 12 Mon 12 Day 12 Hour 12 Min

Available depending on Environment >> Setting Lock (R/W - Off)

Setup

Data UpLoad Status

Cancel Reading Data

To do this, device should be connected to the network.

OK Cancel

Once all conditions are met and ready to get memory data, follow the steps below:

- 1st Run [Memory Information] in KRN50 Record Memory Data window. It gets the information from currently saved memory.
- 2nd Set [Uploaded Data Size].
- 3rd Run [Upload Data].
- 4th You can cancel the operation while data is being uploaded. When data reading is complete, OK button is enabled.
- 5th If you click OK, recorded data will be shown in two screens - the Grid and the Graph.

## (2) Downloading User Images

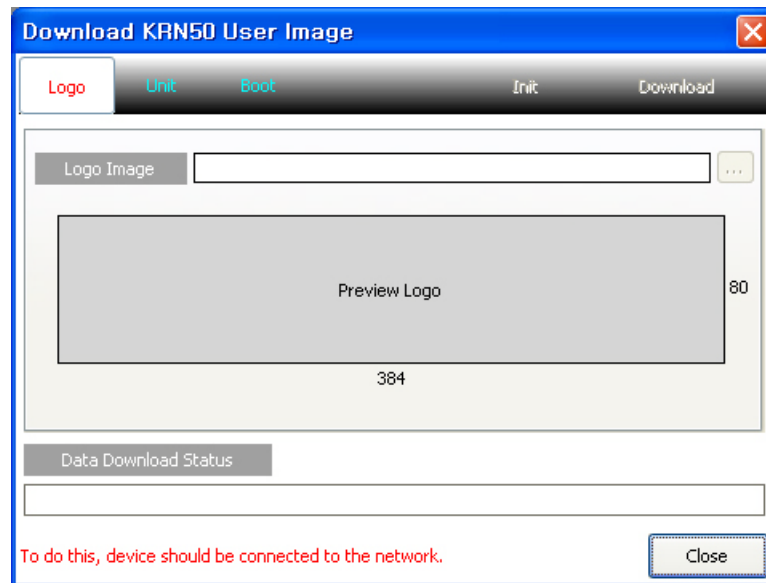
User Image allows you to download images to KRN50 and change logo, unit and boot images.

You can also reset images back to the original status. This is also a self protocol, so cannot download images during Run.

### 1) Download logo

You can change the company logo image on contents that are printed on recording paper.

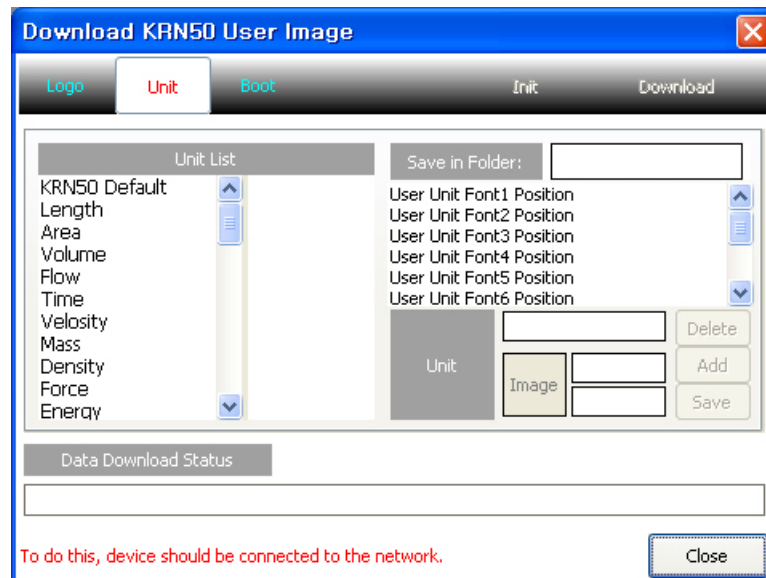
Logo image should be 384 X 80 pixel of bitmap file.



### 2) Download Units

There are 0-9 user units.

The download procedure is: select a unit list → select a destination to save → double-click a unit image to add the image → download.

