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Autonics
Sensors & Controllers

Comprehensive Device Management Program

DAQ Master

USER MANUAL

Thank you very much for selecting Autonics products.
For your safety, please read the following before using.

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 2.6.0 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.

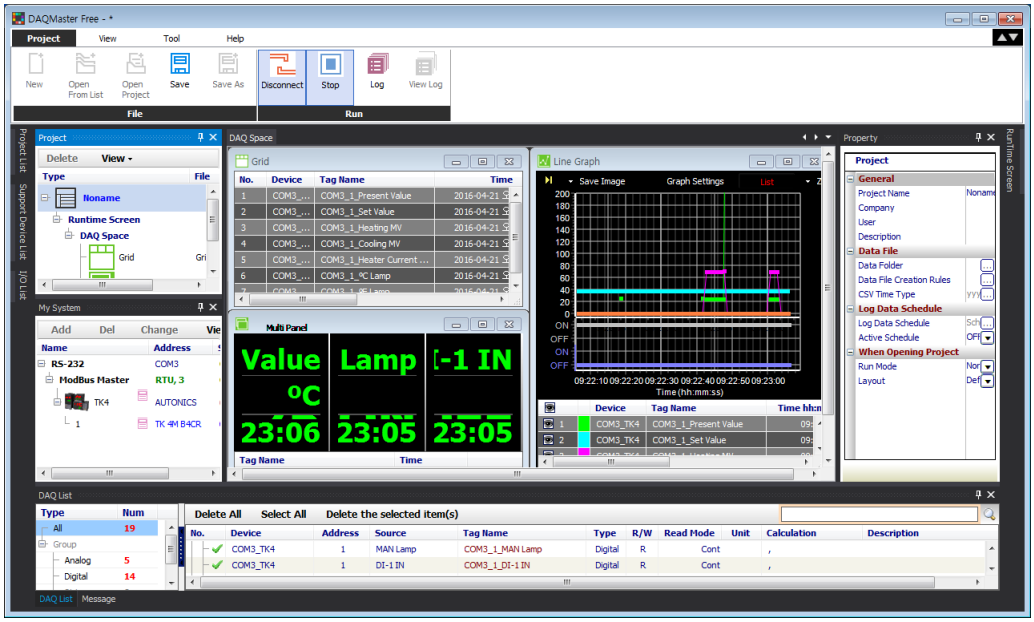
Table of Contents

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

(1) DAQMaster Pro Version Feature

- Data Base

  Database managing system (Access, MySQL, SQL Server, Oracle, SQLite) turns information into database in real-time, making creation and management of database easier.

- Real-time Logging

  At the set cycle and condition, real-time log file is generated in CSV file.

- Modbus Device Editor

  You can add the any modbus devices which are not supported at DAQMaster to set and monitor the property and I/O.

- OPC Client

  It is Interface method for better compatibility among application programs based on OLE/COM and DCOM technology of Microsoft. It provides industry standard mechanism for communication and data conversion between client and server.

- DDE Client

  It supports communication (IPC) among process embedded in Microsoft Window system, allowing application programs to share and exchange information. This function uses shared memory and provides a common protocol (instruction set and message format) to application programs.

(2) Featurs

- Multiple Device Support

  Simultaneously monitor multiple devices and set parameters. Simultaneously connect units with different addresses in a single device. Multiple RS-232 ports are available for communications using Modbus remote terminal unit.

- Device Scan

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

- Convenient User Interface

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

- Project Management

  Saving data as a project file includes added device information, data monitoring screen layouts, and I/O source selection. When you open the project file, the last state of the saving moment will be loaded. Organizing project list makes managing project files easier.

- Data Analysis

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

- Monitoring Data Log

  When monitoring, data log files can be saved in 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.

- Tag Calculation Editing

  Read tag value is available to calculate the set formula for the desired value.

- Print Modbus Map Table Report

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

- Multilingual Support

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

- Script Support

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

1.3 DAQMaster Funtion Comparison Table by Version

Functions	General version	Pro version
Modifying parameter	○	○
Data monitoring	○	○
Data log	○	○
Tag calculation editing	○	○
Trigger	X	○
Data analysis	○	○
Analysis spread	X	○
User Modbus Device Editor	X	○
Script Ecitor	X	○
Database Device	X	○
DDE Server	X	○
TCP/IP Server	X	○
DDE Client	X	○
OPC Client	X	○
WMI Manager	X	○
Realtime Log (CSV)	○	○
Realtime Log (DB)	X	○
SQL Server	X	○
Oracle	X	○
MySQL	X	○
PostgreSQL	X	○
SQLite	X	○
Nexus DB	X	○
Inter Base	X	○
Firebird	X	○
ODBC	X	○
MS Access	X	○
Sybase ASE	X	○
Sybase ADS	X	○
DB2	X	○
DBF	X	○

2 Installing the Program

2.1 System Requirements

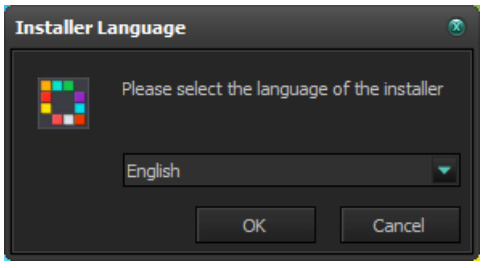
Item	Minimum specifications
System	IBM PC compatible computer with Intel Pentium Ⅲ or above
Operations	Windows 98/NT/XP/Vista/7/8/10
Memory	256 MB+
Hard disk	1GB+ of available hard disk space
VGA	Resolution: 1024×768 or higher
Others	RS232C serial port (9-pin), USB port

2.2 Preparations

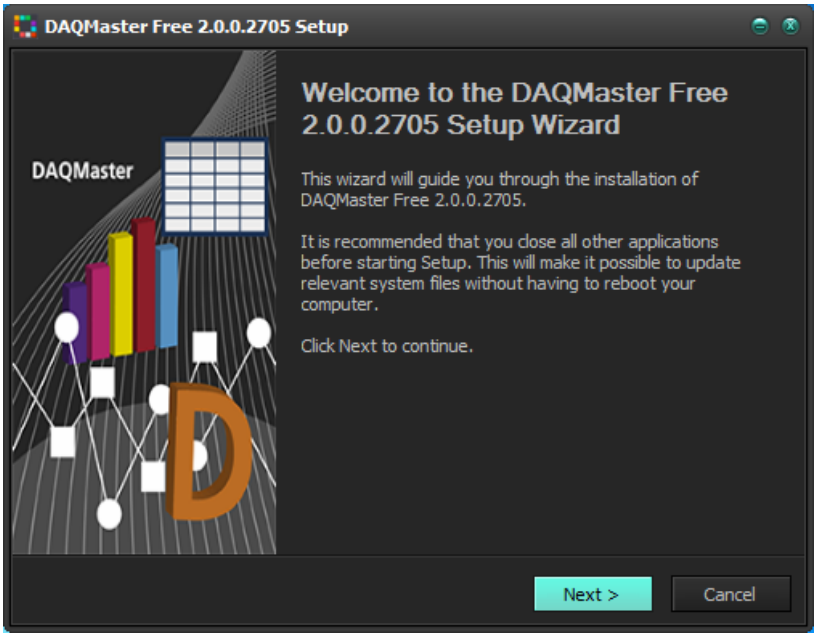
1st Download DAQMaster program at Autonics' web page(www.autonics.com).

2nd Close all programs before you start DAQMaster installation.
Double-click DAQMaster setup.exe to start installation.

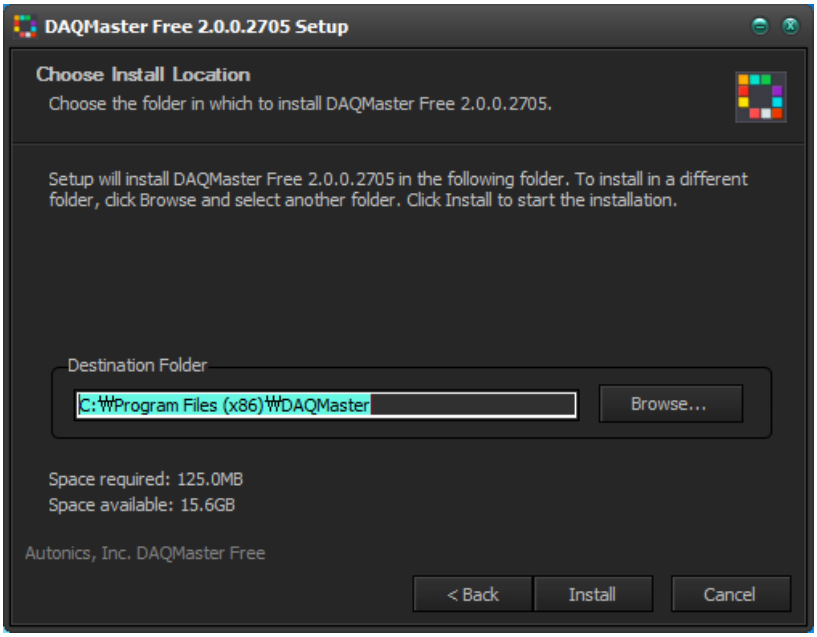
3rd Installer Language window appears. Select the language and click OK button.
DAQMaster supports English, Japanese, Korean and Simplified Chinese.



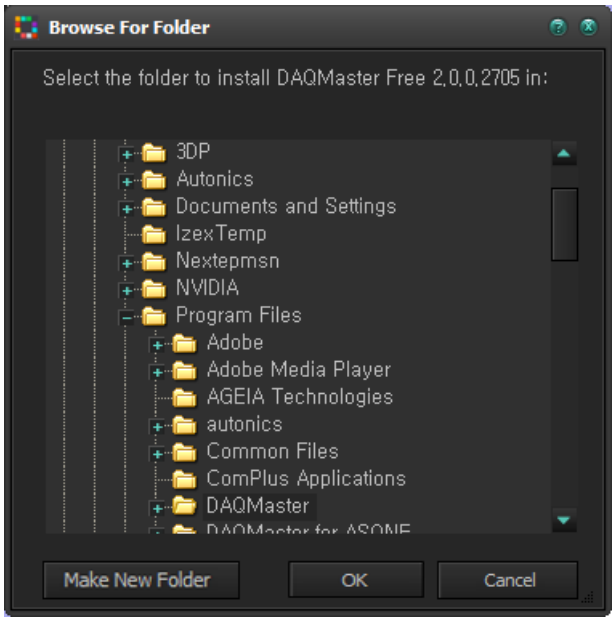
4th Click Next in the installation welcome window.



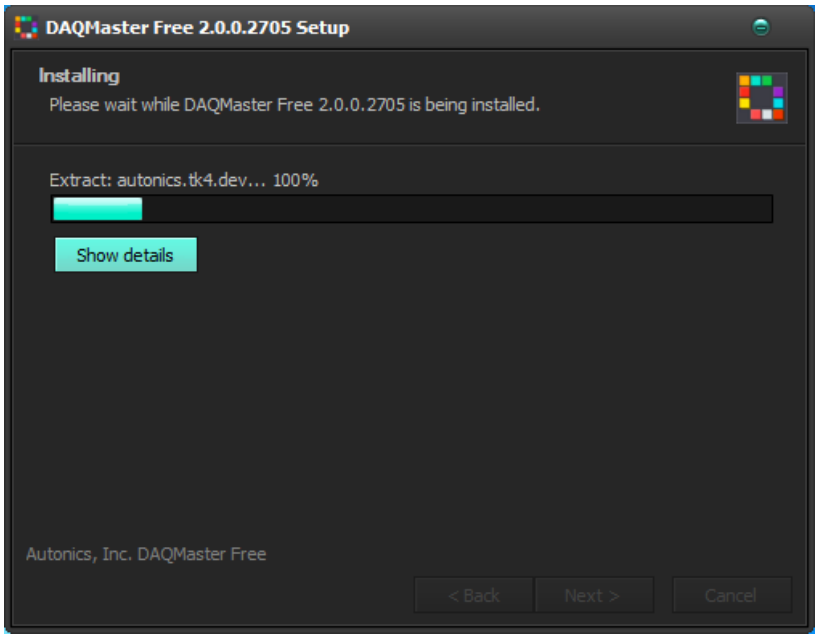
5th Choose Install Location window appears. Default installation path is C:\Program Files (x86)\DAQMaster.



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.

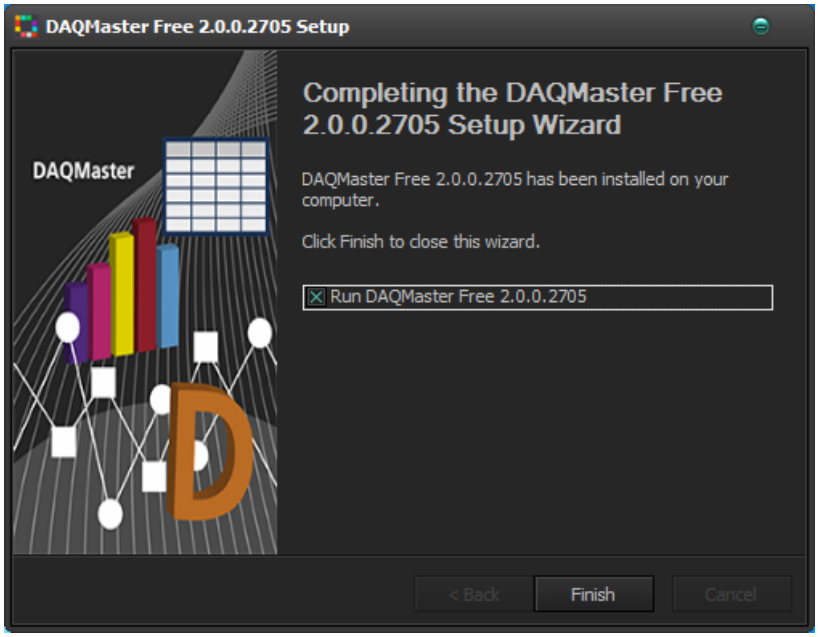


7th Installation progress is displayed in the status window as follows.

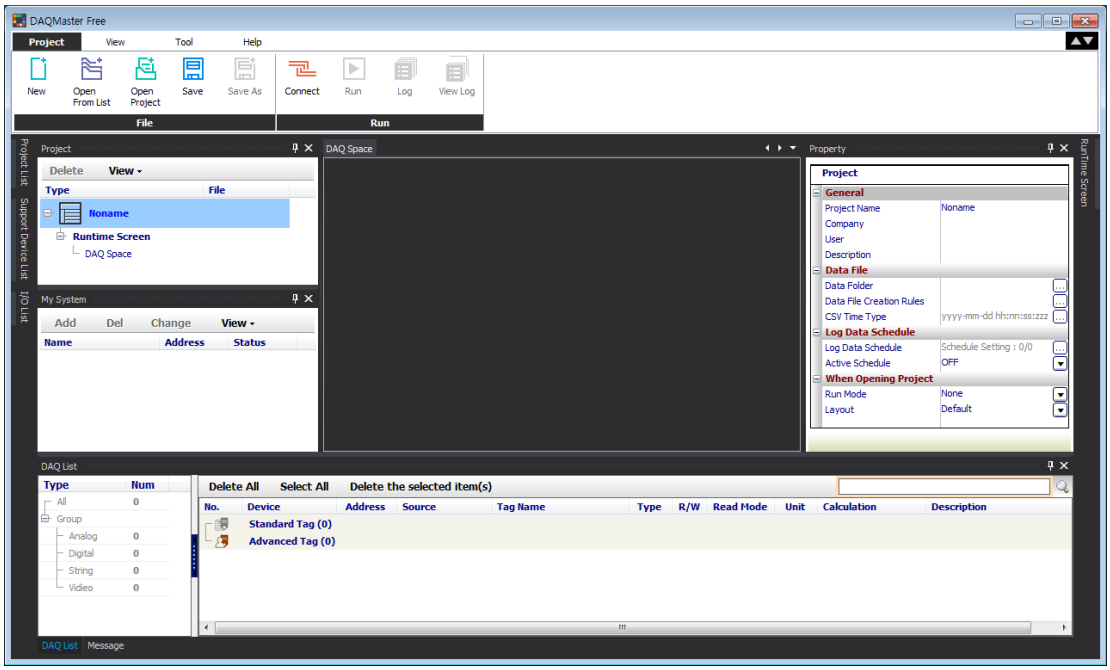


8th Installation Complete window appears after installation is completed.

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 Register License

When installing DAQMaster, it provides pro demo version.

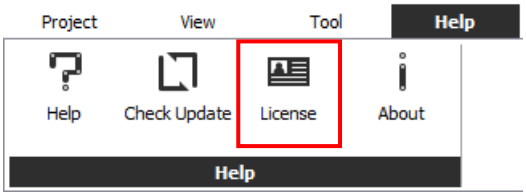
After finishing demo period (30 days), pro functions are inactive. Only general version is available.

After registering license, pro functions are available: DDE Server, Edit ModBus Device, TCP/IP Server, Script Editor, Trigger, Realtime Log, Miscellaneous (Database, DDE Client, OPC Client, WMI Manager) and analysis spread of data analysis.

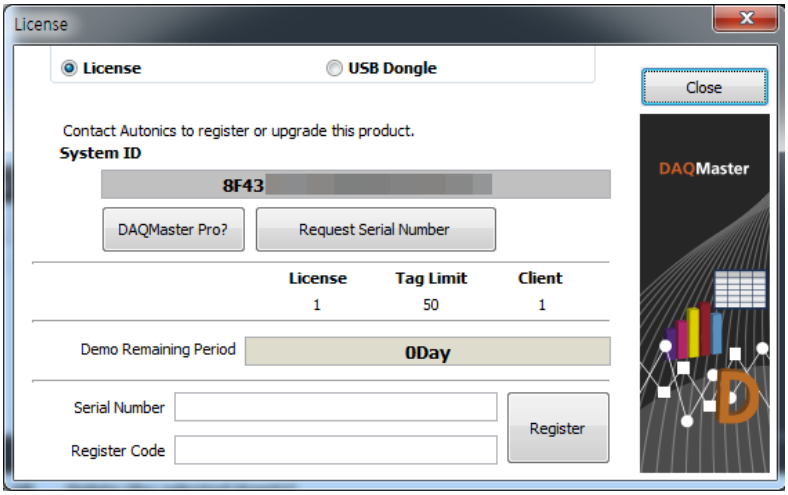
For purchasing licenses, contact the retailers by referring the web site (www.autonics.com).

(1) Entering license

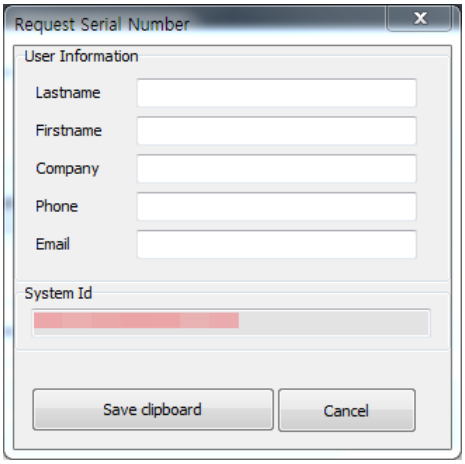
1st Enter Help > License menu.



2nd At License, click 'Request Serial Number'.



Enter user information (last name, family name, company, etc.) and click 'Save clipboard'. Based on this information, ask the serial number and register code to the retailer.



3rd Enter the provided serial number and register code.

4th When click 'Register', the program will be registered as pro version and be able to use pro functions continuously.

Note

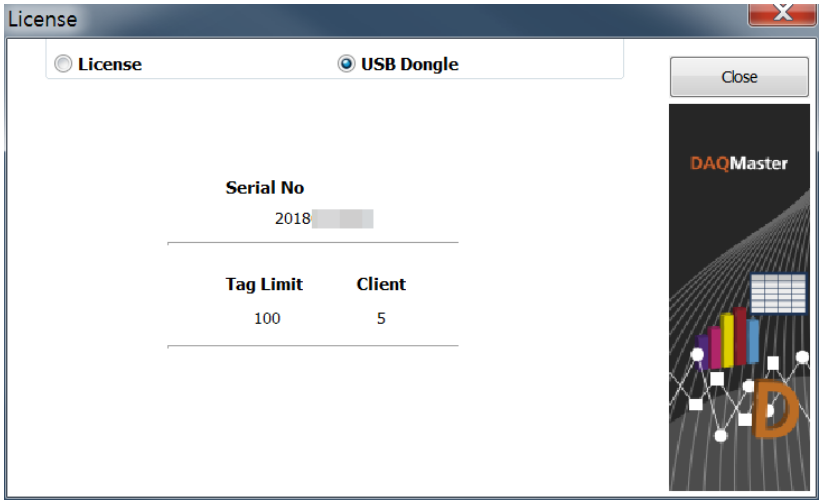
The registered Pro version displays the registered number of licenses and tag limit.
After registering Pro version, 'Register' button turns into 'Upgrade' button. When you enter new serial number, registered number of licenses and tag limit are changed, corresponding to new serial number.

(2) Connecting USB dongle

Plug the USB dongle for DAQMaster Pro license to your PC and run the DAQMaster Pro. The license key is installed automatically. (it may take some time.)

Note

You can check the serial number,(the number of) tag limit, and (the number of) client at USB Dongle of "Help>License" at Help menu,

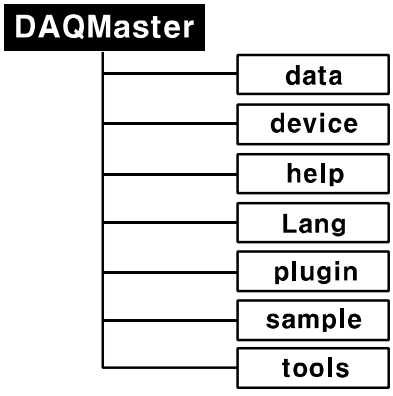


2.2.2 Installation Folder Structure

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 selecte the default installation path during installation, a DAQMaster folder is created under [C:\Program Files] as a subfolder. If you selecte 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.

2.2.3 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

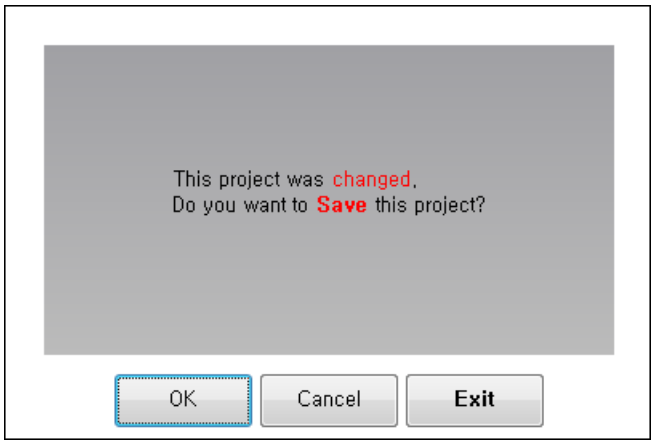
2.3.1 Start

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

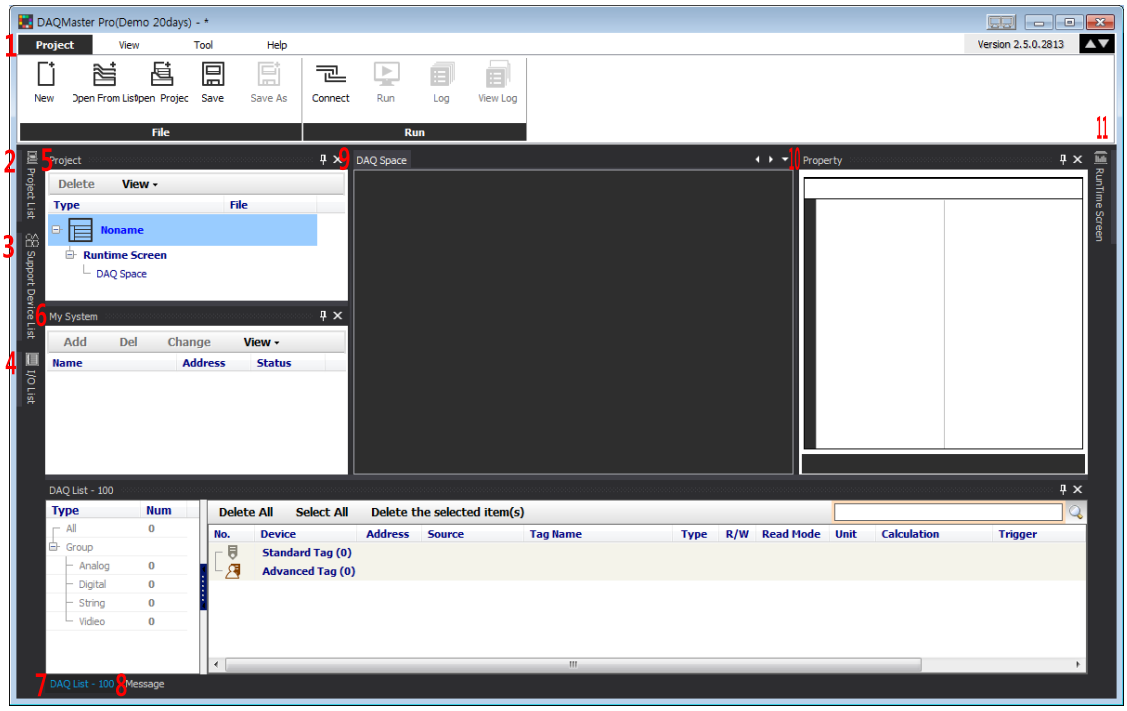
2.3.2 Exit

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

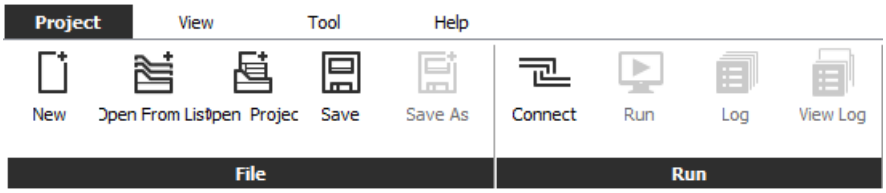


The program screen is divided into sections as shown in the preceding screenshot and each section is composed of the following items.

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



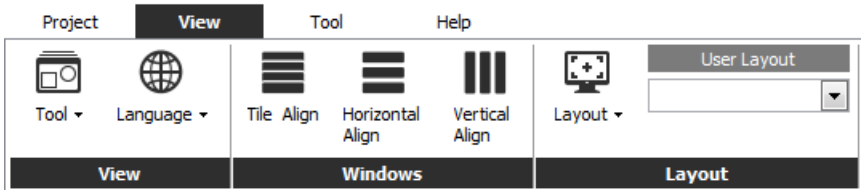
1) File

- 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. You can check data between Log running point and View Log executing point.

(2) View

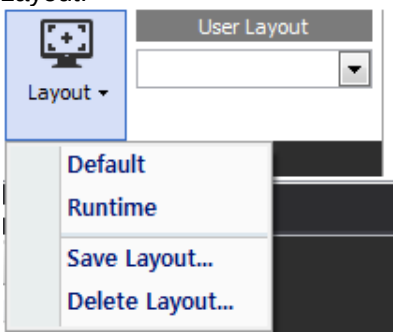


3) View

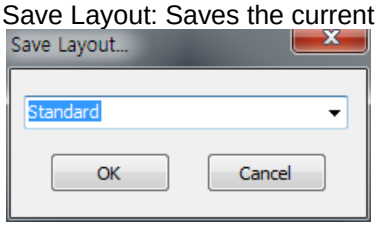
- Tool: Set for Property, Support Device List, My System, Project, I/O List, Run Time Screen, DAQ List, Message of the project.
- Language: Changes the program language.

4) Windows
Aligns multiple runtime screens (Data: Grid, Multi Panel, Panel, Line Graph, Bar Graph, Color Map Graph, Gauge Graph, Histogram Graph, Device: Alarm History Grid) diagonally, horizontally, and vertically.

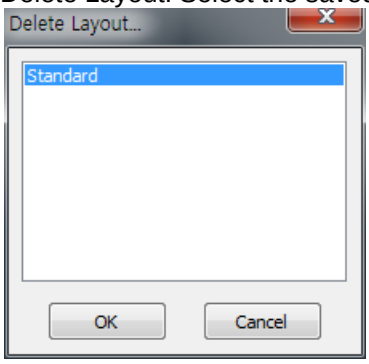
5) Layout
Executes saving, deleting, loading layout. You can select the saved layout at User Layout.



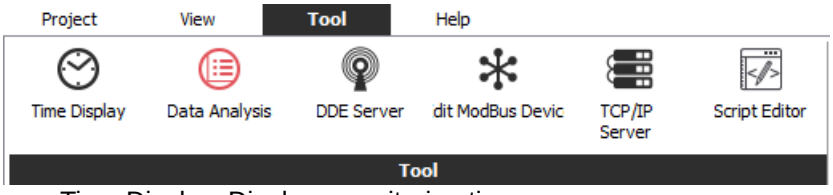
- Default: Changes docking screen layout to default layout.
- Runtime: Displays only run time screen. Select the hidden docking screen at View menu.
- Save Layout: Saves the current layout and adds it at User Layout.



