

Device integrated management program

DAQMaster

USER MANUAL



DAQ Maser

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 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 1.5.3 version.

User Manual Symbols

Symbol	Description
 Note	Supplementary information for a particular feature.
 Warning	Failure to follow instructions can result in serious injury or death.
 Caution	Failure to follow instructions can lead to a minor injury or product damage.
 Ex.	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 thermometers, panel meters, pulse meters, and counters, etc and with Konics recorders, indicators.

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 .ddf data files 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 and .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	Requirements
Processor	IBM PC compatible computer with Intel Pentium 3 or above
Operating system	Microsoft Windows 98/NT/XP/Vista/Windows 7
RAM	256 MB or more
Hard disk	More than 1 GB of free hard disk space
VGA	1024 X 768 or higher resolution display
Others	Communication port: RS-232 serial port, USB to 232

2.2 Preparations

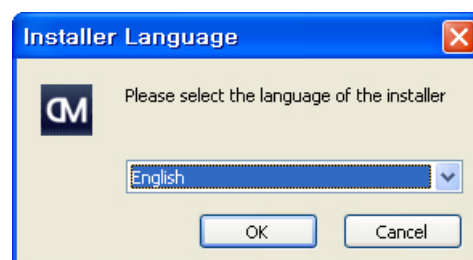
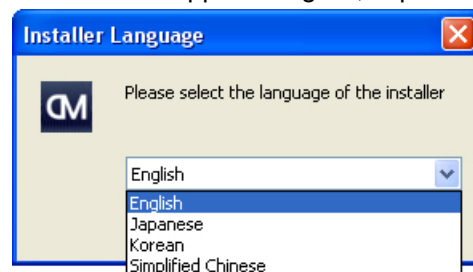
1st Download DAQMaster program at Autonics' web page(www.autonics.com).

2nd Close all programs before you start DAQMaster installation.

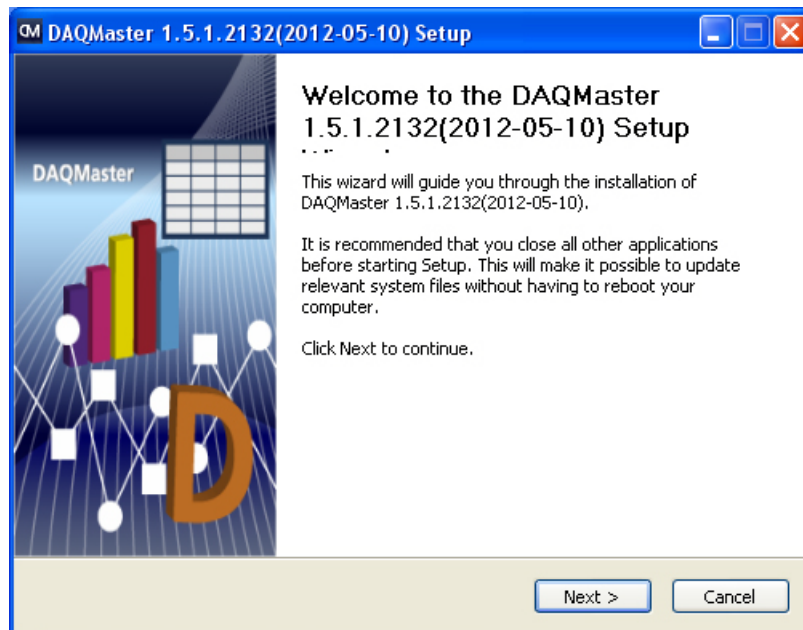
Double-click DAQMaster setup.exe to start installation.

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

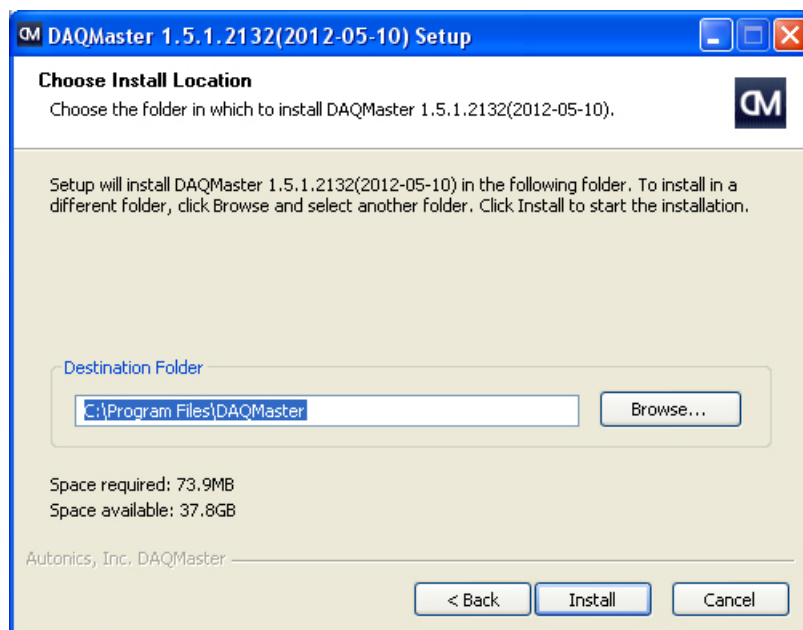
DAQMaster supports English, Japanese, Korean and Simplified Chinese.



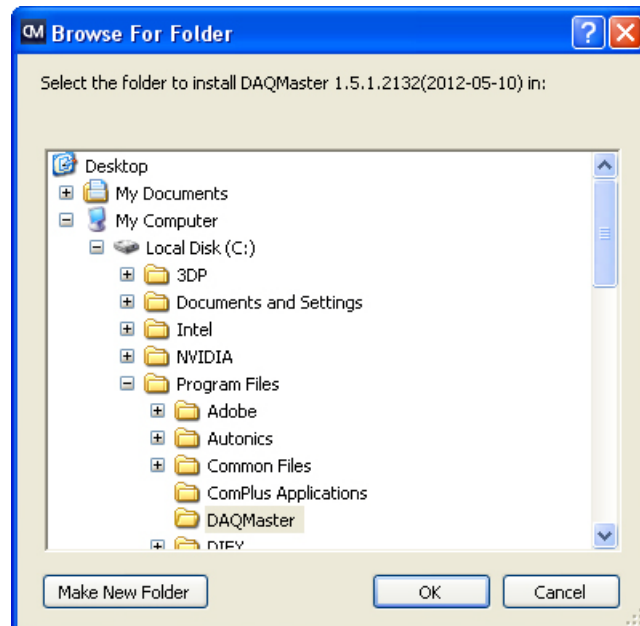
4th Click Next in the installation welcome window.



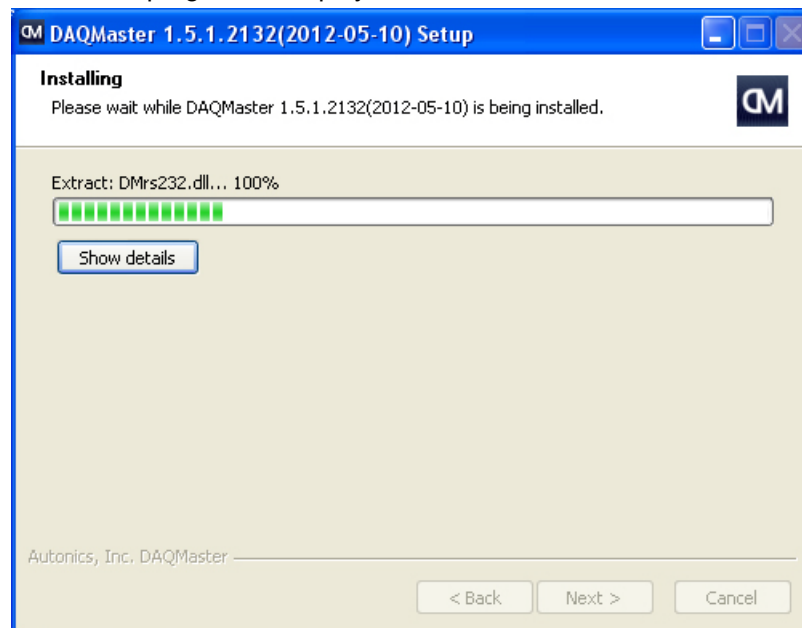
5th Choose Install Location window appears. Default installation path is C:\Program Files\DAQMaster.



- 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.

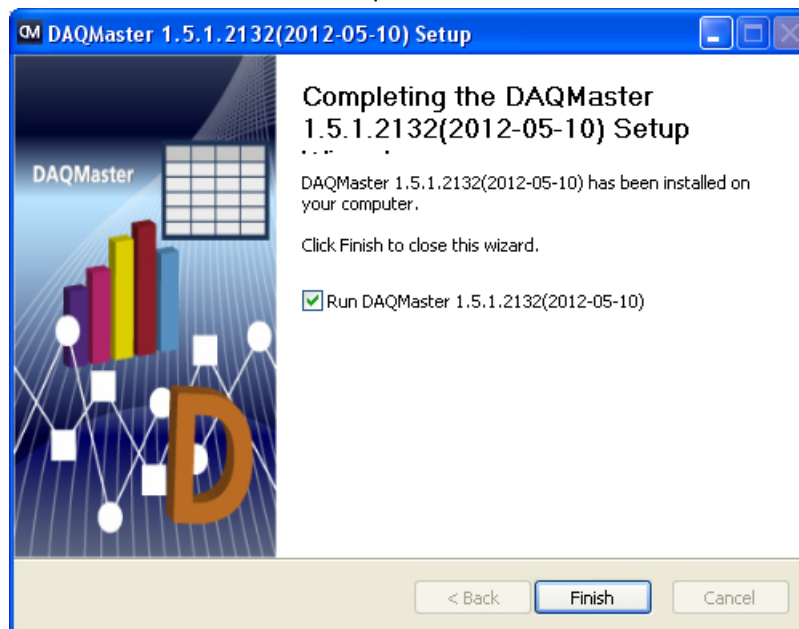


- 7th Installation progress is displayed in the status window as follows.

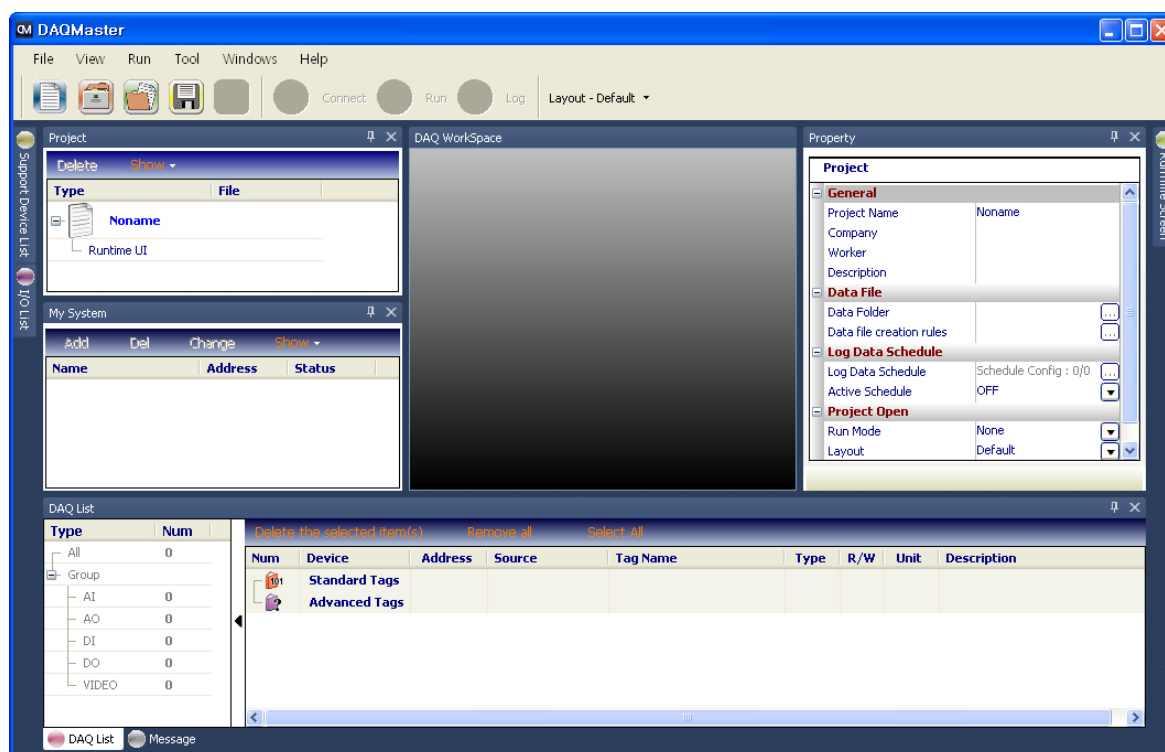


8th Installation Complete window appears after installation is completed.

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.

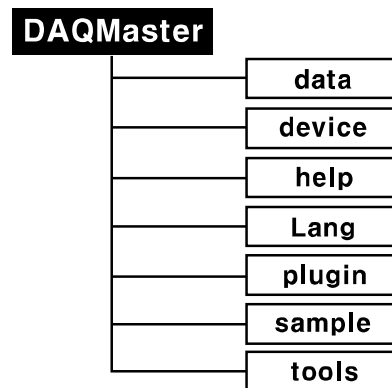


2.2.1 Installation Folder Structure

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

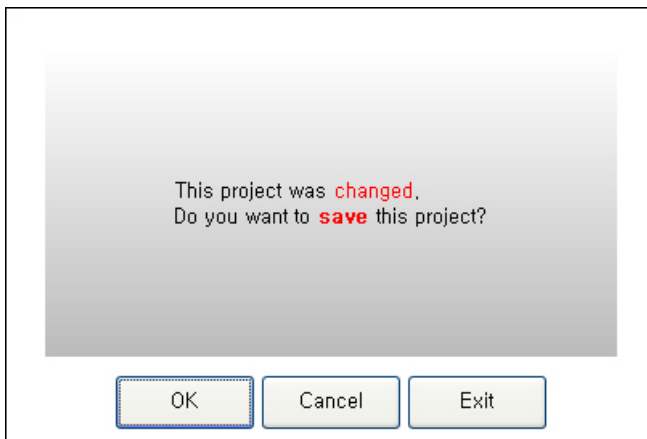
2.3.1 Start

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

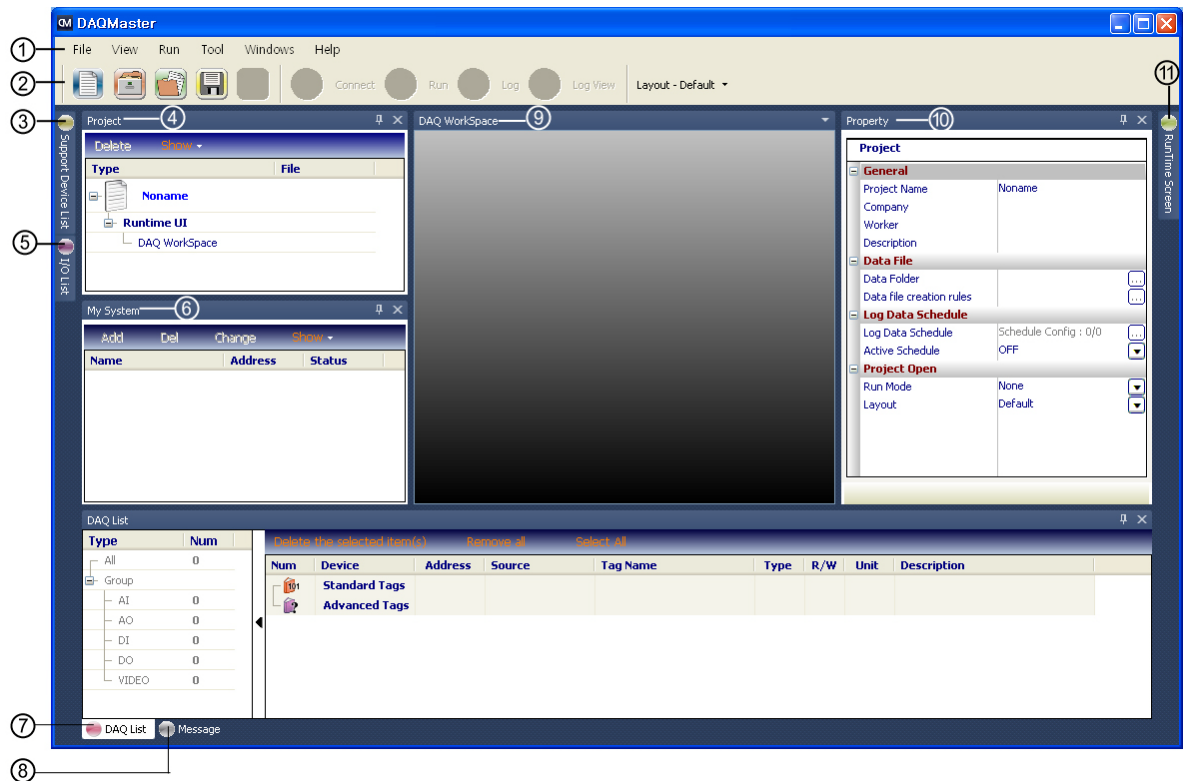
2.3.2 Exit

Click X button on the top right corner of the screen, or select File > Exit on the menu bar to end the program.

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



2.4 DAQMaster Screen Layout

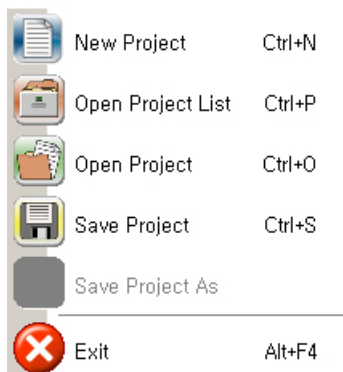


The program screen is divided into sections as shown in the preceding screenshot and each section is composed of the following items.

NO.	Item	Description
①	Menu	Displays DAQMaster menus by category. If you select a menu, submenus appear.
②	Toolbar	Displays commonly used menus. Click one time to execute their functions.
③	Supported device list	Displays a list of devices supported by DAQMaster.
④	Project	Shows the basic information of the current project.
⑤	I/O List	Displays parameter items of devices added to My System.
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	Runtime Library	Displays screen library for data monitoring.

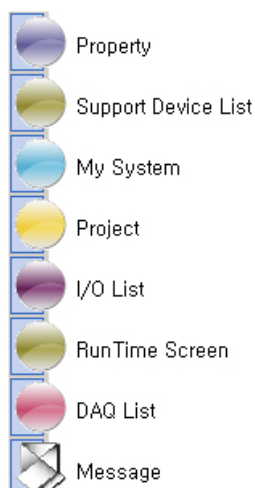
2.4.1 Menu

(1) File



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

(2) View



Select to display screens while the program is running.

(3) Run



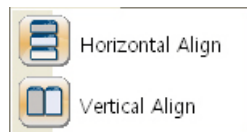
- Connect/Disconnect: Connects or disconnects the device and communication.
- Run/stop: Starts or stops monitoring data in the connected devices.
- Start/stop logging: Saves or stops logging currently monitored data.

(4) Tools



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

(5) Window



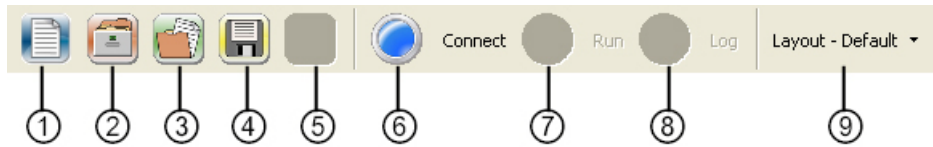
Chooses a screen align option from Horizontal Align and Vertical Align and aligns screens when multiple runtime screens (Grid, Panel, Line Graph, Bar Graph, etc) are open.

(6) Help



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

2.4.2 Toolbar



No.	Item	Description
①	New project	Creates a new project.
②	Open Project List	Opens a project from project list.
③	Open Project	Opens a saved project.
④	Save Project	Saves the project you are working on.
⑤	Disable	-.
⑥	Connect	Starts communications when a device is added and ready for communication.
⑦	Run	Enables when communications are connected. Reads I/O parameter data according to the defined interval.
⑧	Log	Enables when communications are exchanged. Saves the log data temporarily in memory when logging starts, and permanently saves the data when the logging stops. Allows log data to be saved as a DAQMaster data file (*.ddf) or a CSV file (*.csv).
⑨	Layout	- Default: Sets the docking screen to the program start default. - Runtime: Activates only runtime screen. Displays hidden docking screens by selecting the View menu.

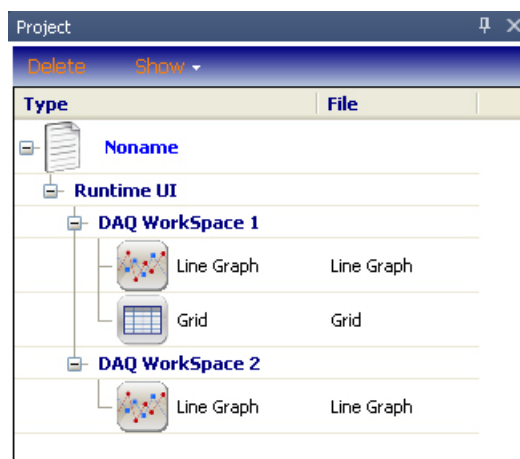
2.4.3 Supported Device List (Docking Screen)

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



2.4.4 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 '2.4.10 Property'.



2.4.5 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.

Displays parameter sources added to DAQ List in gray.



Device	Source	Interface
 TK4	1 (0/19)	R5-232 - COM1
	Present Value	AI
	Set Value	AI
	Heating MV	AI
	Cooling MV	AI
	Heater Current ...	AI
	°C Lamp	DI
	°F Lamp	DI
	% Lamp	DI
	OUT1 Lamp	DI
	OUT2 Lamp	DI
	AT Lamp	DI
	SV1 Lamp	DI
	SV2 Lamp	DI
	SV3 Lamp	DI
	AL1 Lamp	DI
	AL2 Lamp	DI
	MAN Lamp	DI
	DI-1 IN	DI
	DI-2 IN	DI



Note

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

2.4.6 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.

Name	Address	Status
RS-232	COM5	Connected
ModBus Master	RTU	Connected
TK4	AUTONICS	(1) EA
1	TK 4S 14RR	Connected

Name	Address	Status
RS-232	COM5	Disconnected
ModBus Master	RTU	Disconnected
TK4	AUTONICS	(1) EA
1	TK 4S 14RR	Disconnected

- 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.
- 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.

Name	Address	Status
RS-232	COM5	Disconnected
ModBus Master	RTU	Disconnected
TK4	AUTONICS	(1) EA
1	TK 4S 14RR	Disconnected
RS-232	COM1	Disconnected
ModBus Master	RTU	Disconnected
BF5-Series	AUTONICS	(2) EA
4		Disconnected
6		Disconnected
RS-232	COM1	Disconnected
BSC		
TZ/TZN	AUTONICS	(2) EA
1		Disconnected
2		Disconnected

2.4.7 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
AI	5
AO	0
DI	14
DO	0
VIDEO	0

Num	Device	Address	Source	Tag Name	Type	R/W	Unit	Description
1	TK4	1	Present Value	1_Present Value	AI	R		
2	TK4	1	Set Value	1_Set Value	AI	R		
3	TK4	1	Heating MV	1_Heating MV	AI	R	%	
4	TK4	1	Heater Current M...	1_Heater Current Monitoring	AI	R	A	
5	TK4	1	°C Lamp	1_°C Lamp	DI	R		
6	TK4	1	°F Lamp	1_°F Lamp	DI	R		

Signal types: AI (Analogue Input), AO (Analogue Output), DI (Digital Input), DO (Digital Output).



Note

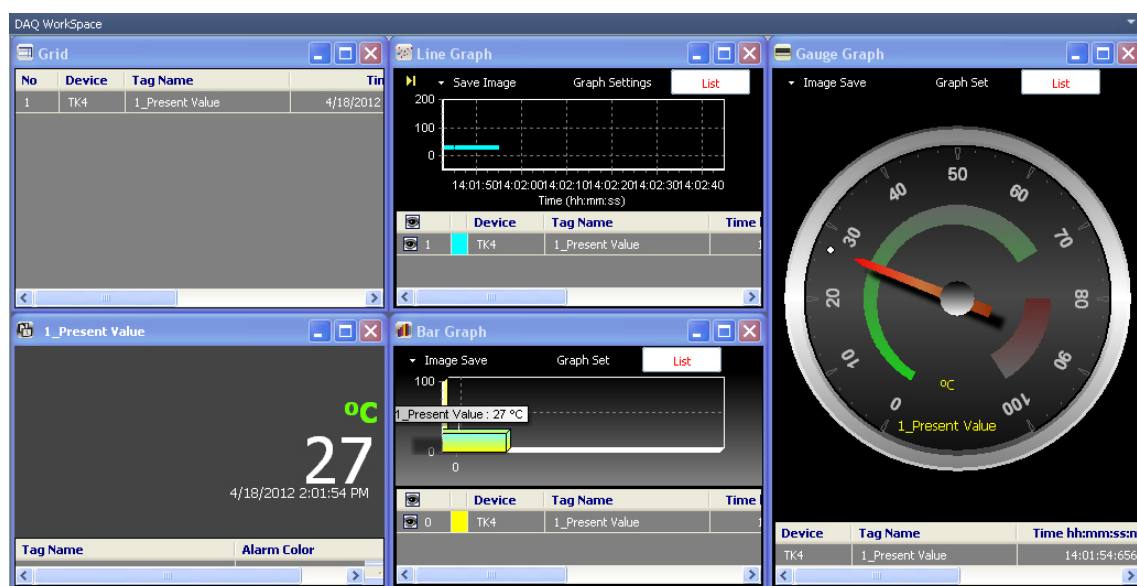
DAQ List cannot be added to a runtime screen when the Status is Run.