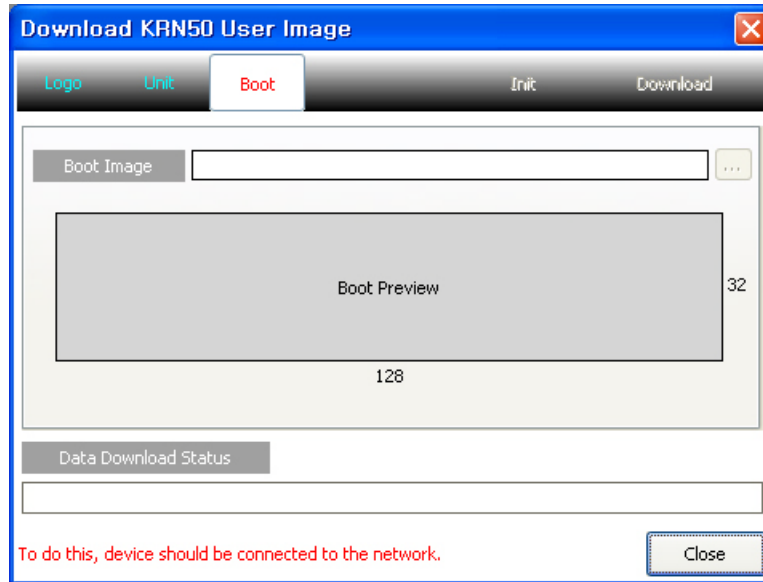


## 3) Download boot images

The boot image (logo image) appears on LCD upon initial power supply to KRN50.

You can change booting logo image which displays when KRN50 is power ON.

The image should be 128 X 32 pixel of bitmap file.



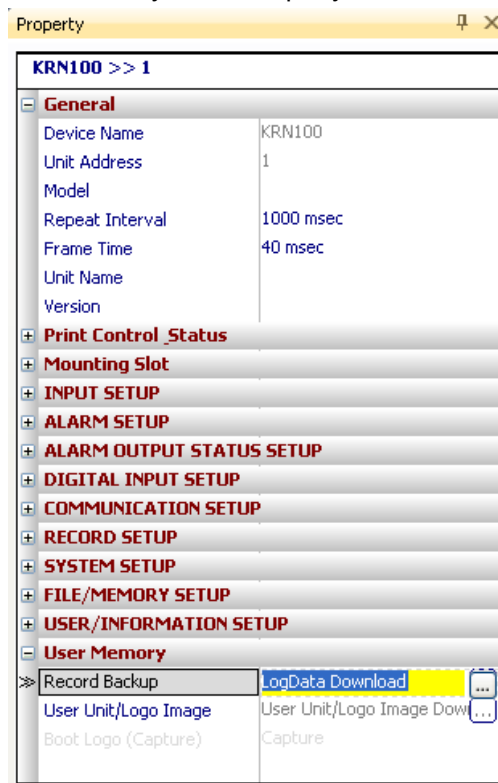
## 6.5 KRN100 (100mm hybrid recorder)

The following are special features for KRN100 while in communication with DAQMaster.

### (1) Accessing Record Backup Data

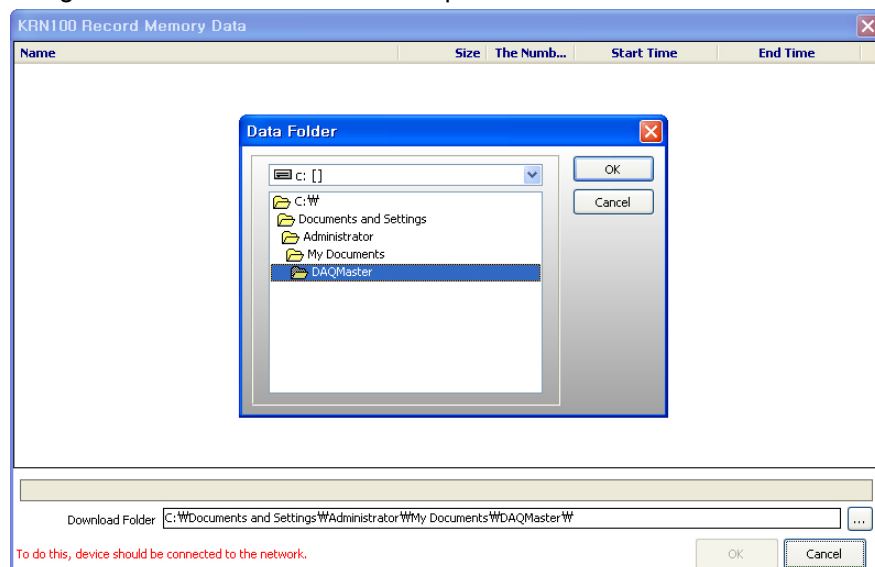
It is available to access saved backup data of KRN100 and to analyze backup data by data analysis feature.