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

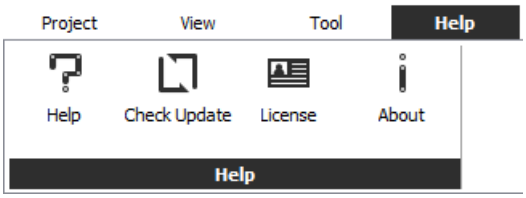


(3) Tool



- Time Display: Displays monitoring time.
- Data Analysis: Runs the data analysis program. Allows analysis of DAQMaster data file (*.ddf).
- DDE Server: Runs DDE Server setting.
- Edit ModBus Device: Executes Modbus Editor.
- TCP/IP Server: Operates DAQMaster as a TCP/IP Server.
- Script Editor: Runs Script Decive Editor

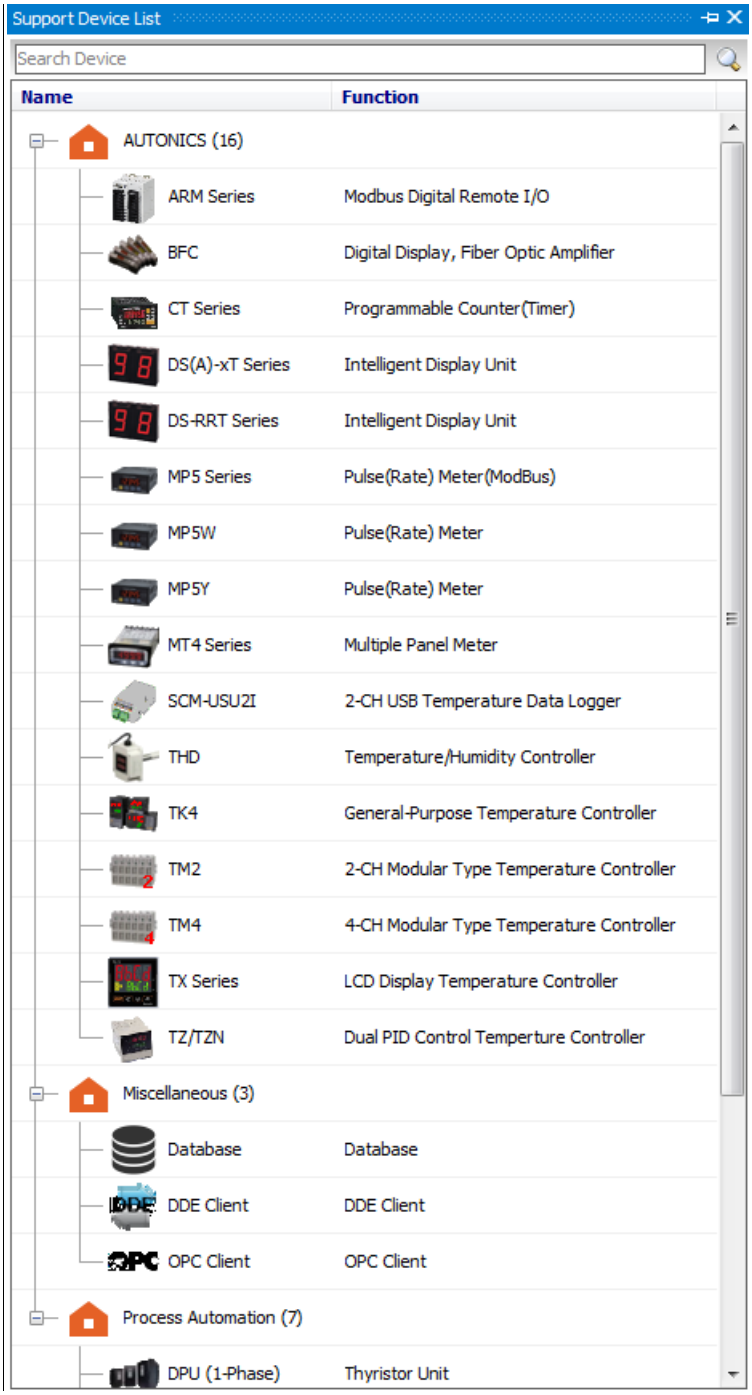
(4) Help



- Help: Opens the help file.
- Check Update: Checks the version of the program via the internet update server and automatically updates to the latest version.
- License: Registers and checks license.
- About: Checks the DAQMaster version.

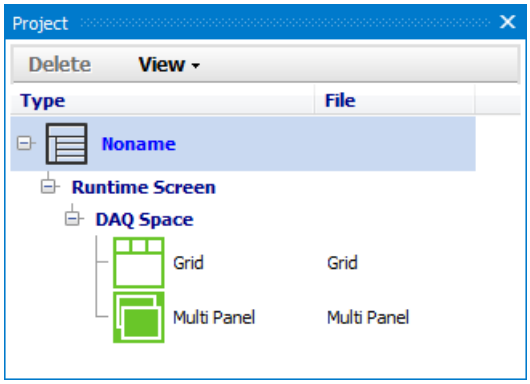
2.4.2 *Support Device List (Docking Screen)*

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 at the right side of the screen, you can change general information, data file, log data schedule, and project opening option. For more information, refer to '2.4.9 Property'.

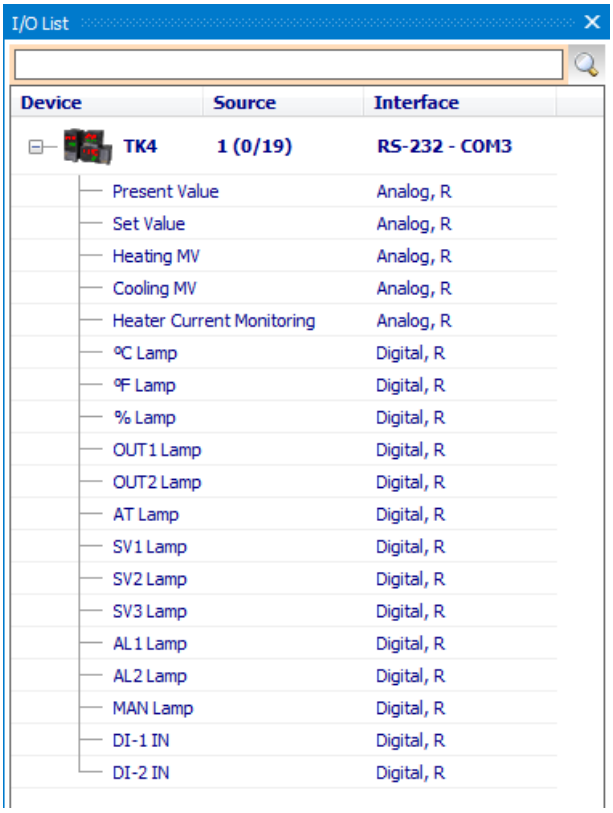


2.4.4 I/O List (Docking Screen)

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

To monitor units of the connected device, you have to list desired sources from I/O List to the DAQ List. Searching function is available.

Added sources are shown in gray.



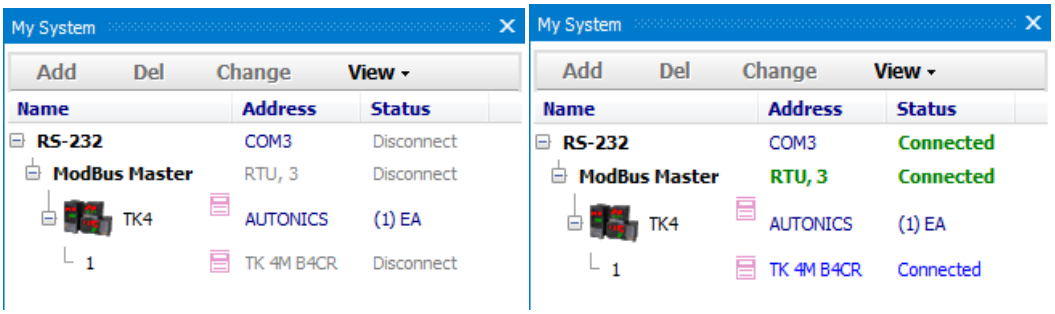
Note

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

2.4.5 My System

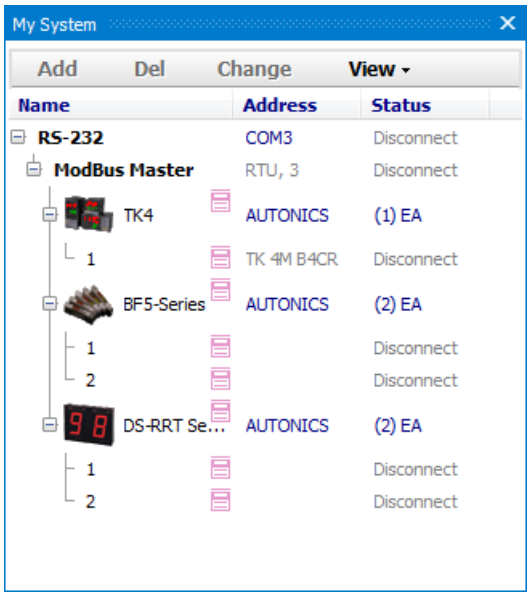
My System displays devices and units added from the device list in a tree structure. You can also check and configure connection status.

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



- RS-232: Allows property modification related to RS-232 communications in Property when devices are disconnected.
- ModBus Master: Allows property modification related to ModBus Master protocol in Property when devices are 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 devices are connected.

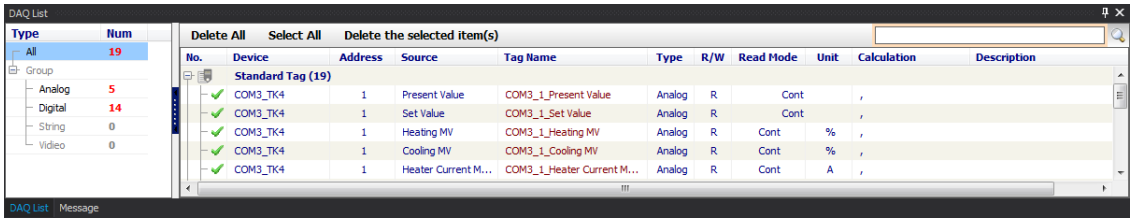
Connects a device to multiple communications ports as displayed in following image.



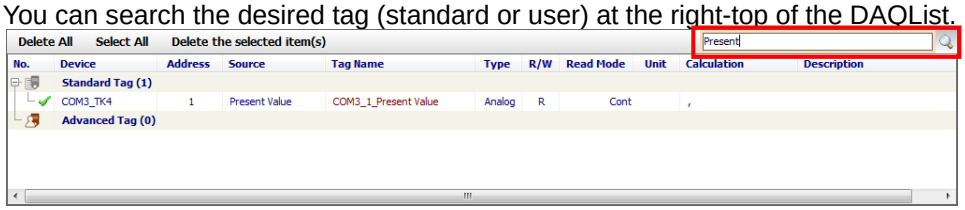
2.4.6 DAQ List

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

the number of I/O sources is displayed by signal type in the left list. When one of signal type is selected, I/O sources in right list is rearranged by signal type.



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

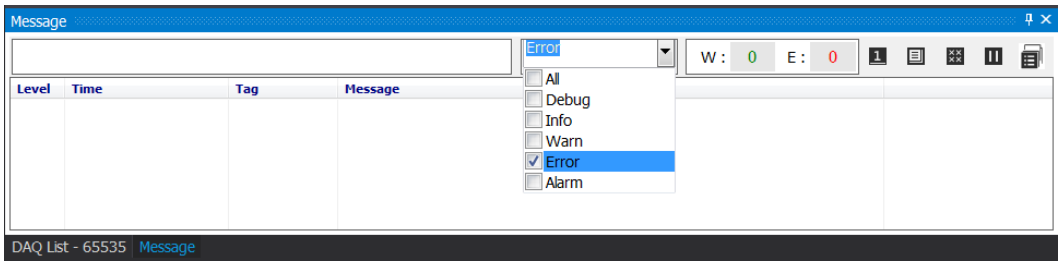


Note

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

2.4.7 Message

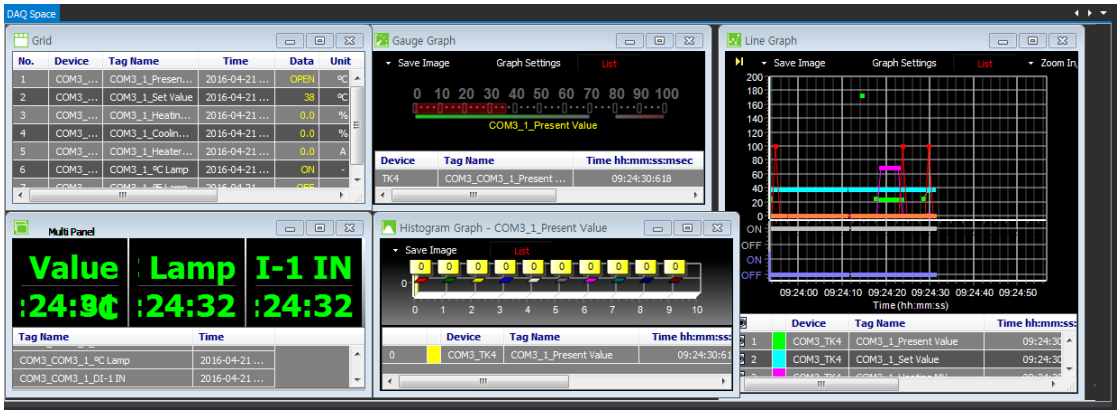
Records events (communication status (start/stop communication, error), log status (start/stop log), etc.) during running the program.



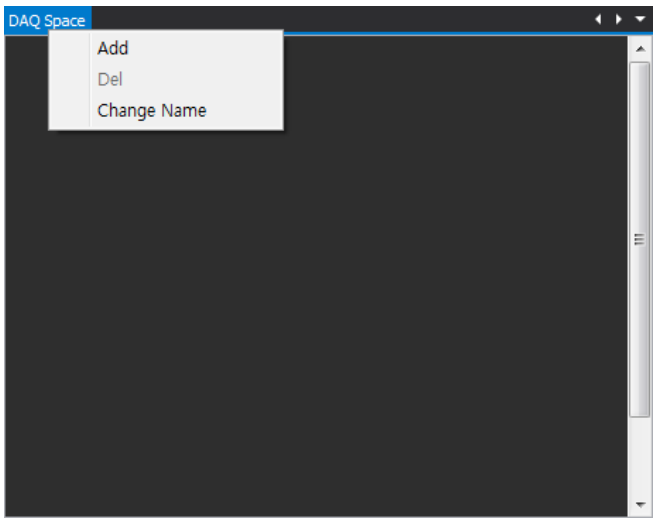
Messages are saved as *.txt file or log file. Log file is reside in ‘Message’ folder in the installation folder.

2.4.8 DAQ WorkSpace

Displays added UI screen (Data: Grid, Multi Panel, Panel, Line Graph, Bar Graph, Color Map Graph, Gauge Graph, Histogram Graph, Device: Alarm History Grid) in RunTime Screen.



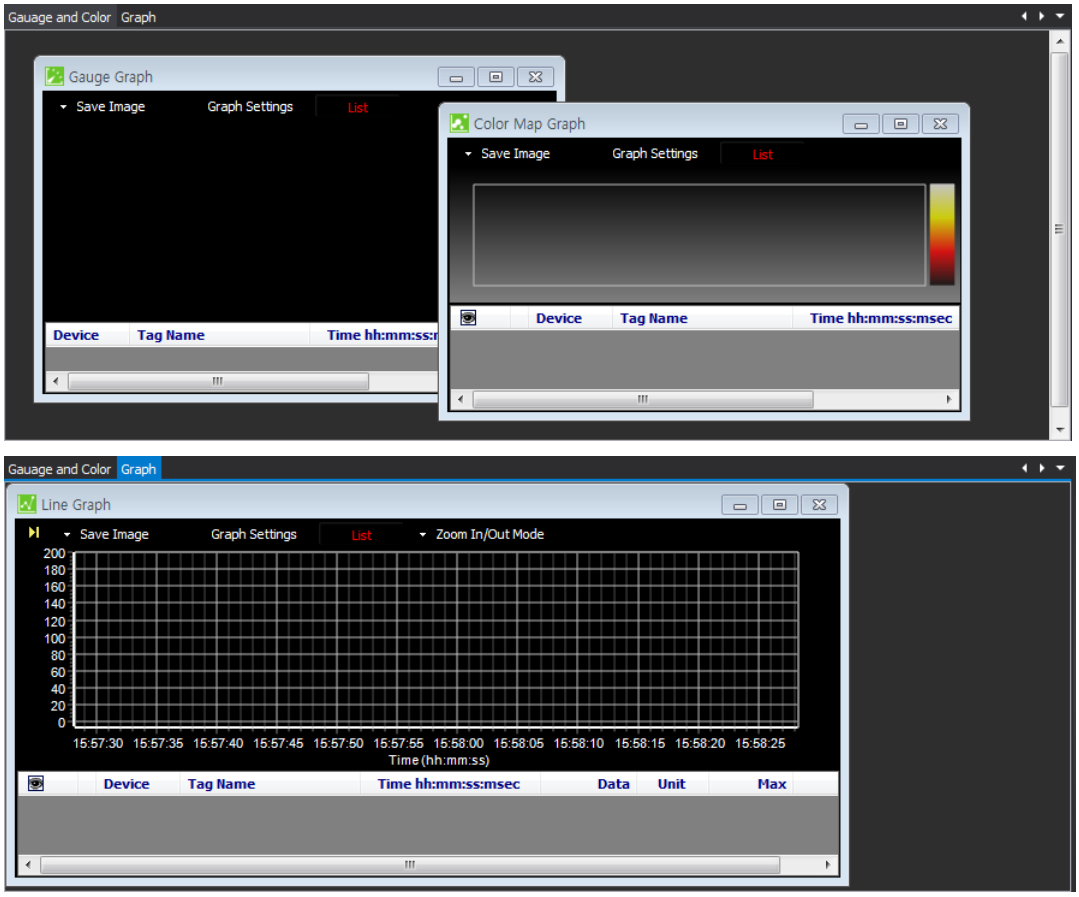
To add or delete DAQ WorkSpace or change DAQ WorkSpace name, click “DAQ Space” of DAQ Space screen.



Click pull-down icon (▼) on the upper right of DAQ WorkSpace to select the activated space.

Ex.

The name of the DAQ WorkSpace is changed to ‘Gauge and Color’, and ‘Graph’ space is added.

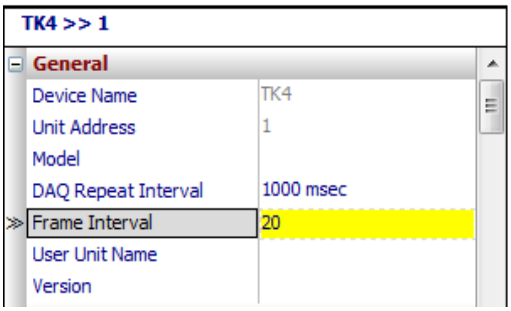


2.4.9 Property

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

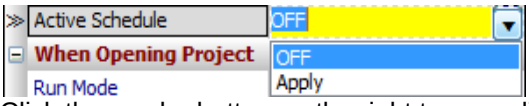
There are check-only items and modifiable items. Modifiable items are displayed as edit type, combo box type, run type and mixed edit/combo type.

(1) Edit type



Enter number or text in the blank. Input range (if applicable) is displayed at the bottom.

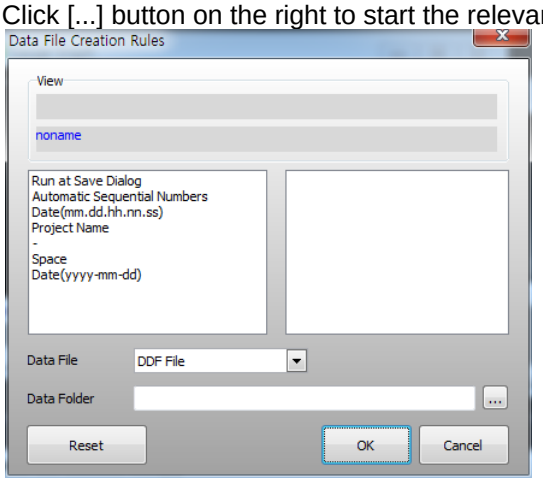
(2) Combo box type



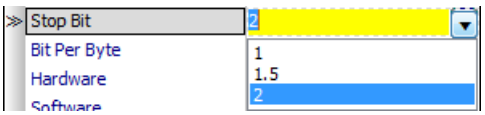
Click the combo button on the right to see a list of items to select.

(3) Run type

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



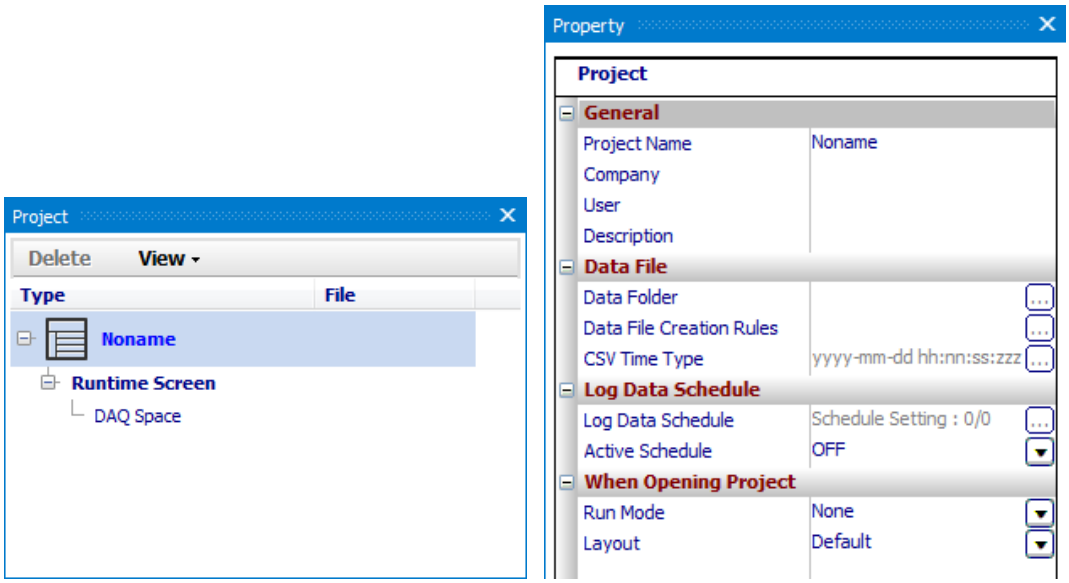
(4) Mixed edit-combo type



Enter numbet or text in the blank (within the range specified at the bottom) and select 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 (default: 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 opening option (run mode, layout).



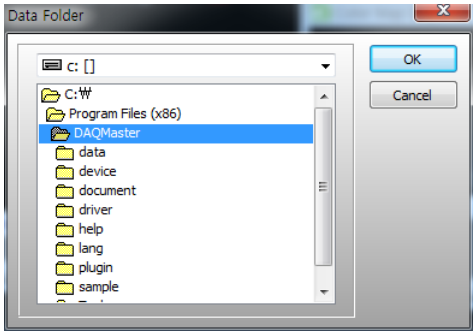
(1) General

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

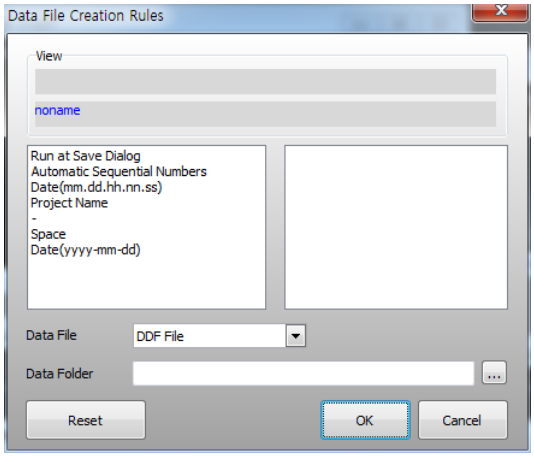
(2) Data File

You can designate log data automatic saving options: the folder to save, creation rule of data file, and time type of CSV..
Log data is available to save as *.csv or *.ddf file type.

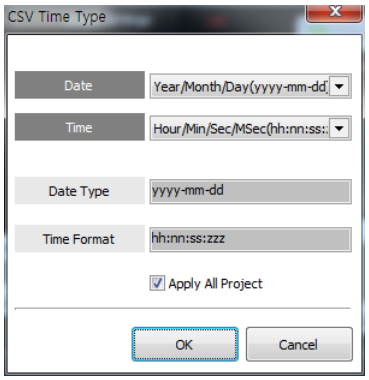
- Data Folder: Designates the folder to save project data.



- Data File Creation Rules: Designates creation rule of data file.

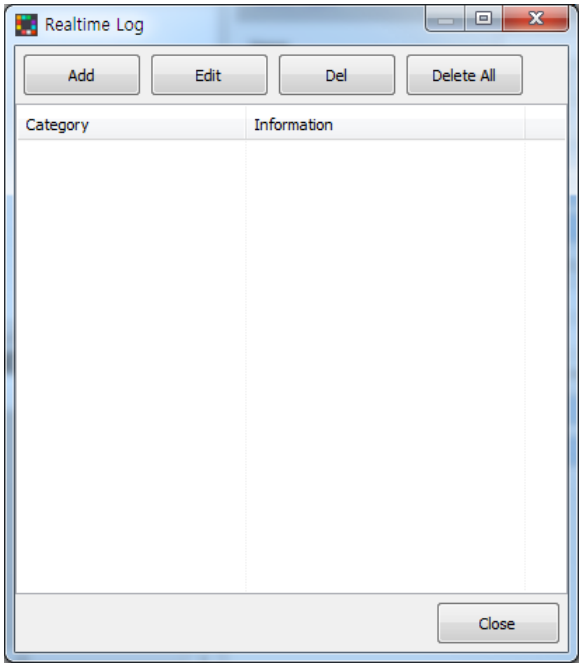


- CSV Time Type: Sets CSV time type.



- Realtime log: At the set cycle and condition, logging starts in real-time. It is available to set each I/O. This function is only for DAQMaster Pro version.

  When you click "Data File> Realtime Log[...]" at Project Property window, ‘Realtime Log’ dialog box appears. Click ‘Add’ button executes ‘Log Editor’.



  In the ‘Log Editor’ dialog box, you can set ‘Save Type’ of the real-time log file.

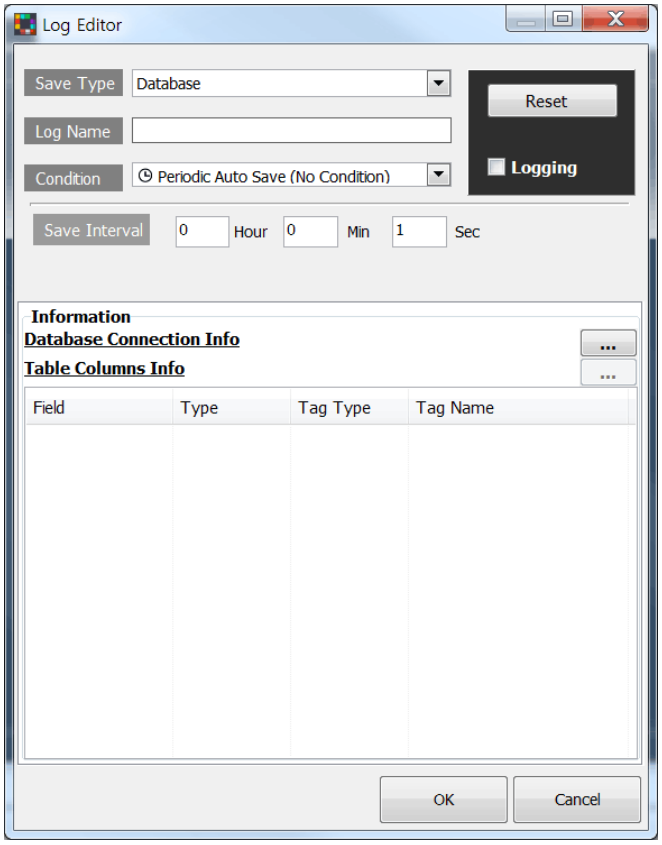
- When setting save type as ‘Database’,
Set log name, saving condition, and saving interval.

Saving conditions are following.

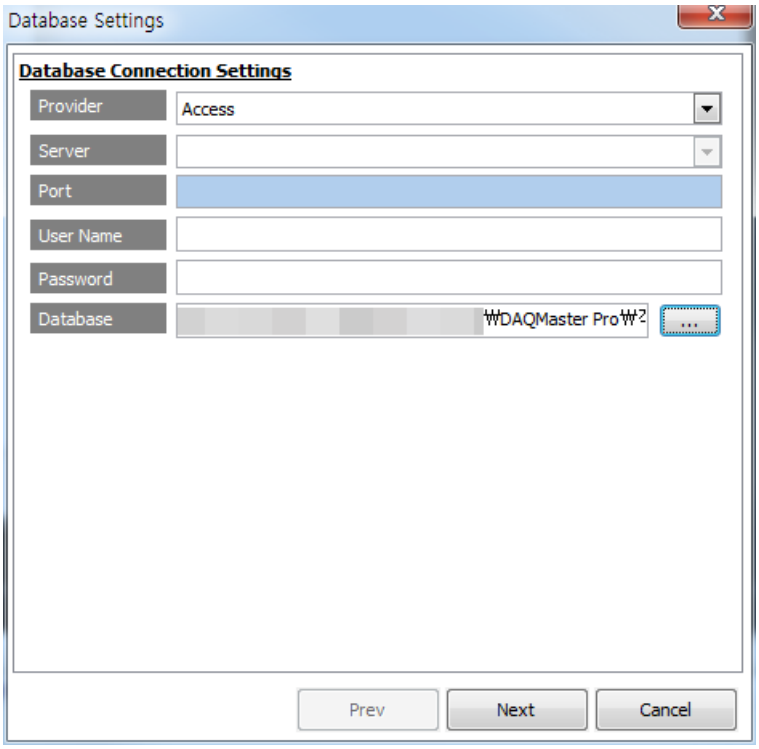
Condition	Description
Periodic Auto Save (No Condition)	No condition.
Equal	When selected tag value is equal to the set value, logging starts.
Less Than	When selected tag value is less than the set value, logging starts.
Greater Than	When selected tag value is greater than the set value, logging starts.
Equal or Less than	When selected tag value is equal or less than the set value, logging starts.
Equal or Greater than	When selected tag value is equal or greater than the set value, logging starts.
Not Equal	When selected tag value is not equal as the set value, logging starts.
Rising Edge	When selected tag value is rising edge, logging starts.
Falling Edge	When selected tag value is falling edge, logging starts.

In Information box, set ‘Database Connection Info’ and ‘Table Columns Info’.

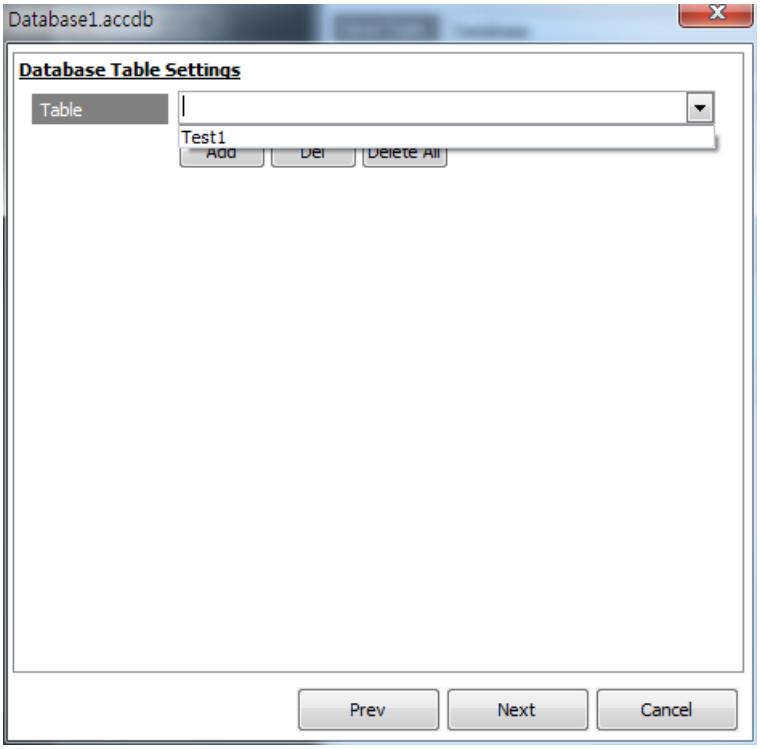
‘Table Columns Info’ is actiaved after setting ‘Database Connection Info’.