2.4.8 Message

Records events. (It is not supported yet.)

2.4.9 DAQ Workspace

Displays added UI screen (Grid, Panel, Line Graph, Bar Graph, Color Map Graph, Gauge Graph) in RunTime Screen.

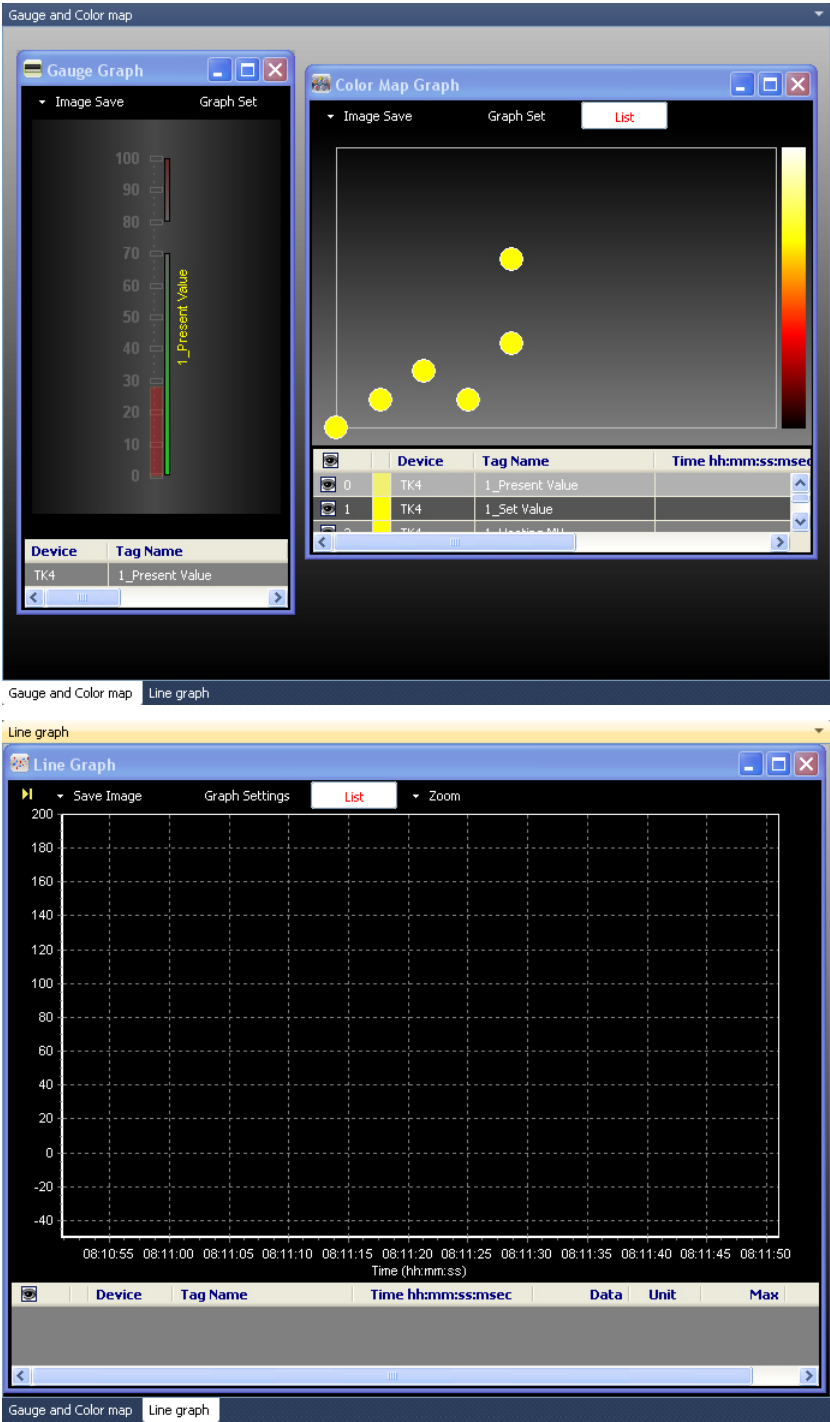


To add or delete DAQ WorkSpace or change DAQ WorkSpace name, click pull-down icon (▼) on the upper right of DAQ WorkSpace.



Ex.

The below two DAQ WorkSpaces are changed name as 'Gauge and Color map' and 'Line graph'.

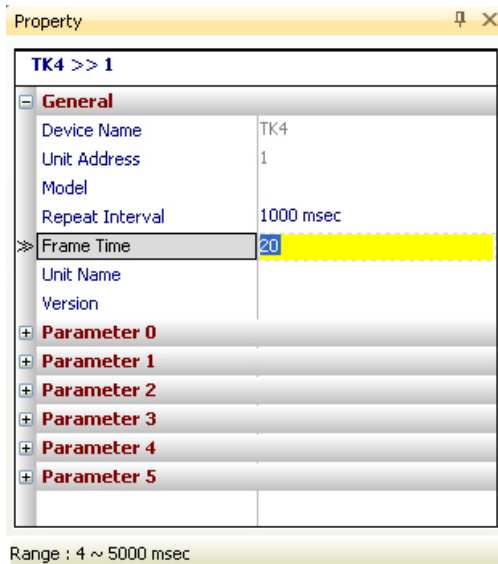


2.4.10 Property

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

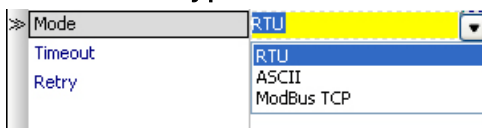
There are check-only items and modifiable items. Modifiable items are displayed as edit type, combo box type, run type and mixed edit/combo type.

(1) Edit type



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

(2) Combo box type

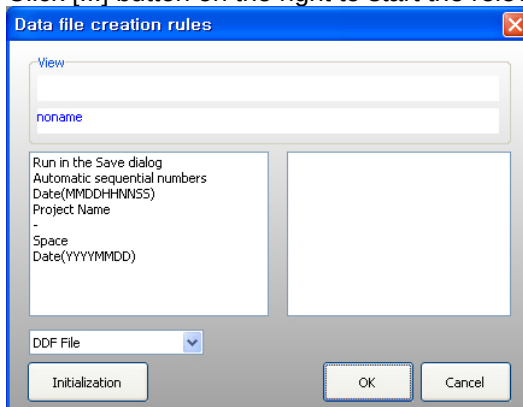


Click the combo button on the right to see a list of items to select.

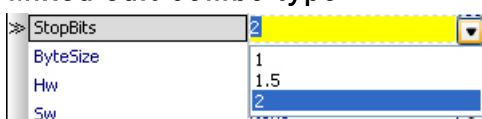
(3) Run type



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



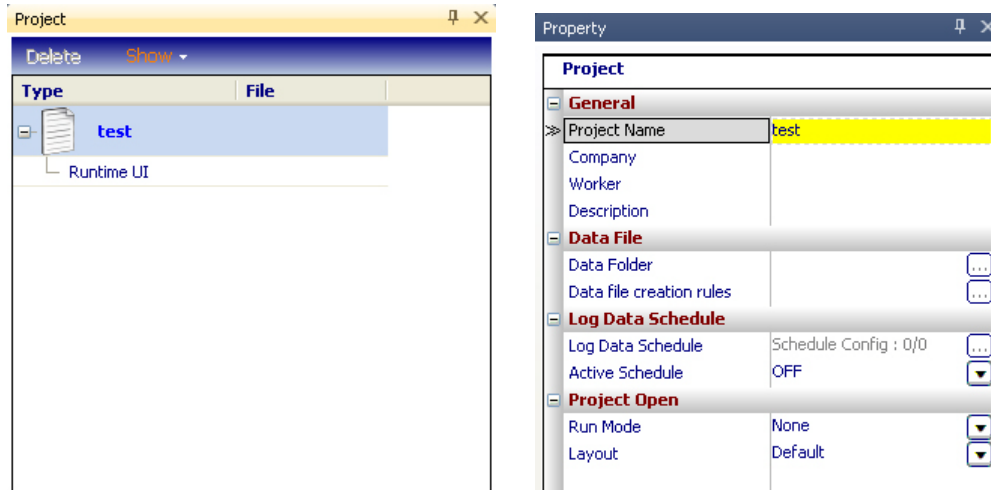
(4) Mixed edit-combo type



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.

2.4.10.1 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, etc.), log data schedule (log data schedule, active schedule), and project open (run mode, layout).



(1) General

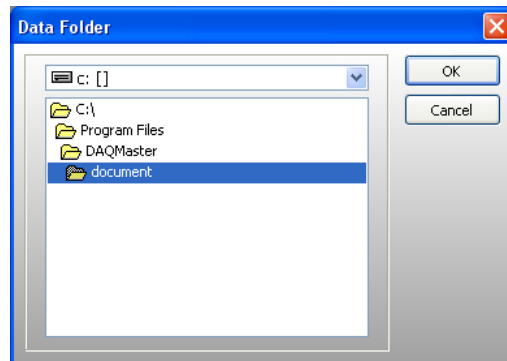
You can enter project name, company, worker, description for project management.

(2) Data File

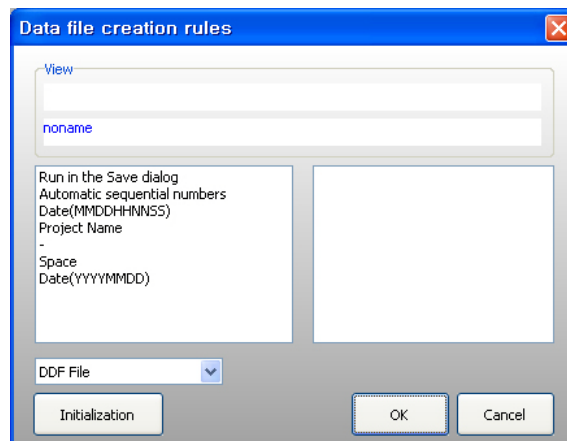
Designates the folder to save log data and log data file's creation rules when it is created automatically.

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.



(3) log data schedule

Saves log data when the set scheduled time automatically.

- Log Data Schedule: Sets log data save time.

Log data book

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

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

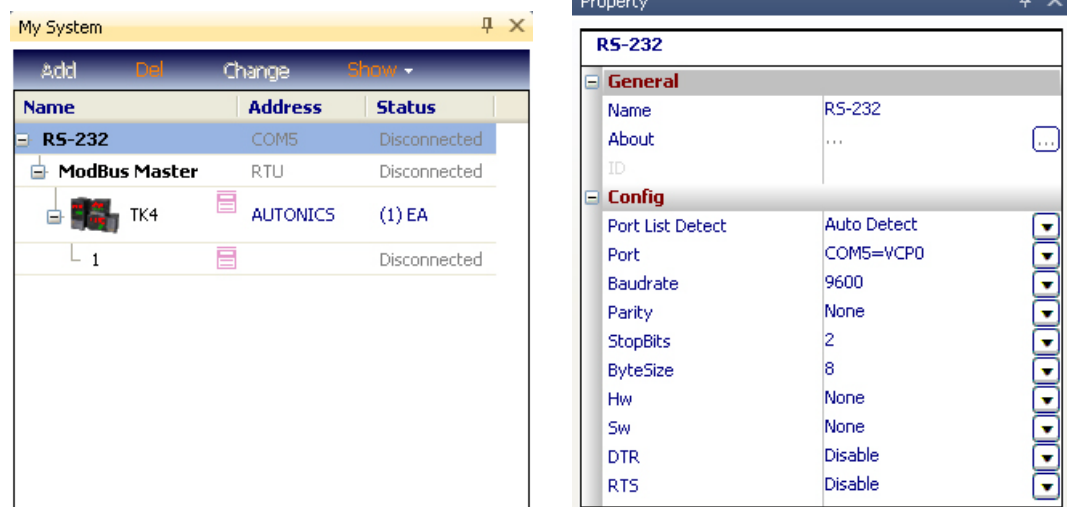
(4) Project Open

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

2.4.10.2 My System Properties

(1) RS232

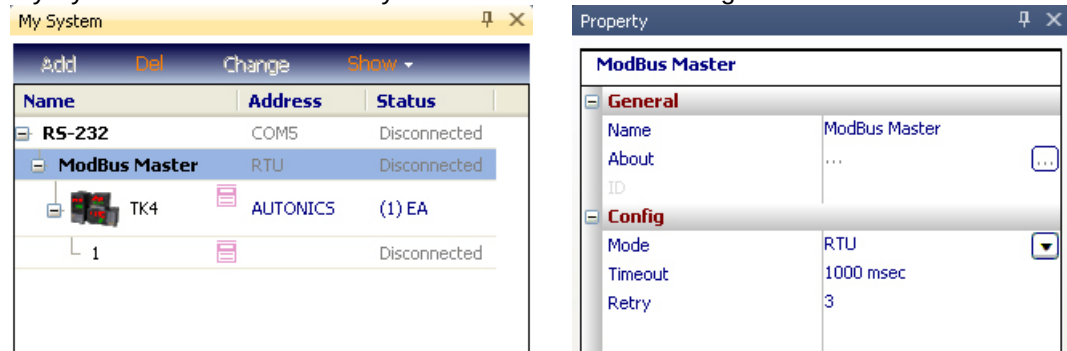
Click RS-232 in My System to modify Name in RS-232 general properties.



You can also modify Port List Detect, Port, Baudrate, Parity, Stop Bits, ByteSize, HW, SW, DTR, RTS in Config.

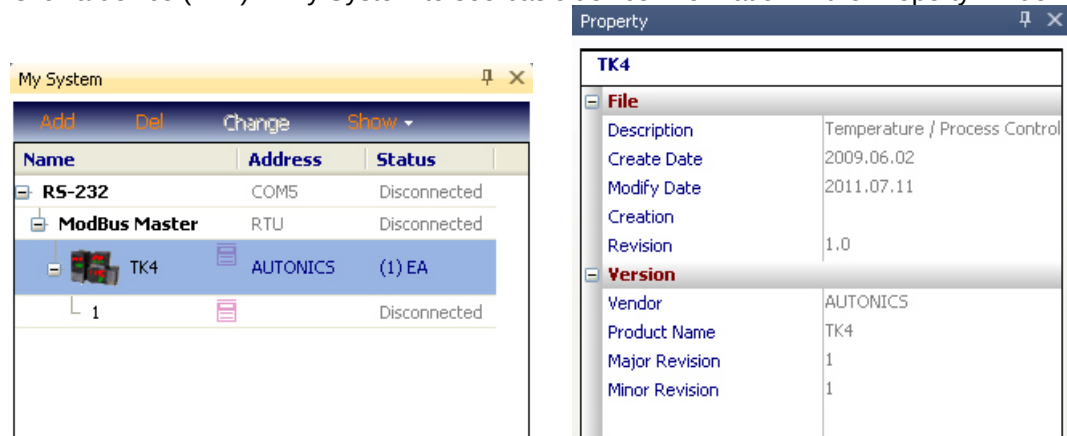
(2) Modbus Master

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



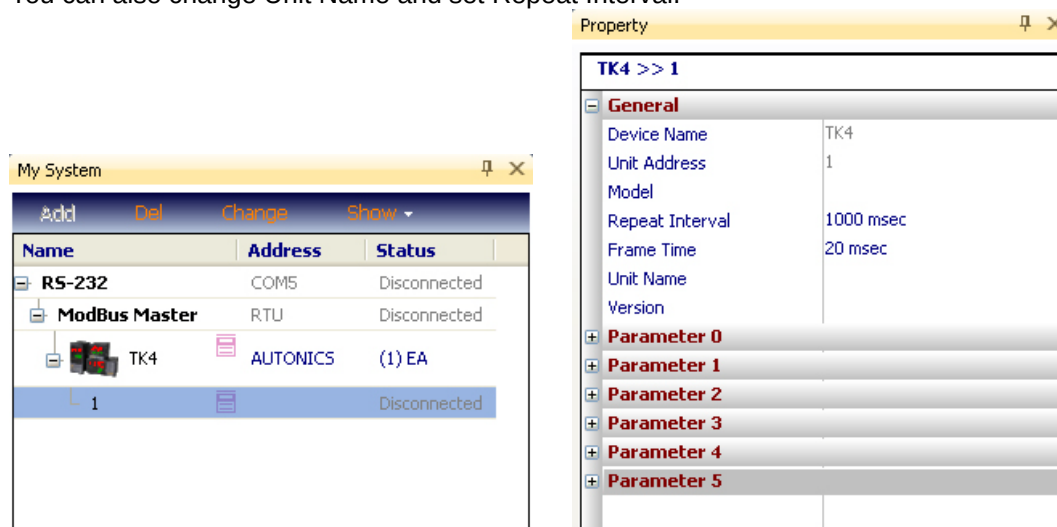
(3) Device (TK4)

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 Unit Name and set Repeat Interval.



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

2.4.10.3 DAQ List Properties

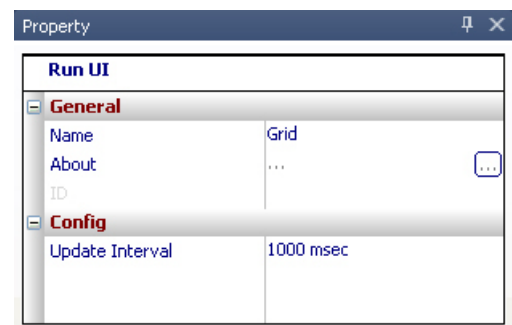
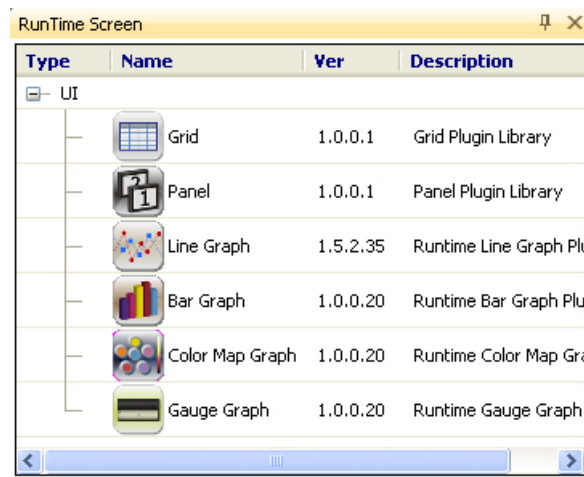
If you select items that were added from I/O List for communication, the Property window displays item information. You can change Tag Name, Decimal Point and Unit of an item.



2.4.10.4 Runtime Properties

You can designate added runtime screen (Grid, Line Graph, Bar Graph, Color Map Graph, Gauge Graph) 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 Grid, Panel, Line Graph, Bar Graph, Color Map Graph and Gauge Graph. 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.

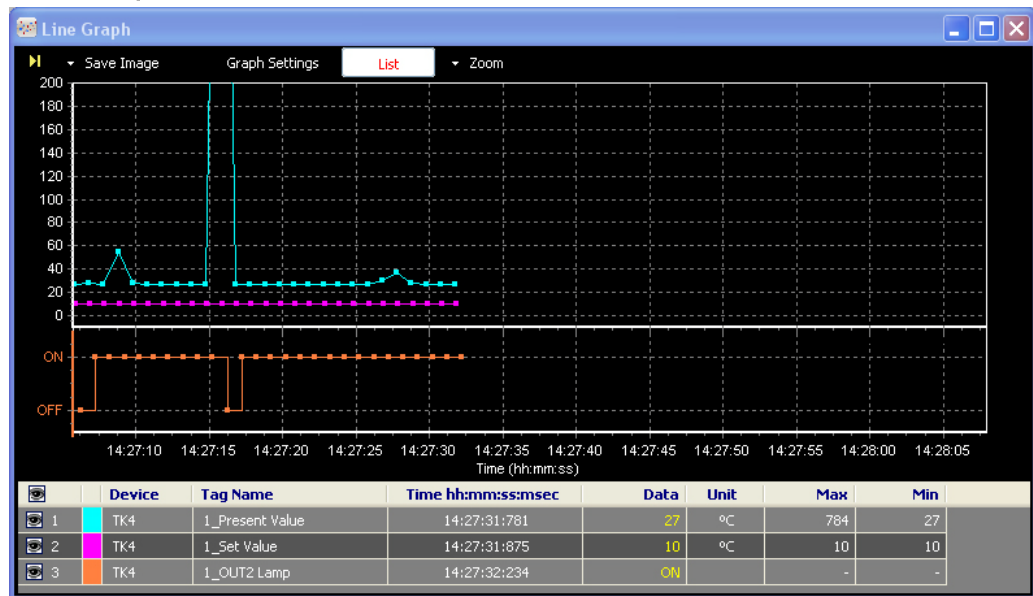
(1) Grid

Grid								
No	Device	Tag Name	Time	Data	Unit	Min	Max	Average
1	TK4	1_OUT1 Lamp	4/18/2012 2:10:08 PM	OFF	-	-	-	-
2	TK4	1_Present Value	4/18/2012 2:10:08 PM	27	°C	27	27	27
3	TK4	1_AL1 Lamp	4/18/2012 2:10:08 PM	OFF	-	-	-	-
4	TK4	1_OUT2 Lamp	4/18/2012 2:10:08 PM	ON	-	-	-	-

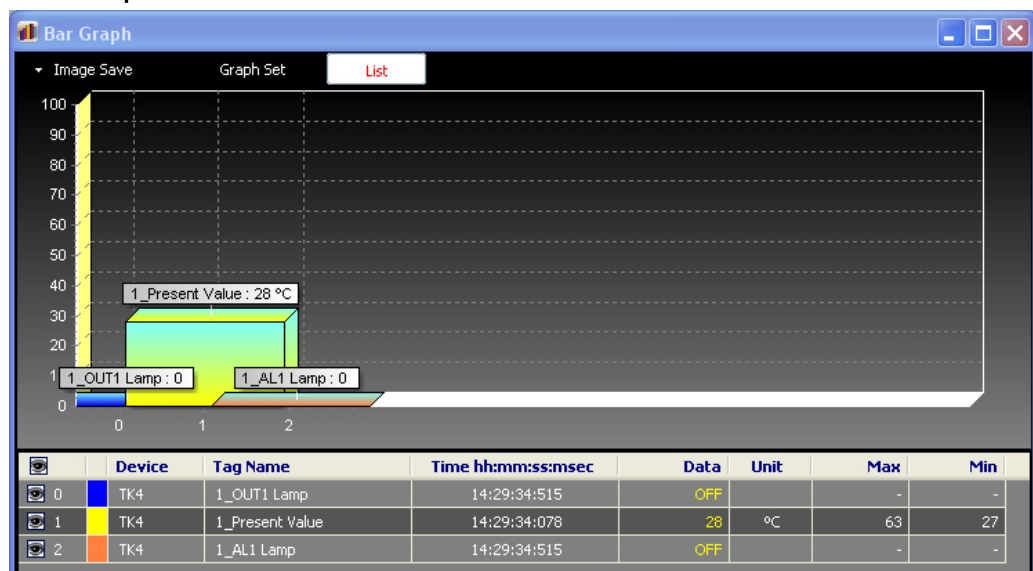
(2) Panel



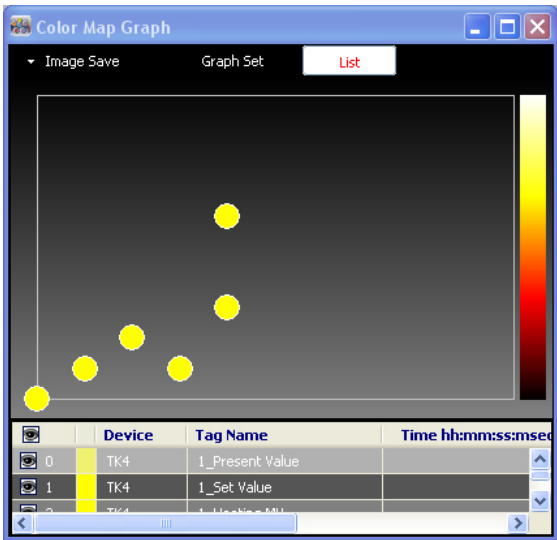
(3) Line Graph



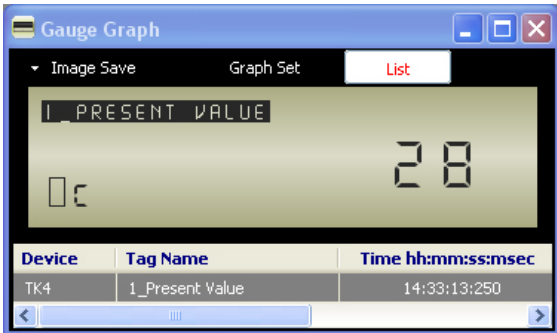
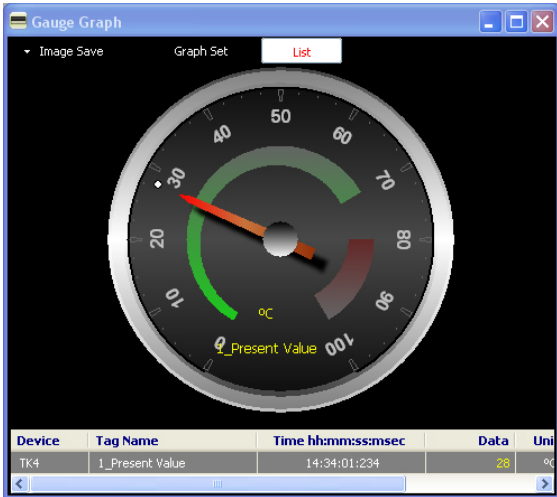
(4) Bar Graph