- 1st To get the recorded data, click '...' button located on the right of Record Backup from User Memory in the Property window.



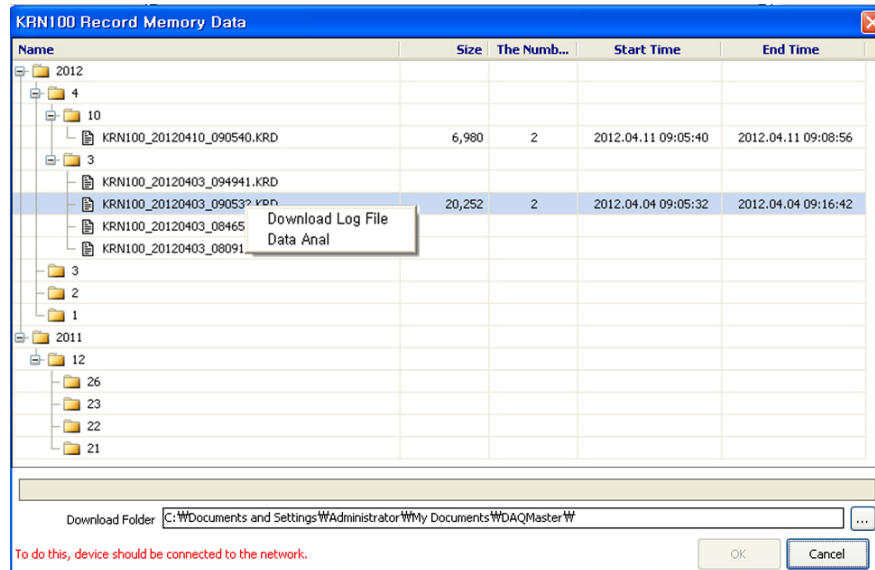
According to the USER INFORMATION SETUP of KRN100, it cannot read the memory. (Refer to the user manual for KRN100.)

- 2nd Designate the folder for record backup data to be saved.

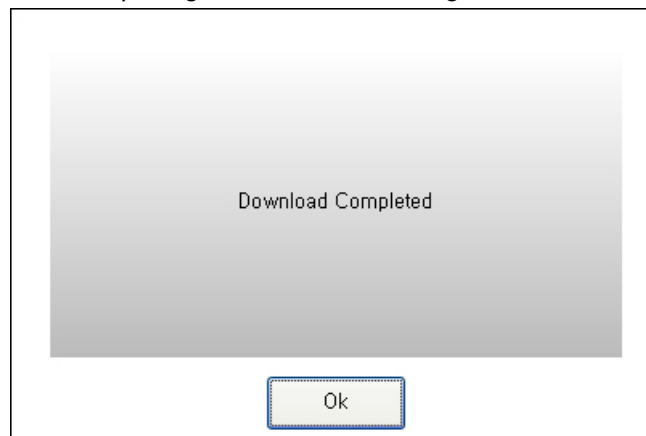


3rd Select the record backup data to download. Click the right mouse button and select 'Download Log File'.

Double click the backup data and it enters to data analysis.



4th After completing download to the designated folder, the below message appears.



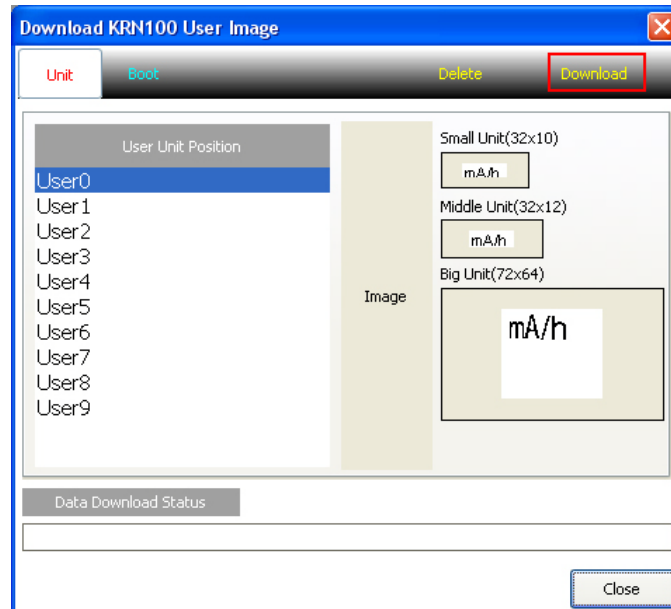
## (2) Downloading User Images

You can add user unit and boot images of KRN100.