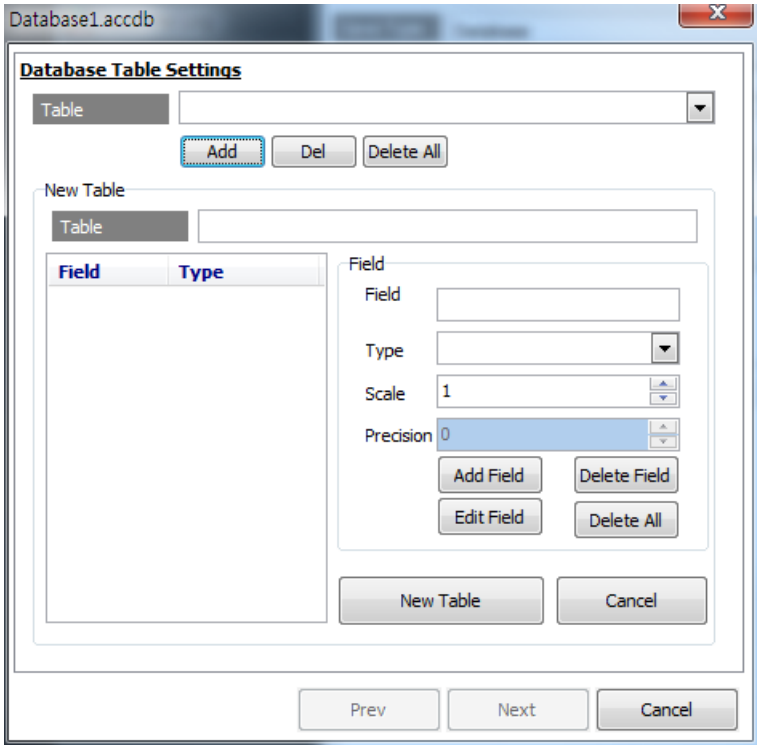


1st Click ‘Database Connection Info’ [...] button and ‘Database Settings’ dialog box appears. Set provider, server, port, user name, password and database.
It can access to various data base and provides I/O function.

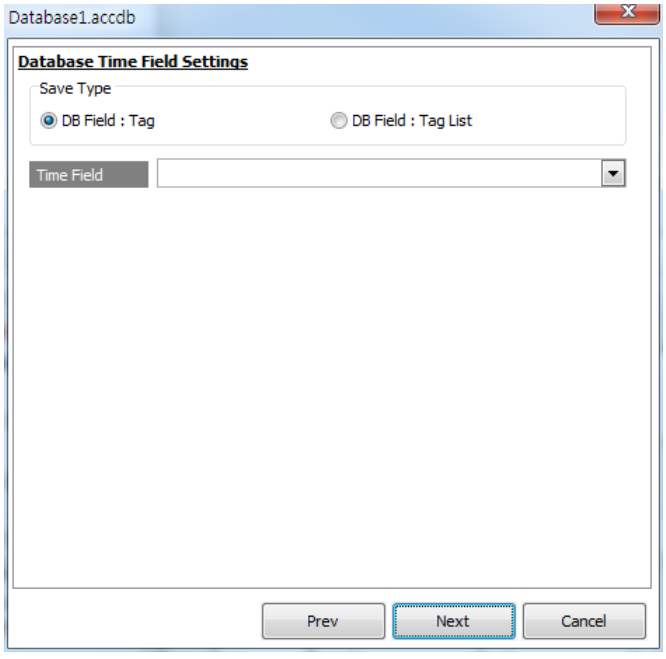


2nd After entering information, click [Next] and ‘Database Table Settings’ appears. Select the desired table or add the new table. Click ‘Next’.

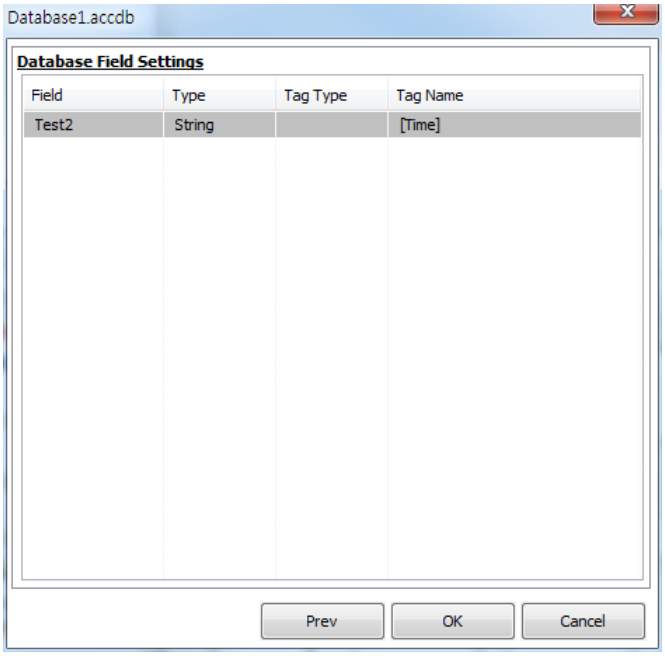




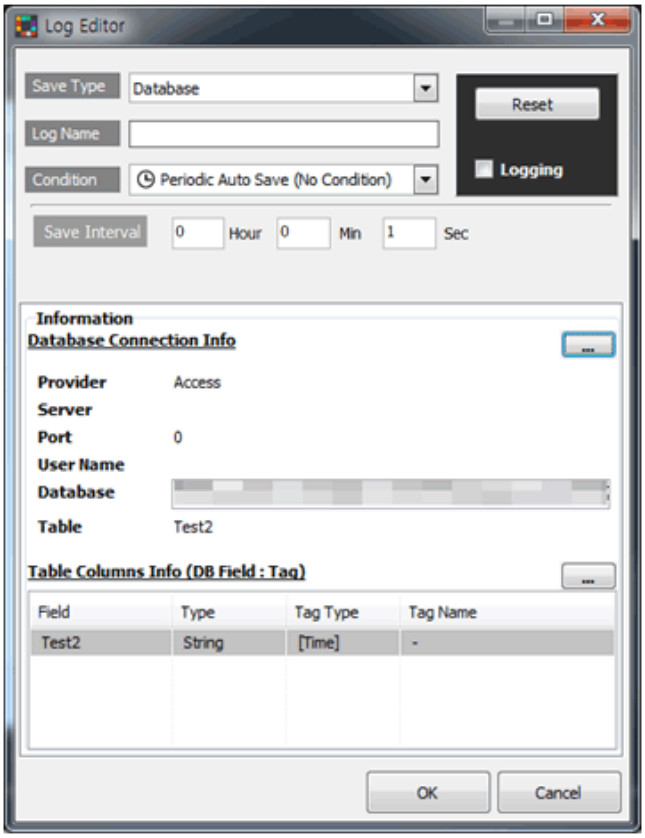
3rd At 'Database Time Field Settings', select save type and time field.



4th Check the data base file and click ‘OK’.



5th After completing the setting, Log Editor dialog displays the set database connection information. Table Columns Info [...] button is actiaved.



At ‘Table Columns Info’, it is available to check and edit elements: field, type, tag type, tag name

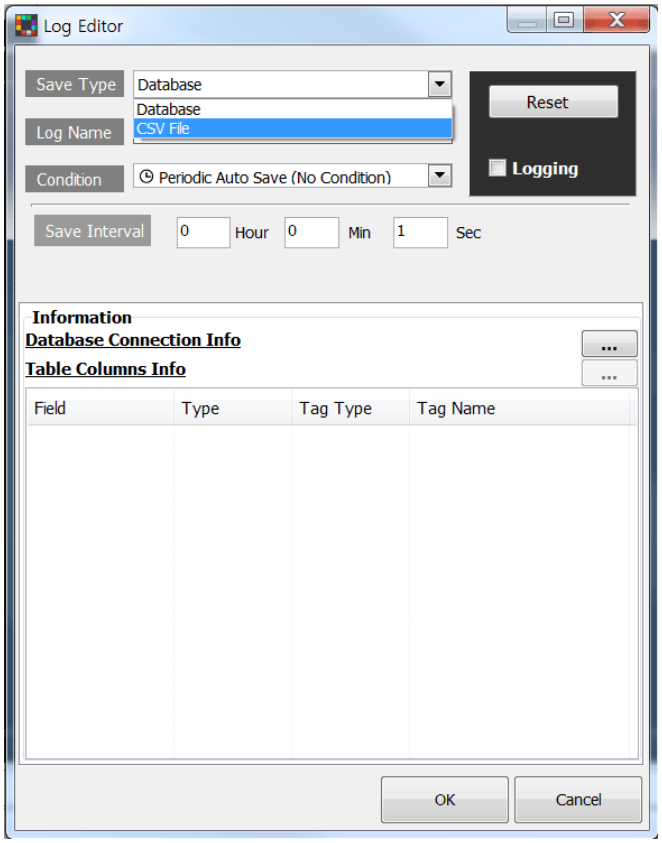
- When setting save type as ‘CSV File’,

Set log name, saving condition, saving interval.

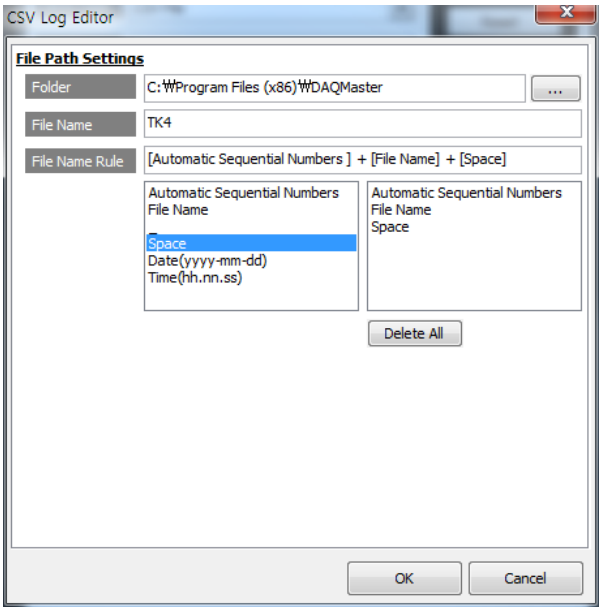
Saving conditions are following.

Condition	Description
Periodic Auto Save (No Condition)	No condition.
Equal	When selected tag value is equal to the set value, logging starts.
Less Than	When selected tag value is less than the set value, logging starts.
Greater Than	When selected tag value is greater than the set value, logging starts.
Equal or Less than	When selected tag value is equal or less than the set value, logging starts.
Equal or Greater than	When selected tag value is equal or greater than the set value, logging starts.
Not Equal	When selected tag value is not equal as the set value, logging starts.
Rising Edge	When selected tag value is rising edge, logging starts.
Falling Edge	When selected tag value is falling edge, logging starts.

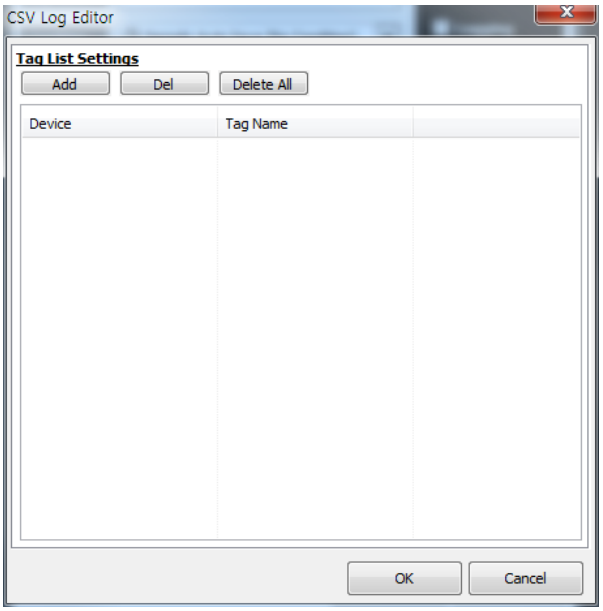
In Information box, set ‘File Path Information’ and ‘Tag List Information’ .



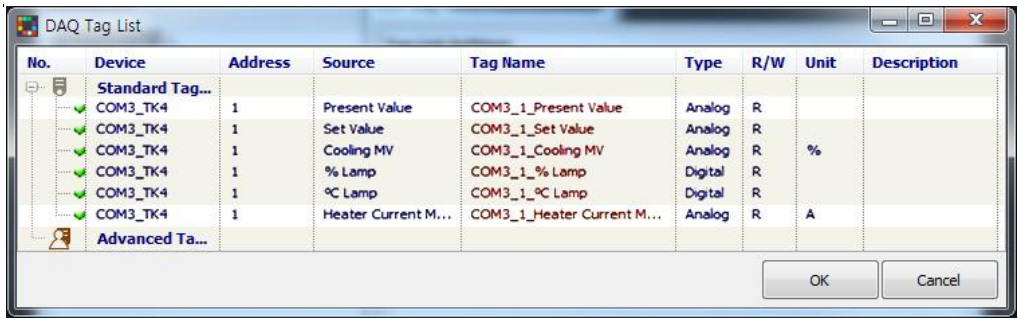
1st Click ‘File Path Information’ [...] button and ‘CSV Log Editor’ dialog box appears. Set file path settings: folder, file name, file name rule



2nd Click ‘Tag List Information’ [...] button and ‘CSV Log Editor’ dialog box appears. Set tag list settings.

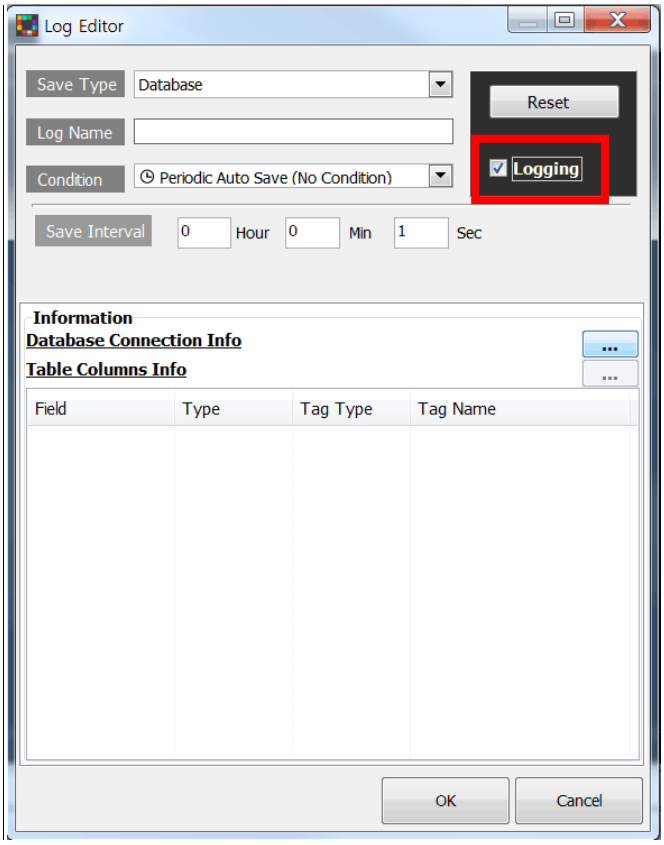


3rd Click ‘Add’ and DAQ Tag List is appears. Add tags.



4th If logging need to be started when executing DAQMaster, check ‘Logging’ at Log Editor dialog box.

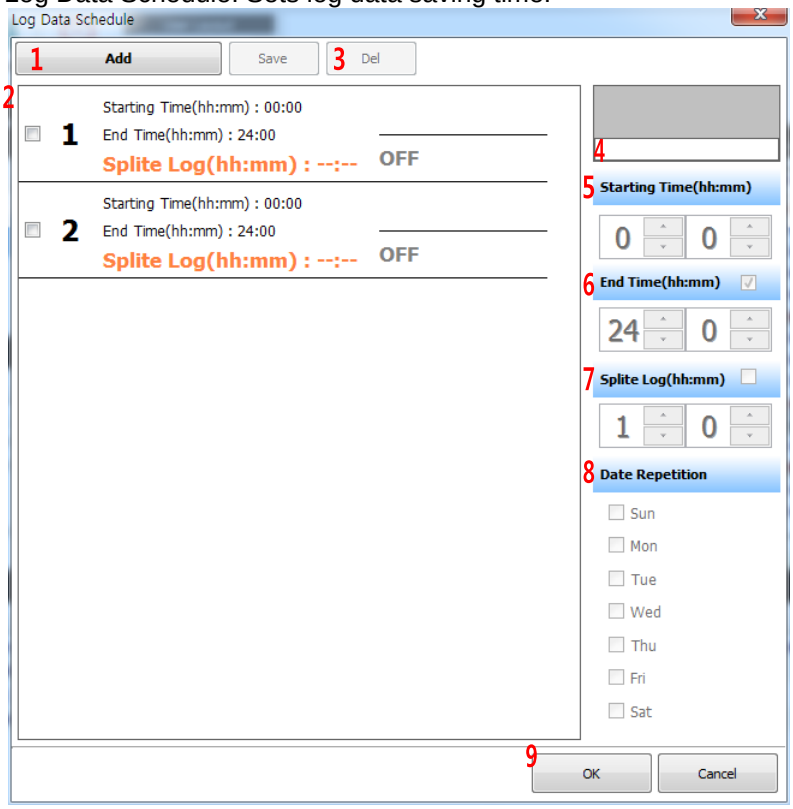
When checking ‘Logging’, the file (*.prx) is created at the set file path and logging starts.



(3) Log Data Schedule

Saves log data at the scheduled time automatically.

- Log Data Schedule: Sets log data saving 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 activate log data schedule.

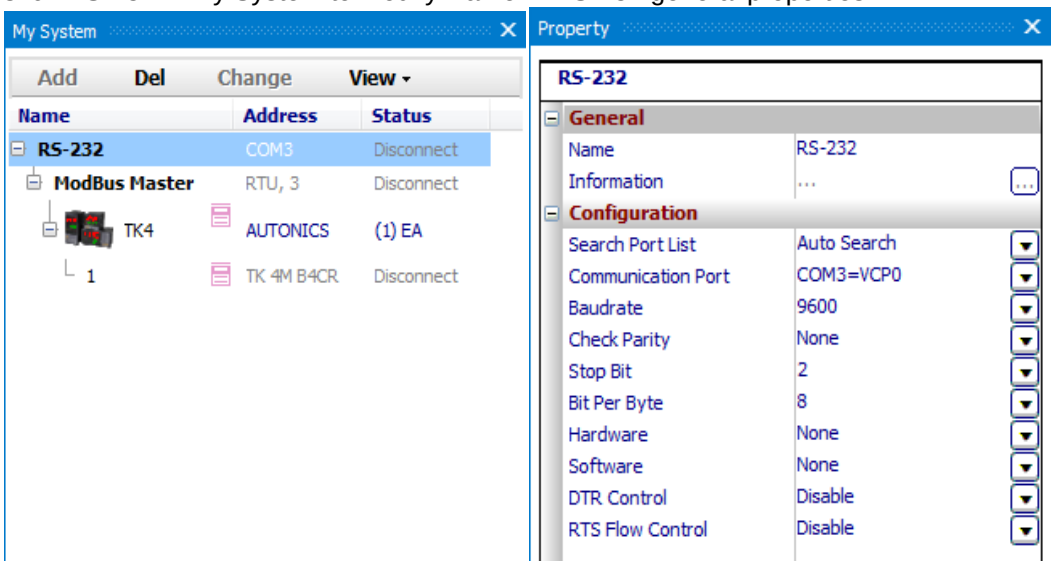
(4) When Opening Project

- Run Mode: Sets runing 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

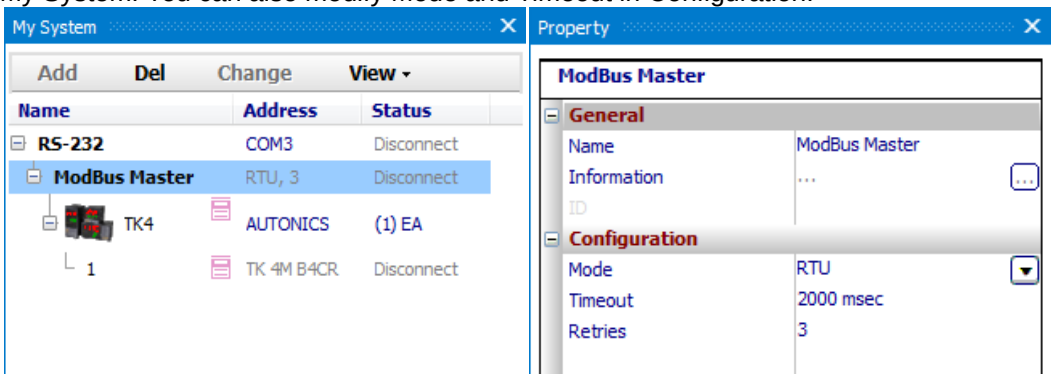
Click RS-232 in My System to modify Name in RS-232 general properties.



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

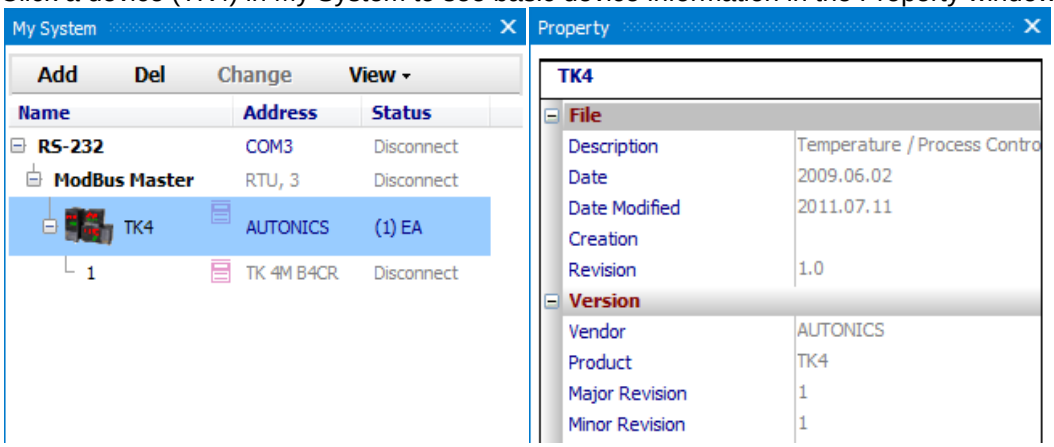
(2) Modbus Master

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.



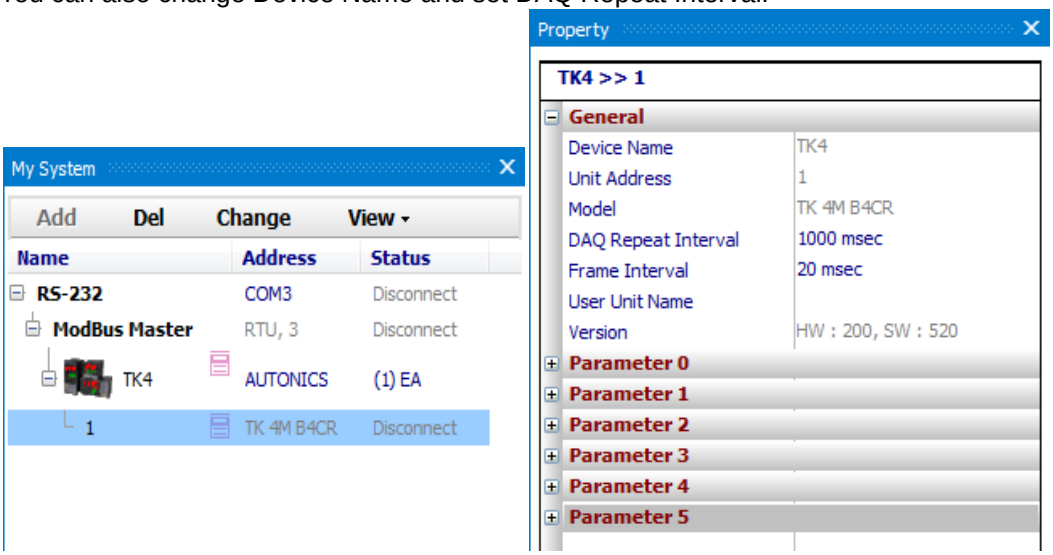
(3) Device (TK4)

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.

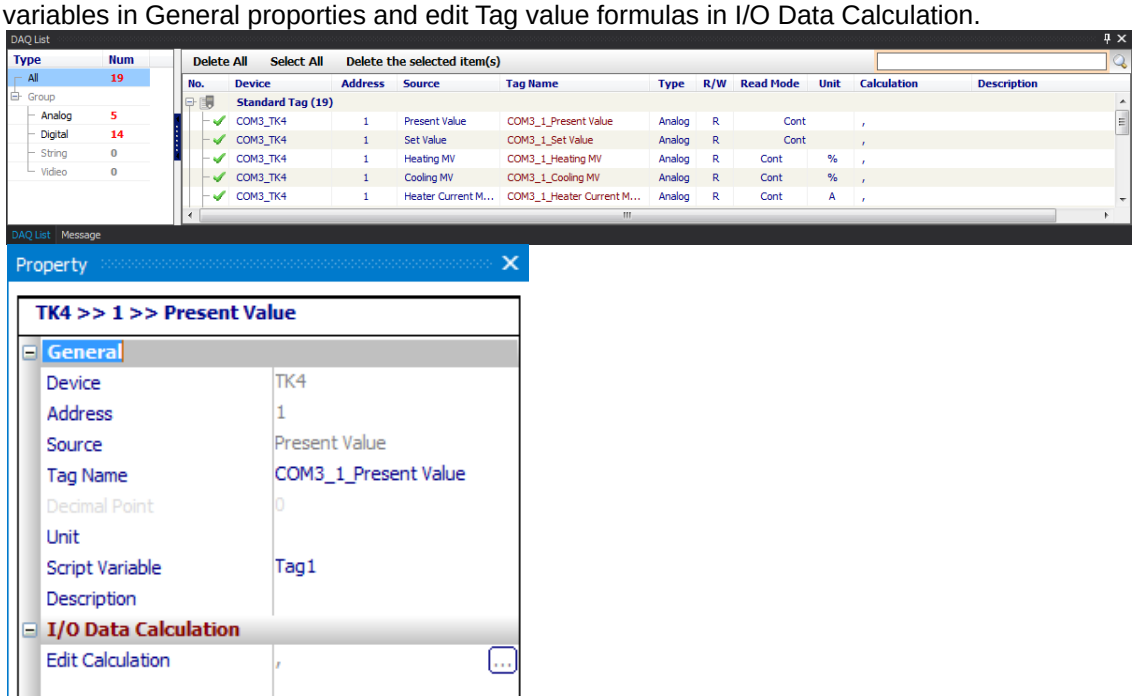


You can check and modify device parameters by reading parameters while devices are connected.

2.4.9.3 DAQ List Properties

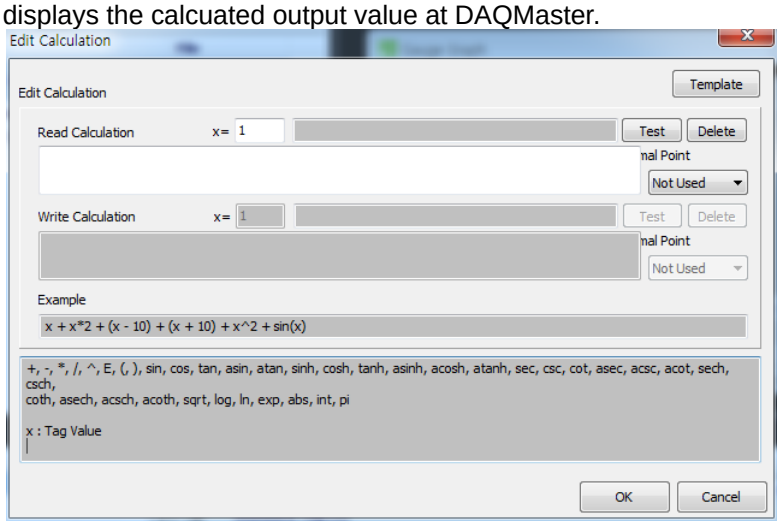
(1) General

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, Unit, and Screpts variables in General properties and edit Tag value formulas in I/O Data Calculation.