(5) Color Map Graph

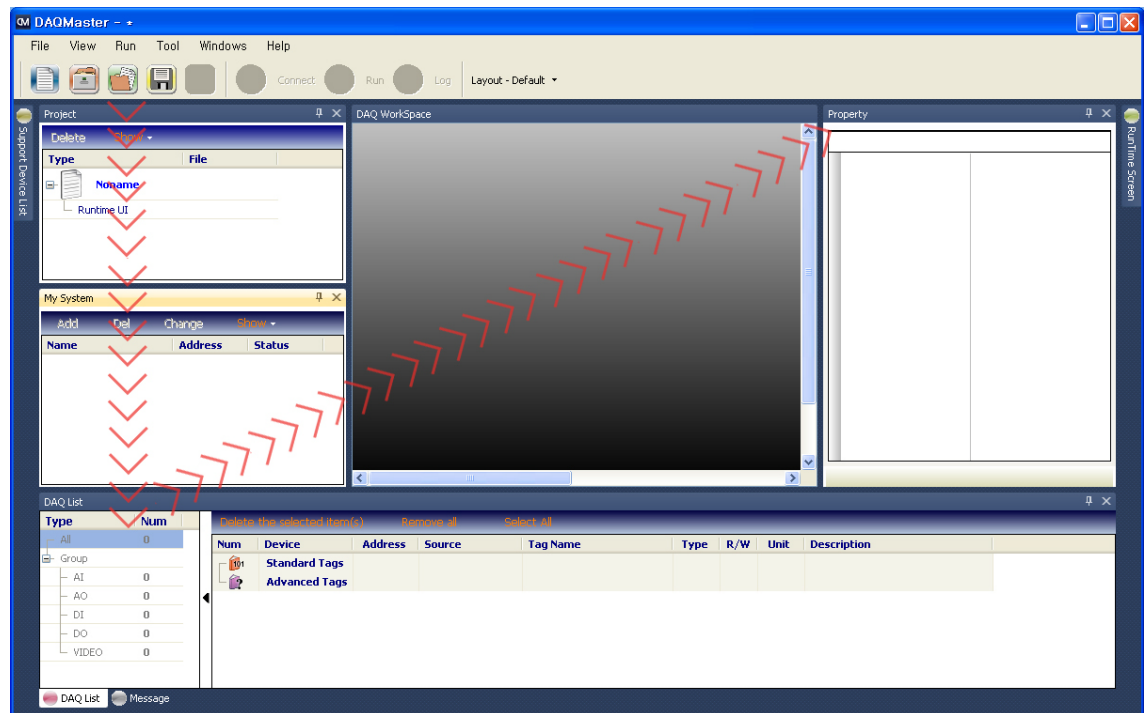


(6) Gauge Graph



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 supported 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 Supported Device List - Selecting a Device

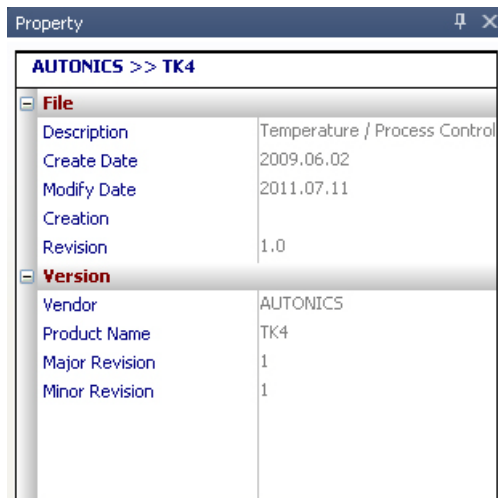
For example: TK4 (Address 3) is connected to RS-232 Port 1.

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

Below is the example screen for the currently supported devices (as of November.2012).

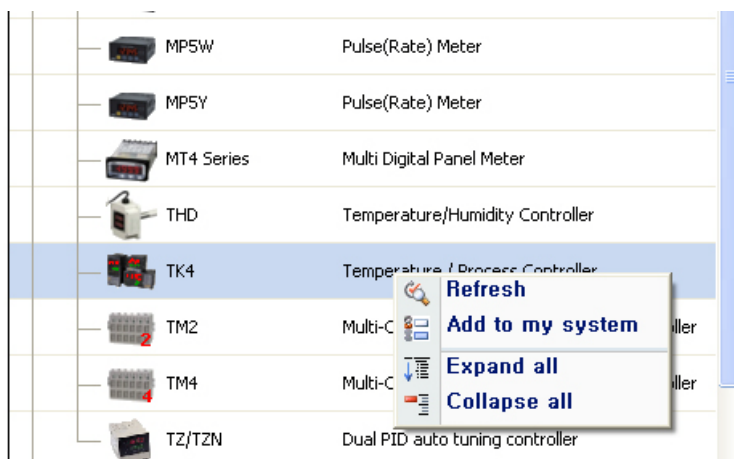


When a device is selected, you can see basic information about the device in Property window as follows.



If you click or double-click the device manufacturer's (AUTONICS or KONICS) expand button (+), the supported device list will appear.

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

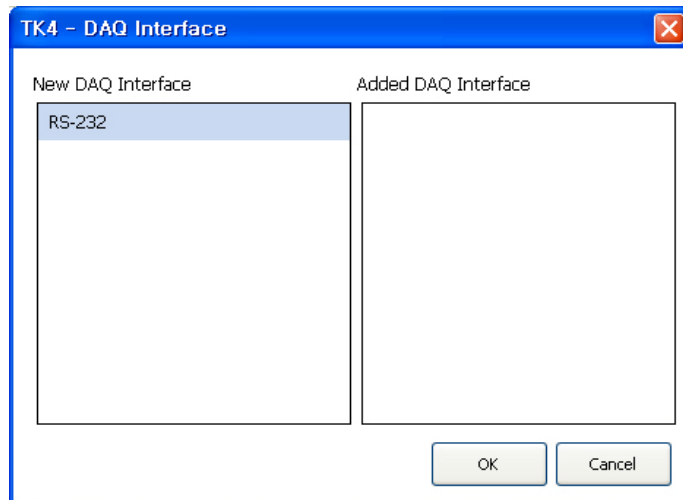


- Refresh: Updates Supported Device List when device files (*.dev) are added.
- Add to my system: Adds device to communicate with to My System.
- Expand all: Shows the list of all supported devices.
- Collapse all: Hides the list of all supported devices.

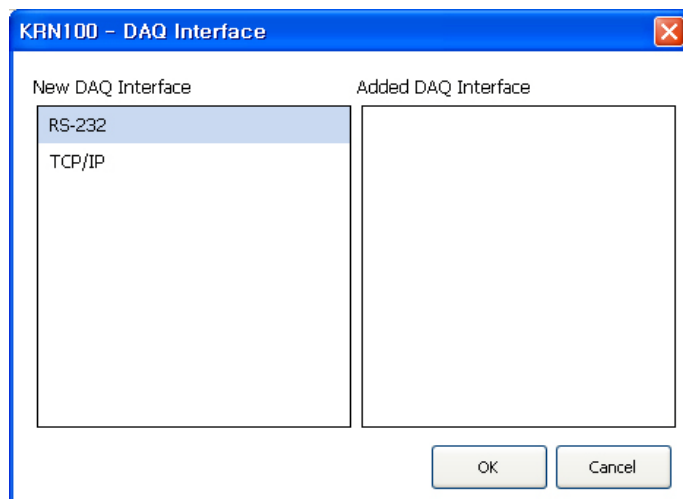
Double-click RS-232 or TCP/IP on the new DAQ interface, or select it and click OK.

(TK4 supports RS-232 communication and it displays only RS-232.)

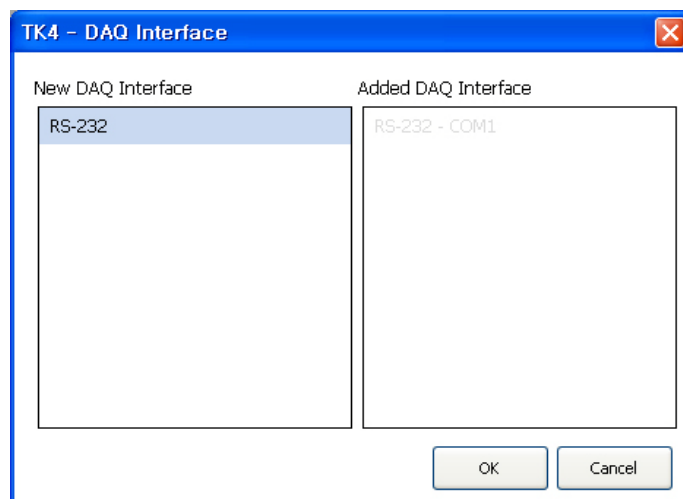
You can modify the configuration of the added RS 232 or TCP/IP in properties.



In case the model supporting TCP/IP, it displays TCP/IP.



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.

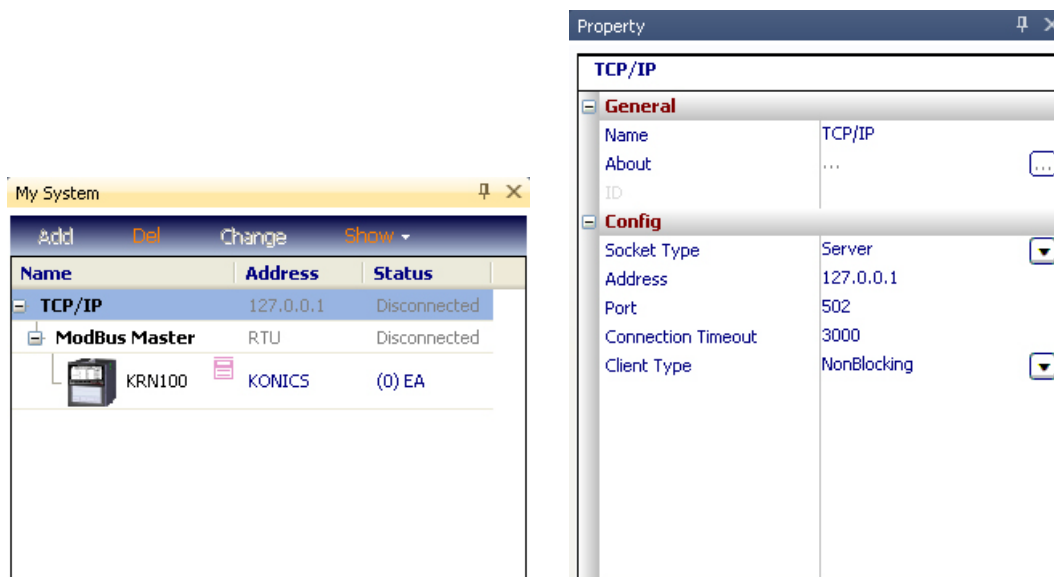
If you want to change the name in My System, modify Name in Property window.

The items are under Config.

Item		Description
Port List Detect	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 Detect	If the computer's port list (such as USB 232) has changed, this rearranges the list.
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
Parity		Allows communication parity selection. (none, odd, even, mark, space)
Stop Bits		Selects Stop Bits. (1, 1.5, 2)
Byte Size		Selects Byte Size. (5, 6, 7, 8)
Hw		None, RTS/CTS
Sw		None, XON/XOFF
DTR		Disable, enable, toggle
RTS		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.



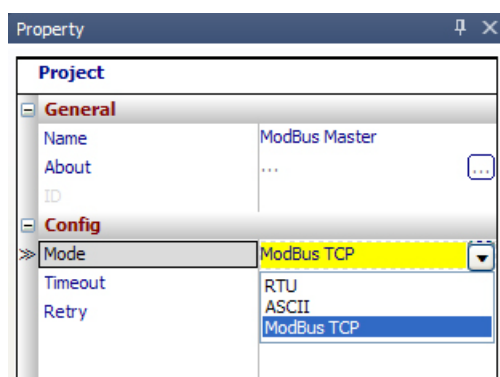
Property window displays information about the communication port currently in use.

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		Port
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.

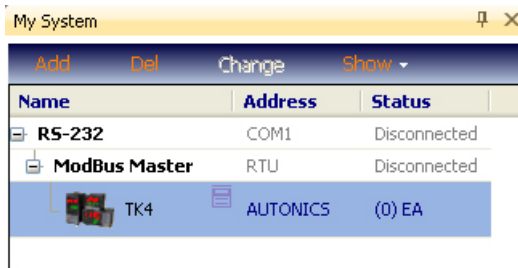
At ModBus Master property, set Mode of Config as ModBus TCP.



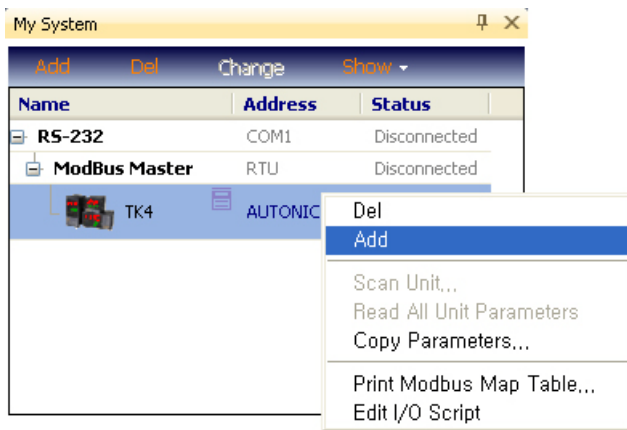
3.3 Adding a Unit to My System

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

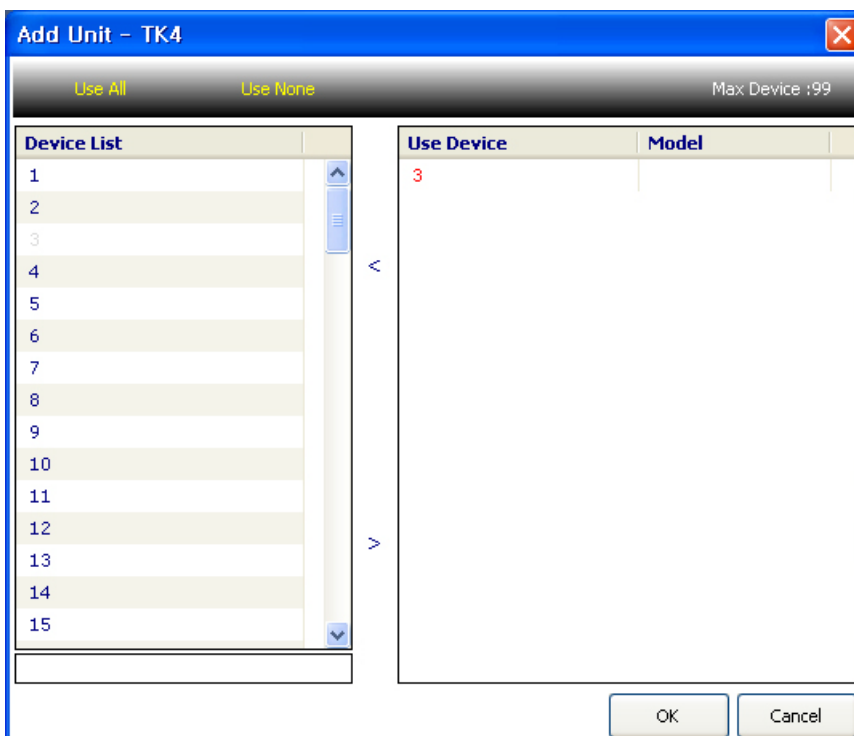
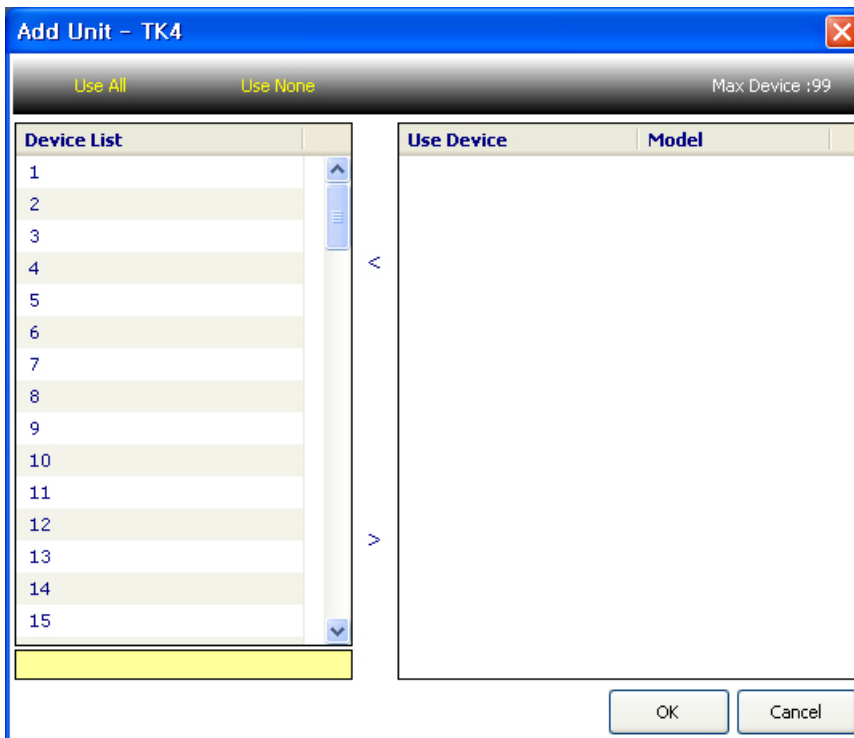
By selecting an item, you can set or modify it in Property window.



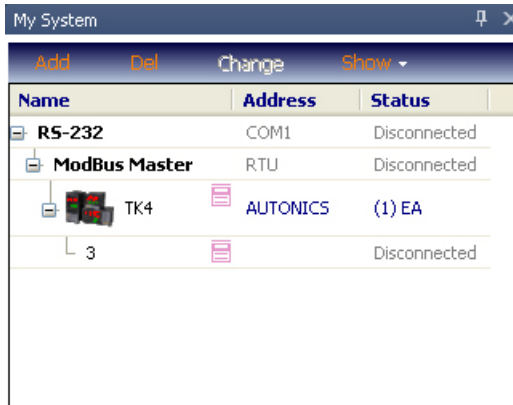
Selecting TK4 device enables Add button. To add a unit(address), click the Add button on the tab or right-click on mouse to select Add.



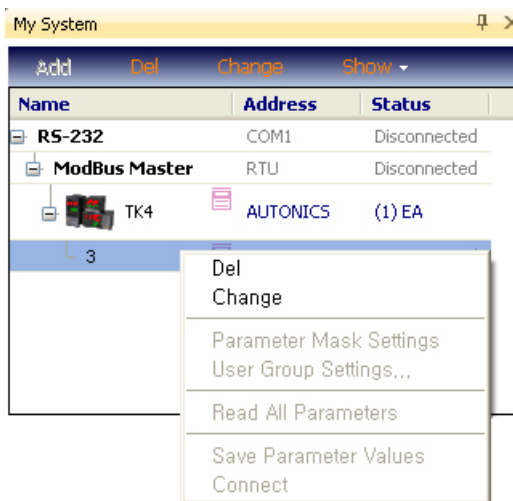
Select address (number 3) set to TK4 device. Double-click or use '>' button to add, then click OK button.



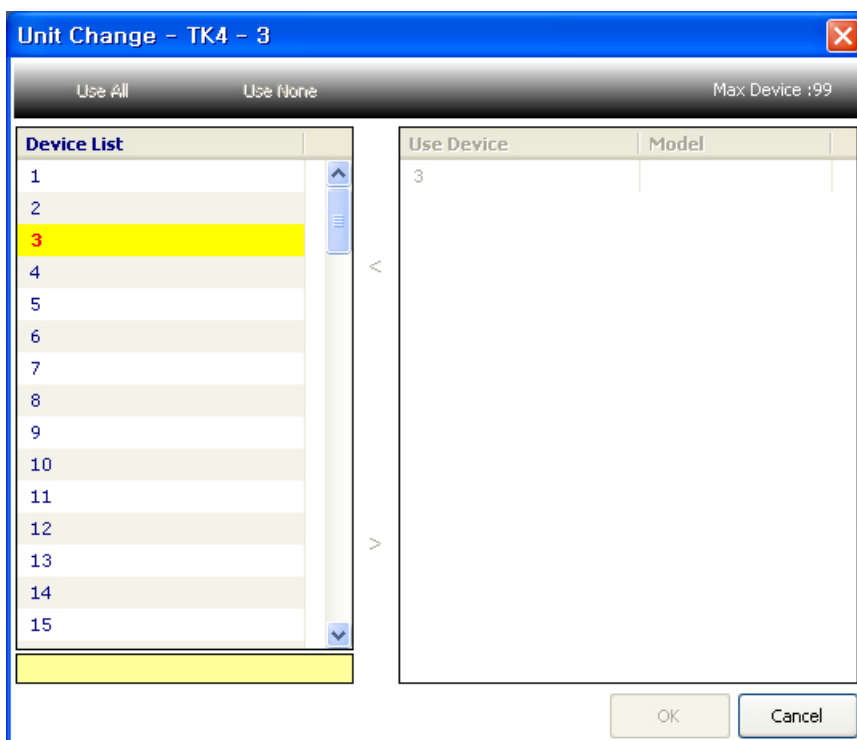
You will see the unit (address: 3) added under the device in My System. If you want add more than one of the same type of device, click Add button. (Up to 99 devices can be added.)



Selecting the unit address (3) 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 (3) highlights in yellow. Select a new address and click OK to change the unit address.

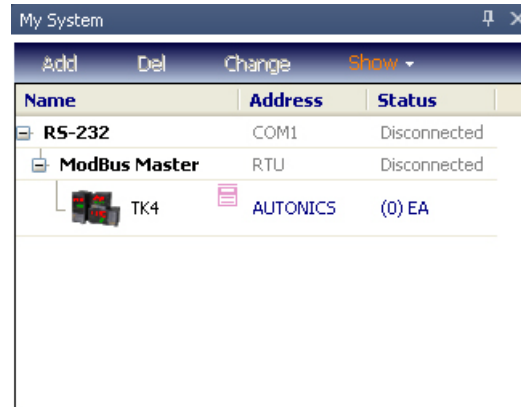
**Note**

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

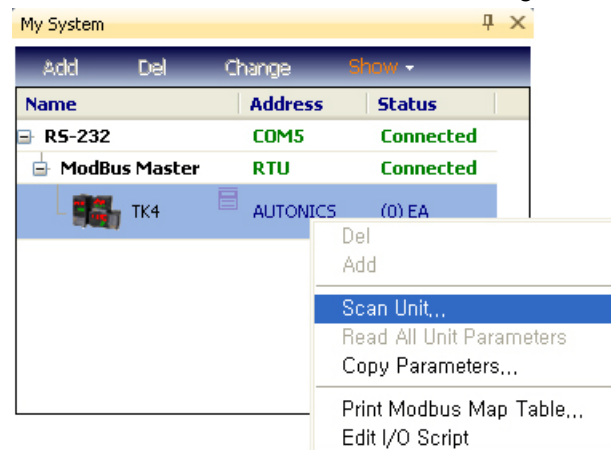
3.4 Scan Unit

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

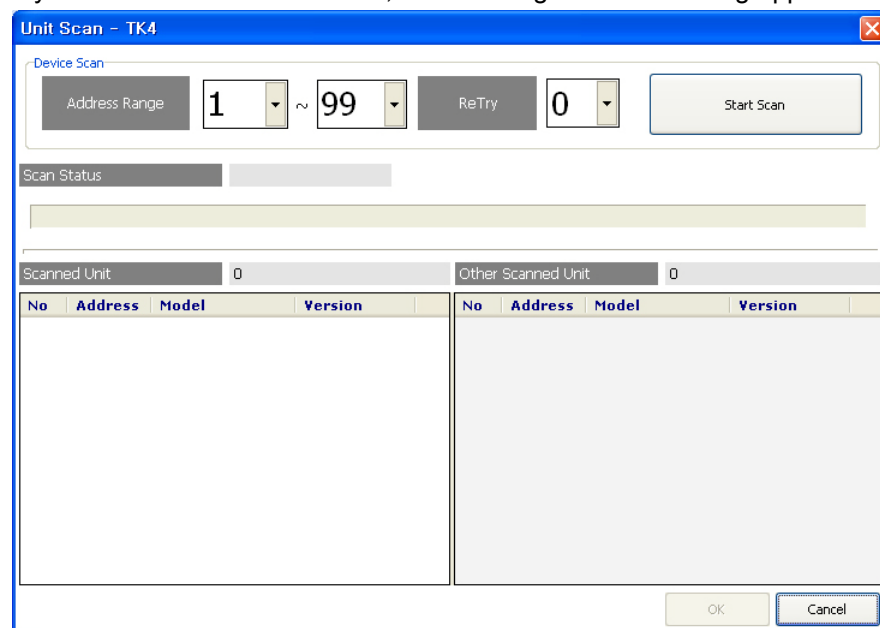
1st Add TK4 device and configure RS-232 environment as below. And then connect.



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



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



4th Set an address range to scan and click Scan Start button to automatically scan units.