### 1) Download units

There are 0-9 user units.

The download procedure is selecting User Unit Position, double-click Small Unit, Middle Unit, Big Unit image, and selecting the image. After this, Download button is active.



### 2) Download boot images

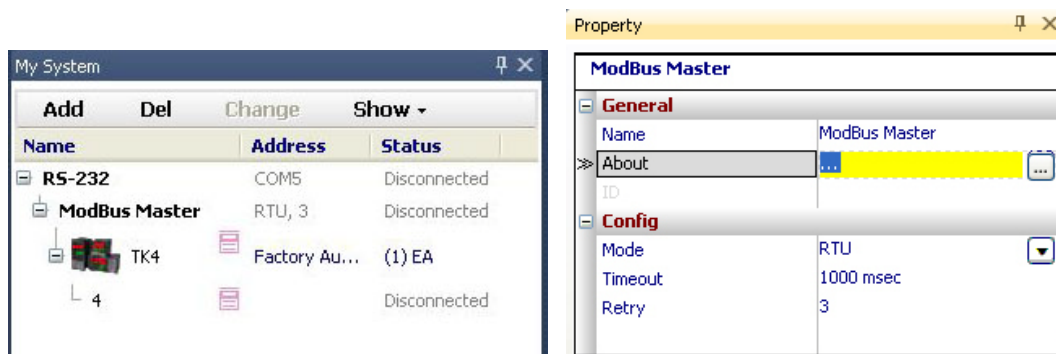
The boot image (logo image) appears on LCD upon initial power supply to KRN100. You can change booting logo image which displays when KRN100 is power ON.

The image should be 320×120 pixel of bitmap file.



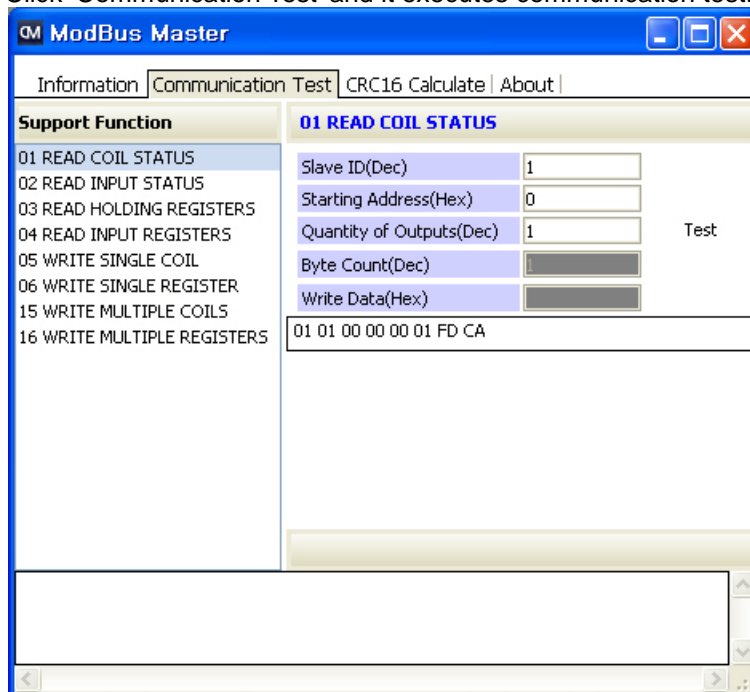
## 6.6 ModBus Master

Select ModBus Master of My System and click '...' of property. ModBus Master dialog box opens.



### (1) ModBus Master Communication test

Click 'Communication Test' and it executes communication test.





## (2) CRC16 calculate

This is calculating CRC16 of protocol.

To calculate CRC16, enter Hex data to data and click 'CRC16 Calculate'. It creates two CRC16 data.





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