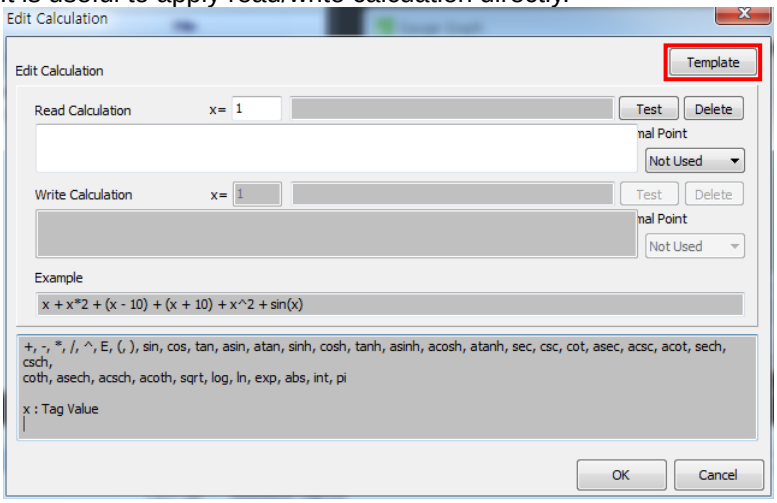


(2) I/O Data Calculation

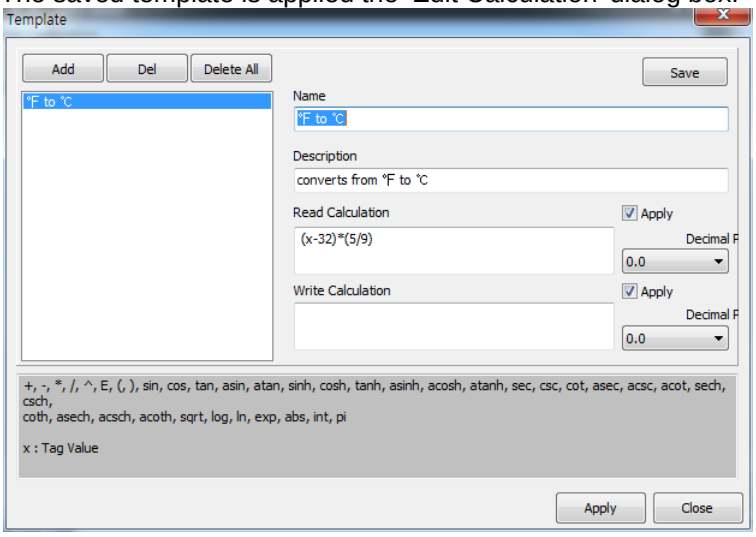
You can edit tag values at “Property > I/O Data Calculation > Edit Calculation”. When reading the tag value via editing calcuation at DAQMaster, you can get the desired data by applying the calcuation at data. ‘x’ means the output tag value from device. This function displays the calcuated output value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

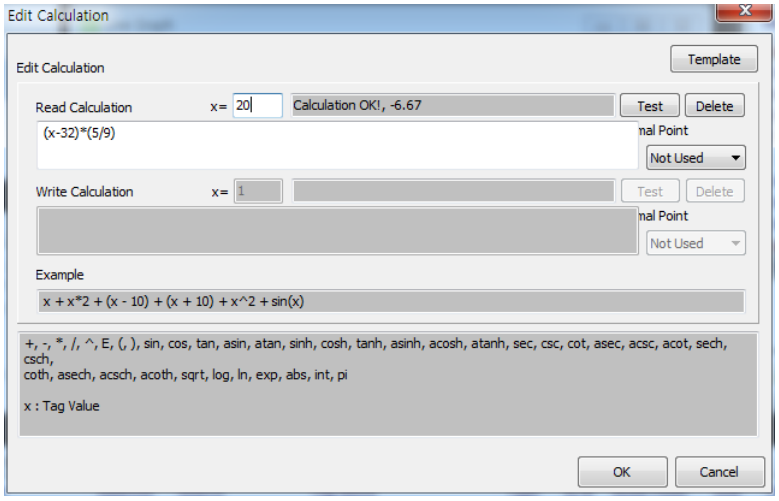


Click ‘Templete’ at the top-right of the dialog to edit and save the usually used calculations. It is useful to apply read/write calcuation directly.



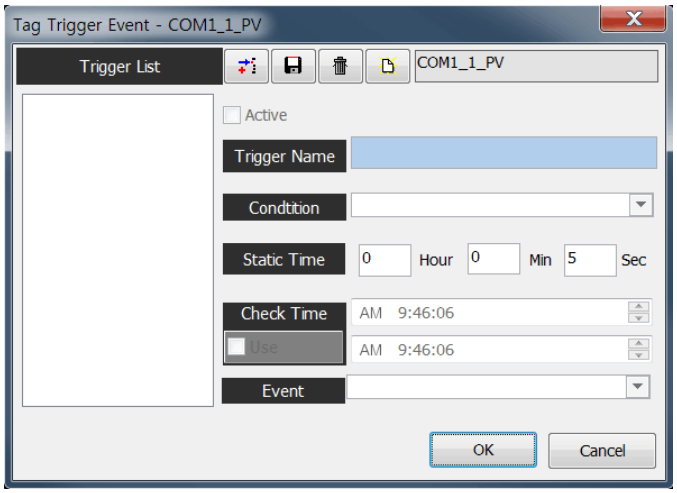
Enter the desired formular and click the ‘Save’ and ‘Apply’.
The saved template is applied the ‘Edit Calculation’ dialog box.





(3) Trigger

In “Property > Trigger > Conditions […] ”, you can set Trigger event executing conditions. When Tag velue matches the conditions, Triger event is activated as your setting.



- Trigger Management

Management	Description
Trigger list	Displays the saved triggers as list.
Add trigger	Adds a trigger on the trigger list. You can set trigger name, conditions, etc.
Save trigger	Saves the added trigger at the trigger list.
Delete trigger	Delete the selected trigger on the trigger list.
Delete all triggers	Delete all triggers on the trigger list.

- Trigger conditions

Conditions	Description
Periodic Auto Save (No Condition)	No condition.
Equal	When selected tag value is equal to the set value, trigger starts.
Less Than	When selected tag value is less than the set value, trigger starts.
Greater Than	When selected tag value is greater than the set value, trigger starts.
Equal or Less than	When selected tag value is equal or less than the set value, trigger starts.
Equal or Greater than	When selected tag value is equal or greater than the set value, trigger starts.
Not Equal	When selected tag value is not equal as the set value, trigger starts.
Rising Edge	When rising edge signal is input, trigger starts.
Falling Edge	When falling edge signal is input, trigger starts.
Static Maintain	When the value is maintained during the set time, trigger starts.

  - Check Time

    When the set trigger condition is satisfied during the set check time, trigger starts.

- Event

Condition	Description
Log Start	When tag value maches the set condition, logging stars.
Log Stop	When tag value maches the set condition, logging stops.
Send to Telegram	When tag value maches the set condition, Telegram message is sent to the designated person.
Alam sound play	When tag value maches the set condition, alam sound is played. You can select audio file you want. (supported audio file format: *.mp3, *.mp2, *.wav, *.ogg)
Tag Error Message	When the trigger condition is satisfied, the run time list data cell color of this tag is changed. Data value is displayed as 'Tag error' and it is displayed same as log file.
Tag Alarm	When the trigger condition is satisfied, the run time list data cell color of this tag is changed. Data value is displayed as the actual data value.

※1. Telegram setting

Telegram is a nonprofit open source internet messanger, available in diverse operating system such as Android, IOS, Window, MAC and Linux. It provides users with source code, encouraging them to develop desired funtions with the messanger.

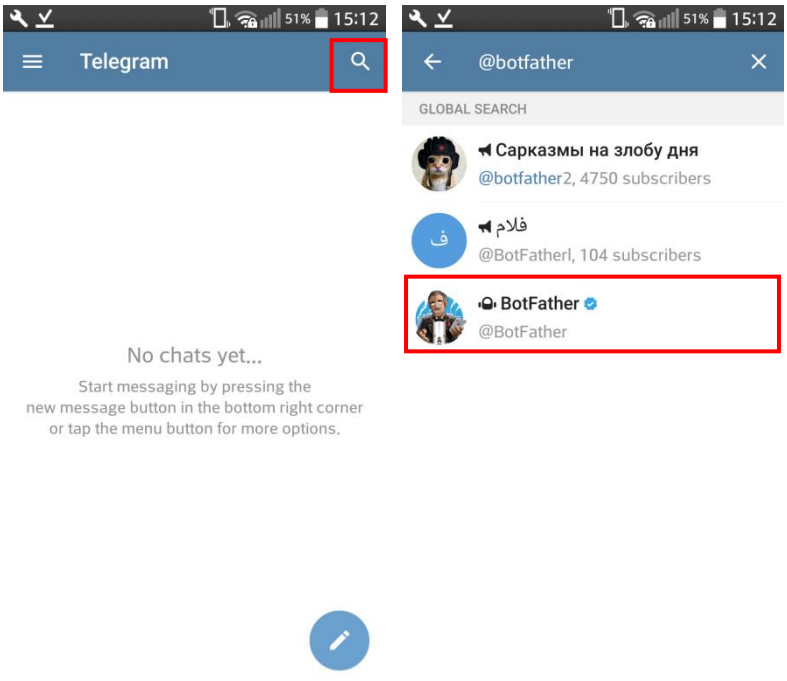
By the Bot, virtual conversation contact, when tag value maches the set condition, Telegram message is sent to the designated person. (Internet connection is required.)

By telegram functions, you can share the massage to the other groups and search the messages. Please refer to the telegram usage. (Android and IOS system have a identical setting process. This manual explains with Android)

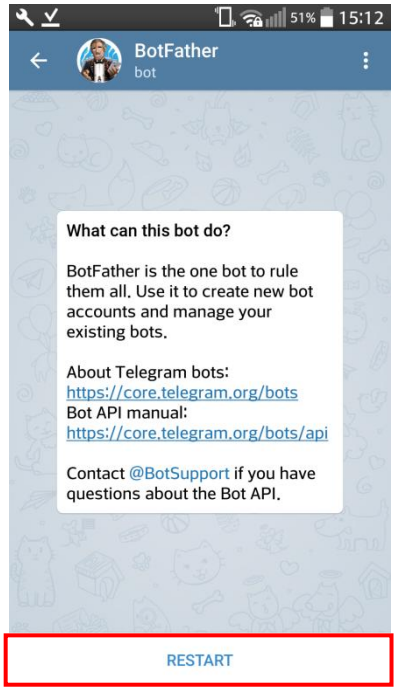
1st Search "Telegram" at the Andriod Play store and download the application.

2nd You have to creat and register a virtual robot called Bot to receive messages from DAQMaster.

In contats of Telegram, search and select @Botfather at the upper the magnifying glass icon.



3rd Click ‘Start’ at the below button of the display.

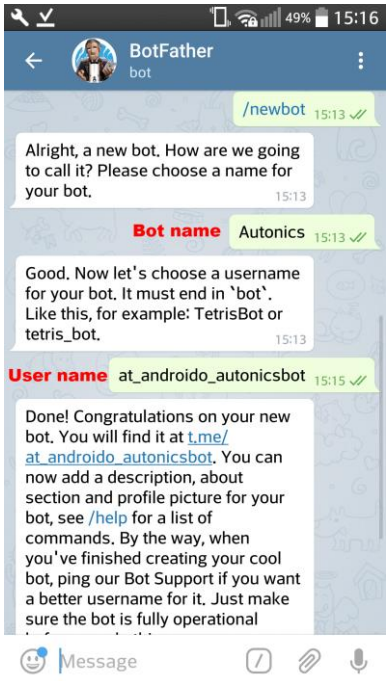


4th Enter ‘/newbot’ in the message box to creat your own Bot.

According to the BotFather message, name a Bot name, Bot user name (must end in ‘bot’ or ‘Bot’).

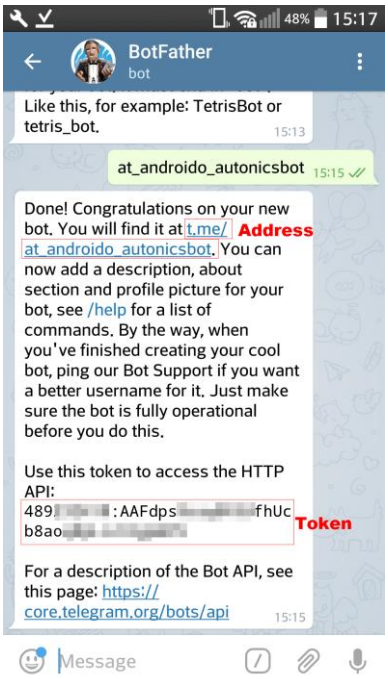
Bot user name is for identifying name at the telegram. It must end in ‘bot’ or ‘Bot’. If the other named the designated name already, it is not used in duplicate.

(E.g. Bot name: Autonics, user name:at_androido_autonicsbot)



5th Then you are provided with address to chat with the created Bot and token to connect your Bot and DAQMaster.

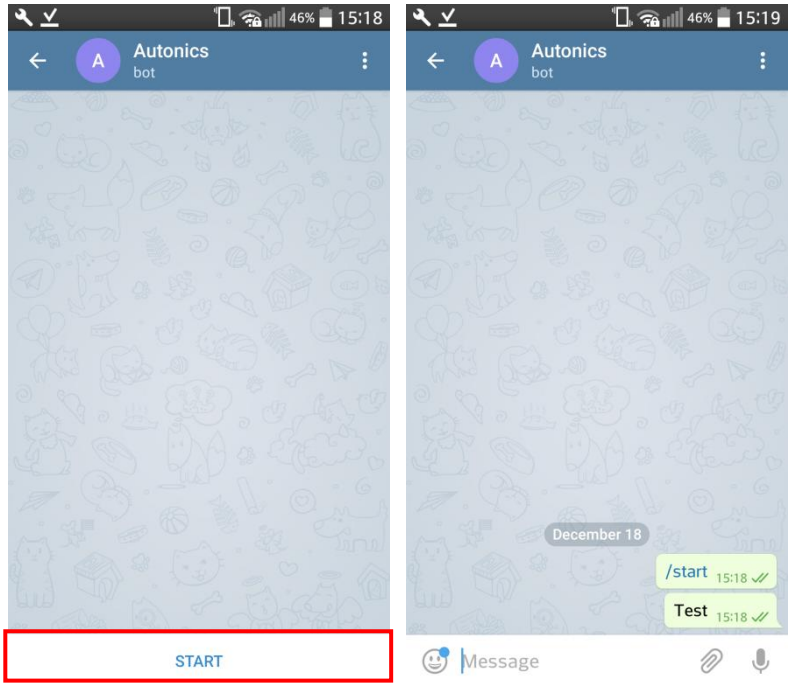
Click the given address to join chat with the Bot.



6th Click 'Start' at the button of the display.

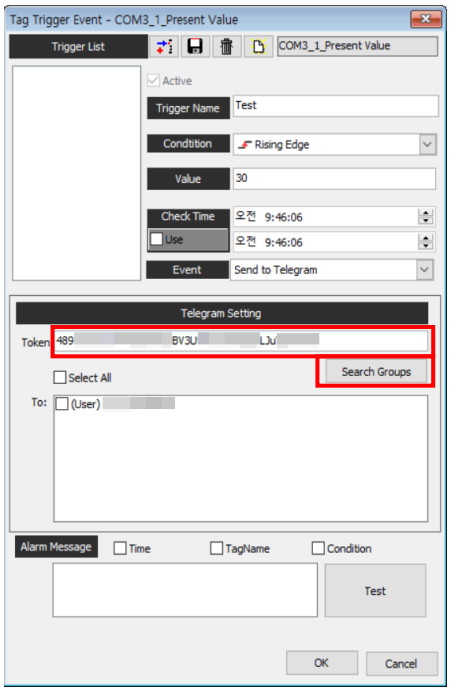
One or two times of free conversation are necessary prior to receiving message from your Bot.

If you send the messages, the group may be not searched.

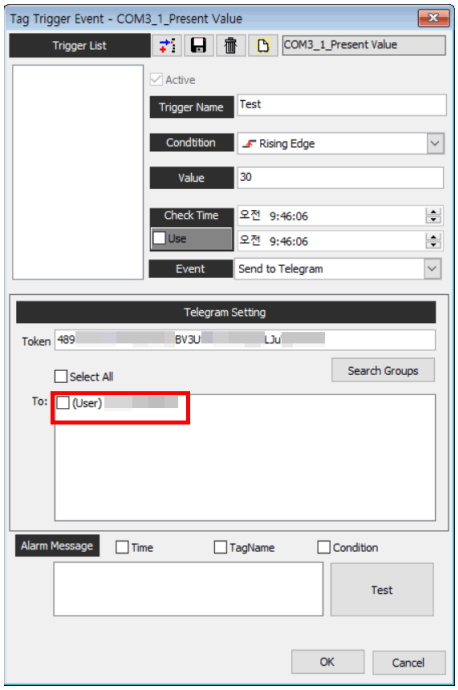


7th At DAQMaster, select the I/O to apply trigger and click “Property > Trigger > Conditions […] ” and ‘Tag Trigger Event’ dialog box appears. Add trigger and enter condition/value and select Event as ‘Send to Telegram’. Telegram settings are available.

8th Go back to the DAQMaster, enter the token of 5th step in the token blank in Tag Trigger Event dialog. Click ‘Search Groups’.

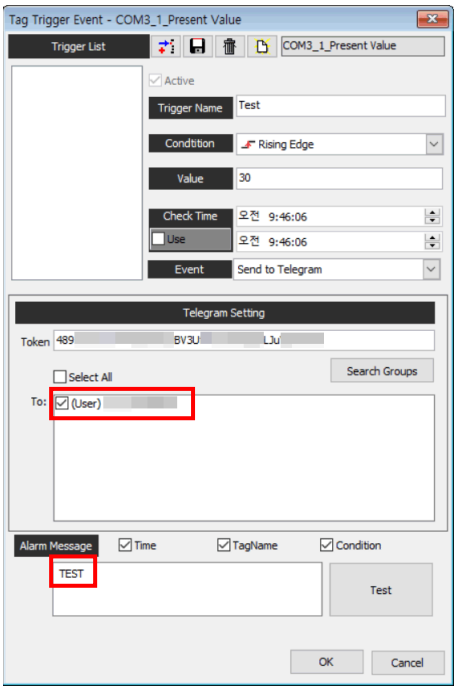


9th You can see user name of chat relevent to the token.

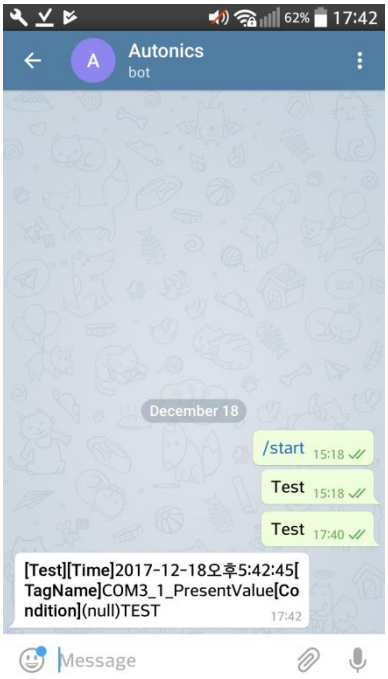


10th Check the desired receiver and select chat to use and choose alam message format among time, tag name, and condition.

After enter test message in the bottom blank, click ‘Save and Test’ button.



11th You can receive test message in Telegram



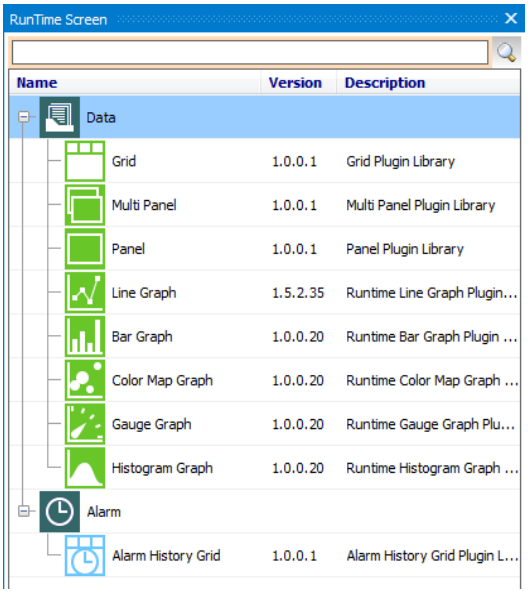
12th Telegram message setting is completed.

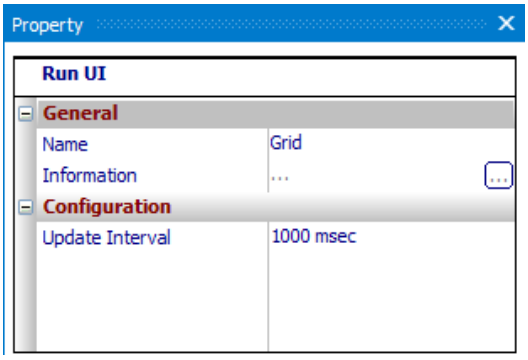
When tag value maches the set condition, Telegram message is sent.

2.4.9.4 *Runtime Properties*

You can desigante 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.

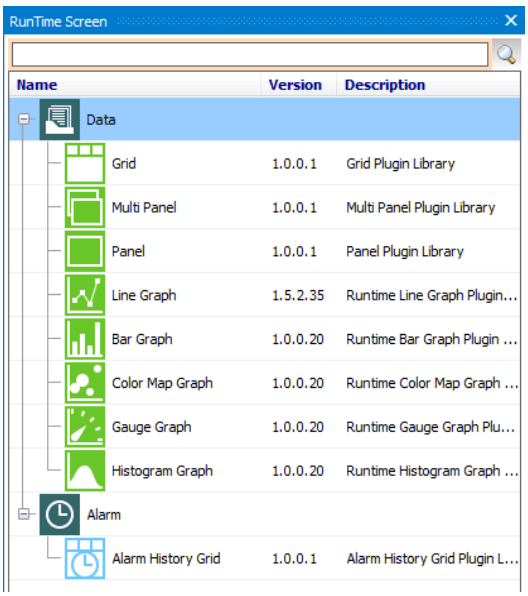
You can modify the name of the Grid in Run UI general properties by clicking Grid at Runtime Screen in Project dialog. You can also modify Update Interval time in Config. (Default: 1,000 ms.)

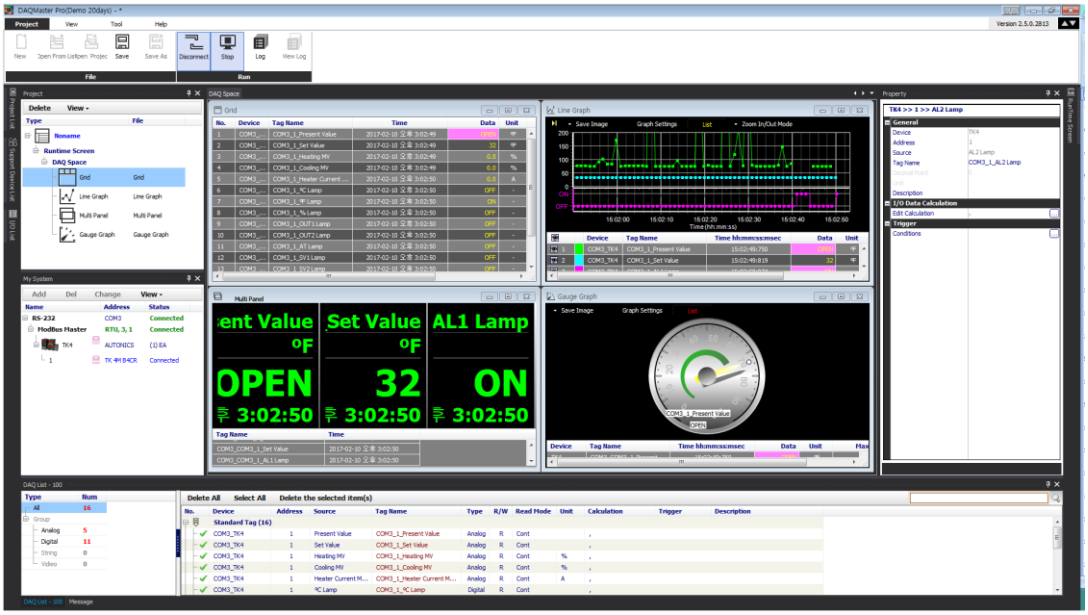




2.5 Runtime Screen Library

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



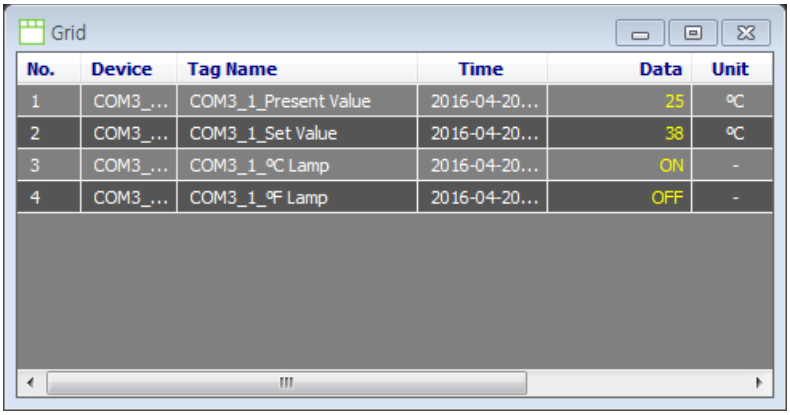


Runtime Screen Library is a list of runtime screens for data monitoring.

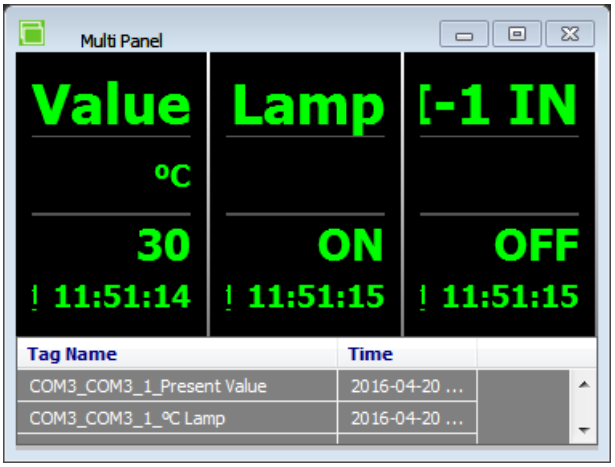
Runtime screens support Data: Grid, Multi Panel, Panel, Line Graph, Bar Graph, Color Map Graph and Gauage Graph, Histogram Graph, Device: Alarm History Grid. You can open multiple screens at the same time for monitoring. Information such as screen position, screen size and I/O source is saved when saving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