Scanned units are listed on the left side. Other searched units are listed on the right side.

The 'Unit Scan - TK4' dialog box contains the following elements:

- Device Scan:** Includes an 'Address Range' section with dropdowns for '1' and '10' separated by a tilde (~), a 'ReTry' dropdown set to '0', and a 'Stop Scan' button.
- Scan Status:** A progress bar and a status indicator showing '3'.
- Scanned Unit:** A counter showing '1' and a table with the following data:

No	Address	Model	Version
☒ 1		TK 4S 14RR	SW:10, HW:10
- Other Scanned Unit:** A counter showing '0' and an empty table.
- Buttons:** 'OK' and 'Cancel' buttons at the bottom right.

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

The 'My System' window displays a table of connected units:

Name	Address	Status
RS-232	COM5	Connected
ModBus Master	RTU	Connected
TK4	AUTONICS	(1) EA
1	TK 4S 14RR	Connected

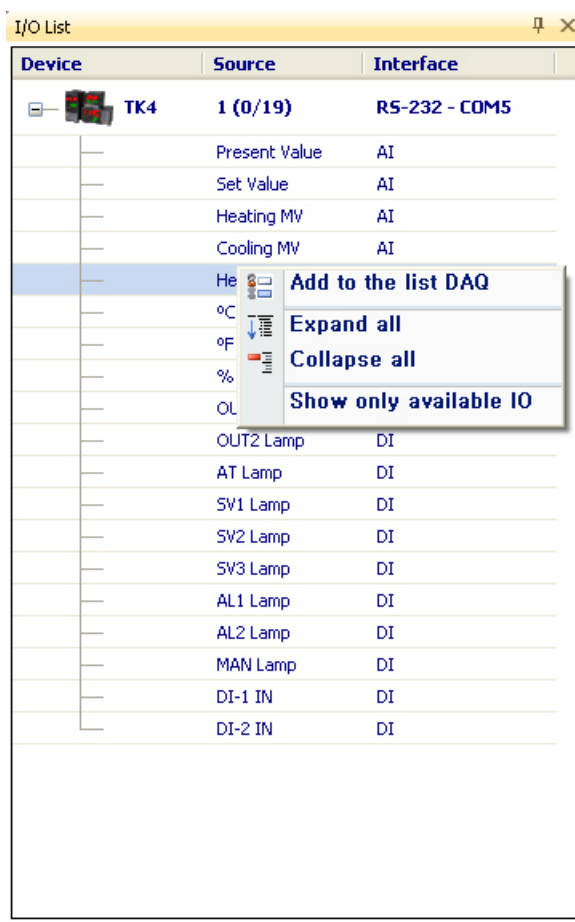
3.5 Adding an I/O to the I/O List

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.

I/O List		
Device	Source	Interface
 TK4	1 (7/19)	RS-232 - COM5
	Present Value	AI
	Set Value	AI
	Heating MV	AI
	Cooling MV	AI
	Heater Current ...	AI
	°C Lamp	DI
	°F Lamp	DI
	% Lamp	DI
	OUT1 Lamp	DI
	OUT2 Lamp	DI
	AT Lamp	DI
	SV1 Lamp	DI
	SV2 Lamp	DI
	SV3 Lamp	DI
	AL1 Lamp	DI
	AL2 Lamp	DI
	MAN Lamp	DI
	DI-1 IN	DI
	DI-2 IN	DI

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.

Type		Num							
All		11							
Group									
AI		5							
AO		0							
DI		6							
DO		0							
VIDEO		0							

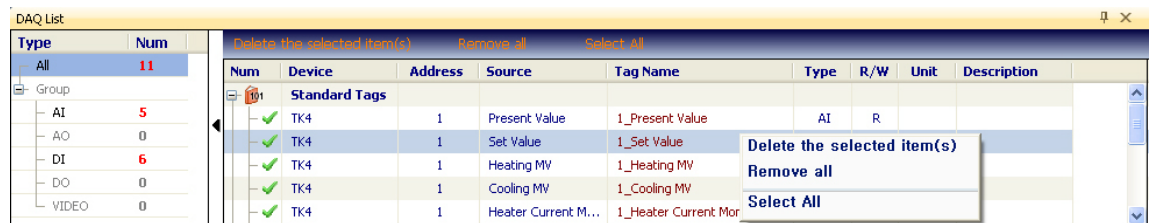
DAQ List									
Delete the selected item(s) Remove all Select All									
Num	Device	Address	Source	Tag Name	Type	R/W	Unit	Description	
Standard Tags									
✓	TK4	1	Present Value	1_Present Value	AI	R			
✓	TK4	1	Set Value	1_Set Value	AI	R			
✓	TK4	1	Heating MV	1_Heating MV	AI	R	%		
✓	TK4	1	Cooling MV	1_Cooling MV	AI	R	%		
✓	TK4	1	Heater Current M...	1_Heater Current Monitoring	AI	R	A		



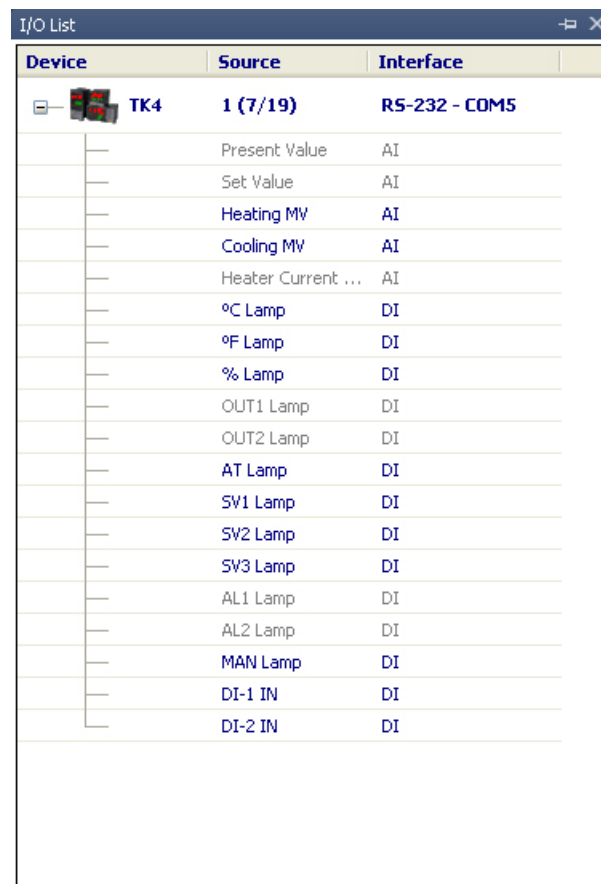
Note

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.



3.6 DAQ List

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

Type		Num	Delete the selected item(s) Remove all Select all						
All		11							
Group									
AI		5							
AO		0							
DI		6							
DO		0							
VIDEO		0							

Num	Device	Address	Source	Tag Name	Type	R/W	Unit	Description
Standard Tags								
✓	TK4	1	Present Value	1_Present Value	AI	R		
✓	TK4	1	Set Value	1_Set Value	AI	R		
✓	TK4	1	Heating MV	1_Heating MV	AI	R	%	
✓	TK4	1	Cooling MV	1_Cooling MV	AI	R	%	
✓	TK4	1	Heater Current M...	1_Heater Current Monitoring	AI	R	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.

Property	
TK4 >> 1 >> Heating MV	
General	
Device	TK4
Address	1
Source	Heating MV
Tag Name	1_Heating MV
Decimal Point	0
Unit	%
Description	

- 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.
- Description: Allows you to enter the description. (Read/write mode)

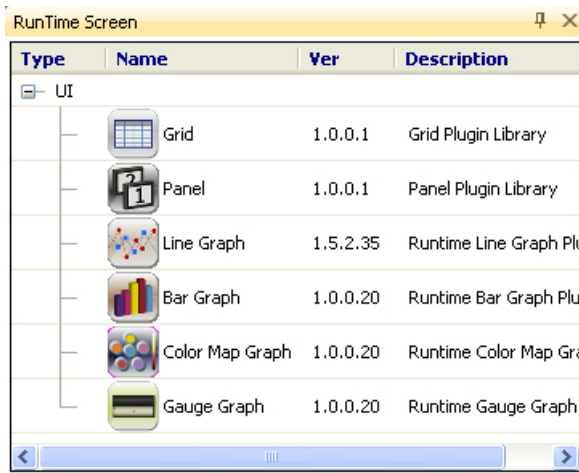


Note

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

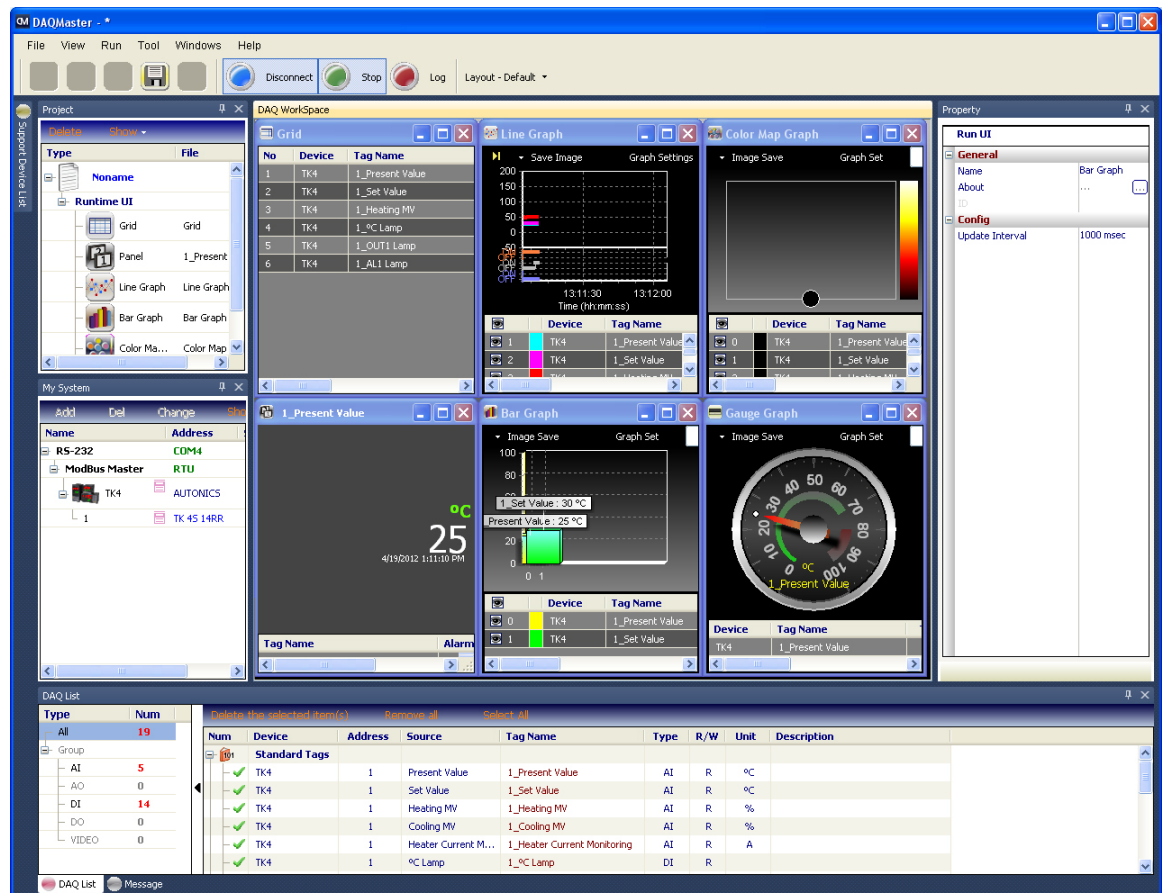
3.7 Adding from DAQ List to Runtime Screen Library

Runtime screens monitor data and support 4 types of screen, Grid, Panel, Line Graph, Bar Graph, Color Map Graph, and Gauge Graph. 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, Panel, Line Graph, Bar Graph, Color Map Graph, Gauge Graph are applied.)



3.7.1 Grid

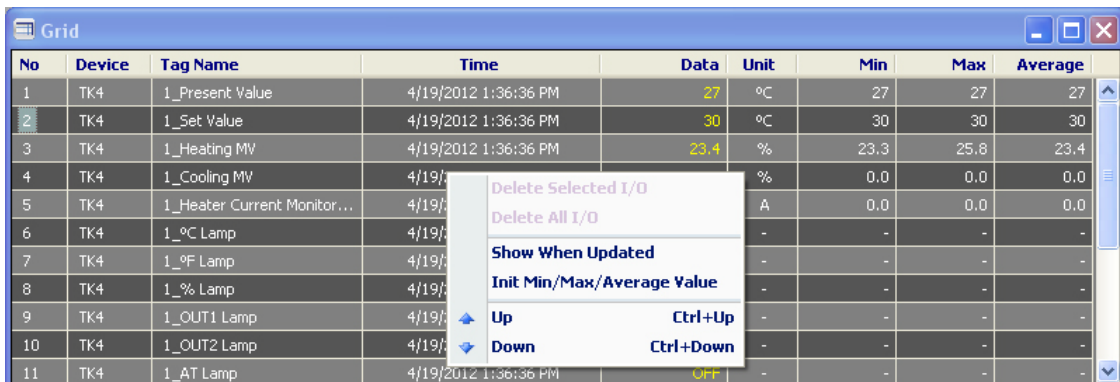
Grid displays multiple I/O source data as text for monitoring.

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



No	Device	Tag Name	Time	Data	Unit	Min	Max	Average
1	TK4	1_Present Value	4/19/2012 1:36:00 PM	27	°C	27	27	27
2	TK4	1_Set Value	4/19/2012 1:36:00 PM	30	°C	30	30	30
3	TK4	1_Heating MV	4/19/2012 1:36:00 PM	24.2	%	23.3	24.2	23.8
4	TK4	1_Cooling MV	4/19/2012 1:36:00 PM	0.0	%	0.0	0.0	0.0
5	TK4	1_Heater Current Monitor...	4/19/2012 1:36:00 PM	0.0	A	0.0	0.0	0.0
6	TK4	1_°C Lamp	4/19/2012 1:36:00 PM	ON	-	-	-	-
7	TK4	1_°F Lamp	4/19/2012 1:36:00 PM	OFF	-	-	-	-
8	TK4	1_% Lamp	4/19/2012 1:36:00 PM	OFF	-	-	-	-
9	TK4	1_OUT1 Lamp	4/19/2012 1:36:00 PM	OFF	-	-	-	-
10	TK4	1_OUT2 Lamp	4/19/2012 1:36:00 PM	OFF	-	-	-	-
11	TK4	1_AT Lamp	4/19/2012 1:36:00 PM	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.



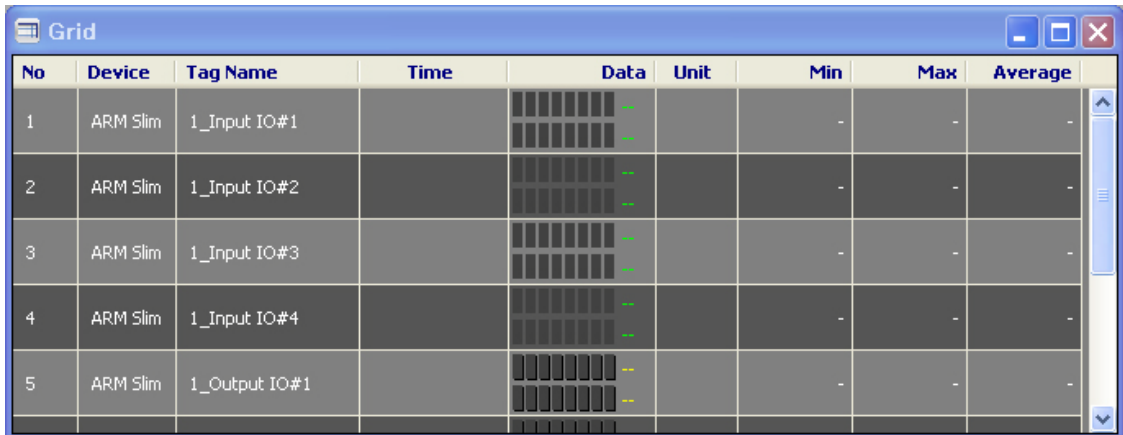
No	Device	Tag Name	Time	Data	Unit	Min	Max	Average
1	TK4	1_Present Value	4/19/2012 1:36:36 PM	27	°C	27	27	27
2	TK4	1_Set Value	4/19/2012 1:36:36 PM	30	°C	30	30	30
3	TK4	1_Heating MV	4/19/2012 1:36:36 PM	23.4	%	23.3	25.8	23.4
4	TK4	1_Cooling MV	4/19/2012 1:36:36 PM	0.0	%	0.0	0.0	0.0
5	TK4	1_Heater Current Monitor...	4/19/2012 1:36:36 PM	0.0	A	0.0	0.0	0.0
6	TK4	1_°C Lamp	4/19/2012 1:36:36 PM	ON	-	-	-	-
7	TK4	1_°F Lamp	4/19/2012 1:36:36 PM	OFF	-	-	-	-
8	TK4	1_% Lamp	4/19/2012 1:36:36 PM	OFF	-	-	-	-
9	TK4	1_OUT1 Lamp	4/19/2012 1:36:36 PM	OFF	-	-	-	-
10	TK4	1_OUT2 Lamp	4/19/2012 1:36:36 PM	OFF	-	-	-	-
11	TK4	1_AT Lamp	4/19/2012 1:36:36 PM	OFF	-	-	-	-

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	TK4	1_Heating MV	4/19/2012 1:37:53 PM	30.0	%	30.0	30.0	30.0
2	TK4	1_Cooling MV	4/19/2012 1:37:53 PM	0.0	%	0.0	0.0	0.0
3	TK4	1_Set Value	4/19/2012 1:37:53 PM	0	°C	0	0	0
4	TK4	1_Heater Current Monitor...	4/19/2012 1:37:53 PM	OPEN	A	-	-	-
5	TK4	1_Present Value	4/19/2012 1:37:53 PM	0	°C	0	0	0
6	TK4	1_°C Lamp	4/19/2012 1:37:53 PM	ON	-	-	-	-
7	TK4	1_°F Lamp	4/19/2012 1:37:53 PM	OFF	-	-	-	-
8	TK4	1_% Lamp	4/19/2012 1:37:53 PM	OFF	-	-	-	-
9	TK4	1_OUT1 Lamp	4/19/2012 1:37:53 PM	OFF	-	-	-	-
10	TK4	1_OUT2 Lamp	4/19/2012 1:37:53 PM	OFF	-	-	-	-
11	TK4	1_AT Lamp	4/19/2012 1:37:53 PM	OFF	-	-	-	-

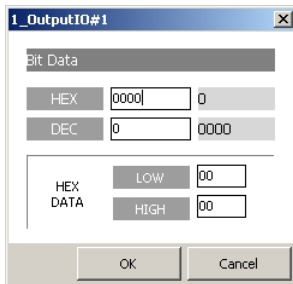
In case of ARM Series, when Input IO, Output IO is added, the output by bit is available.



The screenshot shows a window titled 'Grid' containing a table with the following columns: No, Device, Tag Name, Time, Data, Unit, Min, Max, and Average. The table lists five entries for an 'ARM Slim' device. The first four entries are for input IOs (1 to 4), and the fifth is for an output IO (1). The 'Data' column for the input IOs shows a series of green bars, while the output IO shows yellow bars. The 'Min', 'Max', and 'Average' columns all contain dashes.

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.

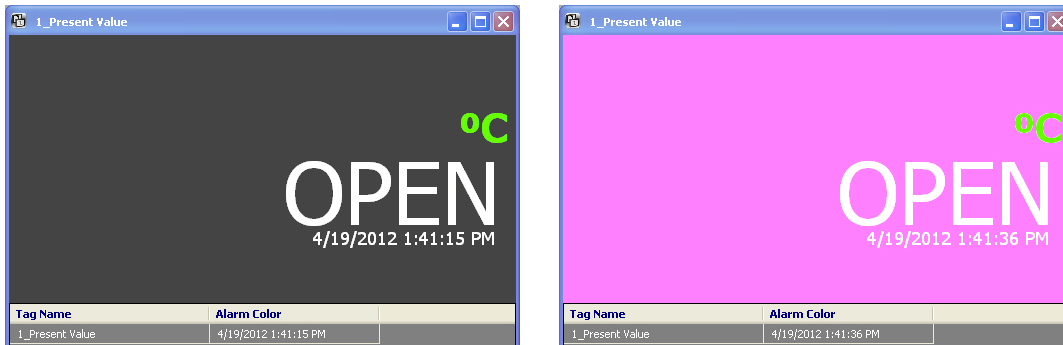


The screenshot shows a dialog box titled '1_OutputIO#1'. It contains a 'Bit Data' section with two rows: 'HEX' with a value of '0000' and 'DEC' with a value of '0'. Below this, there is a 'HEX DATA' section with two rows: 'LOW' with a value of '00' and 'HIGH' with a value of '00'. At the bottom are 'OK' and 'Cancel' buttons.

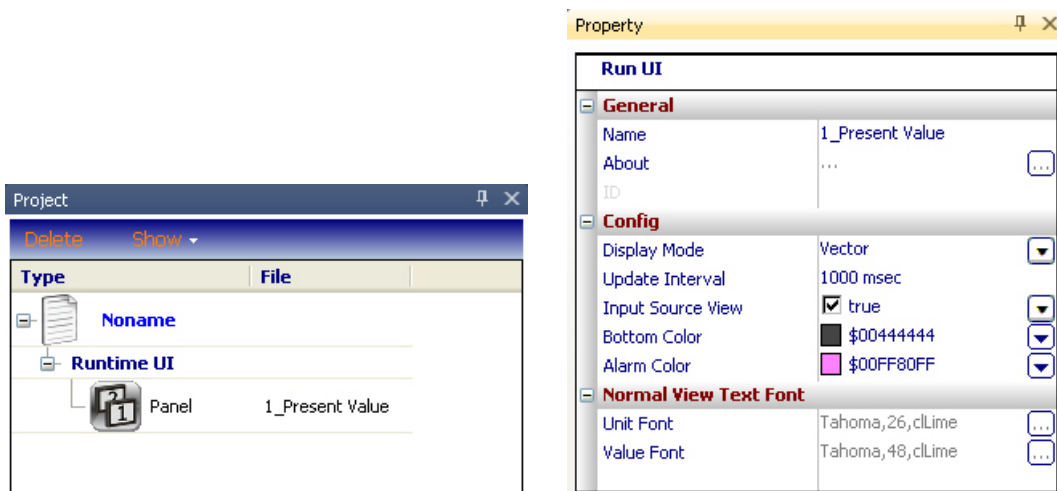
Bit Data
HEX 0000 0
DEC 0 0000
HEX DATA LOW 00
HEX DATA HIGH 00

3.7.2 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 below.

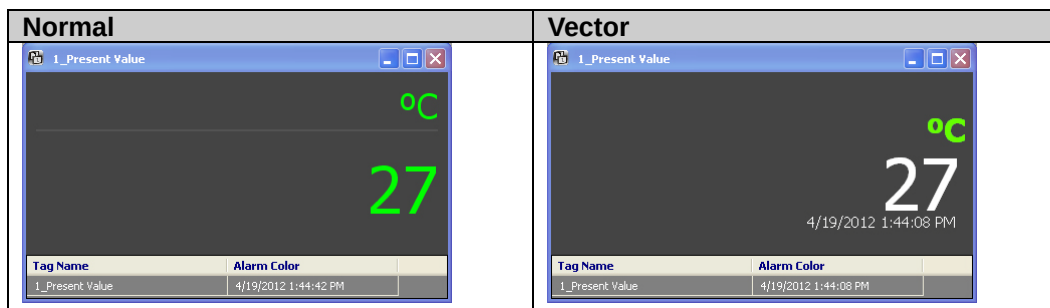


Select Panel on the runtime screen in the project window to modify properties (such as color) in the Property window.



Config section in the Property window contains the following items:

- Display Mode: You can select Normal or Vector.



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

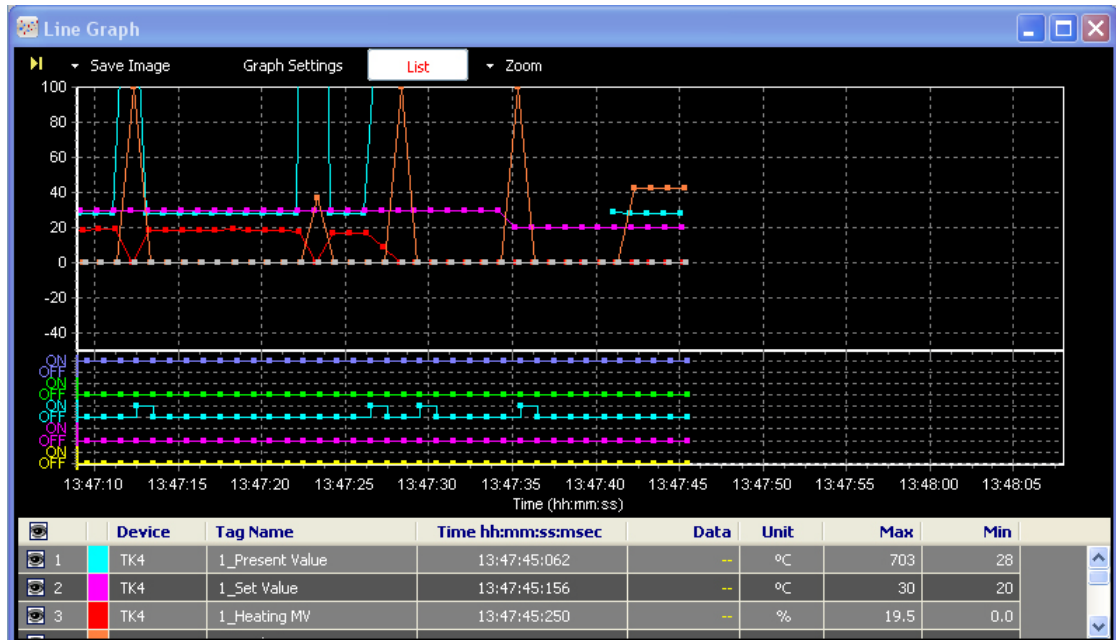
Normal View Text Font section in the Property window contains the following items:

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

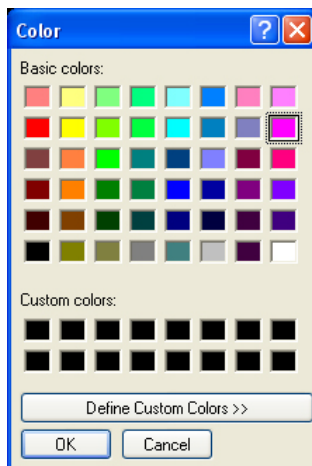
3.7.3 Line Graph

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.