2.5.1 Data

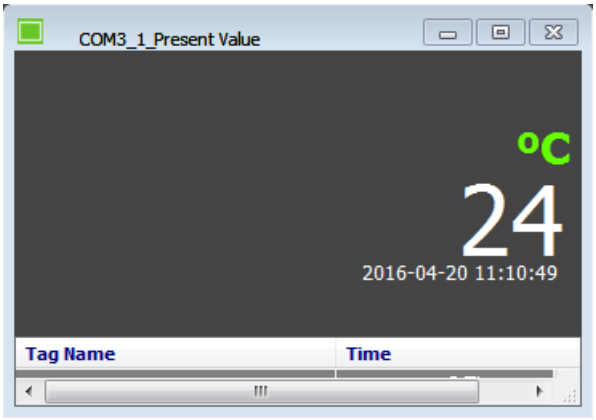
(1) Grid



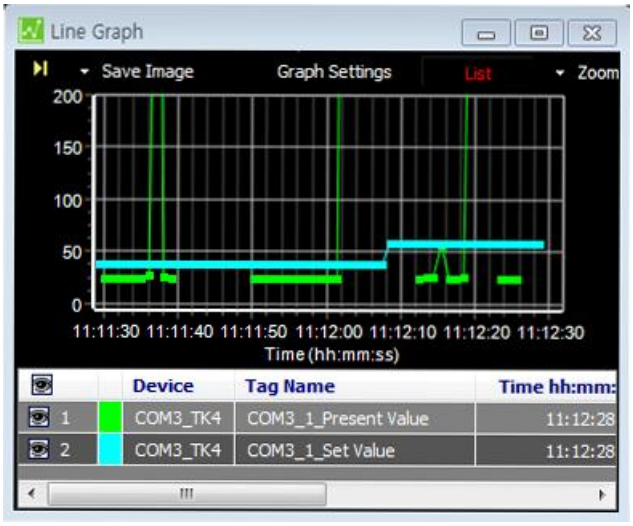
(2) Multi panel



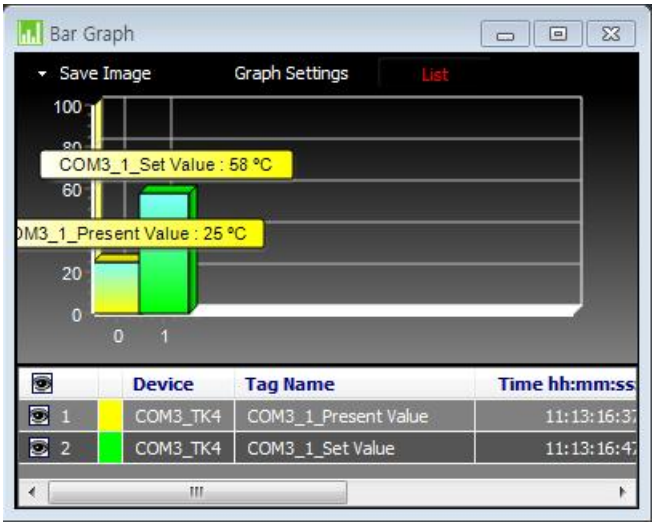
(3) Panel



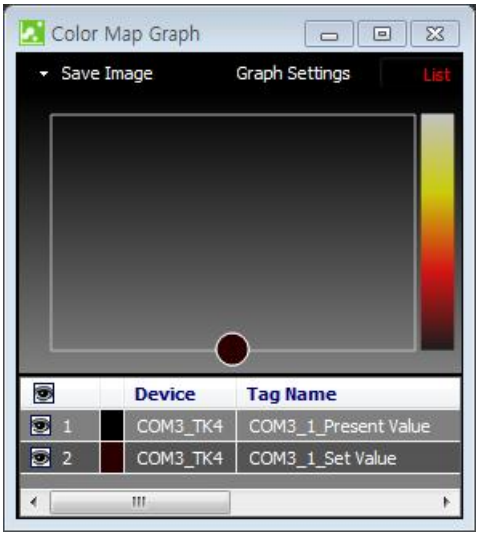
(4) Line Graph



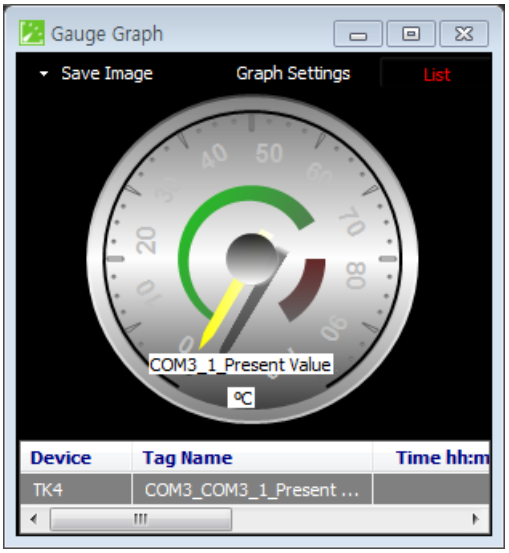
(5) Bar Graph

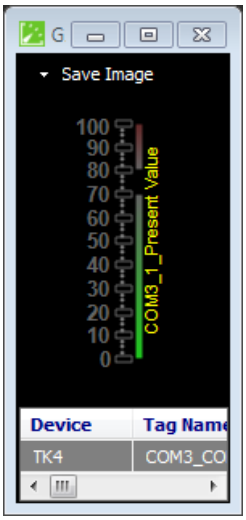


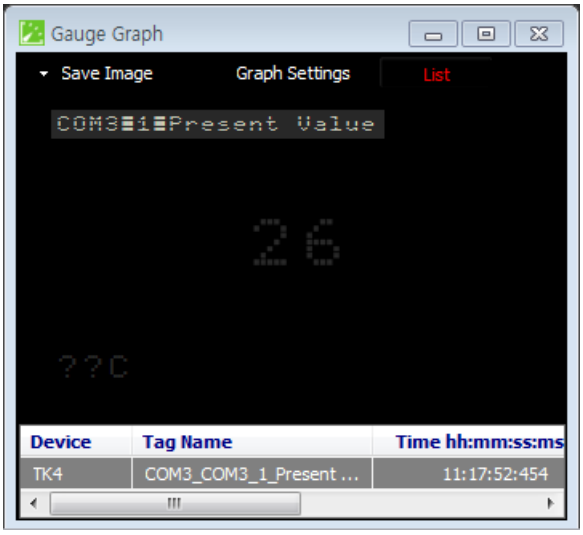
(6) Color Map Graph



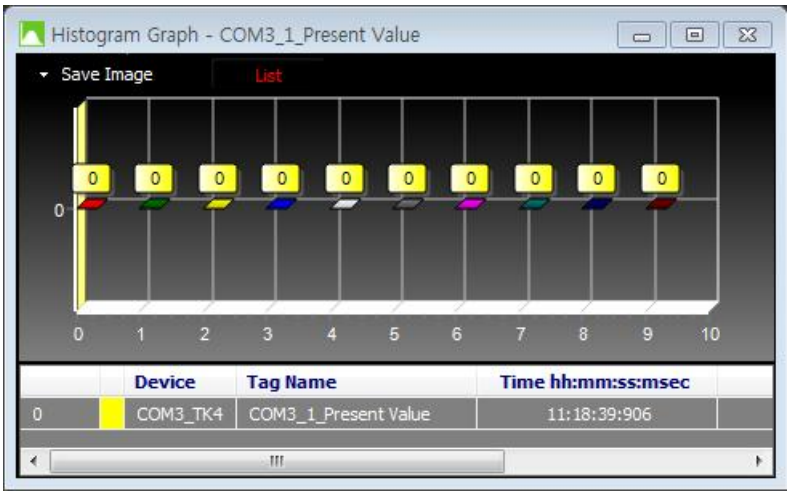
(7) Gauge Graph





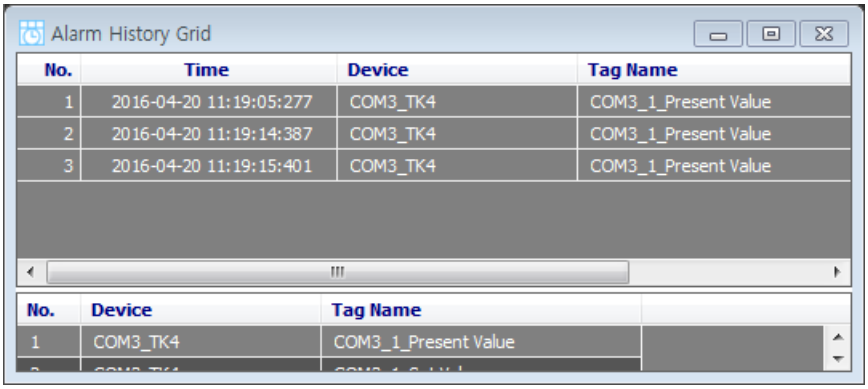


(8) Histogram Graph



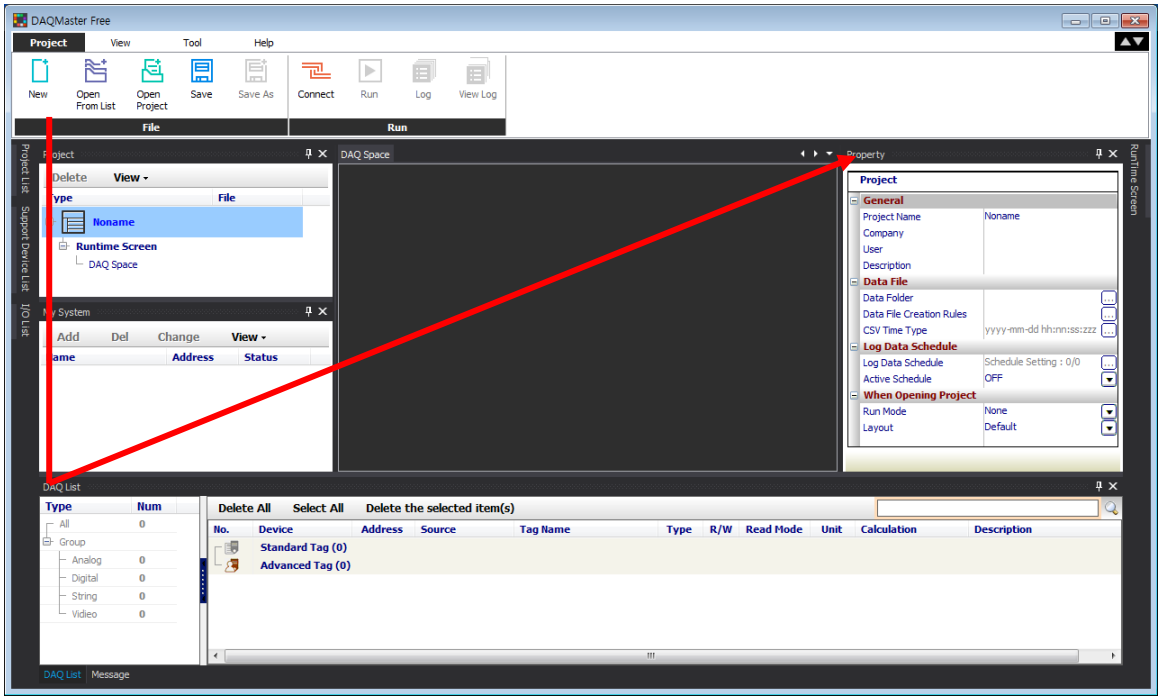
2.5.2 Alarm

(1) Alarm History Grid



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 in the very left side of the screen and add it to My System.

2nd Select a device from My System and add a relevant unit (address).

3rd From the very left I/O List, add I/O items for monitoring to DAQ List at the bottom.

4th Select a monitoring screen from Runtime Screen library in the very right side of the screen.

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.

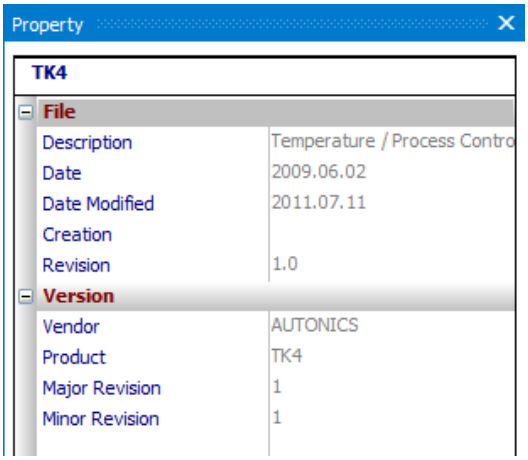
First, select the device to communicate with from the Supported Device List. The Support Device List (docking screen) is a list of devices supported by DAQMaster. You can only communicate with listed devices.(The Support Device List will be updated continuously).

Below is the example screen for the currently supported devices(as of February, 2017).

Type	Series/Model name	Function
Autonics	ARM	Modbus Digital Remote I/O
	BFC	Digital Display, Fiber Optic Amplifier
	CT	Programmable Counter (Timer)
	DS(A)-xT	Intelligent Display Unit
	DS-RRT	Intelligent Display Unit
	MP5	Pulse Meter (Modbus RTU)
	MP5W	Pulse Meter
	MP5Y	Pulse Meter
	MT4	Multi Panel Meter
	SCM-USU2I	2-CH USB Temperature Data Logger
	SCM-WF48	SCM-WF48 Configuration
	TF3	Refrigeration Temperature Controller
	THD	Temperature/Humidity Sensor
	TK4	General-Purpose Temperature Controller
	TM2	2-CH Modular Type Temperature Controller
	TM4	4-CH Modular Type Temperature Controller
	TX	LCD Display Temperature Controller
	TZ/TZN	Dual PID Control Temperature Controller
Miscellaneous	Database	Database
	DDE Client	DDE Client
	OPC Client	OPC Client

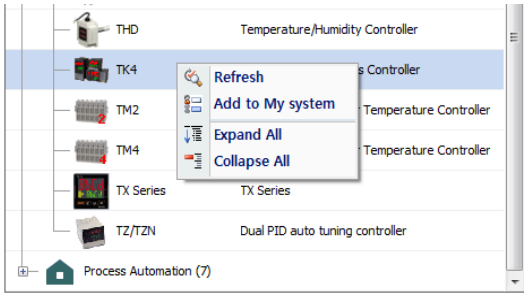
Type	Series/Model name	Function
	WMI Manager	WMI Manager
Process Automation	DPU (1-Phase)	Thyristor Unit
	DPU (3-Phase)	Thyristor Unit
	KN-2000W-D2	Multi Input Indicator
	KPN	Digital Process Controllers
	KRN50	50mm Hybrid Recorder
	KRN100	100mm Hybrid Recorder
	KRN1000	LCD Touchscreen Paperless Recorder
Devices made in Script Editor		

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 (+) in the Support Device List, the spesific list of support device 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 click Add to My System to add the device.

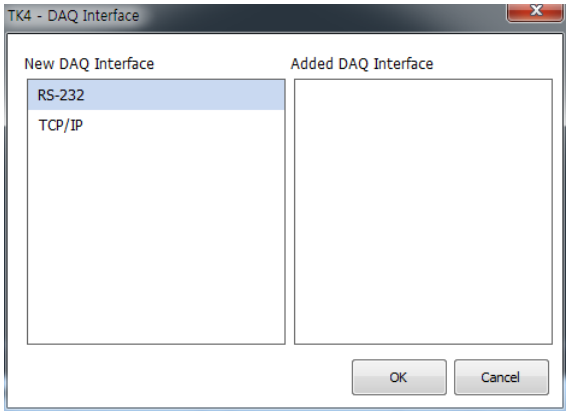


- Refresh: Updates Support Device List when device files (*.dev) are added.
- Add to my system: Adds device to My System to communicate.
- Expand all: Shows the list of all supported devices.
- Collapse all: Hides the list of all supported devices.

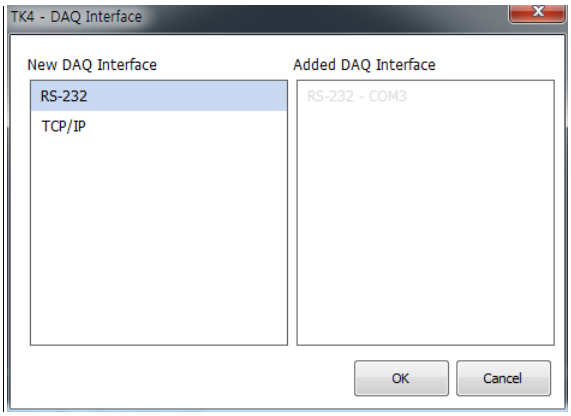
Double-click RS-232 or TCP/IP on the new DAQ interface, or select it and click OK.

(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.



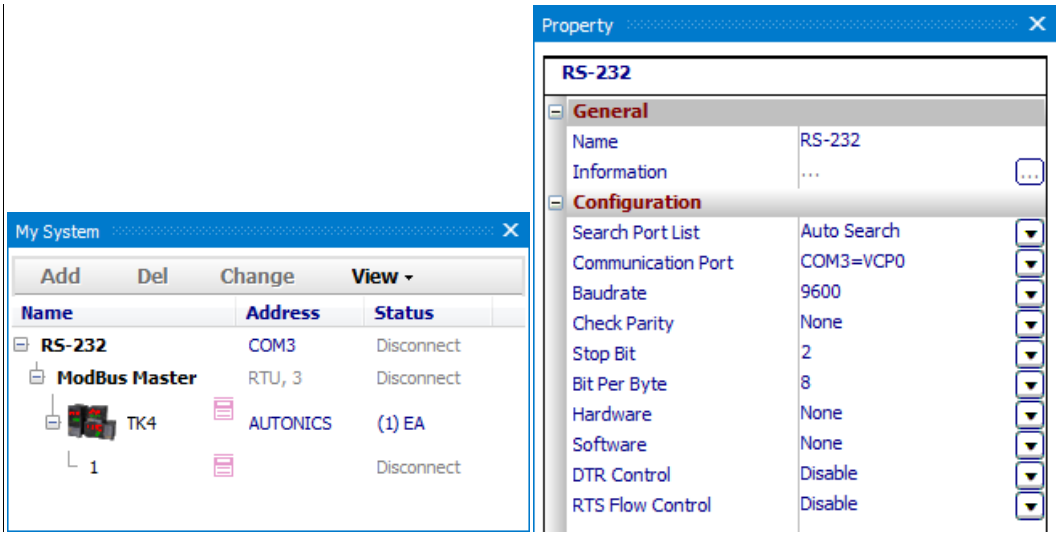
If there is another devices added earlier, you can see added RS-232-COM1 on the Added DAQ Interface.



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.

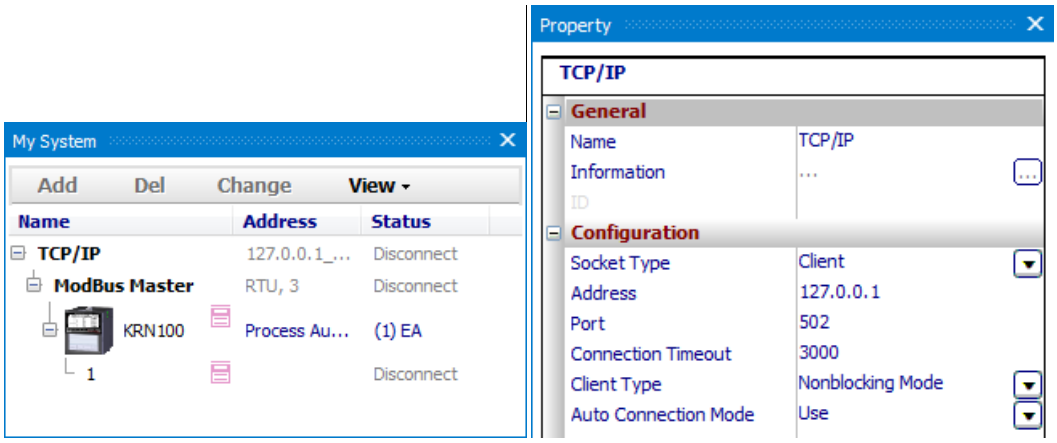
If you want to change the name in My System, modify Name in Property window.

The Config items are following.

Item		Description
Search Port List	Fix Init List	Loads communication port list of computer at the point when RS-232 is added, saves it to the Port List and then fixes it.
	Auto Search	Rearranges Port list, if the port list of computer (such as USB 232) is changed.
Communication Port		Shows choice of connectable COM Ports. You can 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.



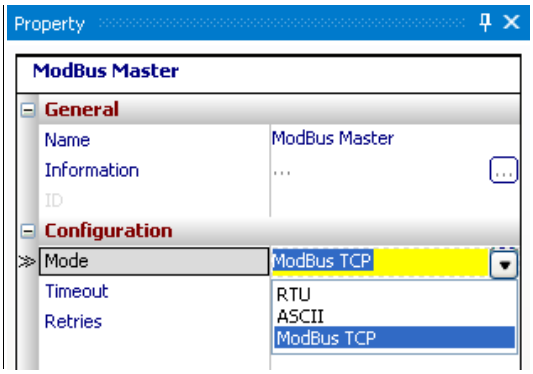
Property window displays information about the communication port currently in use.

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

The Config items are following.

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		Sets Connection Timeout
Client Type	Non Blocking	After transmission, next transmission is available regardless of response.
	Blocking	After transmission, next transmission is available after receving response.
Auto Connection Mode	Use	Uses auto connection mode.
	Not used	Not use auto connection mode.

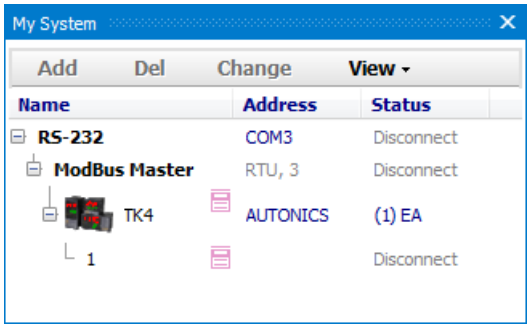
At ModBus Master property, set Mode of Config as ModBus TCP.



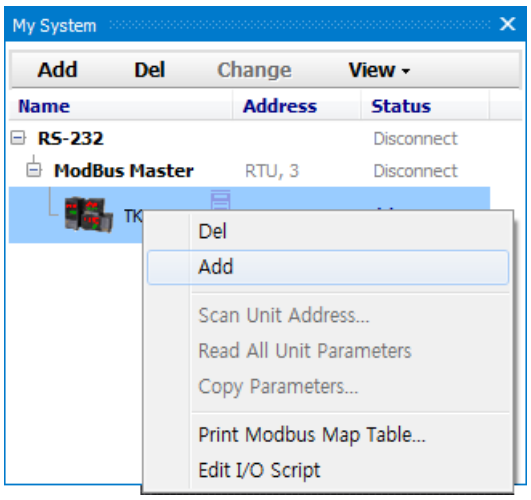
3.3 Adding a Unit to My System

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).

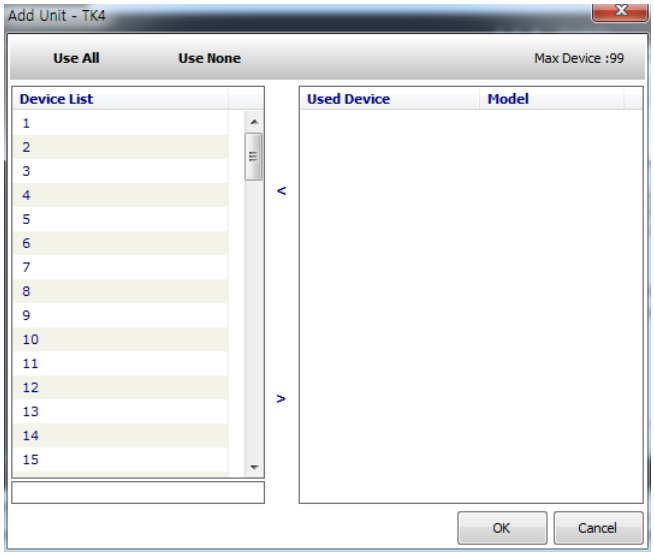
By selecting an item, you can set or modify it in Property window.

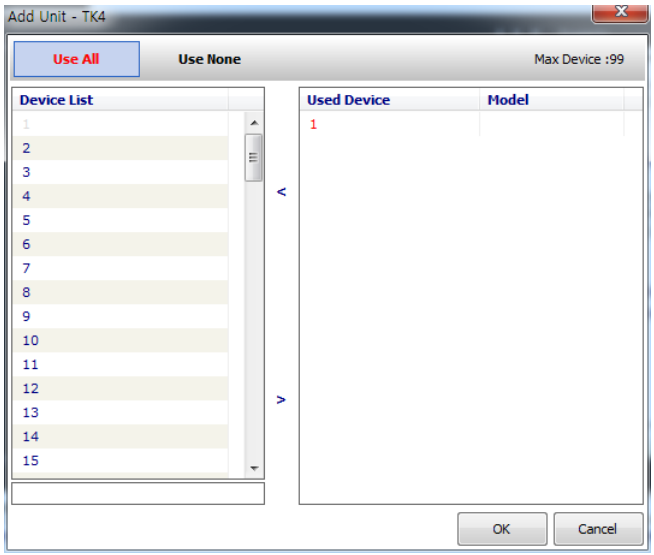


Selecting TK4 device enables Add button. To add a unit(address), click the Add button on the tab or right-click on mouse to select Add.

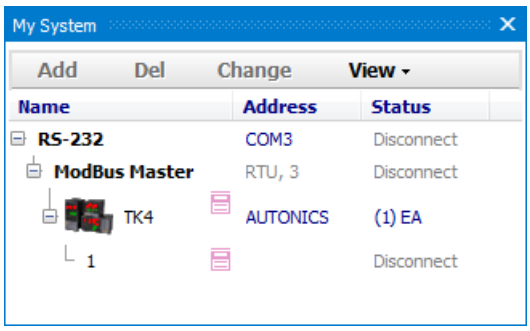


Select address (number 1) set to TK4 device. Double-click or use '>' button to add, then click OK button.

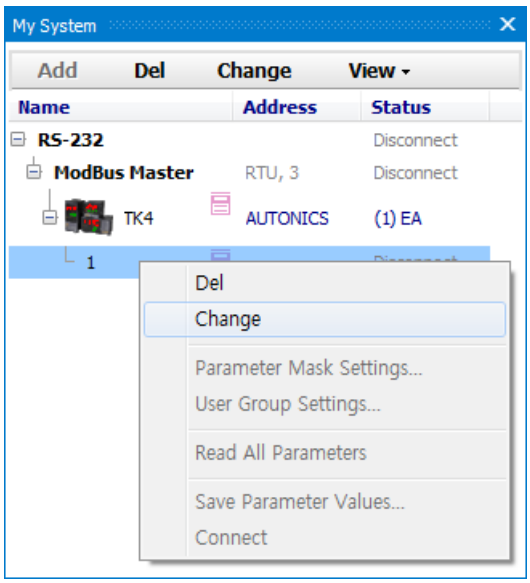




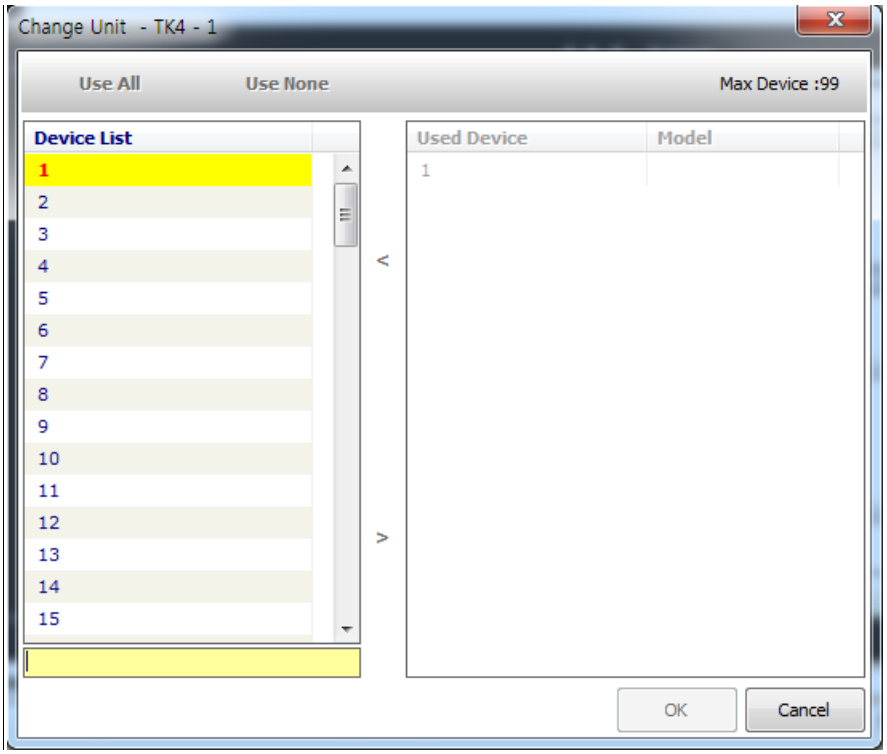
You will see the unit (address: 1) added under the device in My System. If you want add same type of multiple devices, click Add button. (Up to 99 devices can be added.)



Selecting the unit address (1) activate 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.



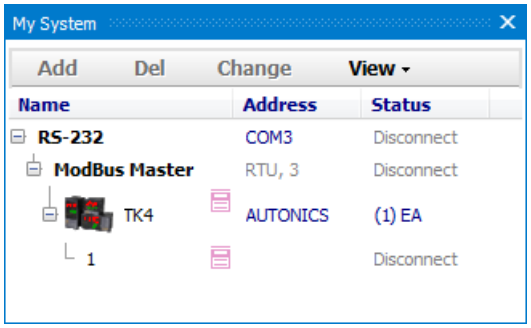
Note

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

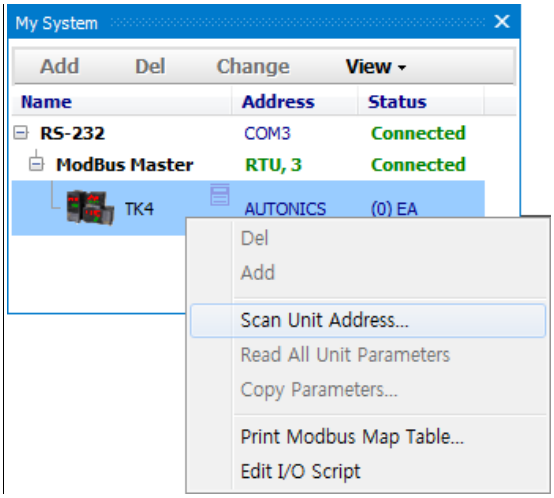
3.4 Scan Unit

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

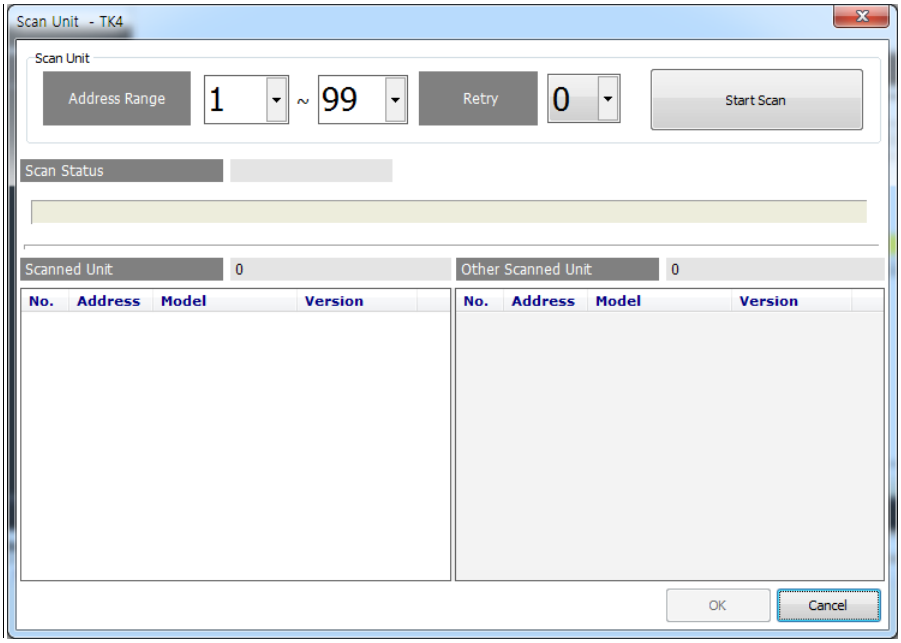
1st Add TK4 device and configure RS-232 environment as below. And then connect.



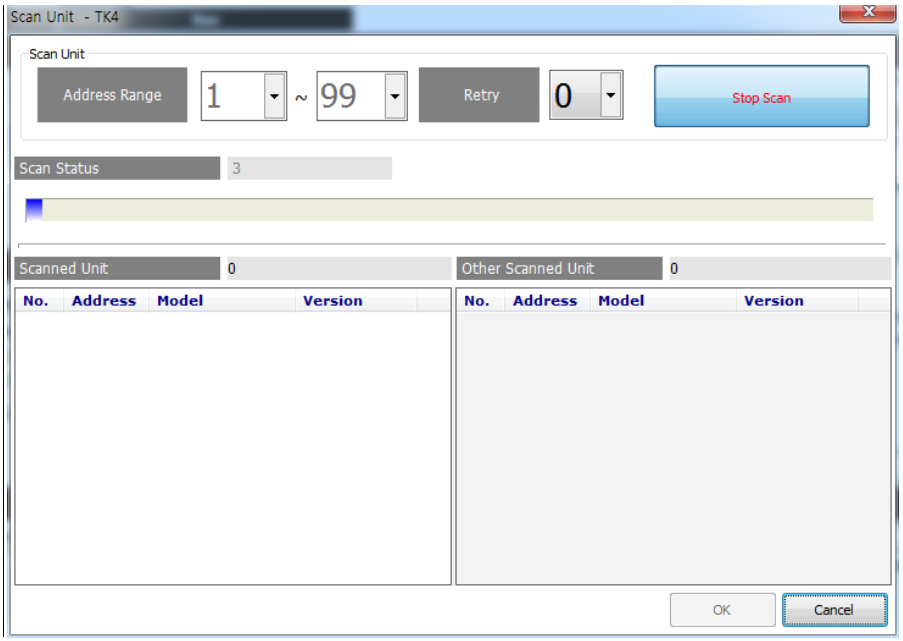
2nd When connected, select TK4 device, and right-click to select Scan Unit Address.

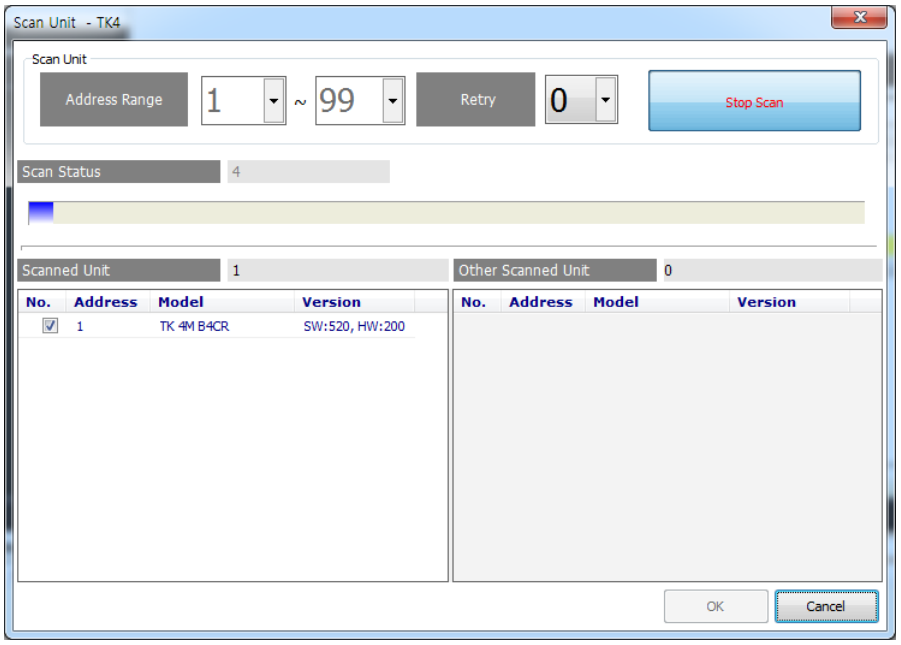


3rd If you select Scan Unit Address menu, the following Scan Unit dialog appears.

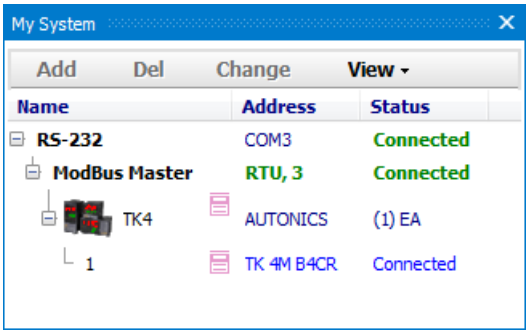


4th Set an address range to scan and click Start Scan button to scan units automatically. Scanned units are listed on the left side. Other scanned units are listed on the right side.





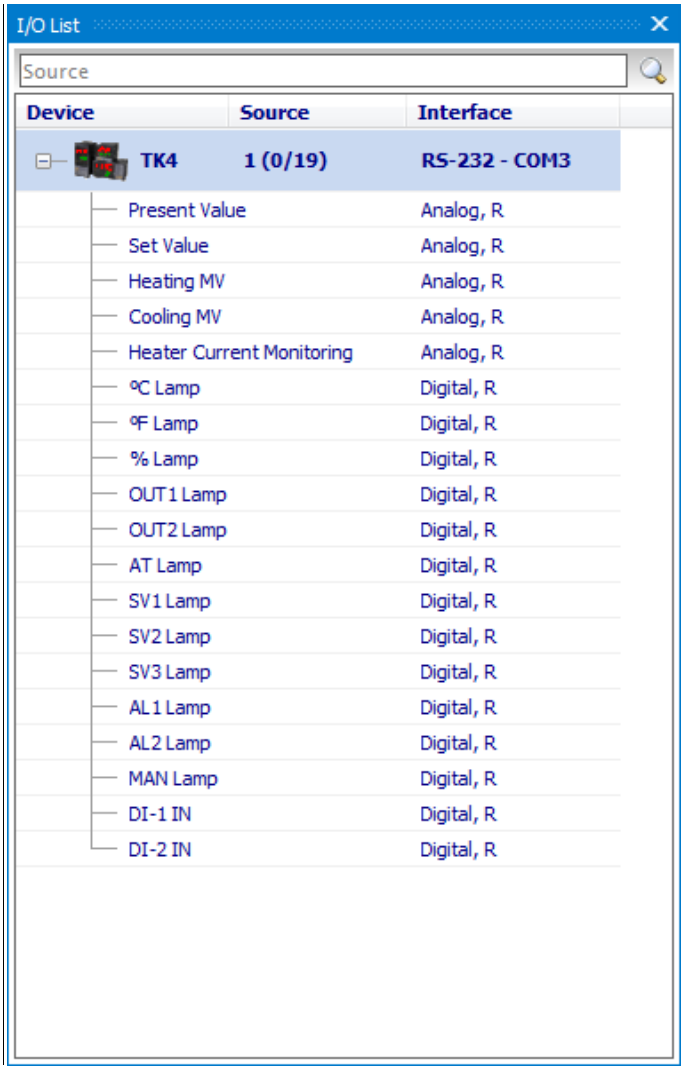
5th Check a unit to add from the list and click OK. It is added and marked as Connected.



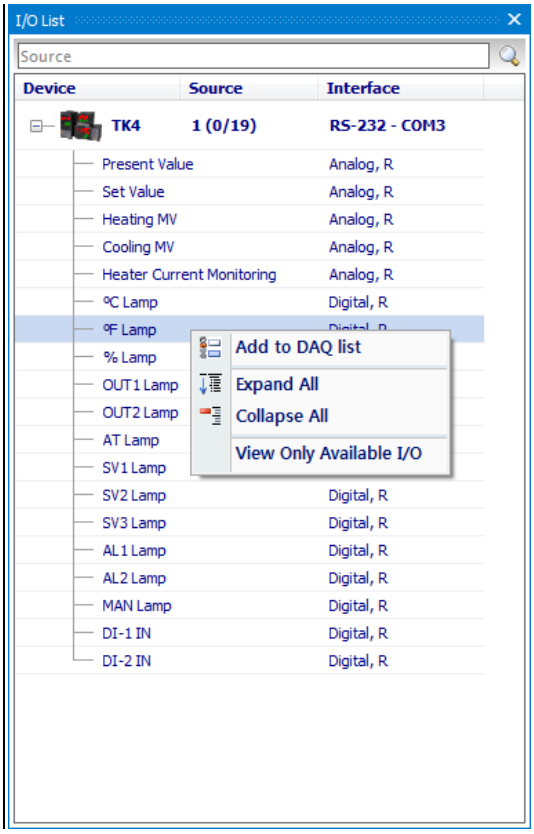
3.5 Adding an I/O to the I/O List

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.

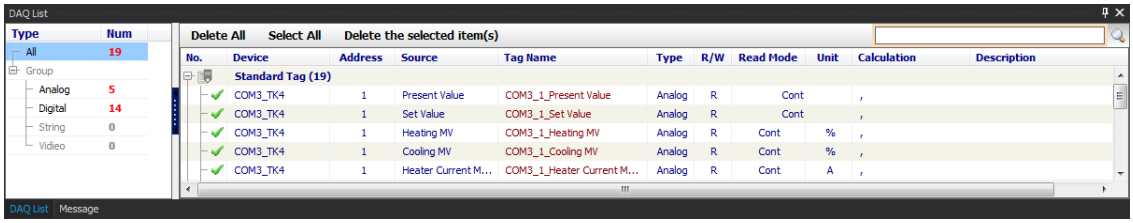
I/O List shows which units are added to My System. If you click expand button (+), it displays a list of available I/O sources to add. You can search the desired I/O and add it.



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



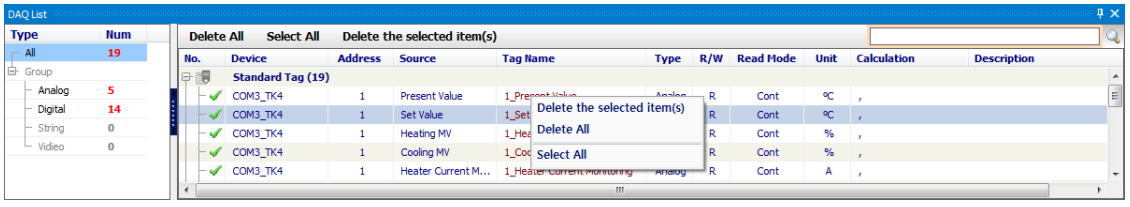
I/O sources are added to DAQ List as below.



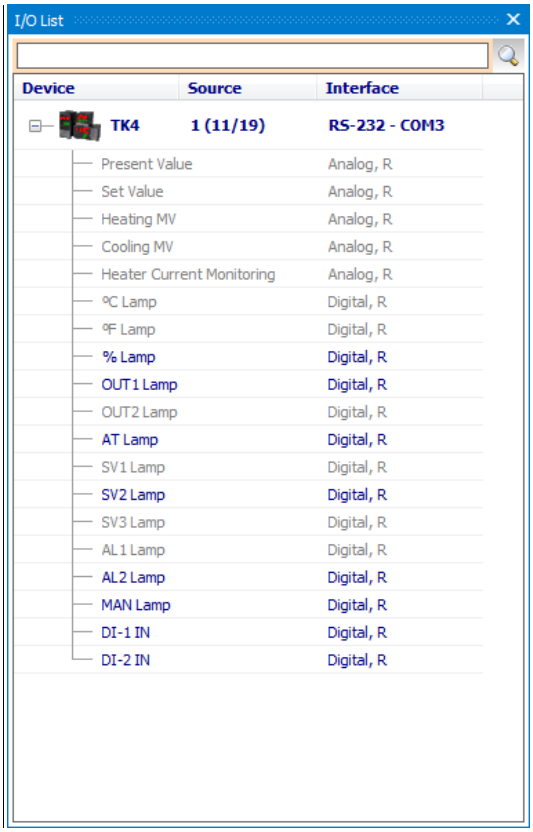
Note

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

To delete added source in DAQ List, select and right-click the source. 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.

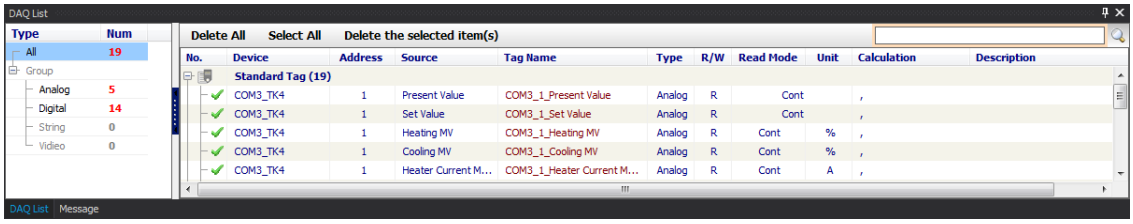


Sources added to DAQ List are grayed out in the I/O List. The image below shows that Present Value, Set Value, Heater Current Monitoring, OUT1 Lamp, OUT2 Lamp, AL1 Lamp, and AL2 Lamp are added to DAQ List.



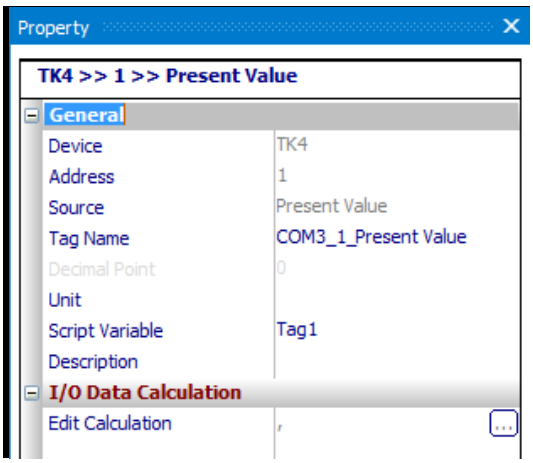
3.6 DAQ List

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



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 botton of the runtime 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.



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 Calcualation items of Property is as below.

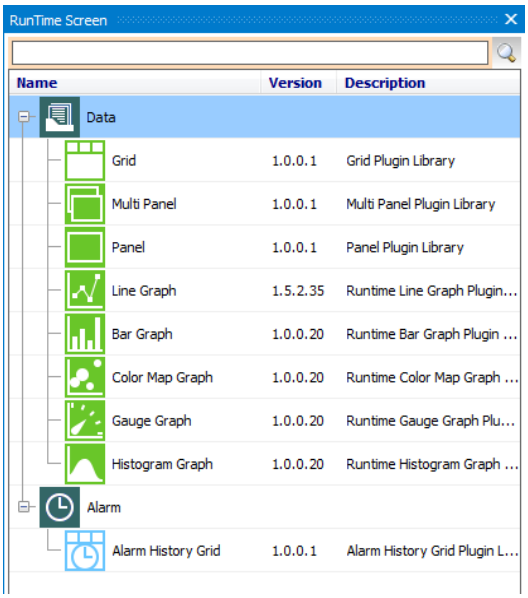
- Edit Calcuation: When reading tag value, apply the data formular to get the desired data.

Note

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

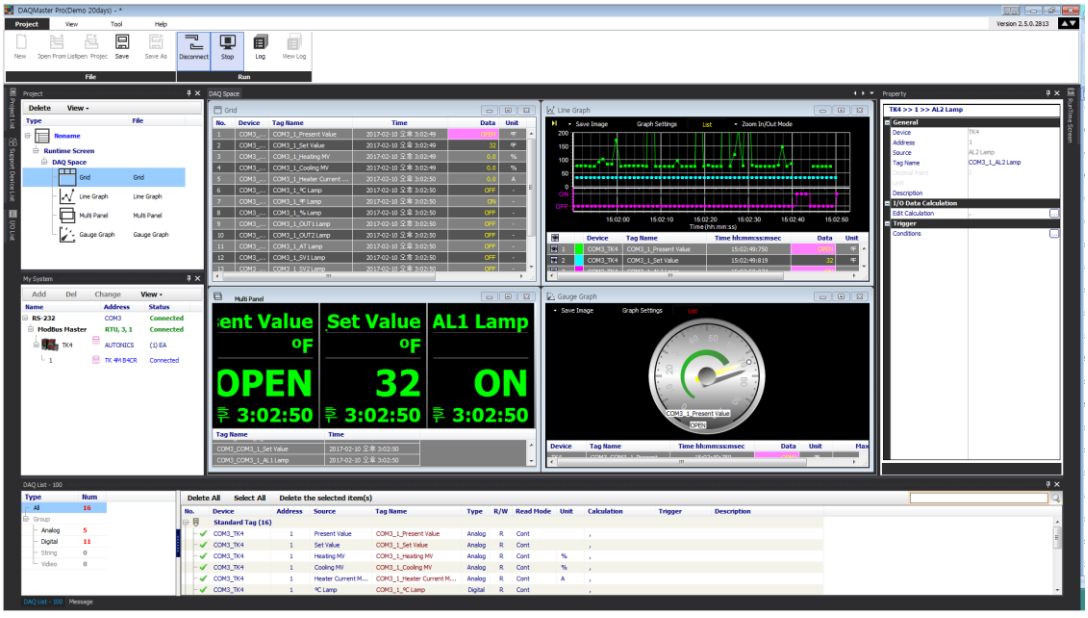
3.7 Adding from DAQ List to Runtime Screen Library

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 from runtime screen library, double-click the type as required.

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

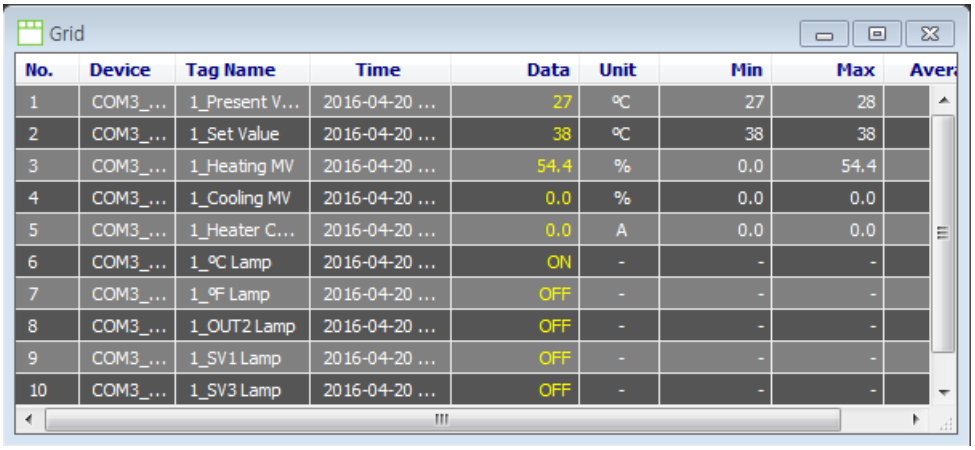


3.7.1 Data

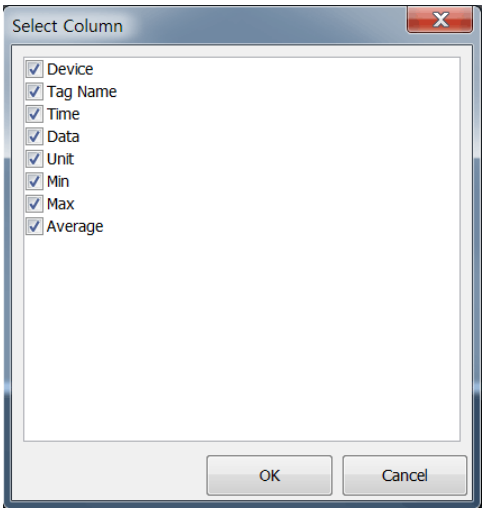
3.7.1.1 Grid

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

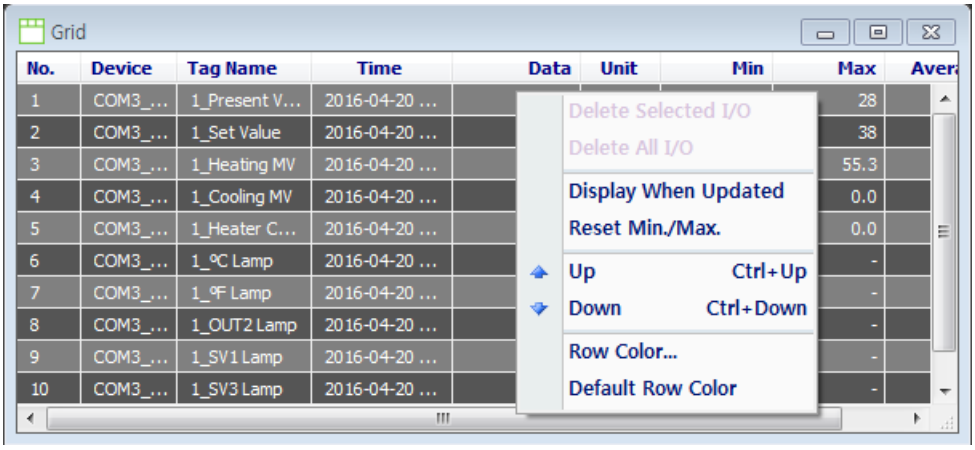
Whenever data is updated in Run status, the color of Time column inverts.



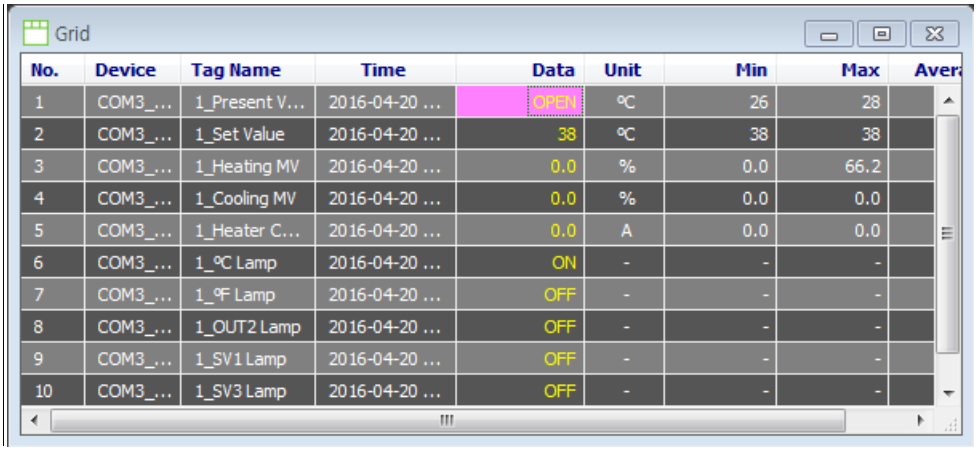
Grid column is editable. Right-click the head of grid, 'Select Column' dialog box appears. You can check the desired item to show.



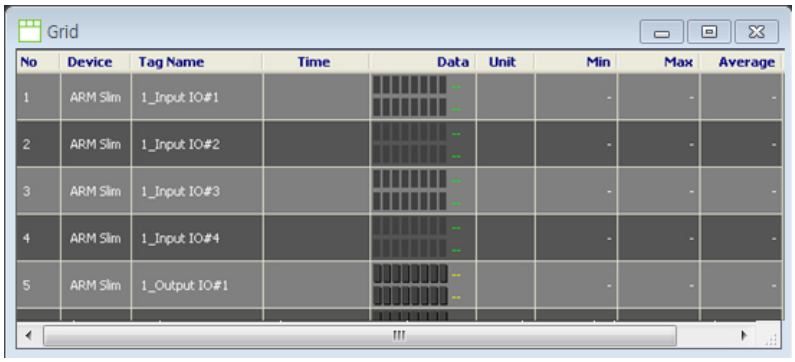
If you did not check 'Display When Updated' from the pop-up menu (see below), the color does not invert upon update. If you selected 'Reset Min./Max.' in the pop-up menu, Min and Max columns are reset and shows Min/Max values from that point on.



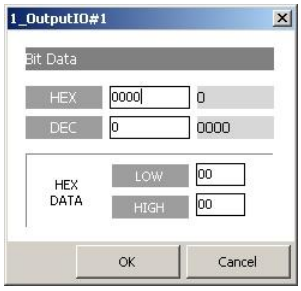
If a parameter value causes an alarm (refer to the manual of the device), it flashes as below.



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

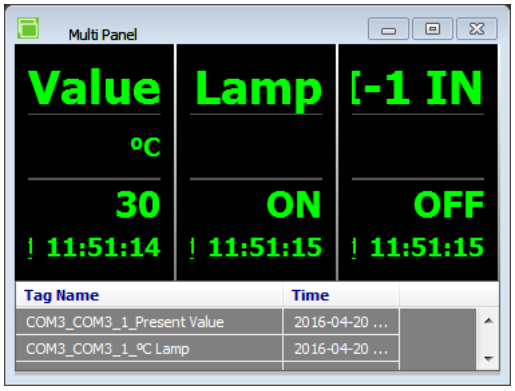


Double-click the data (number) and you can edit the data and control it.

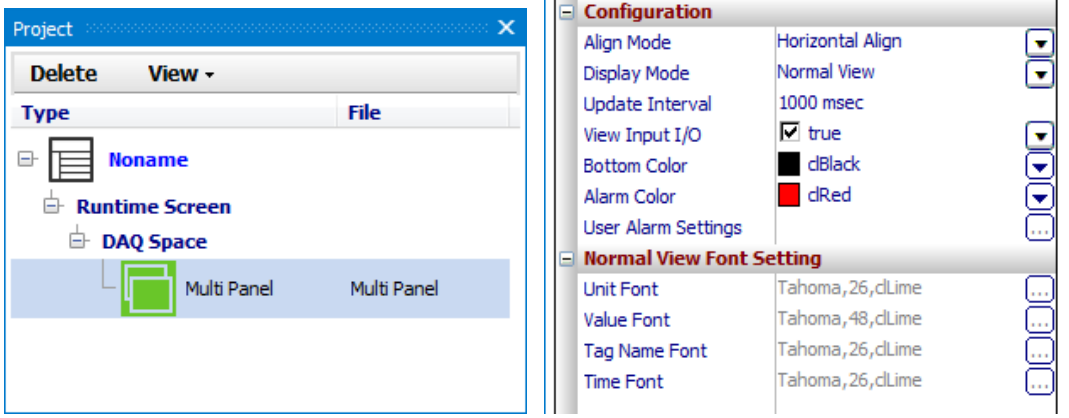


3.7.1.2 *Multi panel*

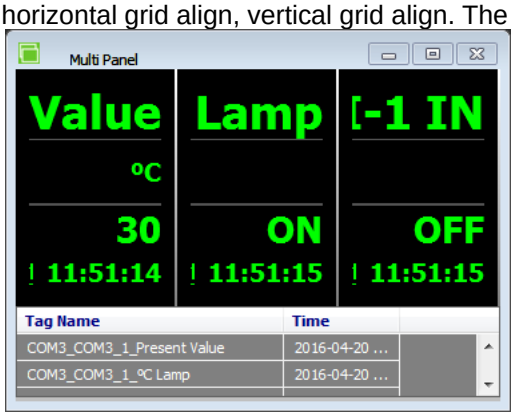
It displays I/O source data as Flash type. Multi Panel Viewer can display several I/O source in a screen.. If alarm of parameter value occurs among data (refer to the manual of the device) and it flahses in the set alarm color.



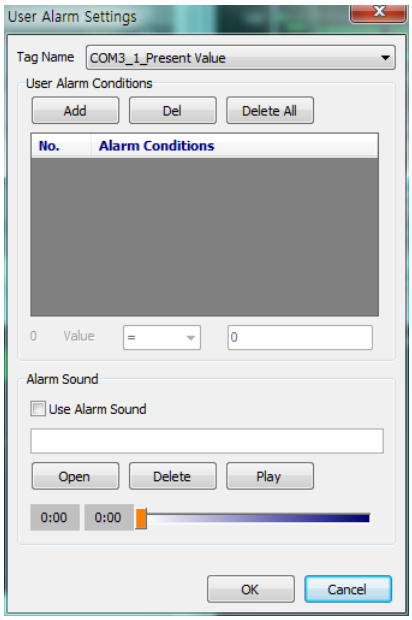
You can change align mode, color, update interval, etc. at Property.



- 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).



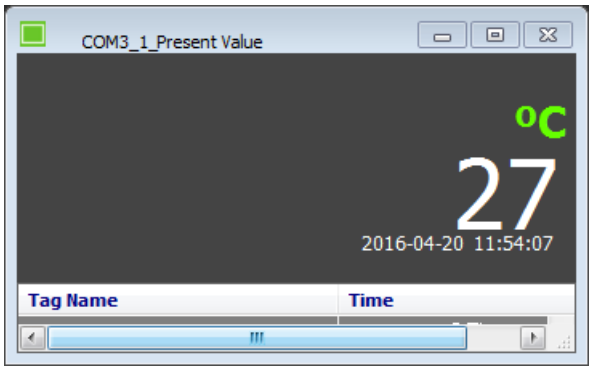
- User Alam Settings: Sets user alam option to each Tag



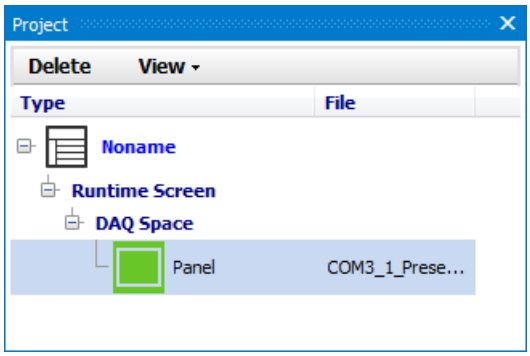
※The other settings are same as Panel graph. Refer to the '**오류! 참조 원본을 찾을 수 없습니다. 오류! 참조 원본을 찾을 수 없습니다.**'.

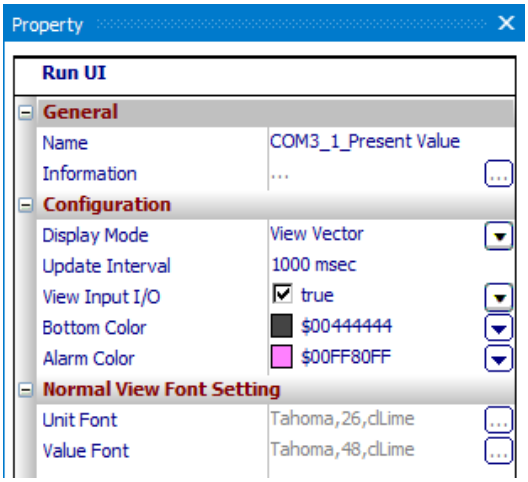
3.7.1.3 Panel

Panel displays I/O source data in Flash. A Panel can display only one I/O source. If a parameter value causes an alarm (refer to the manual of the device), it flashes as the set alarm color.



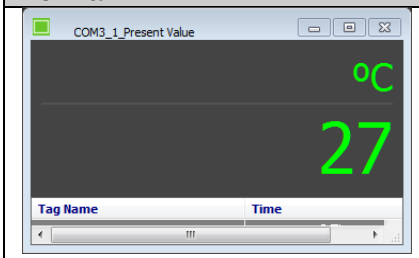
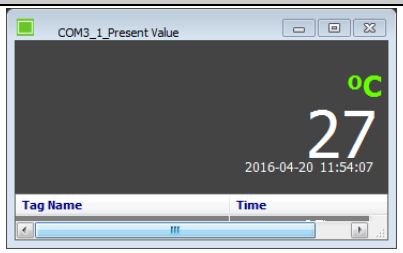
Select Panel on the runtime screen in the project window to modify properties (such as color, update interval) in the Property window.





Config section in the Property window contains the following items:

- Display Mode: You can select Normal or Vector.

Normal	Vector
	

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

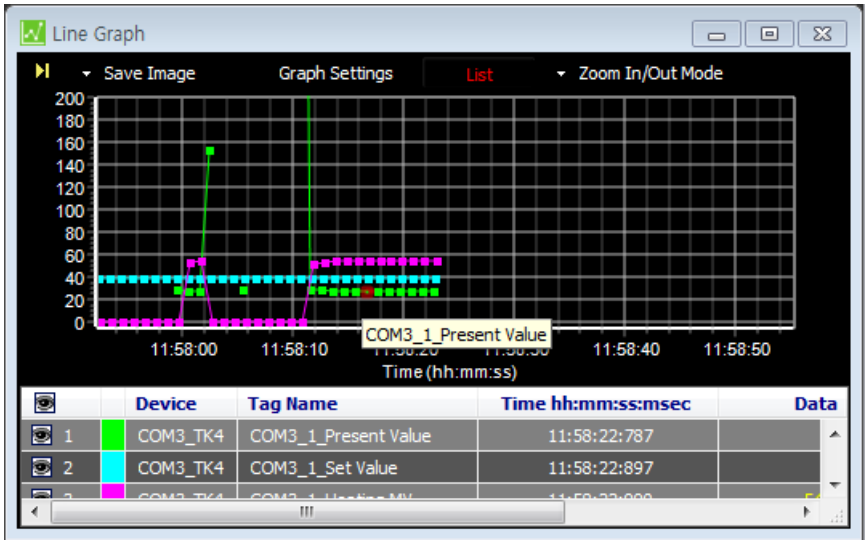
Normal View Text Font section in the Property window contains the following items:

- 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.