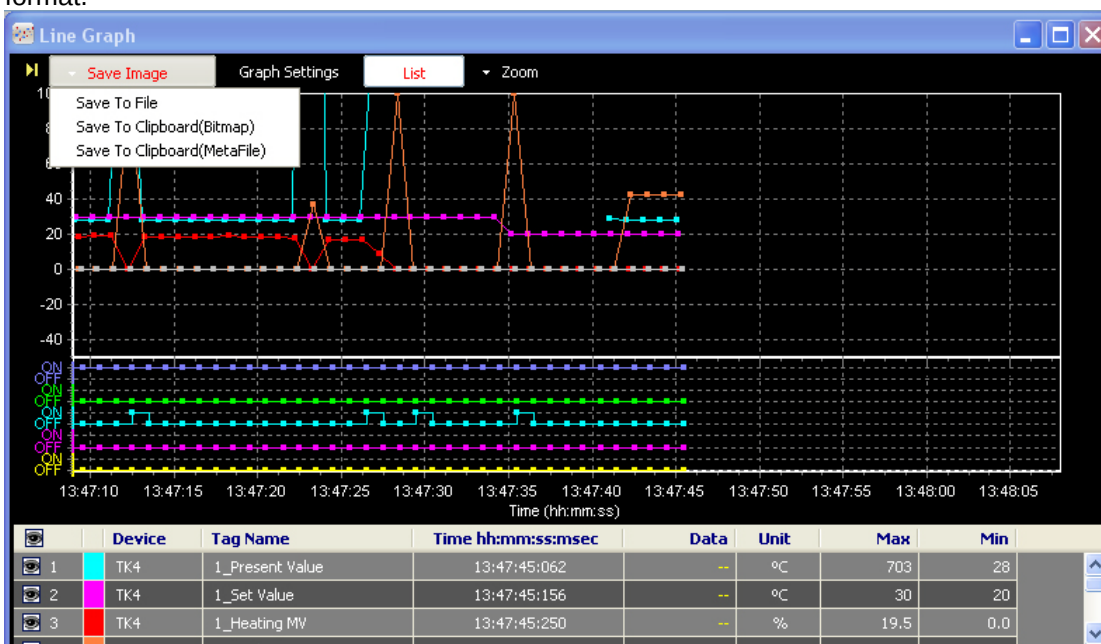


To change the color by each I/O source, double-click the color front of device.



(1) Save image

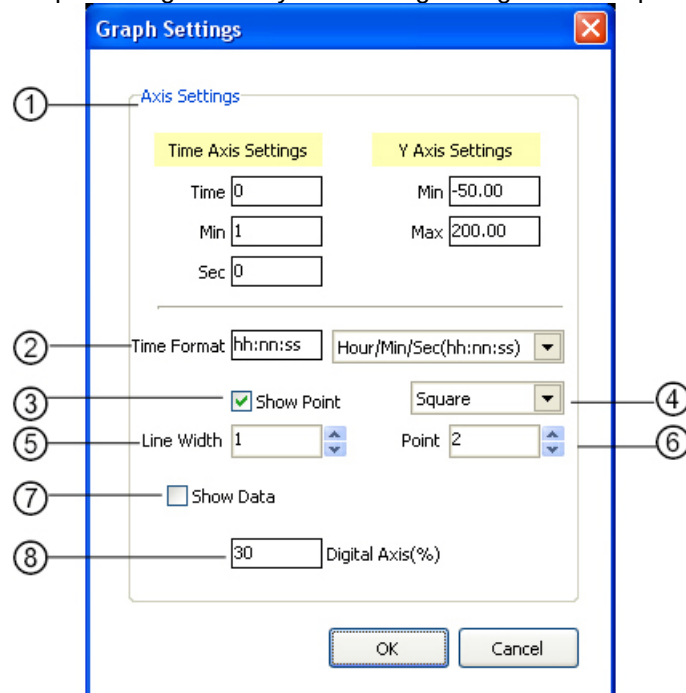
Save Image feature saves the current graph screen as an image. Save Image dialog appears when Save Image button is clicked. Images can be saved as '*.bmp', or '*.wmf' format.



- 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.

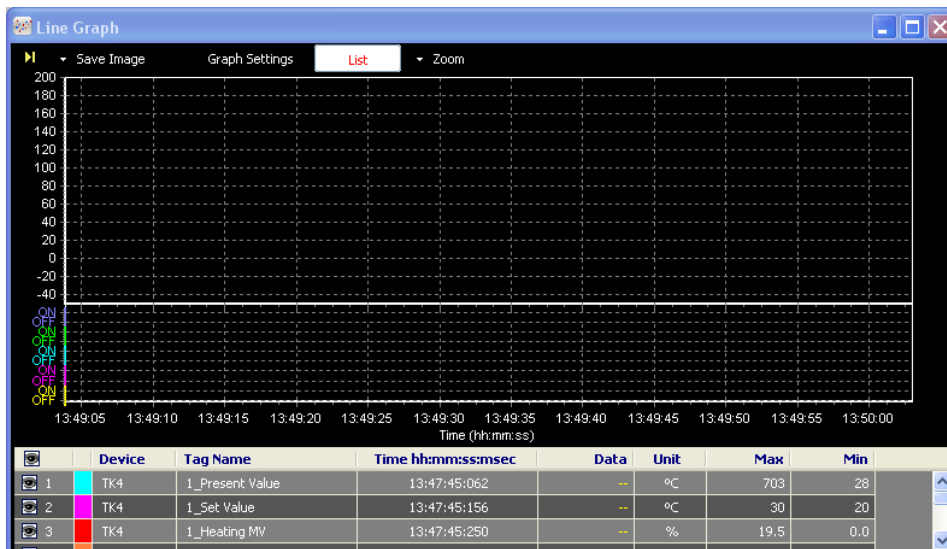


No	Item	Description
①	Axis Settings	- Time Axis Settings: sets time (Hours, Min and Sec). - Y Axis: sets the range of Min and Max values
②	Time Format	Sets time expression for the Time Axis (X Axis)
③	Show Point	Shows data when selected (hides data when not selected).
④	Point Type	Sets point type.
⑤	Line Width	Sets thickness of the graph line.
⑥	Point	Sets point size.
⑦	Show Data	Shows data value when selected (hides data value when not selected).
⑧	Digital Axis (%)	Sets digital axis as a percentage.

(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

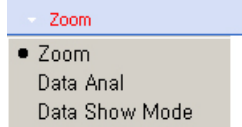


- List OFF



(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.

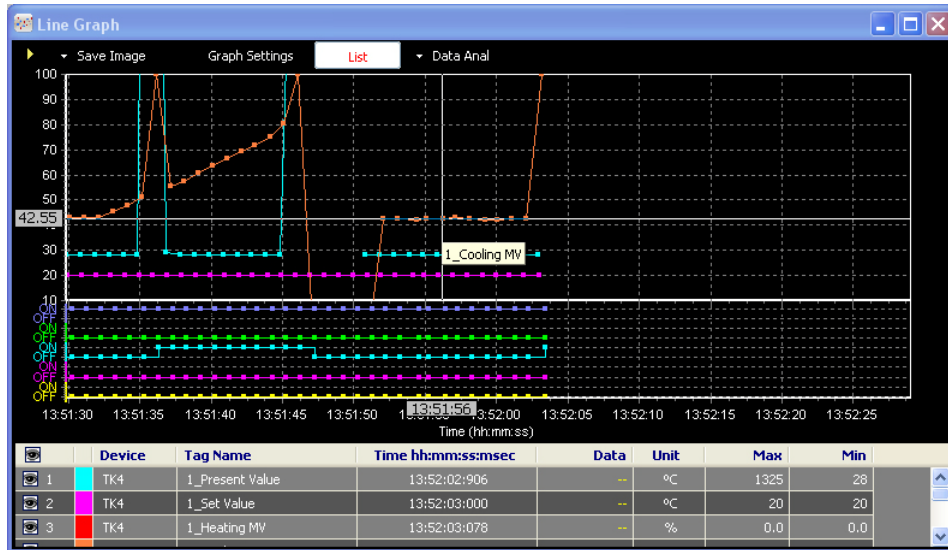
The program preserves user-changed graph scale and axes positions. It considers this as graph analysis mode.

- Mouse wheel functions

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.

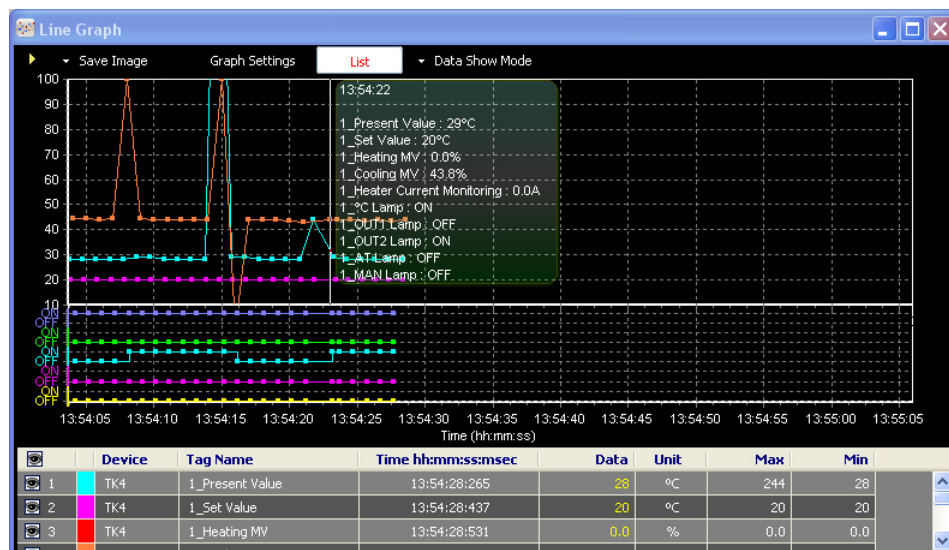
- Data analysis mode

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

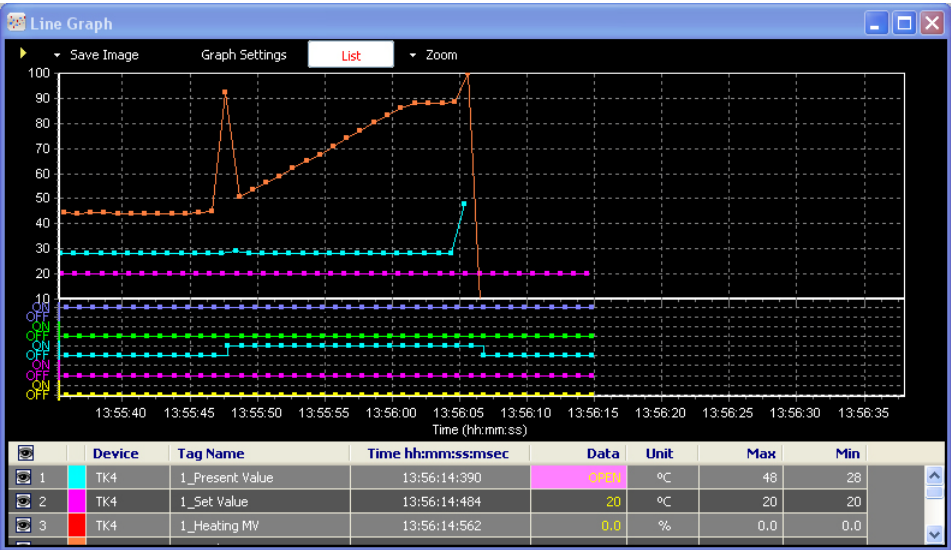


- Data Display

Displays all data values of the mouse position.



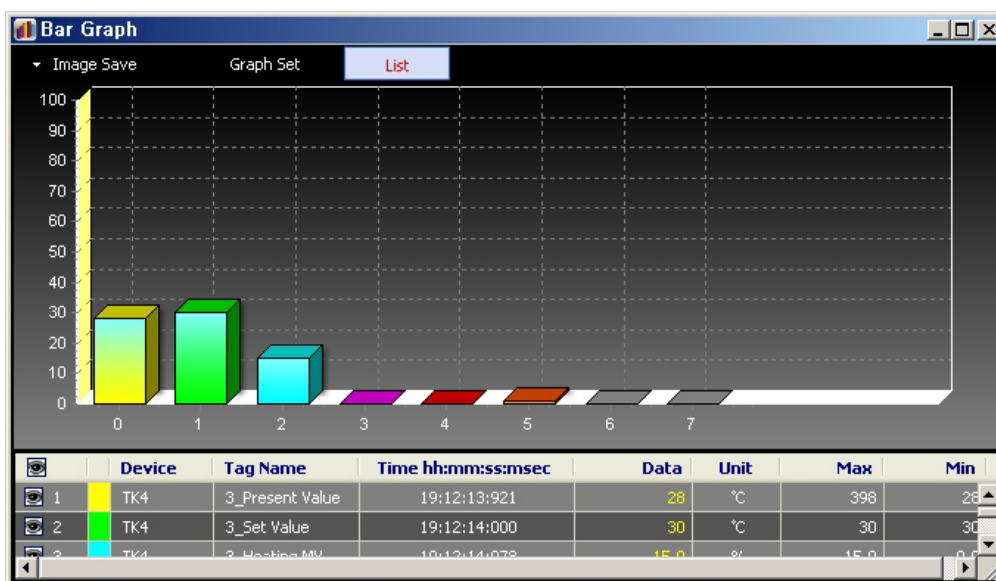
If any parameter value causes an alarm (see Device Specifications), it flashes as below.



3.7.4 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.

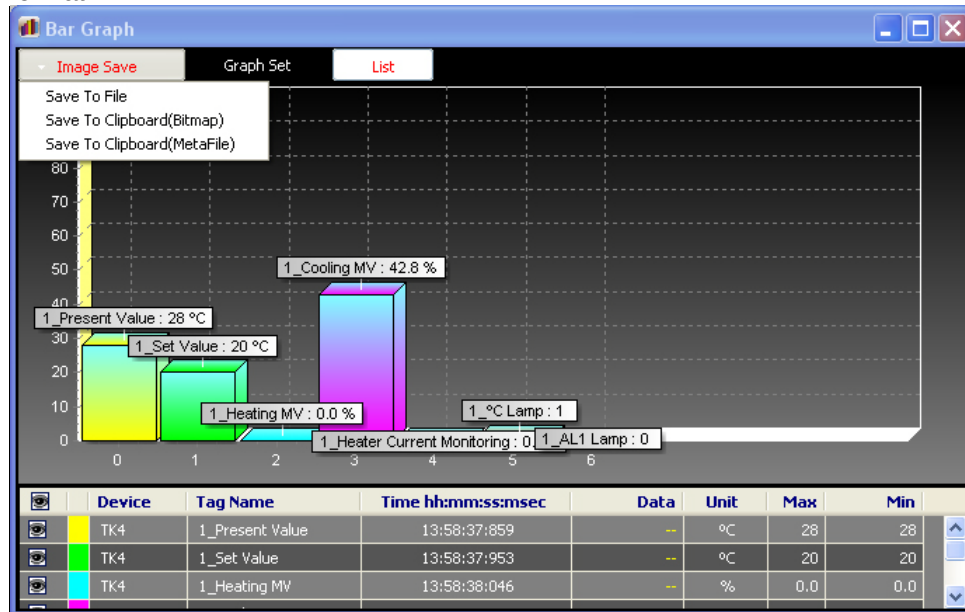


To change the color by each I/O source, double-click the color front of device.



(1) Save image

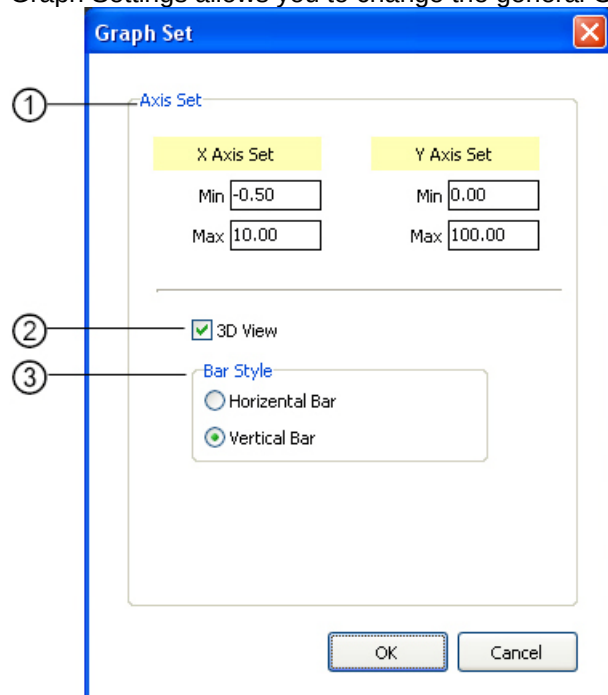
Save Image feature saves the current graph screen as an image. Save Image dialog appears when Save Image button is clicked. Images can be saved as '*.bmp', or '*.wmf' format.



- 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.

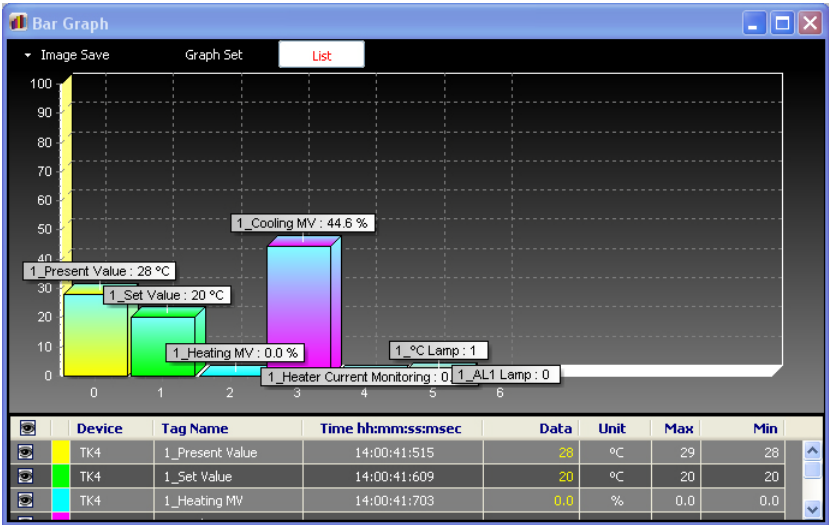


No	Item	Description
①	Axis Set	Sets the range of Min. and Max. values for the X/Y axis.
②	3D View	Sets the display status of the bar.
③	Bar Style	Sets the horizontal and vertical styles of the bar.

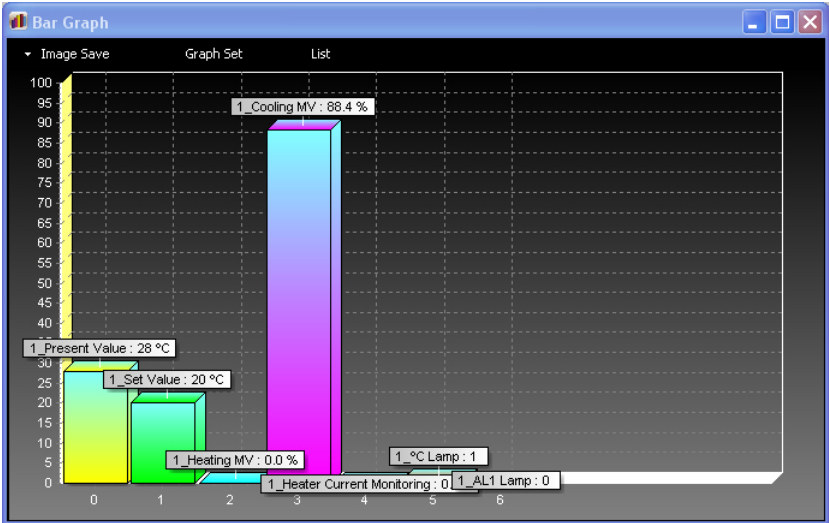
(3) List

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

- List ON



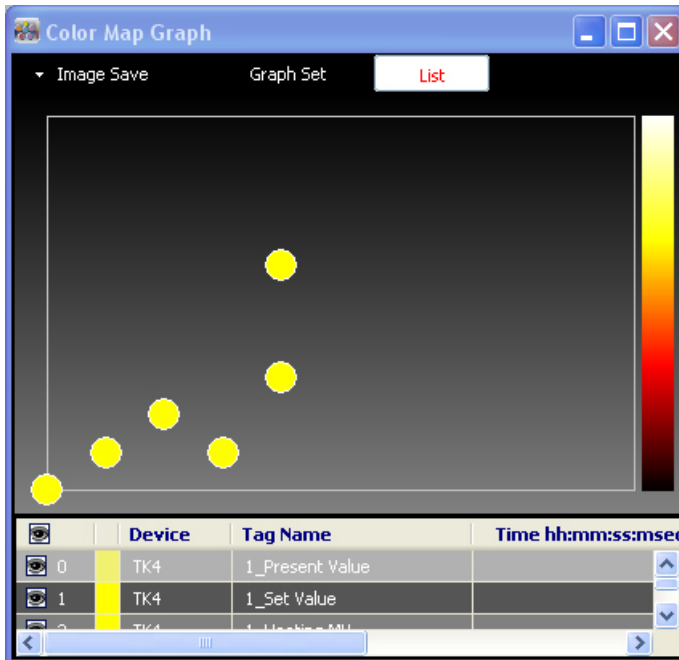
- List OFF



3.7.5 Color Map Graph

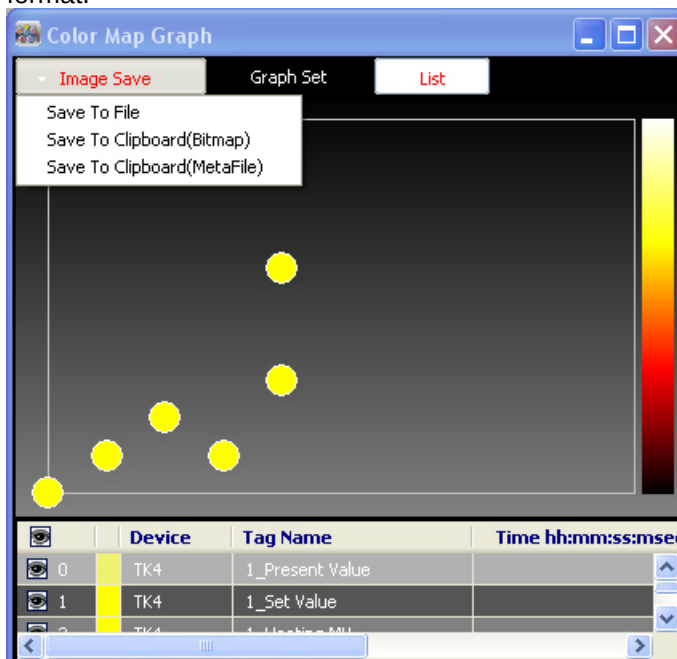
Color Map Graph displays multiple I/O source data as a graph for monitoring.

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

①

Graph Type

Normal

②

X Axis Set

Y Axis Set

Color Map

HOT

③

Circle Size

Circle Size

10

④

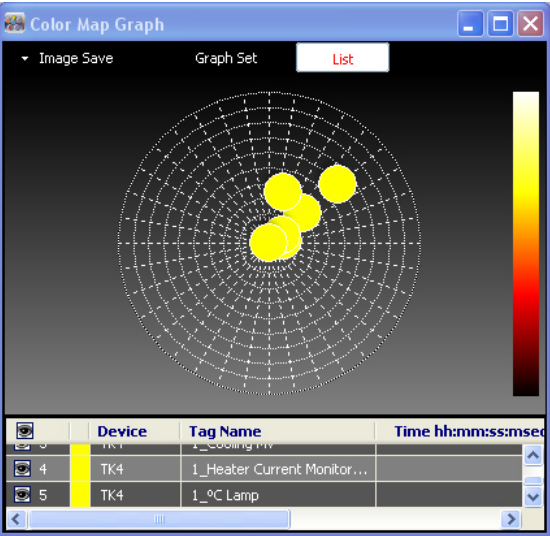
	Tag Name	X Pos	Y Pos	Min	Max
0	1_Present Value	10.00	10.00	-1999.00	9999.00
1	1_Set Value	20.00	20.00	0.00	1000.00
2	1_Heating MV	30.00	10.00	0.00	1000.00
3	1_Cooling MV	40.00	30.00	0.00	1000.00
4	1_Heater Current Monitoring	40.00	60.00	0.00	500.00
5	1_°C Lamp	0.00	0.00	0.00	0.00

⑤

OK

Cancel

No	Item	Description												
①	Graph Type	Normal Color Map Graph Image Save Graph Set List <table><tr><th></th><th>Device</th><th>Tag Name</th><th>Time hh:mm:ss:msec</th></tr><tr><td>4</td><td>TK4</td><td>1_Heater Current Monitor...</td><td></td></tr><tr><td>5</td><td>TK4</td><td>1_°C Lamp</td><td></td></tr></table>		Device	Tag Name	Time hh:mm:ss:msec	4	TK4	1_Heater Current Monitor...		5	TK4	1_°C Lamp	
	Device	Tag Name	Time hh:mm:ss:msec											
4	TK4	1_Heater Current Monitor...												
5	TK4	1_°C Lamp												

No	Item	Description
		Polar 
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.