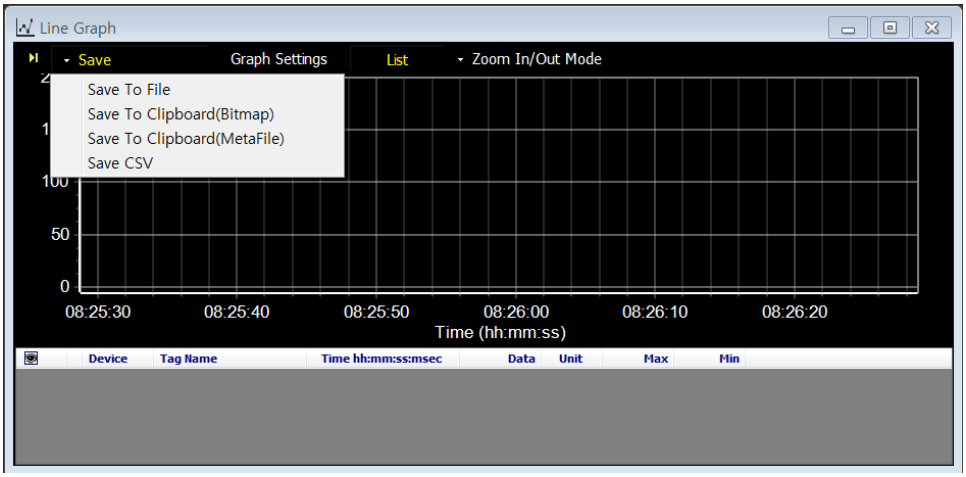
At the bottom is added I/O source list. Use the checkbox of to show/hide the graph.



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 in '*.bmp', or '*.wmf' format.

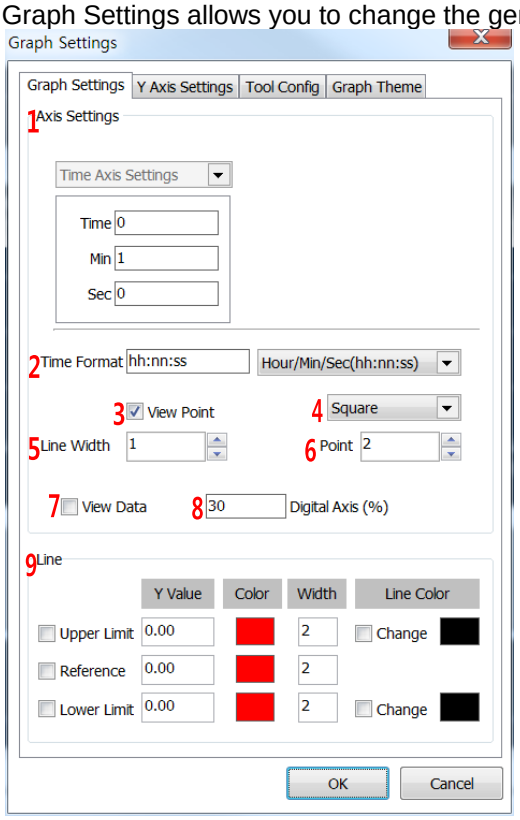


- Save To File: Saves in Bitmap (*.bmp) or Windows metafile (*.wmf).
- Save To Clipboard (Bitmap): To use this image directly for other application program, saves in Bitmap (*.bmp) file to clipboard.
- Save To Clipboard (MetaFile): To use this image file directly for other application program, saves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

(2) Graph settings

- Graph Settings tab

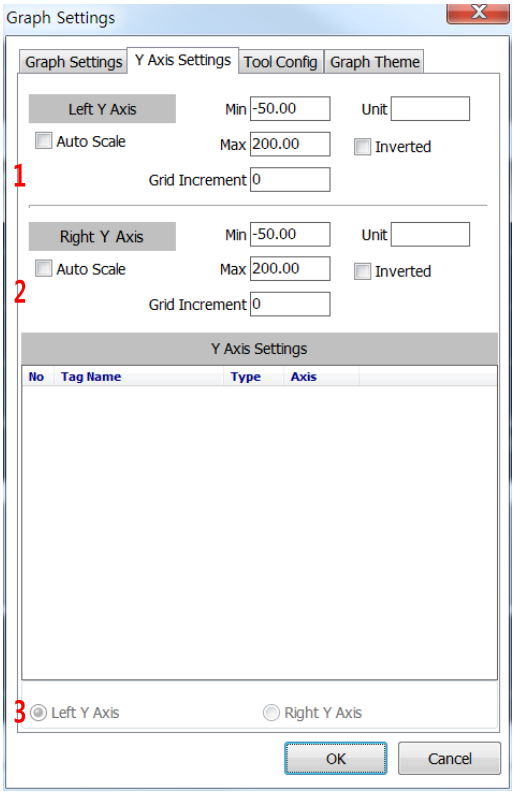
Graph Settings allows you to change the general Graph environment.



No	Item	Description
1	Axis Settings	Sets time (Hours, Min and Sec).
2	Time Format	Sets time expression for the Time Axis (X Axis)
3	View Point	Shows data point when selected (hides data point 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 displaying or not upper limit, reference, lower limit line. Sets Y value, color, width and line color of upper limit, reference, lower limit line.

- Y Axis Settings tab

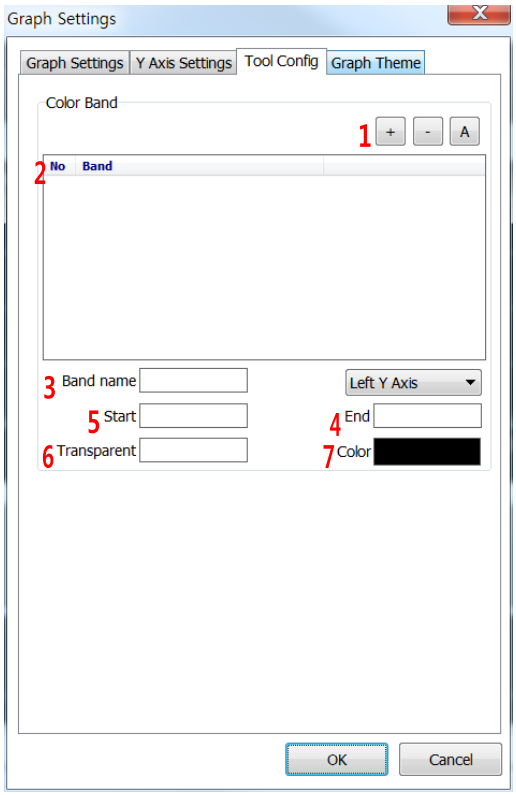
  Set Y axis direction and range of each tag.



No	Item	Description
1	Left/Right Y Axis Setting	Sets the left/right Y axis auto scale, max/min range, and unit of the selected tag. Sets the inversion of Y axis.
2	Tag List	Shows s list of tag added at the graph. Selects the tag to be appeared as Y axis.
3	Left/Right Y Axis	Sets the Y axis type (left/right) of the selected tag.

- Tool Config tab

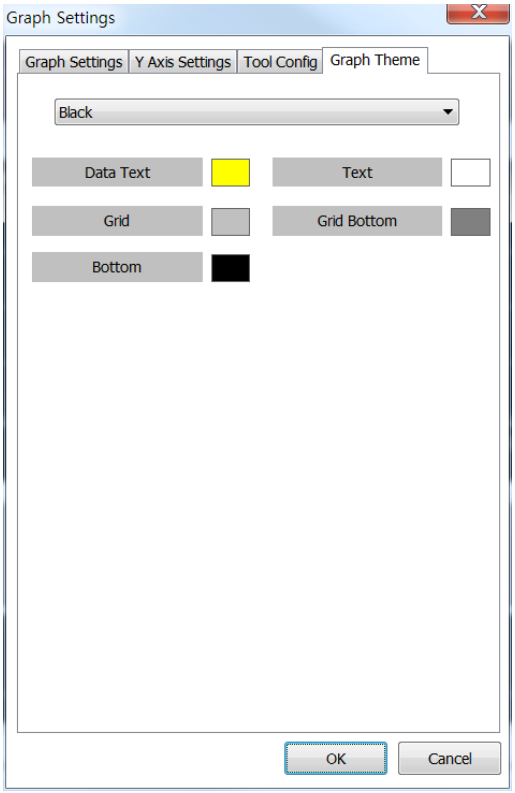
  You can set the color band to recognize and emphasize the desired range.

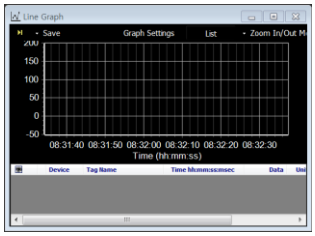
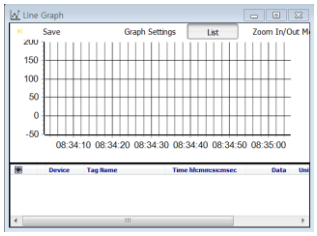


No	Item	Description
1	Add/Delete/Delete all	Adds/Deletes/Deletes all color band.
2	Band list	Displays the added color bands list.
3	Band name	Sets color band name.
4	Band standard	Sets Y axis (left/right) of color band standard.
5	Start/End range	Sets color band's start/end range.
6	Transparent	Sets color band transparent.
7	Color	Sets color band color.

- Graph Theme

  You can set the graph theme (text color, grid color, background color).

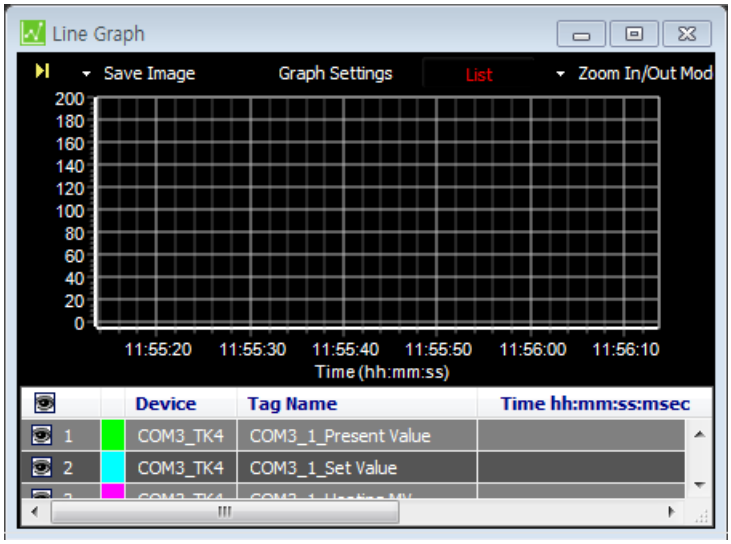


No	Item	Description
1	Graph theme	Selects graph theme. - Black  - White 
2	Data text/Text/Grid/ Grid bottom/Bottom	According to the set graph theme, sets colors of data text/ text/grid/grid bottom/bottom separately.

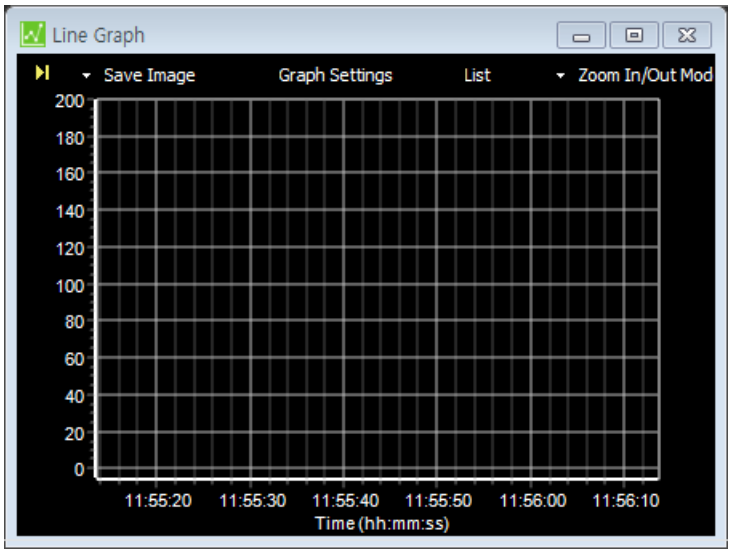
(3) List

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

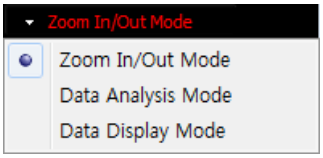


- List OFF



(4) Zoom

Zoom controls Zoom In/Zoom Out of the graph.



- Zoom

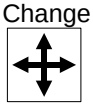
① Zoom In

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

② Zoom Out

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

③ Change X/Y Axis



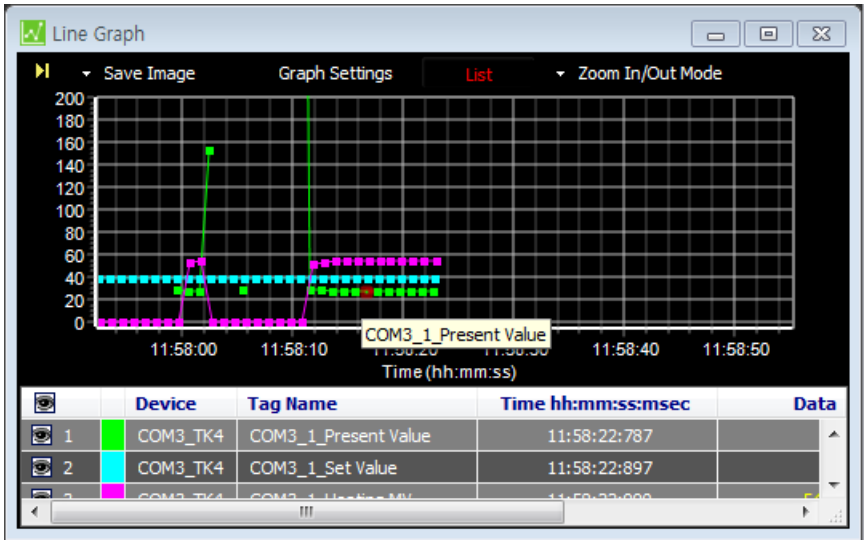
On the graph, hold right mouse button and drag to change positions of X/Y axes. If the graph is enlarged or X/Y axes positions have changed, X axis does not automatically move when data has updated.
The program preserves user-changed graph scale and axes positions. It considers this as graph analysis 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.

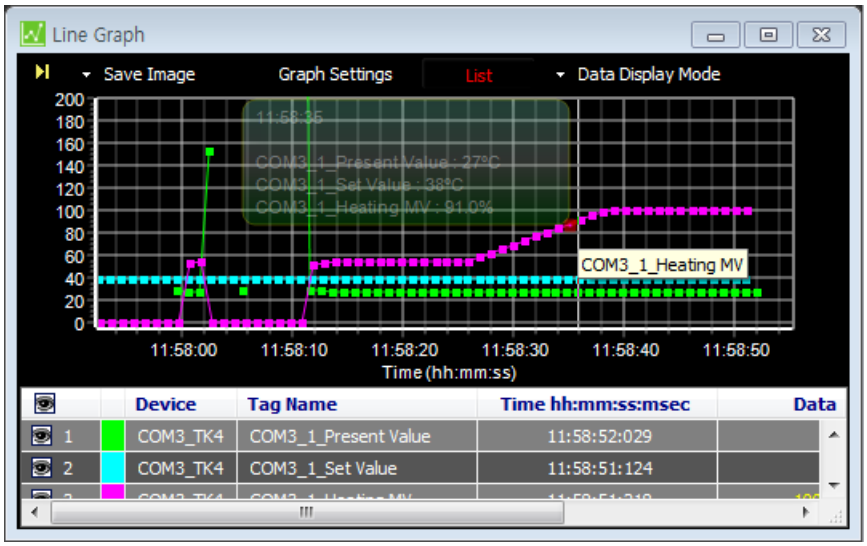
- Data Analysis Mode

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

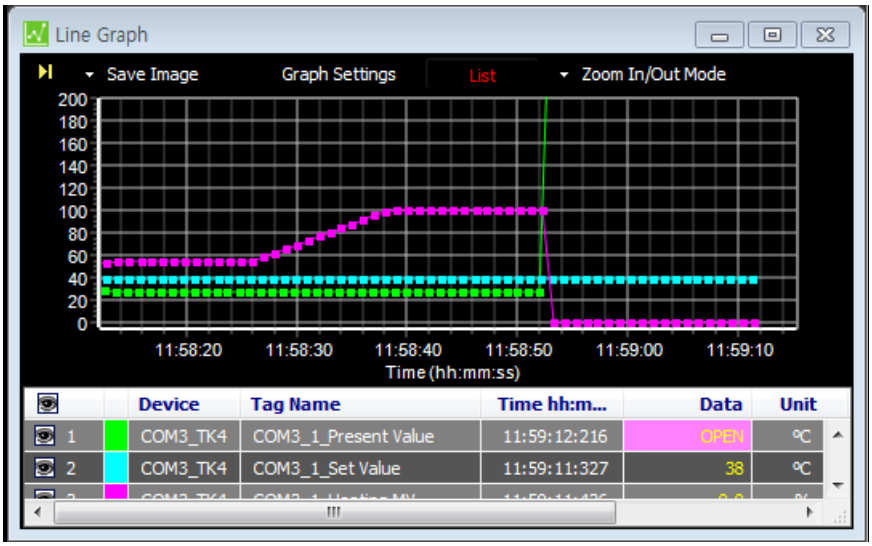


- Data Display Mode

  Displays all data values of the mouse position on the graph.



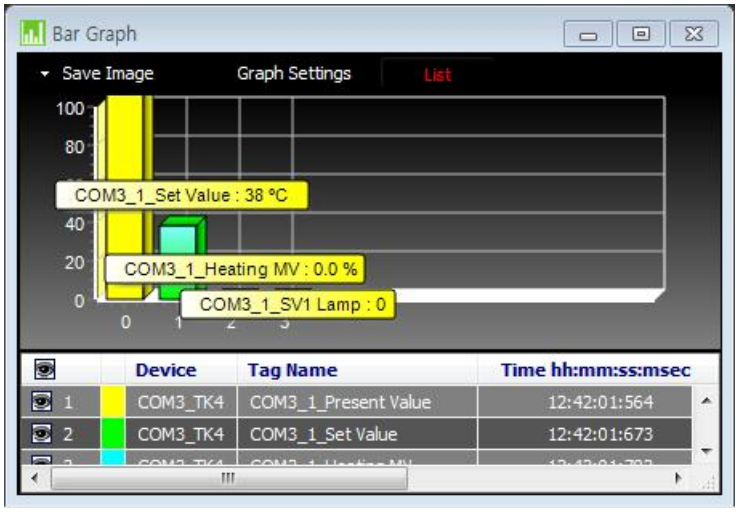
If any parameter value causes an alarm (refer to the manual of the device), it flashes as below.



3.7.1.5 Bar Graph

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

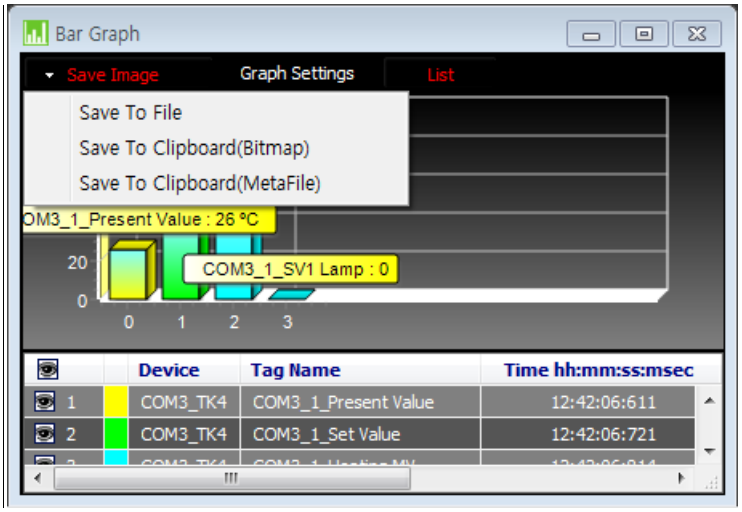
At the bottom is added I/O source list. Use the checkbox of to show/hide the graph.



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

(1) Save image

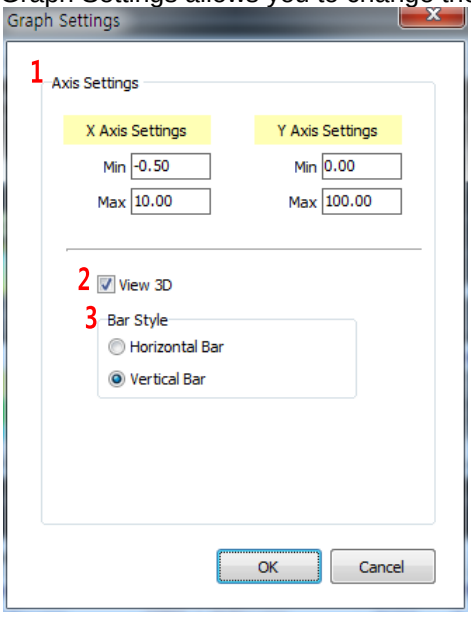
Save Image feature saves the current graph screen as an image. Save Image dialog appears when Save Image button is clicked. Images can be saved in '*.bmp', or '*.wmf' format.



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

(2) Graph settings

Graph Settings allows you to change the general Graph environment.

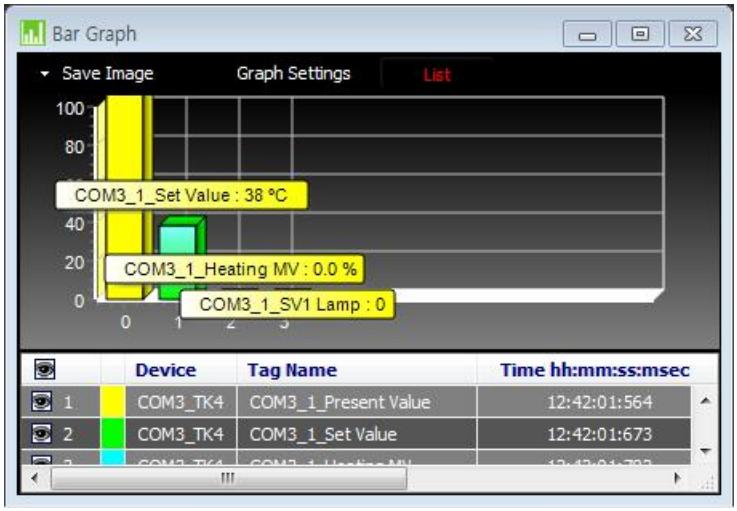


No	Item	Description
1	Axis Set	Sets the range of Min. and Max. values of the X/Y axes.
2	3D View	Sets the display status of the bar.
3	Bar Style	Sets the horizental and vertical styles of the bar.

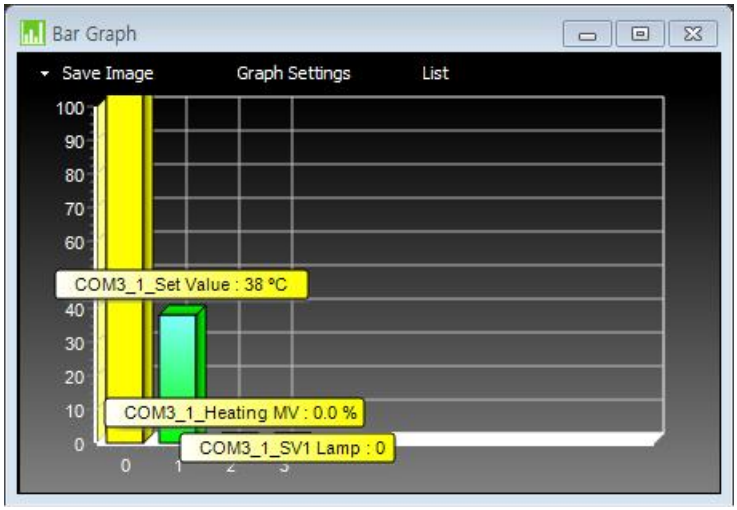
(3) List

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

- List ON



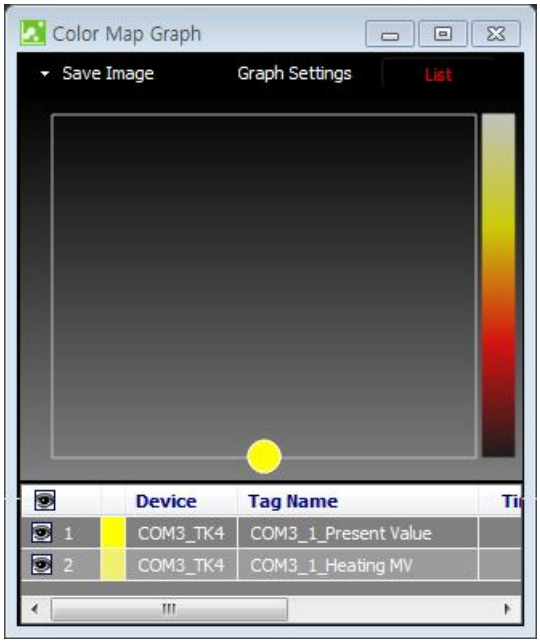
- List OFF



3.7.1.6 Color Map Graph

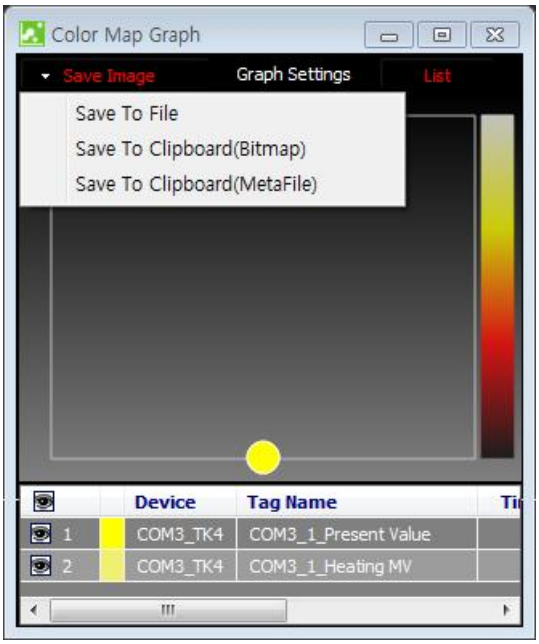
Color Map Graph displays multiple I/O source data as a color map graph for monitoring.

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



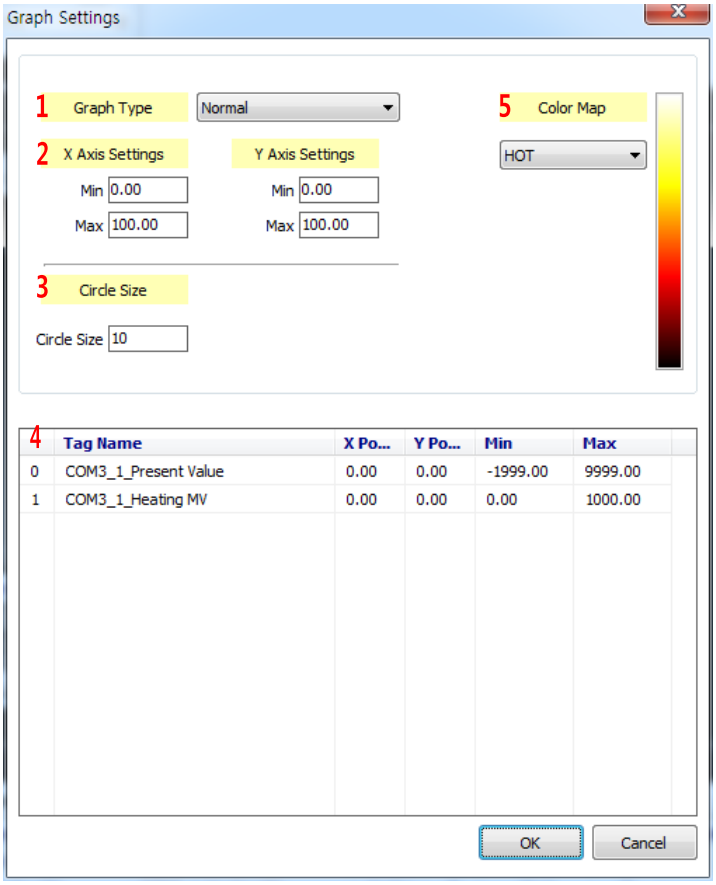
(1) Save image

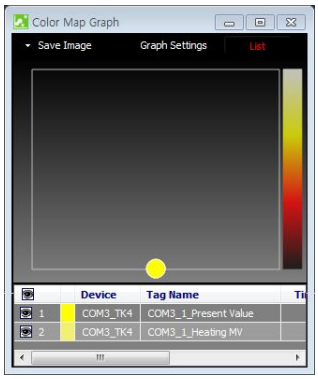
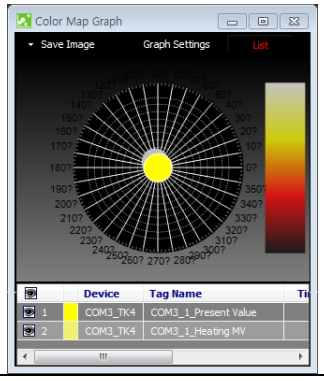
Save Image feature saves the current graph screen as an image. Save Image dialog appears when Save Image button is clicked. Images can be saved in '*.bmp', or '*.wmf' format.



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

(2) Graph settings



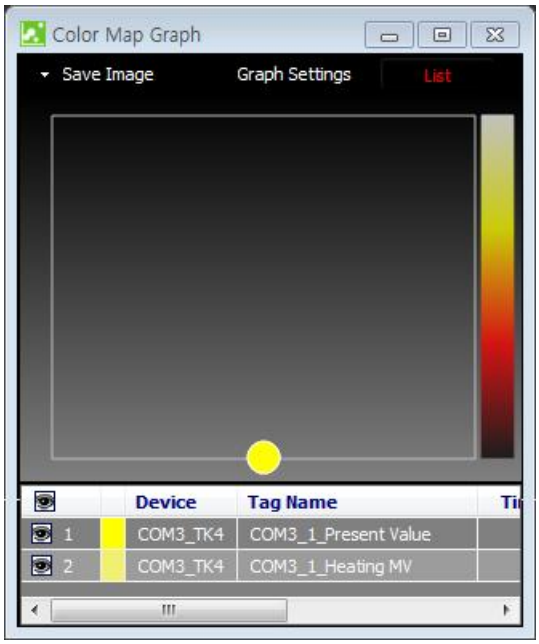
No	Item	Description
1	Graph Type	▪ Normal  ▪ Polar 

No	Item	Description
2	X/ Y Axes set	Sets max./min. value of X/Y axes range.
3	Circle size	Sets displayed circle size.
4	List	Shows s list of tag added at the graph. Double-click an 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 mode.