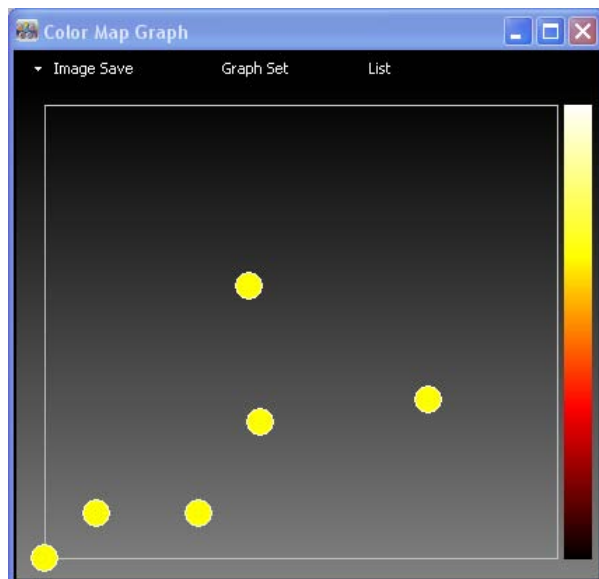
(3) List

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



3.7.6 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

1

Gauge Type

Circle Gauge

2

Minimum

0.00

3

Maximum

100.00

4

Label Interval

10.00

5

TagName Visible

TagName Color

Green Line Visible

Red Line Visible

Green Line Start

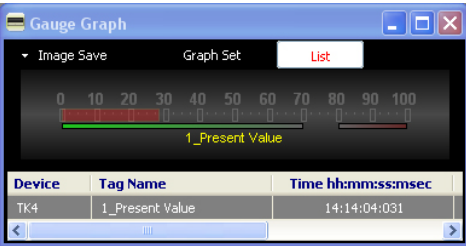
Green Line End

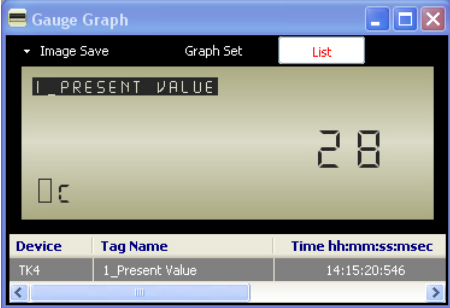
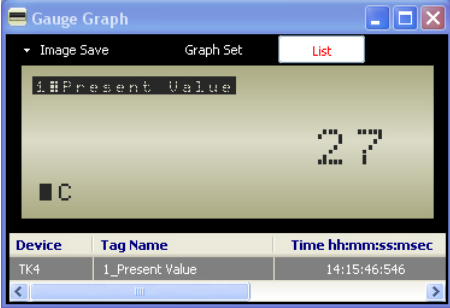
Red Line Start

Red Line End

OK

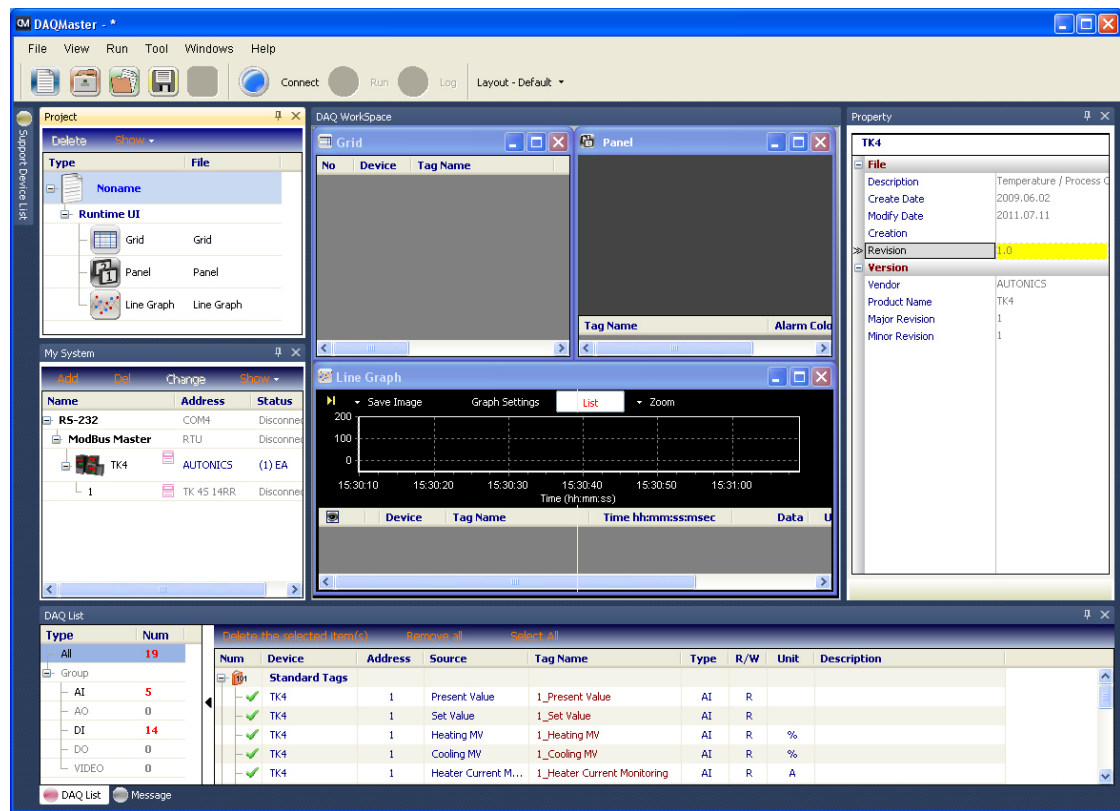
Cancel

No	Item	Description												
1	Gauge Type	Sets gauge graph type. - Circle Gauge Gauge Graph Image Save Graph Set List  <table><thead><tr><th>Device</th><th>Tag Name</th><th>Time hh:mm:ss:msec</th></tr></thead><tbody><tr><td>TK4</td><td>1_Present Value</td><td>14:10:03:015</td></tr></tbody></table> - Horizontal Liner Gauge Graph Image Save Graph Set List  <table><thead><tr><th>Device</th><th>Tag Name</th><th>Time hh:mm:ss:msec</th></tr></thead><tbody><tr><td>TK4</td><td>1_Present Value</td><td>14:14:04:031</td></tr></tbody></table>	Device	Tag Name	Time hh:mm:ss:msec	TK4	1_Present Value	14:10:03:015	Device	Tag Name	Time hh:mm:ss:msec	TK4	1_Present Value	14:14:04:031
Device	Tag Name	Time hh:mm:ss:msec												
TK4	1_Present Value	14:10:03:015												
Device	Tag Name	Time hh:mm:ss:msec												
TK4	1_Present Value	14:14:04:031												

No	Item	Description
		- Vertical Linear  - Numeric Gauge  - LED Gauge 
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.

3.8 Connection

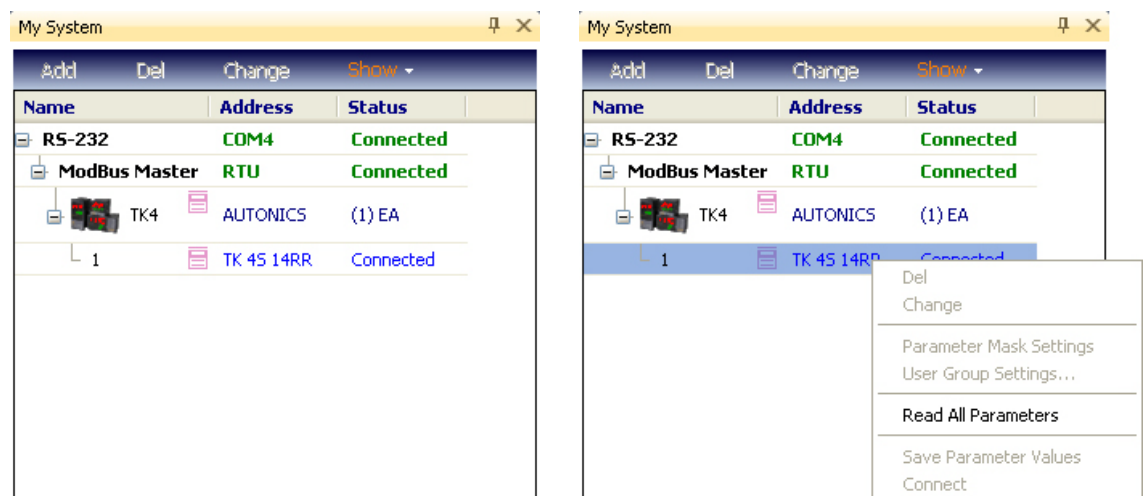
The screenshot below shows all necessary settings for complete connection with a device.



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.

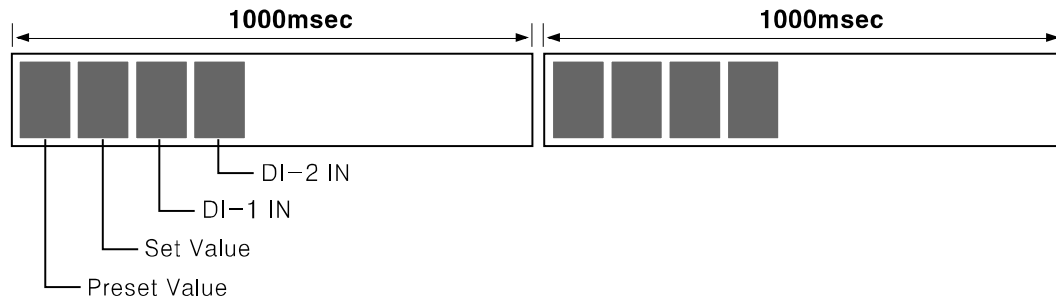


**Note**

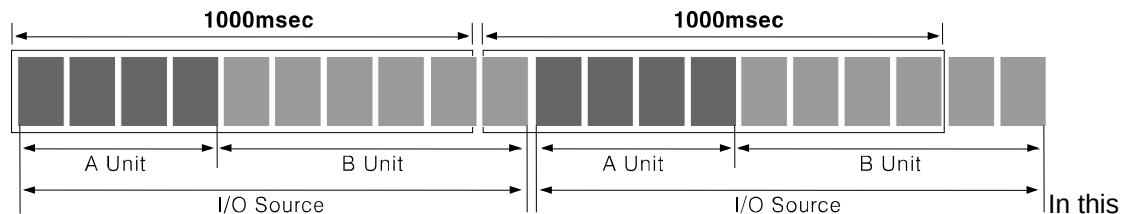
Setting a repeat reading for the unit

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.



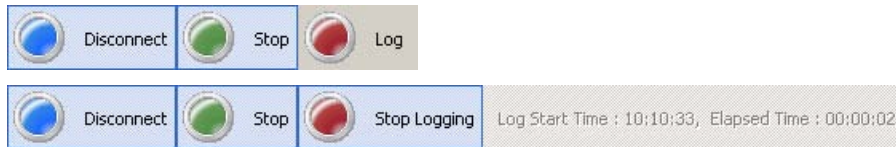
case, communication occurs at the minimum interval instead of the preset Repeat Interval.

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.

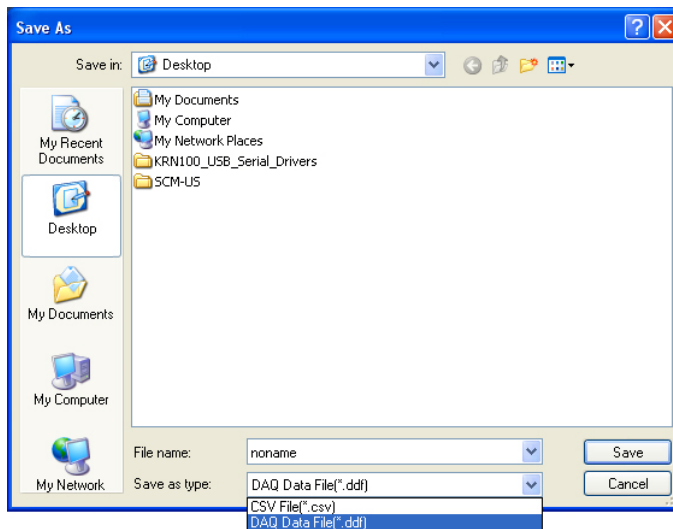
3.10 Logging

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

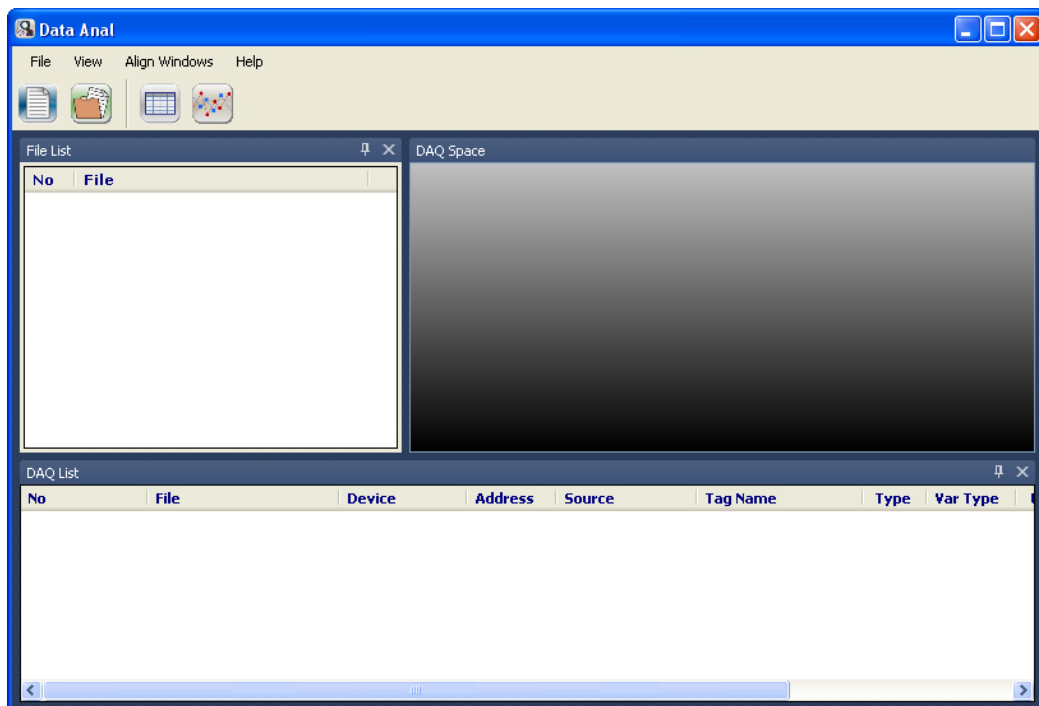


If you start logging, log start time and elapsed time display on the right side.

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 Tools > Data Anal in DAQMaster Program.

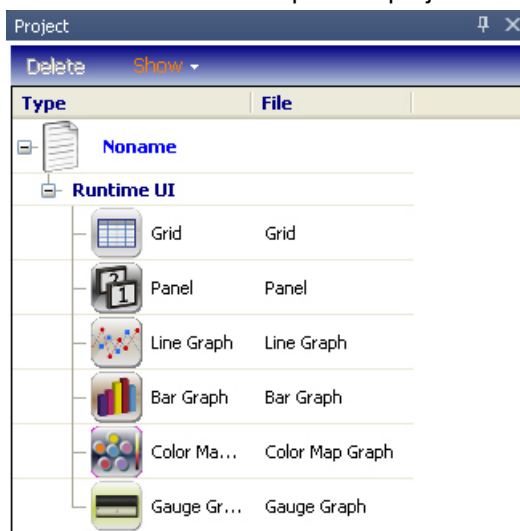


3.11 Saving Project

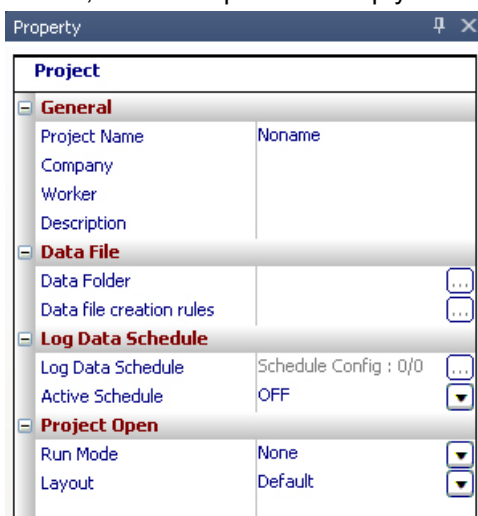
You can save the project you were monitoring.

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

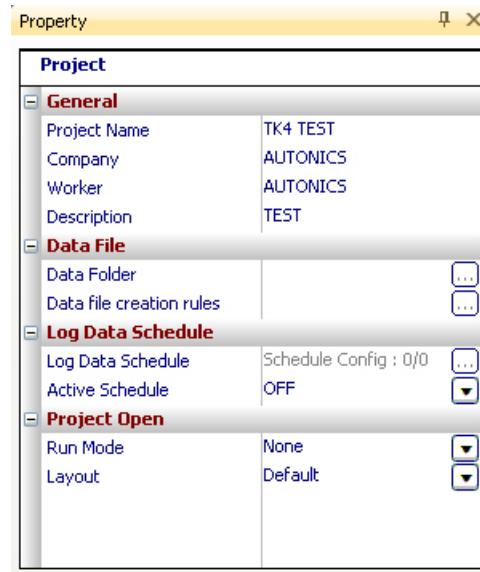
1st Select Noname at the top of the project tree.



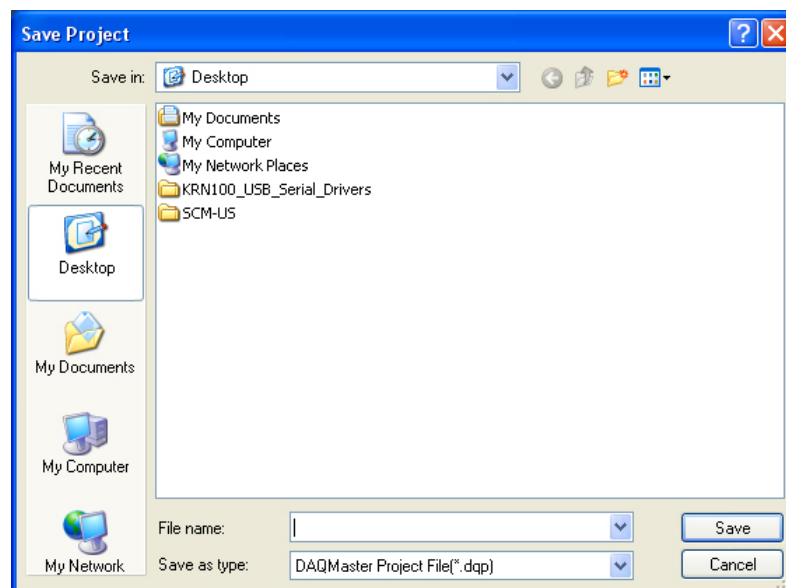
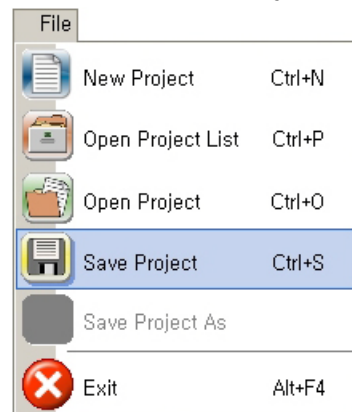
2nd In the Property window, the project name is marked as Noname. Company name, worker, and description are empty.



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



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



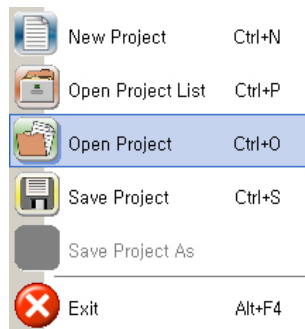
3.12 Opening a Project

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

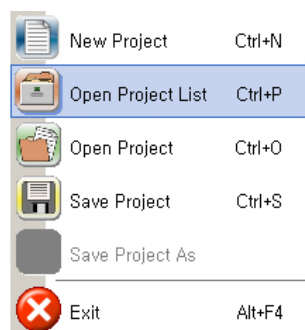
Directly selecting a project file is the most common way to open a project file.



3.12.2 Open Project List:

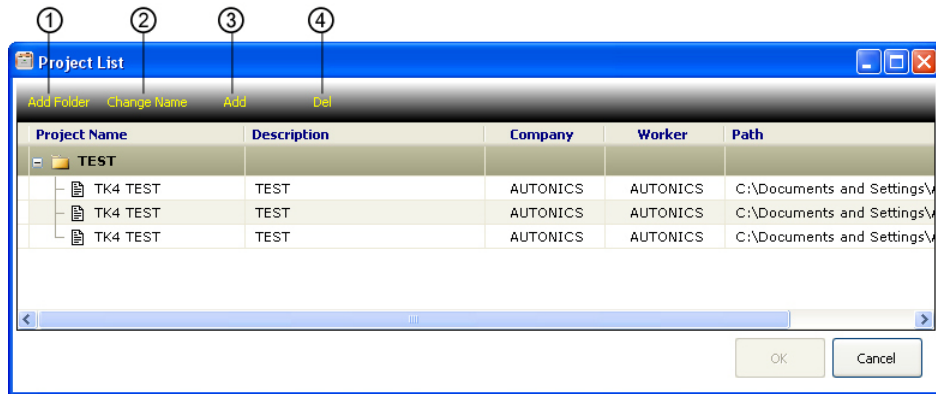
This method opens a file from a list of frequently used projects.

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.



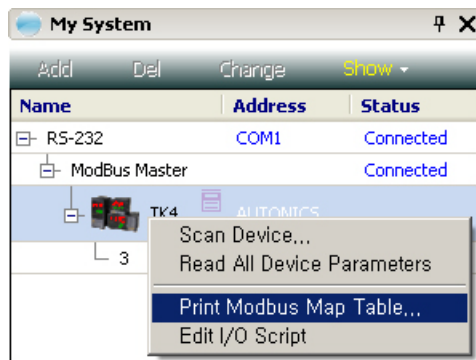
No	Item	Description
①	Add Folder	Adds a folder.
②	Change Name	Changes the name of folder.
③	Add	Adds a project file. When Add is selected, the Add Project List window is open.
④	Delete	Removes selected folder or file.

3.13 Modbus Map Table Report

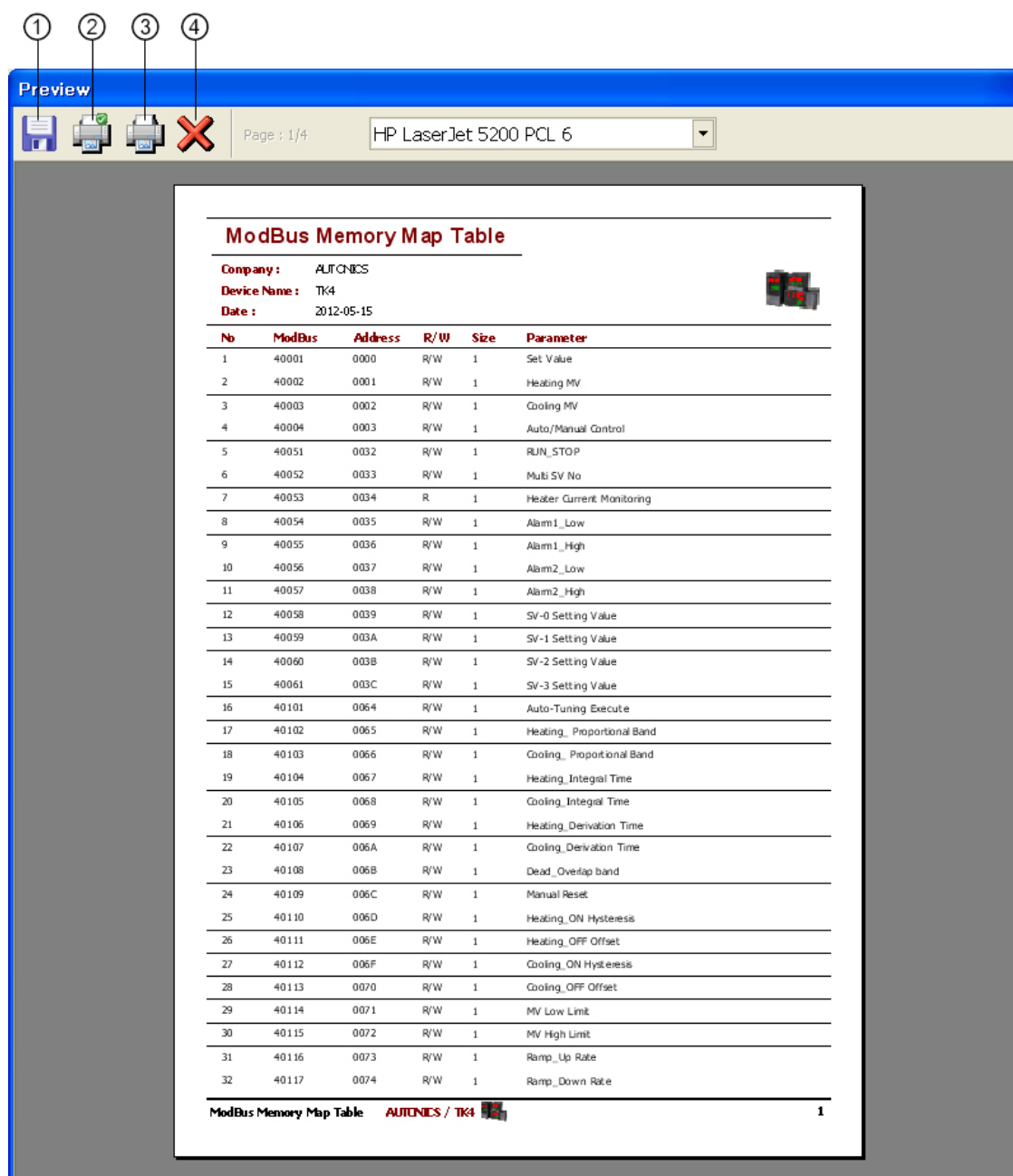
This feature outputs ModBus map table of a device, which uses ModBus communications as a report.

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.

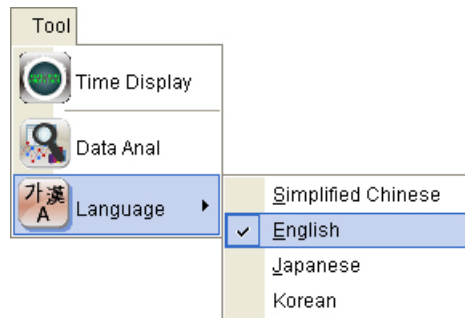


No	Item	Description
①	Save	Saves the ModBus map table report. Supports PDF File (*.pdf) and Html File (*.html) formats.
②	Printer Setup	Configures the printer environment for printing. Printer environment varies according to user's printer.
③	Print	Prints the ModBus map table.
④	Close	Closes the print preview window.

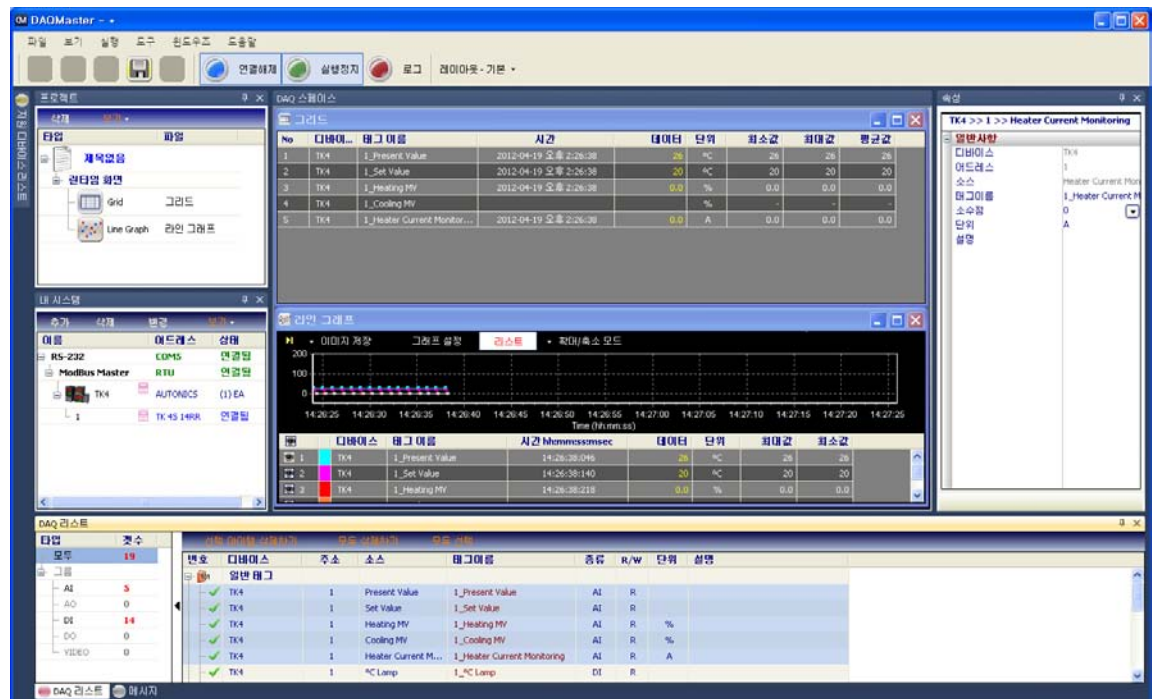
4 Changing Program Language

4.1 Change Language

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



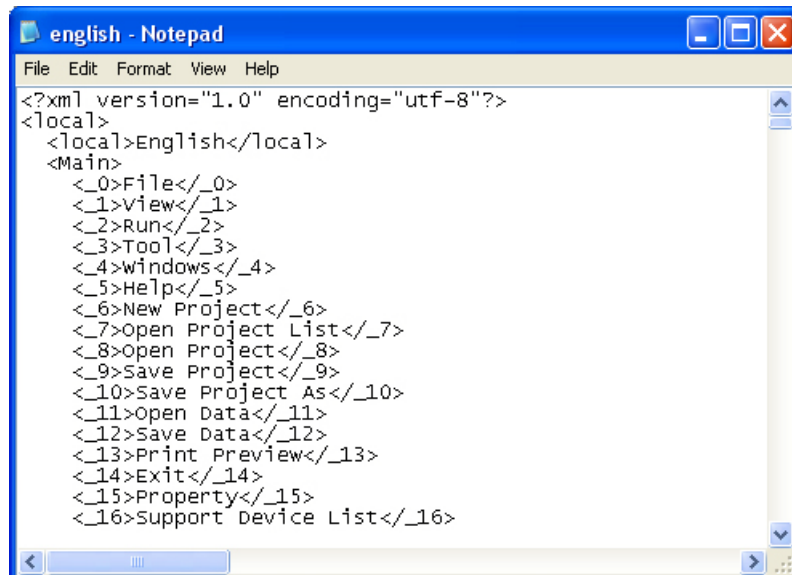
Select Tools > Language > from the main menu. It is applied immediately and changes to the selected language.



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.

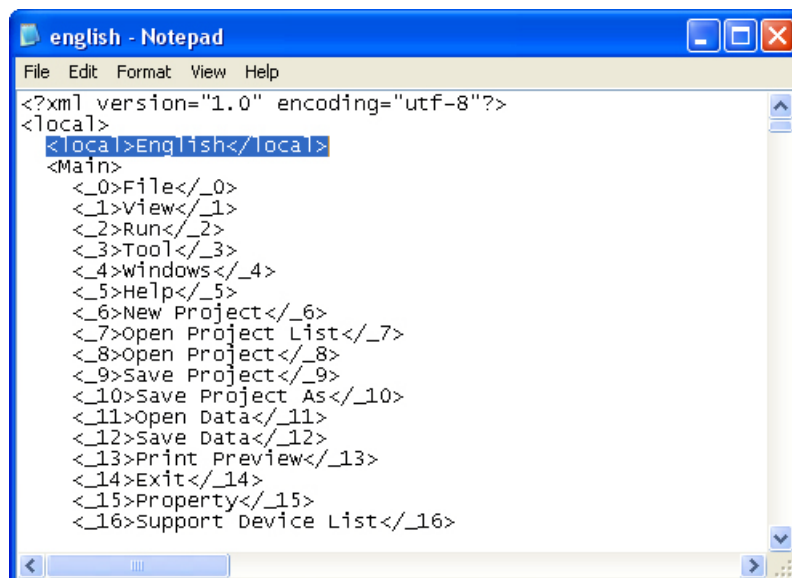
To modify language, open the file in Notepad as below, modify and save.



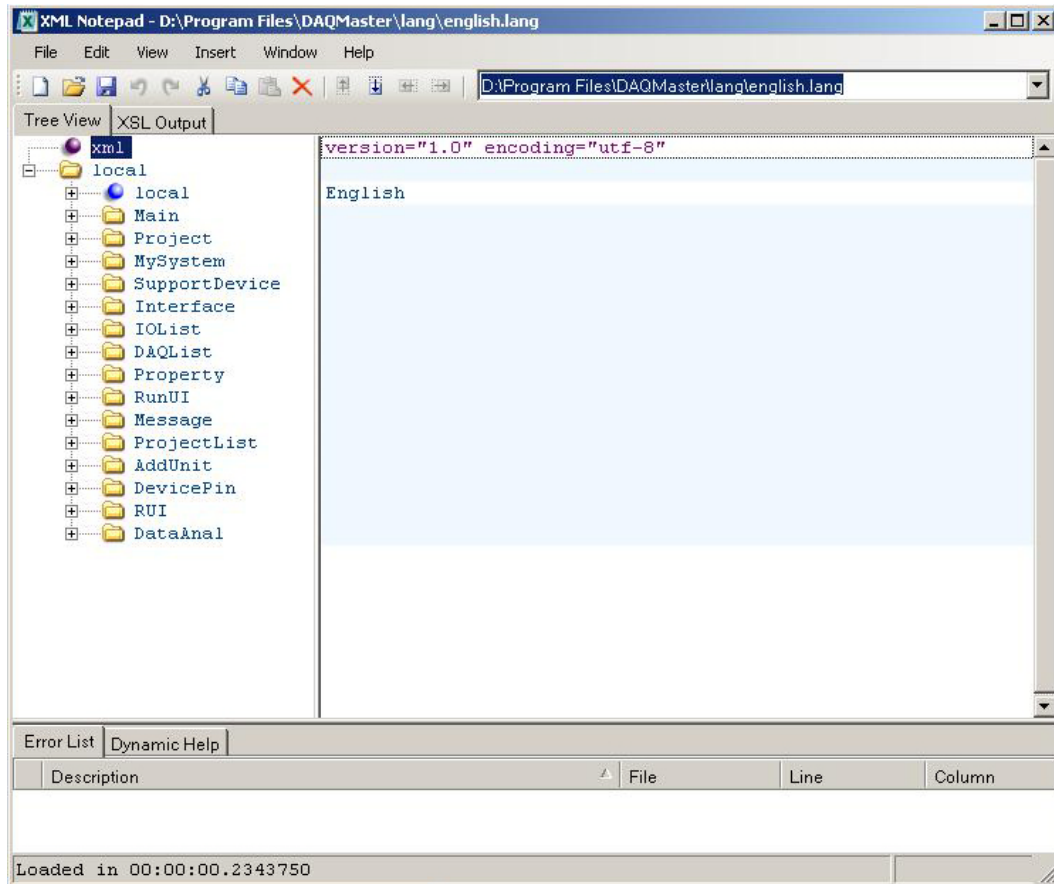
To add a language, copy and rename the existing file.

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'.)



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

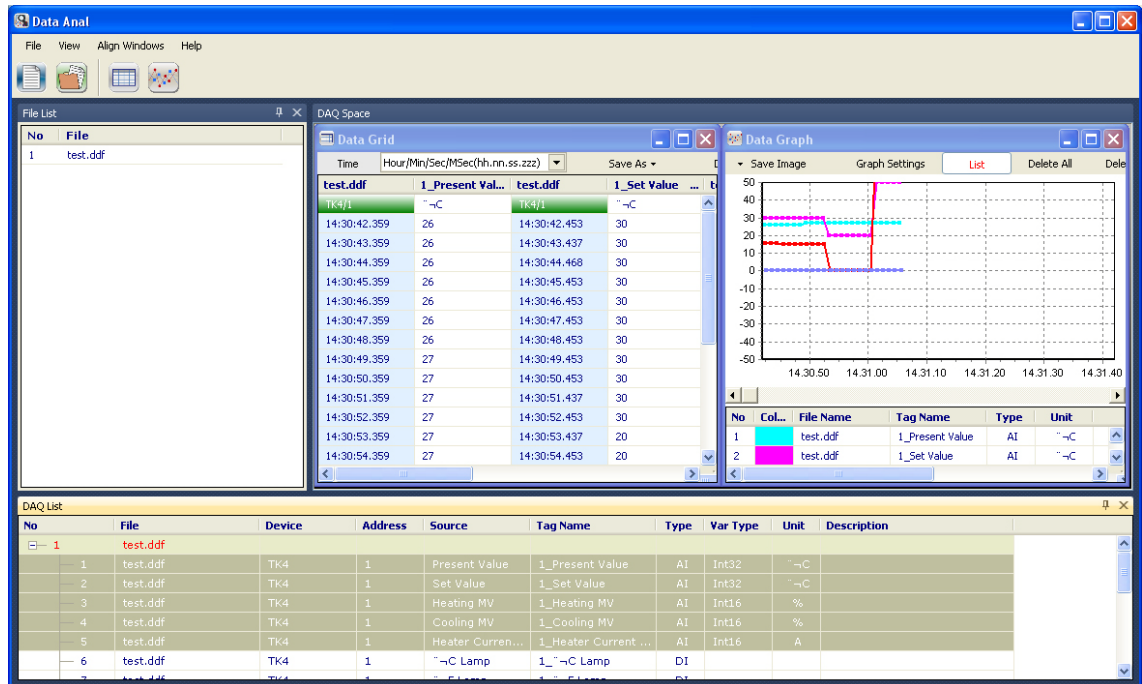


5 Data Analysis

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

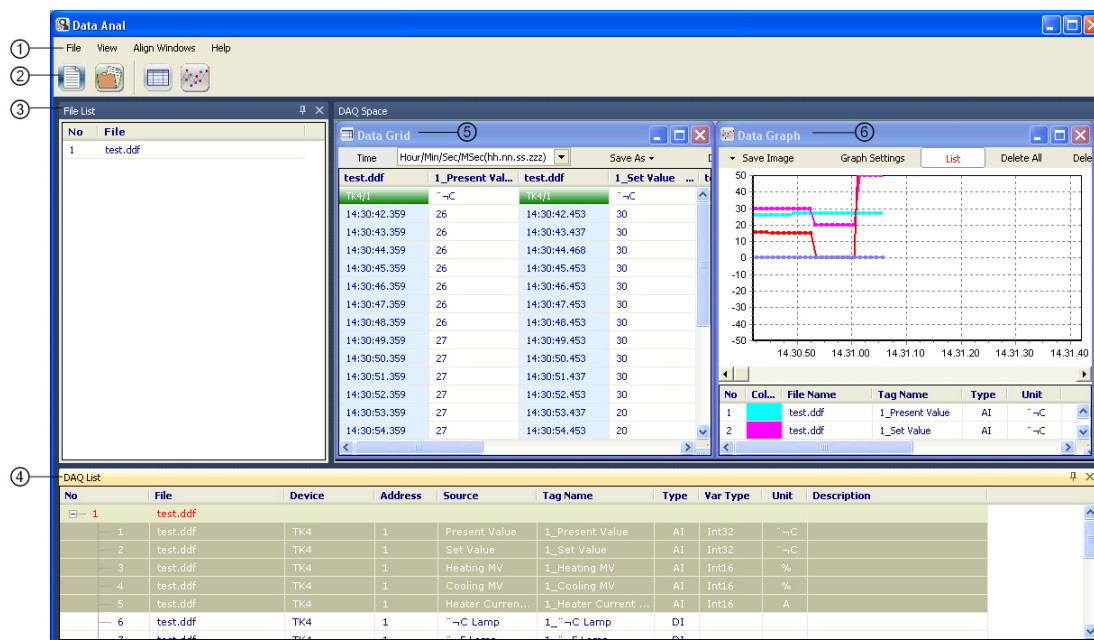
You can save monitored data files as a different file name.

The screen below shows data analysis in progress.



5.1 Screen Layout

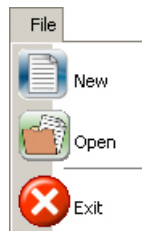
DAQMaster's data analysis screen is divided into sections as shown in the below screenshot and each section is composed of following items.



No	Item	Description
①	Menu	Menus are displayed by category. Select a menu to display submenus.
②	Toolbar	Frequently used submenus are grouped here. Click to run the function.
③	File List	Shows a list of project files to analyze.
④	DAQ List	Shows I/O source list is saved in the data file.
⑤	Grid	Shows I/O data as grid data.
⑥	Graph	Shows I/O data as graph data.

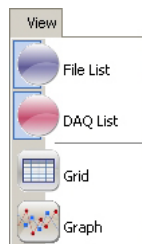
5.1.1 Menu

(1) File



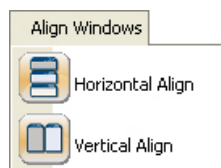
- New: Initializes the opened Data file and the analysis screen.
- Open: Opens DAQMaster data file (*.ddf).
- Exit: Ends data analysis program.

(2) View



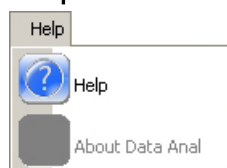
Sets whether to show/hide the file list or the DAQ List forms.
Adds a Grid or Graph screen.

(3) Window



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

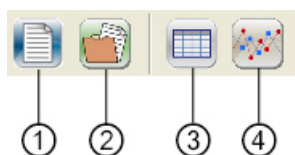
(4) Help



Help for DAQMaster analysis program.

5.1.2 Toolbar

Frequently used functions are arranged on the toolbar.



No	Item	Description
①	New	Initializes all opened data files and analysis forms.
②	Open	Opens data file.
③	Grid	Adds grid analysis form.
④	Graph	Adds graph analysis form.

5.1.3 File List

Displays a list of opened Data Files (*.ddf).



5.1.4 DAQ List

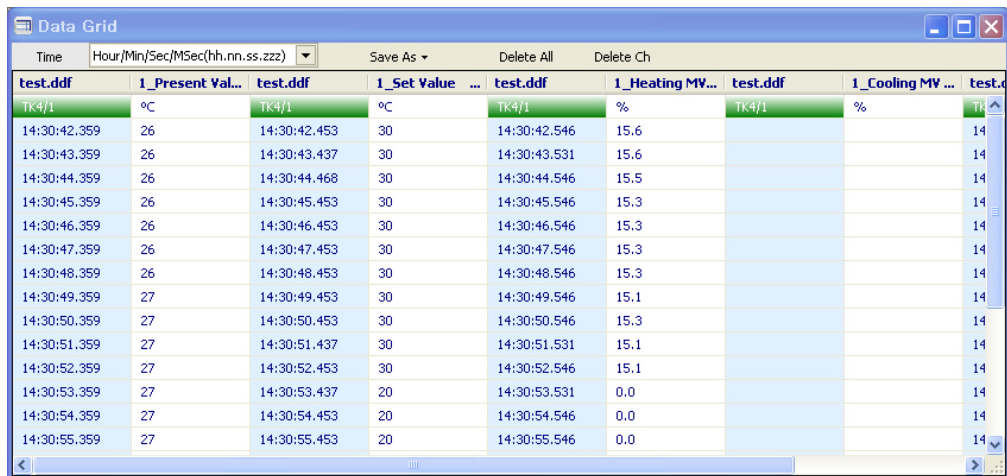
DAQ List shows I/O source list saved in the data file.

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

No	File	Device	Address	Source	Tag Name	Type	Var Type	Unit	Description
1	test.ddf	TK4	1	Present Value	1_Present Value	AI	Int32	°C	
2	test.ddf	TK4	1	Set Value	1_Set Value	AI	Int32	°C	
3	test.ddf	TK4	1	Heating MV	1_Heating MV	AI	Int16	%	
4	test.ddf	TK4	1	Cooling MV	1_Cooling MV	AI	Int16	%	
5	test.ddf	TK4	1	Heater Curren...	1_Heater Current ...	AI	Int16	A	
6	test.ddf	TK4	1	°C Lamp	1_°C Lamp	DI			

5.1.5 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.

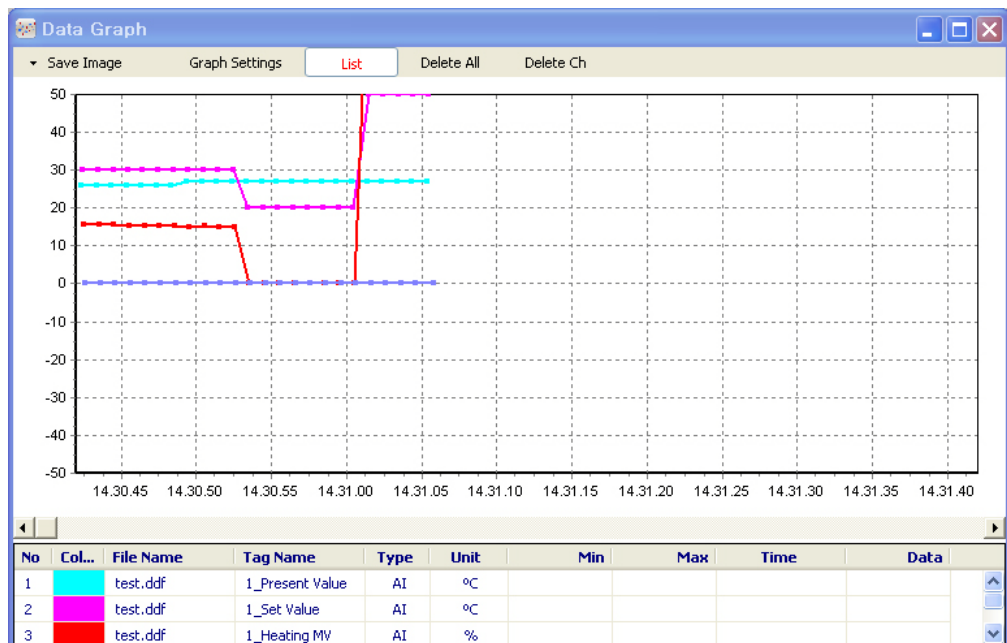


The Data Grid window displays a table with columns for Time, Hour/Min/Sec/MSec, and various I/O sources. The data is organized into columns for different tags and their values over time.

Time	Hour/Min/Sec/MSec(hh.nn.ss.zzz)	test.ddf	1_Present Val...	test.ddf	1_Set Value	test.ddf	1_Heating MV...	test.ddf	1_Cooling MV...	test.d
TK4/1	°C	TK4/1	°C	TK4/1	%	TK4/1	%	TK4/1	%	TK4/1
14:30:42.359	26	14:30:42.453	30	14:30:42.546	15.6	14:30:42.546	15.6	14:30:42.546	15.6	14:30:42.546
14:30:43.359	26	14:30:43.437	30	14:30:43.531	15.6	14:30:43.531	15.6	14:30:43.531	15.6	14:30:43.531
14:30:44.359	26	14:30:44.468	30	14:30:44.546	15.5	14:30:44.546	15.5	14:30:44.546	15.5	14:30:44.546
14:30:45.359	26	14:30:45.453	30	14:30:45.546	15.3	14:30:45.546	15.3	14:30:45.546	15.3	14:30:45.546
14:30:46.359	26	14:30:46.453	30	14:30:46.546	15.3	14:30:46.546	15.3	14:30:46.546	15.3	14:30:46.546
14:30:47.359	26	14:30:47.453	30	14:30:47.546	15.3	14:30:47.546	15.3	14:30:47.546	15.3	14:30:47.546
14:30:48.359	26	14:30:48.453	30	14:30:48.546	15.3	14:30:48.546	15.3	14:30:48.546	15.3	14:30:48.546
14:30:49.359	27	14:30:49.453	30	14:30:49.546	15.1	14:30:49.546	15.1	14:30:49.546	15.1	14:30:49.546
14:30:50.359	27	14:30:50.453	30	14:30:50.546	15.3	14:30:50.546	15.3	14:30:50.546	15.3	14:30:50.546
14:30:51.359	27	14:30:51.437	30	14:30:51.531	15.1	14:30:51.531	15.1	14:30:51.531	15.1	14:30:51.531
14:30:52.359	27	14:30:52.453	30	14:30:52.546	15.1	14:30:52.546	15.1	14:30:52.546	15.1	14:30:52.546
14:30:53.359	27	14:30:53.437	20	14:30:53.531	0.0	14:30:53.531	0.0	14:30:53.531	0.0	14:30:53.531
14:30:54.359	27	14:30:54.453	20	14:30:54.546	0.0	14:30:54.546	0.0	14:30:54.546	0.0	14:30:54.546
14:30:55.359	27	14:30:55.453	20	14:30:55.546	0.0	14:30:55.546	0.0	14:30:55.546	0.0	14:30:55.546

5.1.6 Graph

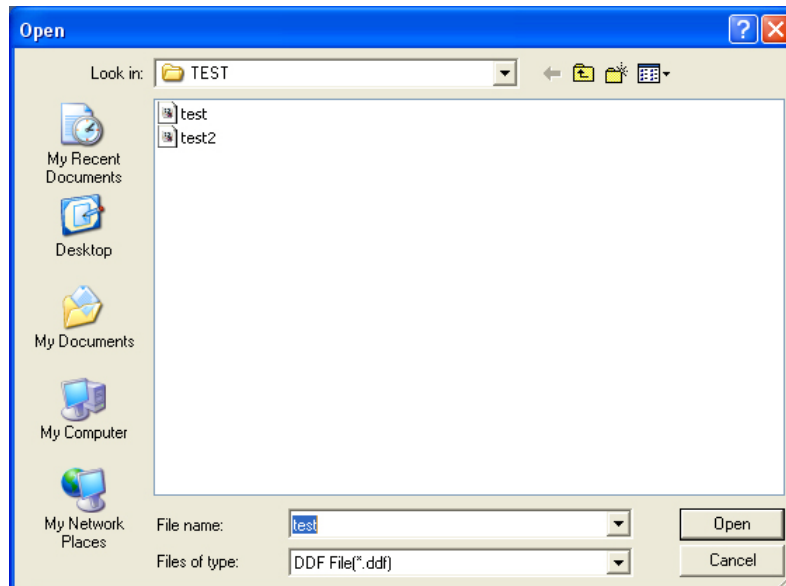
Analyzes I/O data as graph data. Drag the I/O source from the DAQ List and drop onto the data graph screen to analyze it.



5.2 Analyzing Data

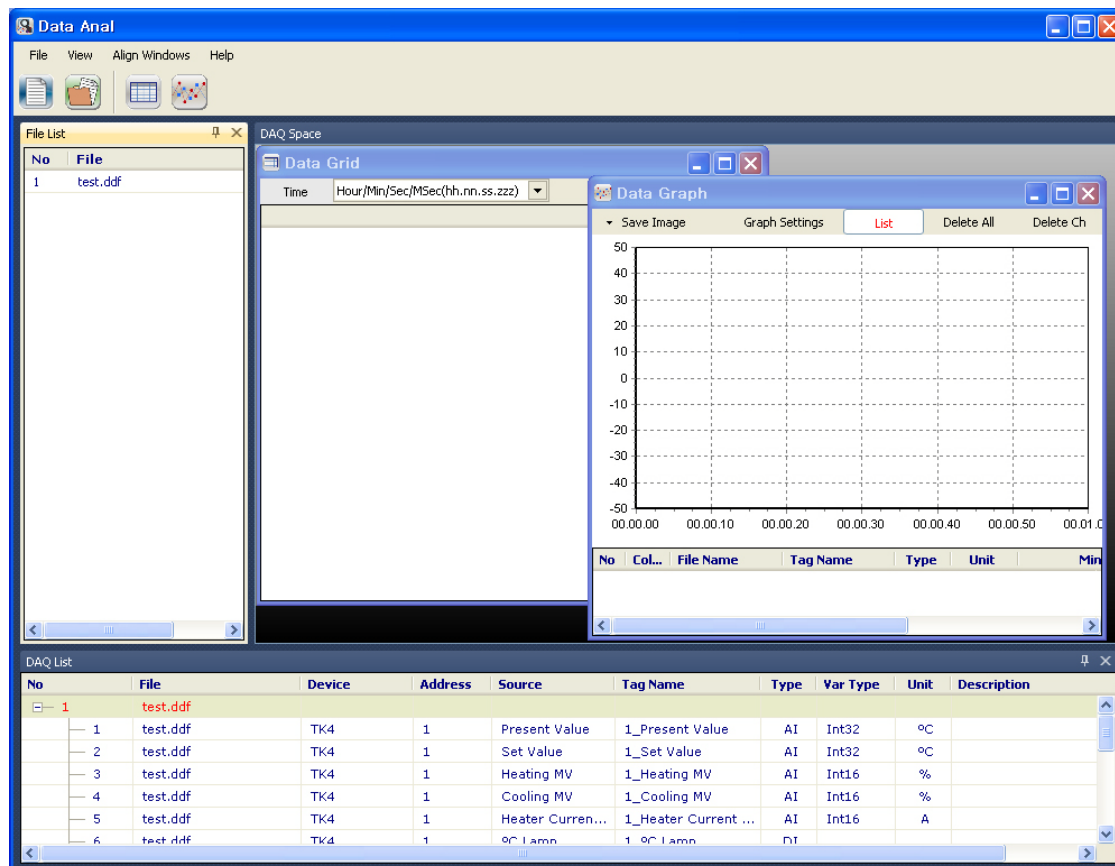
5.2.1 Opening Data Files

Select File > Open from the main menu to open a data file.

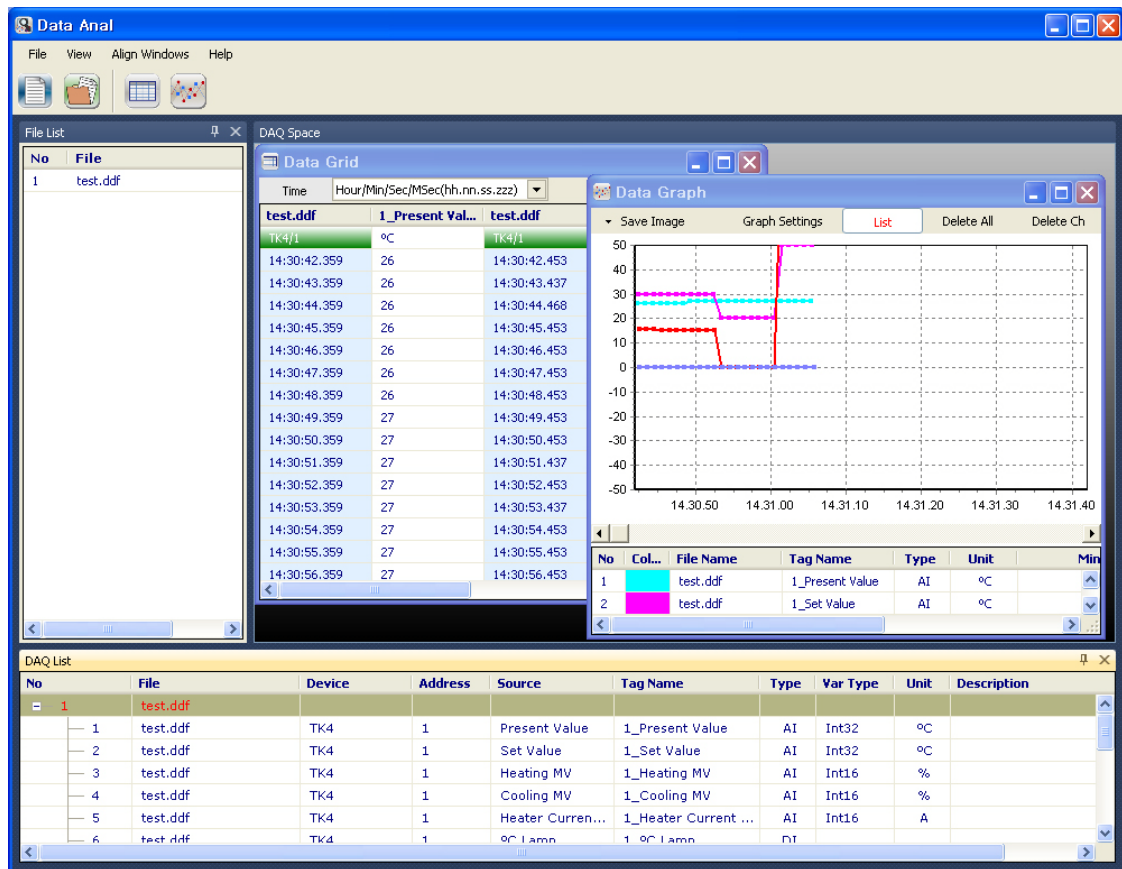


5.2.2 Add Analysis Screen

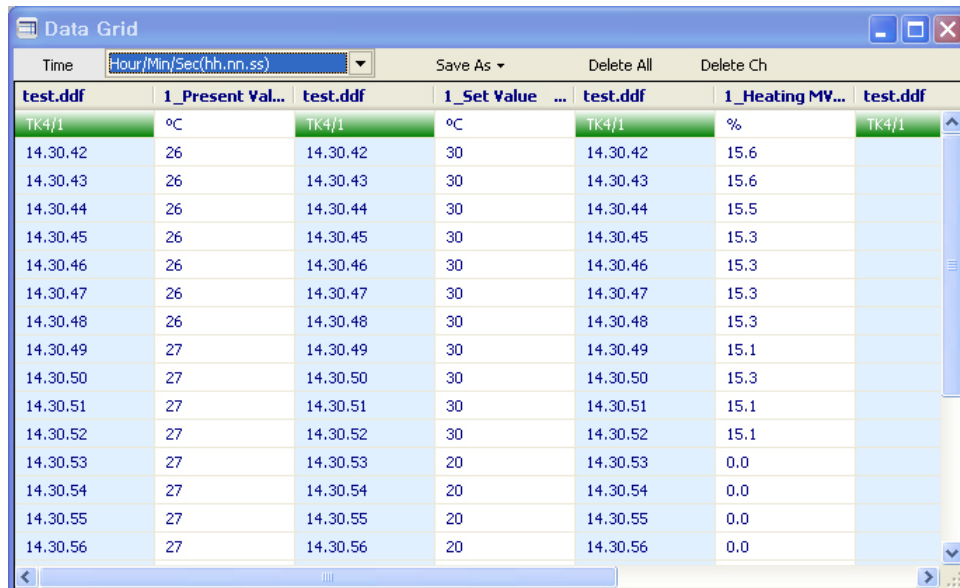
DAQ List contains I/O source list. Click Grid and Graph Analysis screen from the toolbar to add.



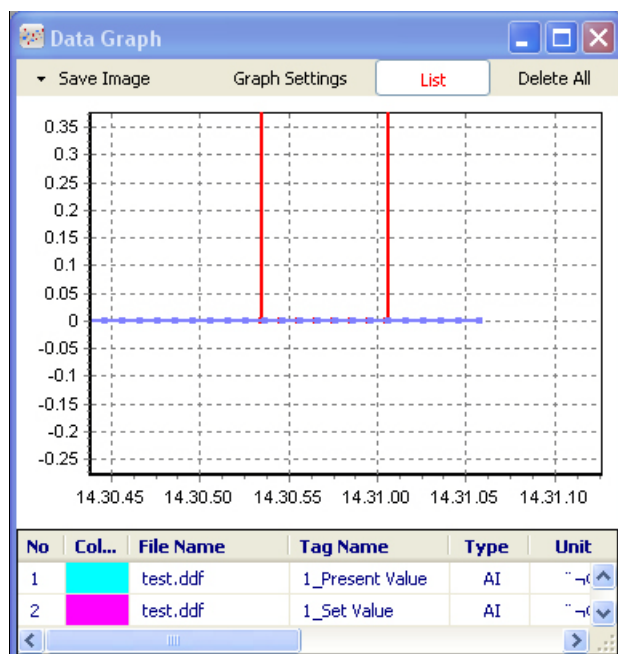
Select I/O source on the DAQ List screen, then drag and drop onto the analysis screen.



The file displayed on the Grid screen 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.



6 Special Features

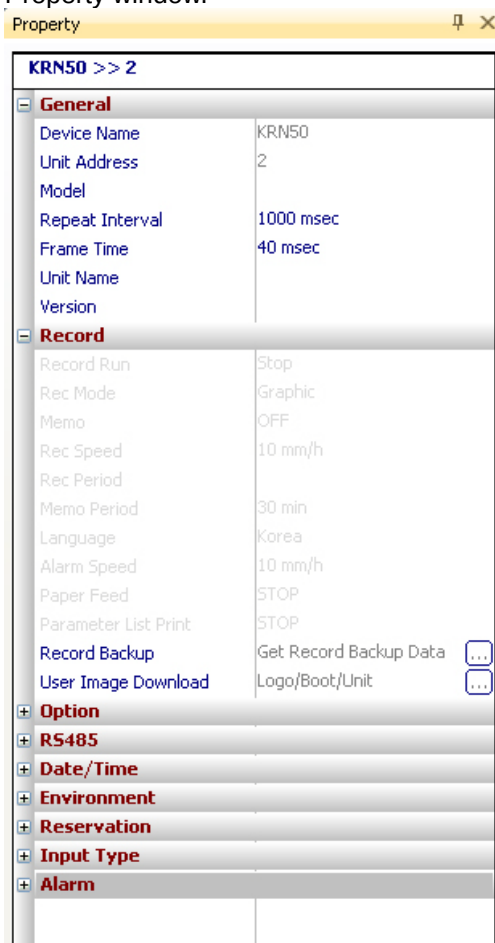
6.1 KONICS

6.1.1 KRN50

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 Mon Day Hour Min

End Time Mon Day Hour 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

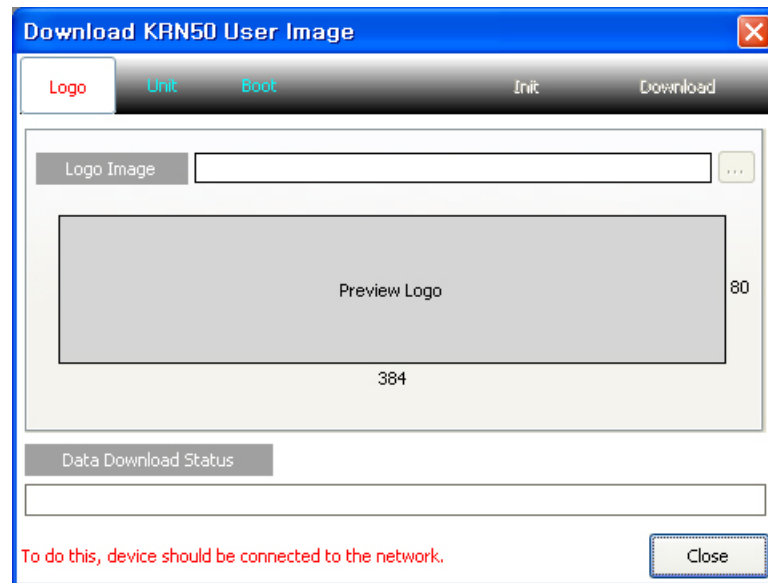
User Image allows you to download images to KRN50 and change logo, unit and boot images.

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.

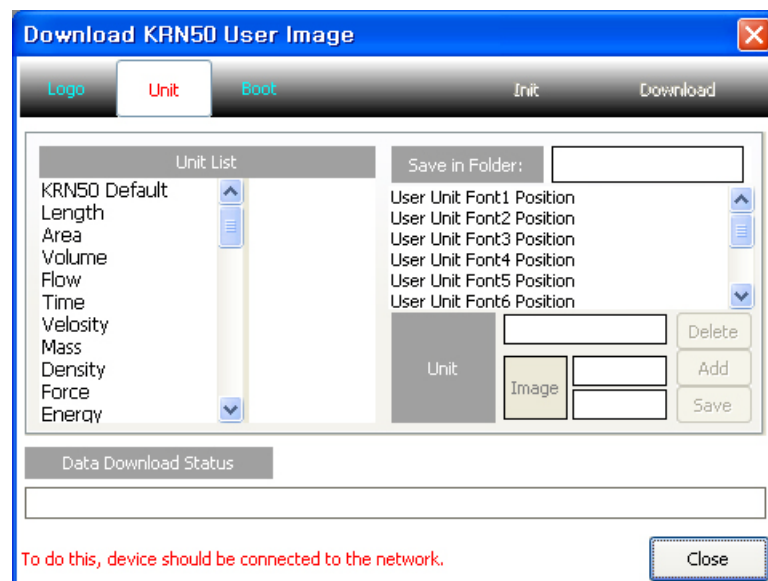
Logo image should be 384 X 80 pixel of bitmap file.



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.

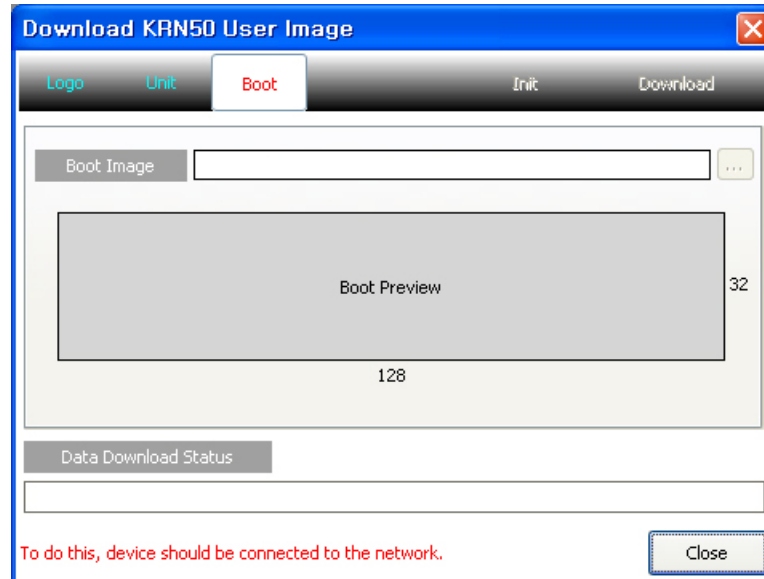


3) Download boot images

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.



6.1.2 KRN100

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

(1) Accessing Record Backup Data

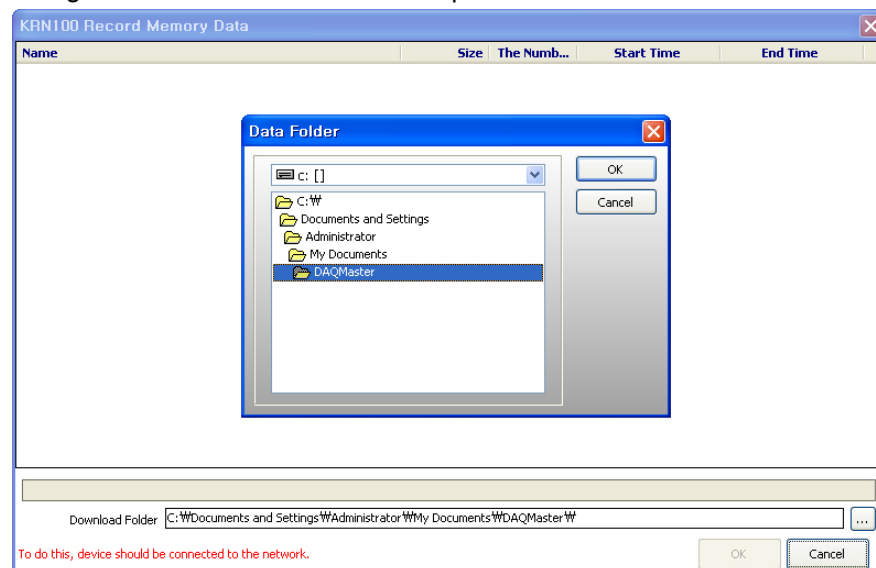
It is available to access saved backup data of KRN100 and to analyze backup data by data analysis feature.

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



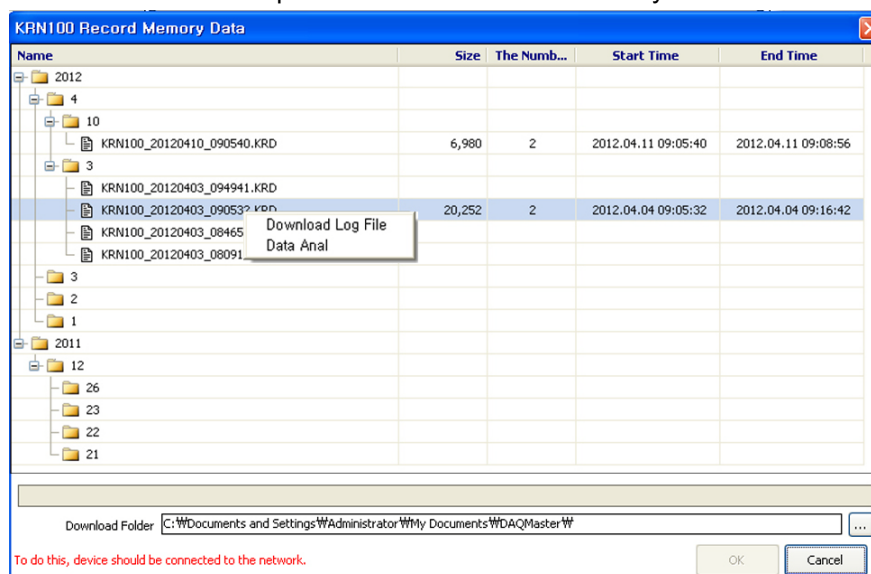
According to the USER INFORMATION SETUP of KRN100, it cannot read the memory. (Refer to the user manual for KRN100.)

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

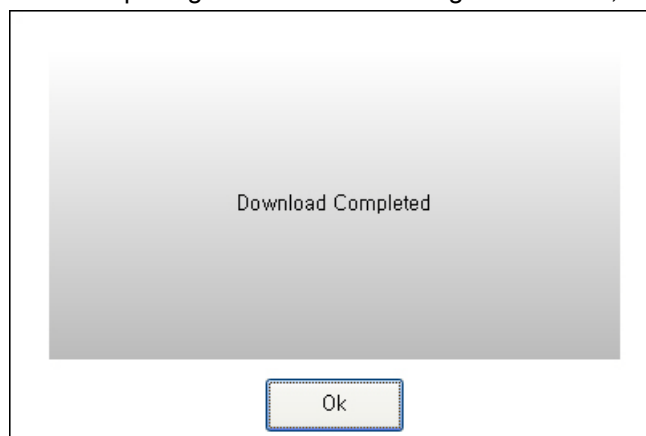


3rd Select the record backup data to download. Click the right mouse button and select 'Download Log File'.

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



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



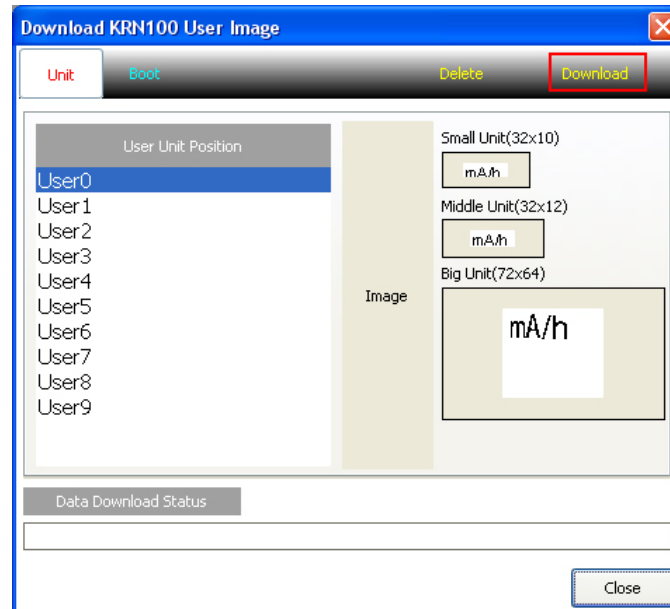
(2) Downloading User Images

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.

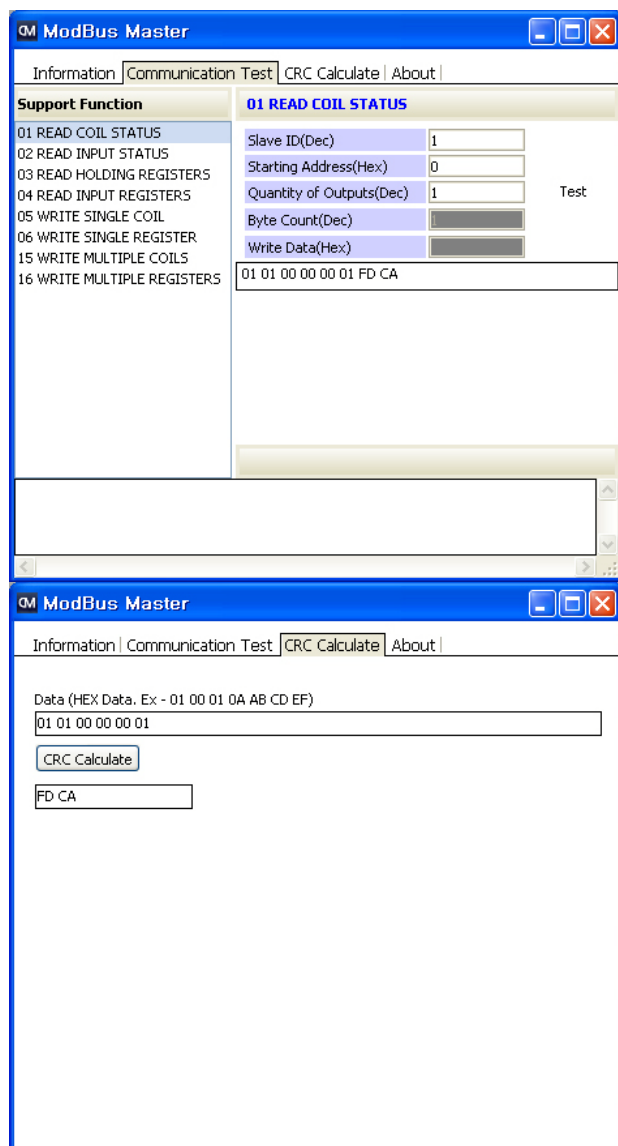
The image should be 320×120 pixel of bitmap file.



6.2 ModBus Master

6.2.1 ModBus Master Communication and CRC Calculation

This feature allows you to test communications of ModBus Master by function and execute the CRC calculation of the protocol. In CRC calculation, if you insert the Hex. data to the Data column and click 'CRC calculation', two CRC data will be created.



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