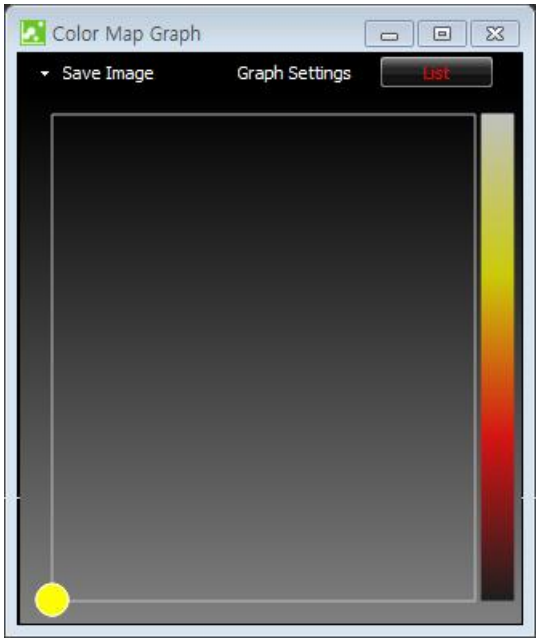
(3) List

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

- List ON

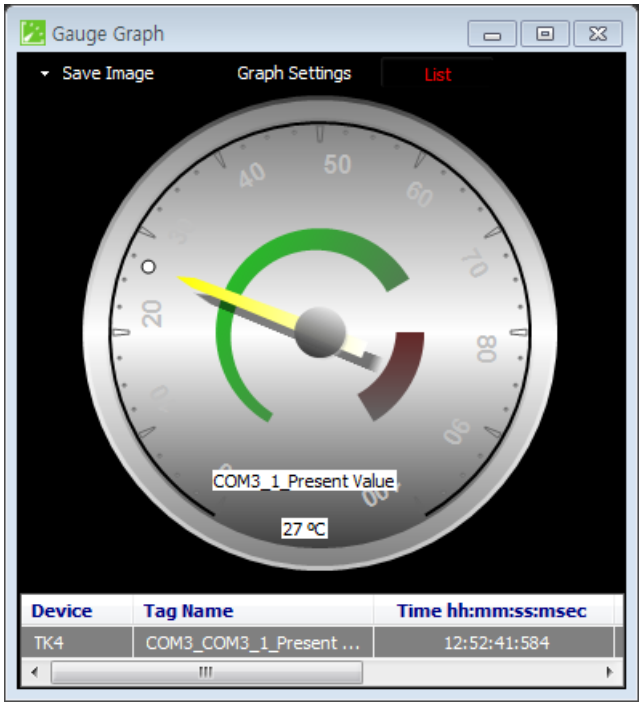


- List OFF

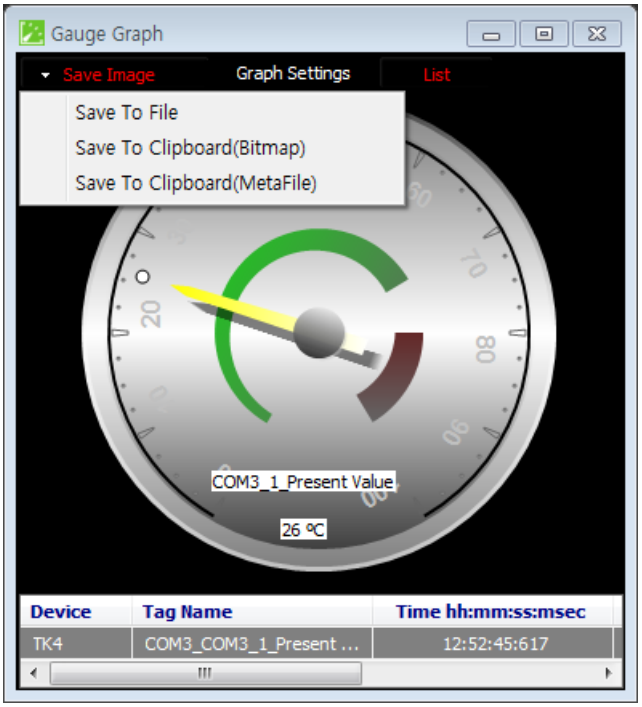


3.7.1.7 Gauge Graph

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

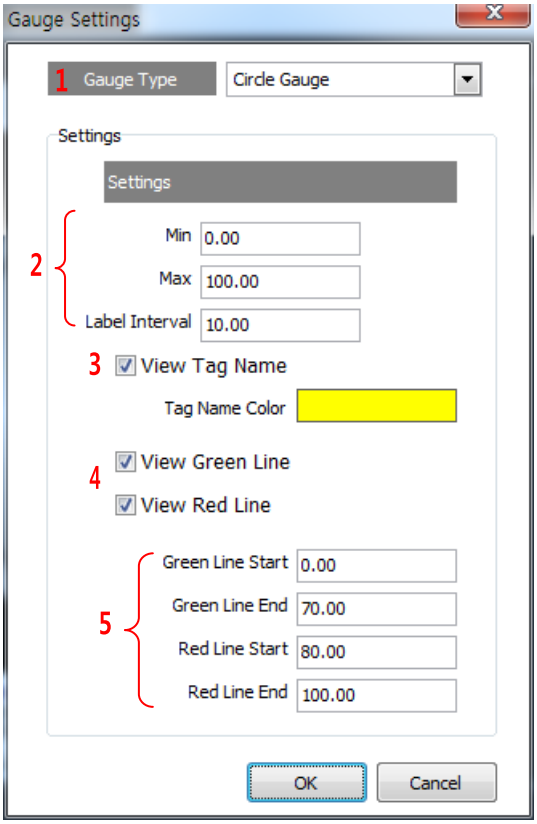


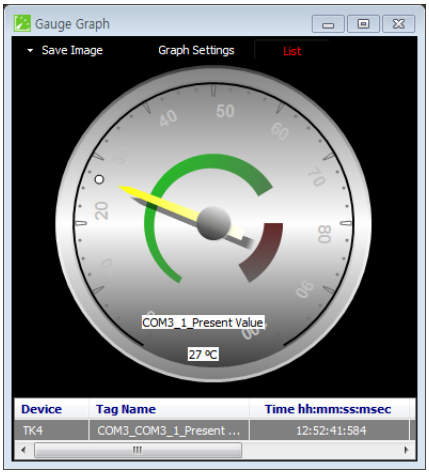
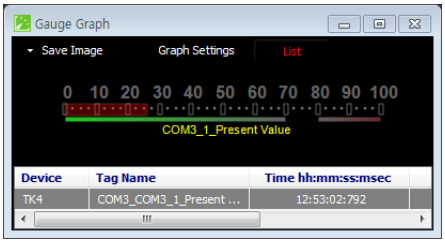
(1) Save image

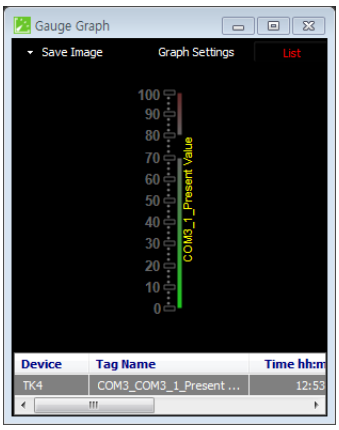
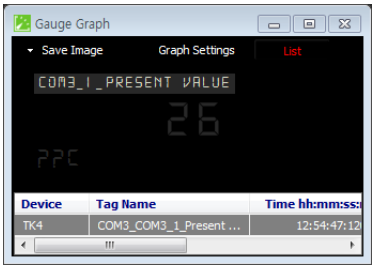
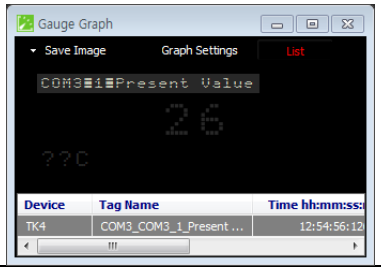


- Save To File: Saves in Bitmap (*.bmp) or Windows metafile (*.wmf).
- Save To Clipboard (Bitmap): To use this image directly for other application program, saves in Bitmap (*.bmp) file to clipboard.
- Save To Clipboard (MetaFile): To use this image file directly for other application program, saves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

(2) Graph settings

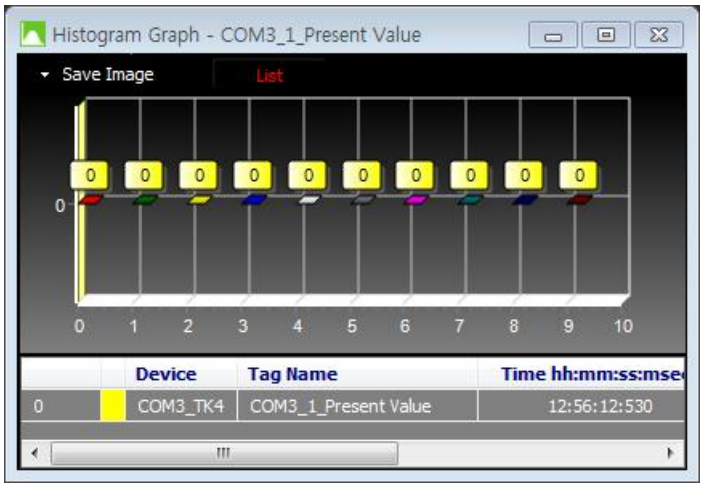


No	Item	Description
1	Gauge Type	Sets gauge graph type. ▪ Circle Guage  ▪ Horizontal Liner 

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 display and color option of tagname
4	Green/Red Line Visible	Sets display option of green/red line in graph.
5	Green/Red Line Setting	Sets start/end value of green/red line.

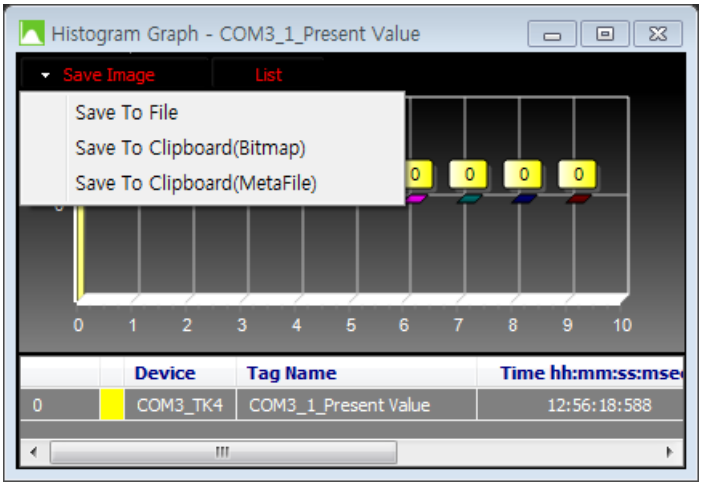
3.7.1.8 Histogram graph

It devides and displays data by the set update interval and the number of devision.
You can specify the update interval, upper/lower limit and the number of devision 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 in '*.bmp', or '*.wmf' format.

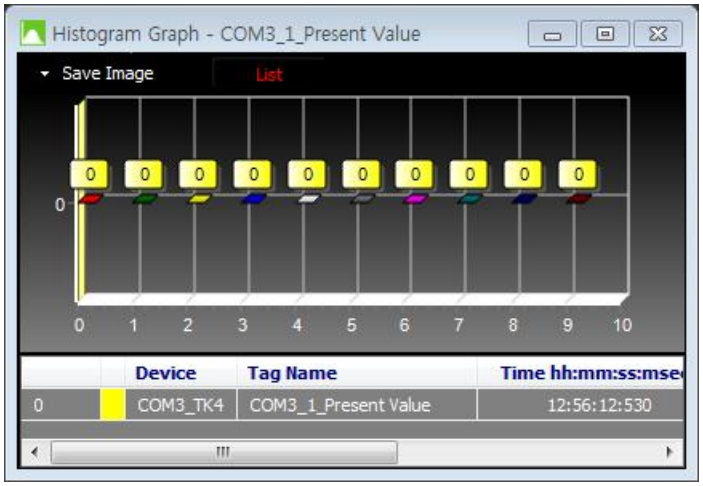


- Save To File: Saves in Bitmap (*.bmp) or Windows metafile (*.wmf).
- Save To Clipboard (Bitmap): To use this image directly for other application program, saves in Bitmap (*.bmp) file to clipboard.
- Save To Clipboard (MetaFile): To use this image file directly for other application program, saves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

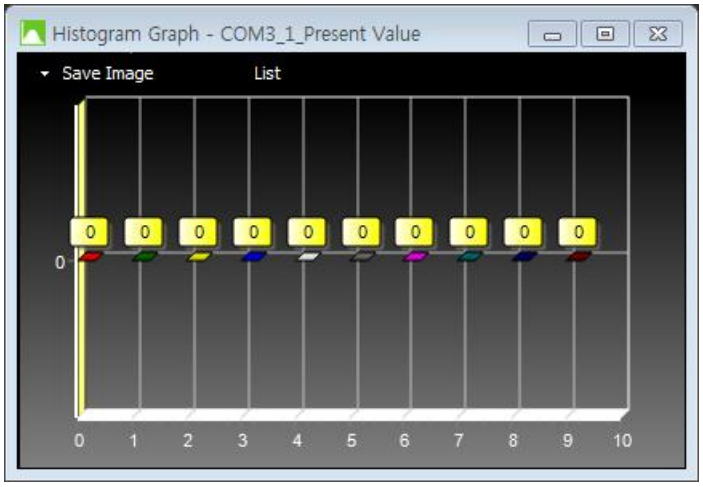
(2) List

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

- List ON



- List OFF

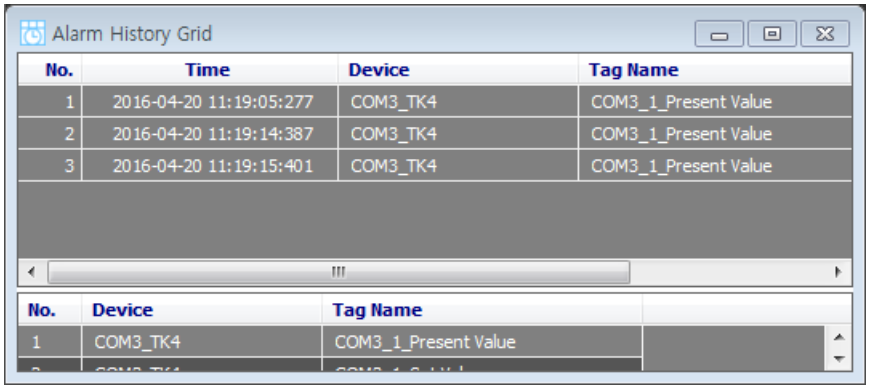


3.7.2 Alarm

3.7.2.1 Alarm History Grid

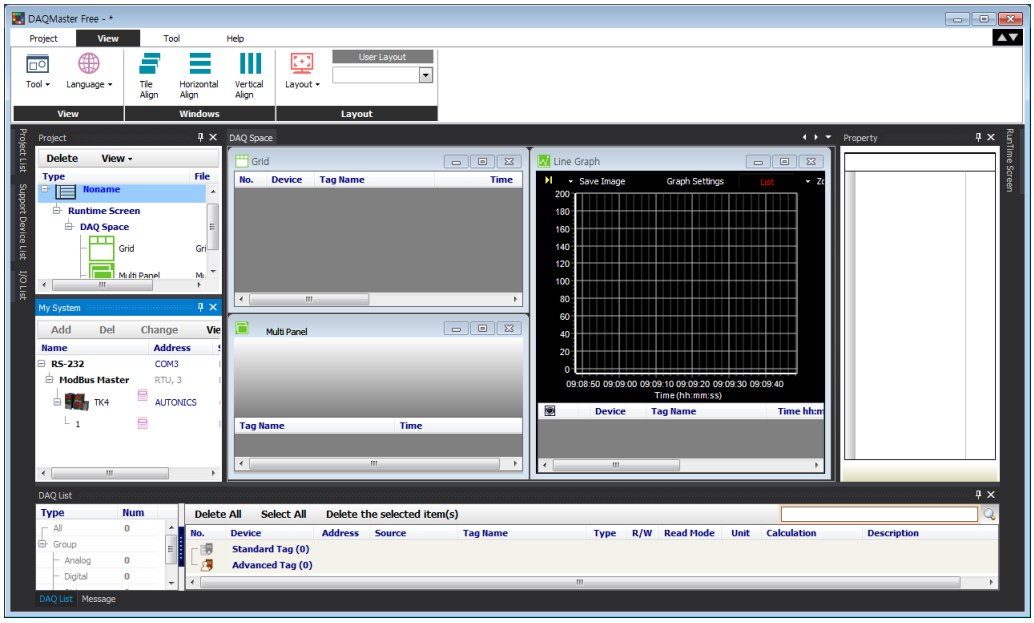
Alarm History Grid displays alarm data of I/O source in text for monitoring.

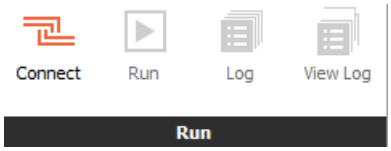
Whenever an alarm occurs in Run status, the alarm list is updated directly.



3.8 Connection

All necessary settings to connect a device has completed as following image.

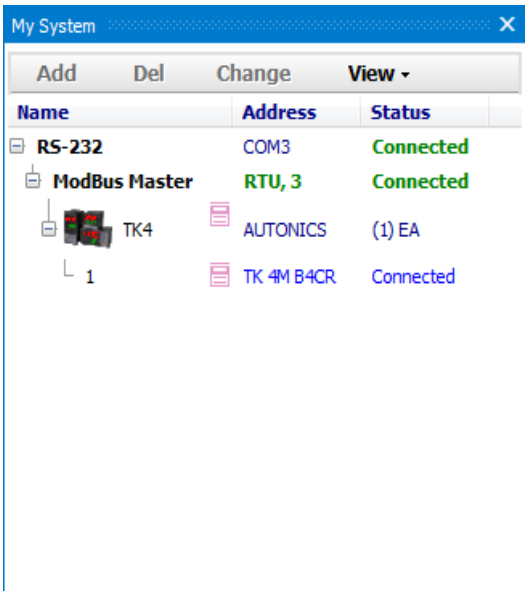


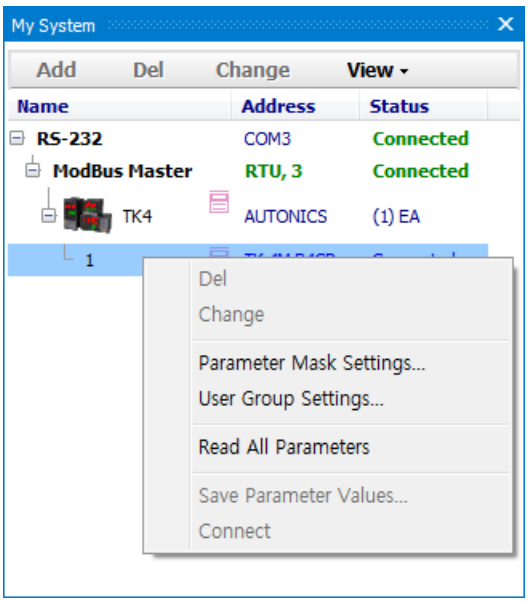


Click the ‘Connect’ button on the toolbar and check the connection status in My System. If the connection is successful, Status displays ‘Connected’.

To edit a parameter of a connected unit in DAQMaster, you should load parameters of the 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 paramiter without editing, click ‘Run’ button on the toolbar.

When parameter values are changed in the Property window, changed values are immediately applied through communication with the device. While requesting a parameter value change, all property values are displayed in gray (not modifiable). They are restored to the original color, when the changing is over.

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 be changed. If a range related item is changed, this range will be applied to all parameter items.

If an out-of-range value is entered in a property with a range of value, the input is ignored and the value is restored to original. The range is displayed at the bottom of the Property box.

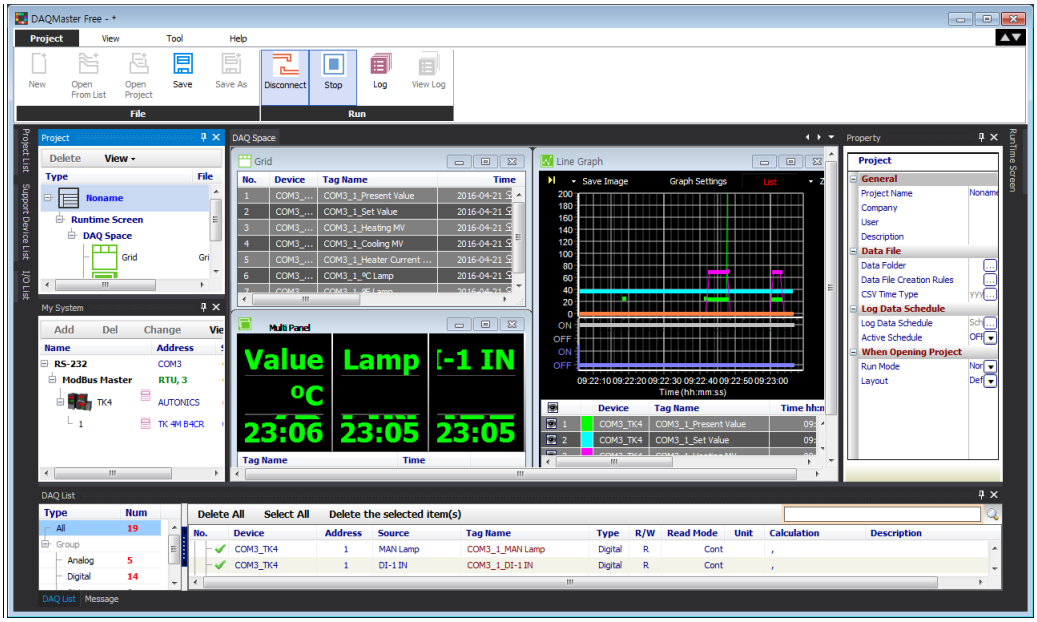
A parameter with a designated input format is only editable in the specified format.

Values of parameters in ‘Disable’ status are not displayed and the names are grayed out. In Reading mode, names and values of parameters are grayed out.

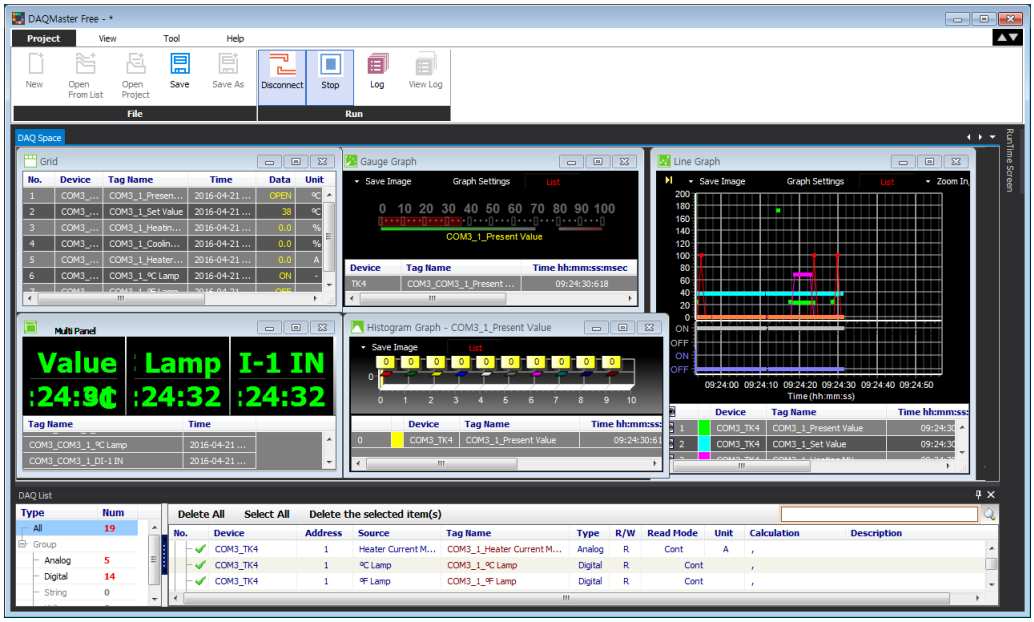
The language of the parameters does not change (regardless of the language selected when installing the program).

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 (View > Layout), the monitoring screen displays as below.

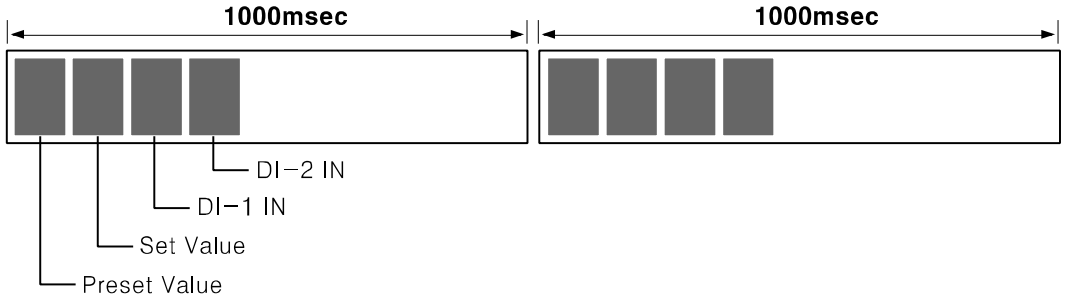


Note

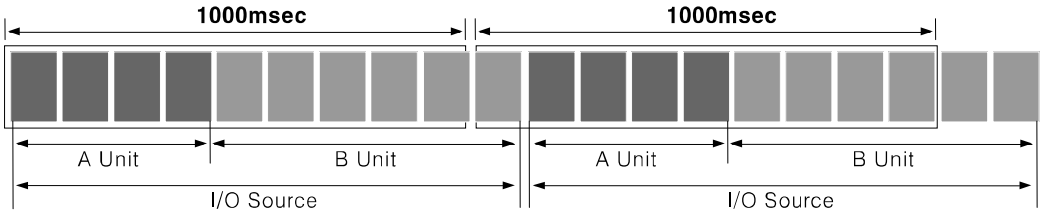
Setting a reading repetition of the unit

Under General box in Propetry window of connected units, ‘DAQ Repeat Interval’ sets an interval of I/O source reading repetition in ‘Run’ status.. The default value is 1000 ms.

If four I/O sources are added to DAQ List, the program recieves data of four I/O sources from connected units and another four after 1000 ms passed, as shown in the diagram below. When the number of I/O do not exceed the Repeat Interval value(1000 ms), the program brings data on the designated cycle.



When a large number of I/O sources are added, data reading cycle may exceed the defined Repeat Interval, as shown in the image below.



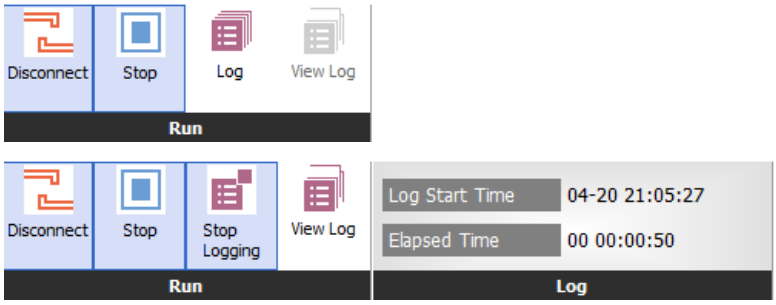
In this case, the program change the preset Repeat Interval value to the minimum interval..

As a result, if actual I/O data reading time exceeds the set Repeat Interval value(time), the program and the units communicate on the minimum time interval required to read all I/O sources.

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

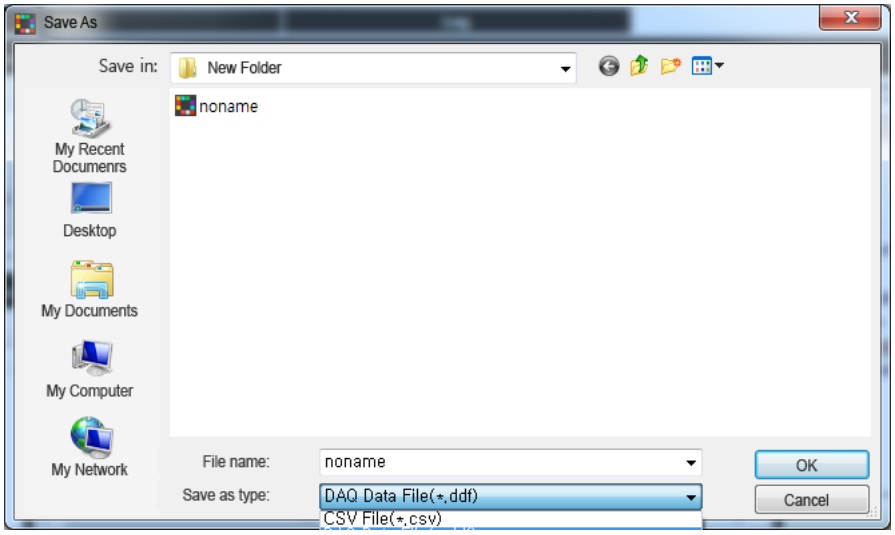
3.10 Logging

When the status is ‘Run’, the ‘Log’ button on the toolbar is activated.

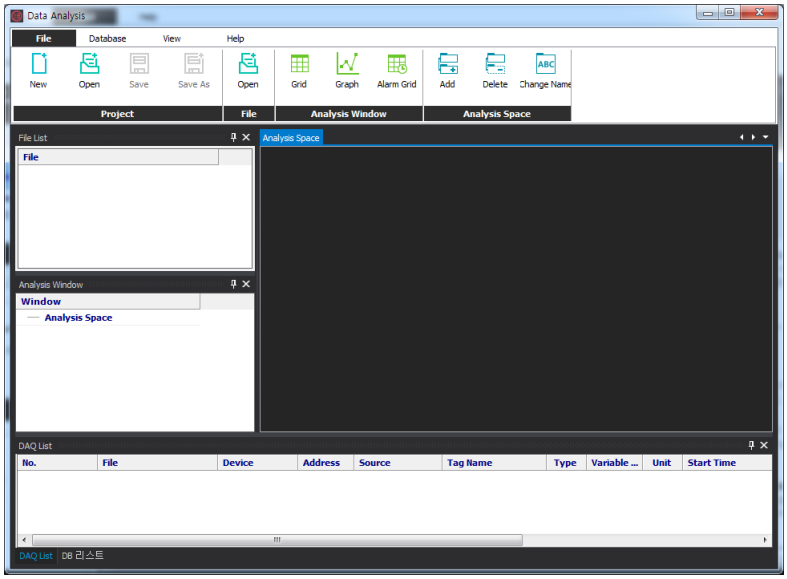


If you start logging, log start time and elapsed time are displayed on the right side.

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



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

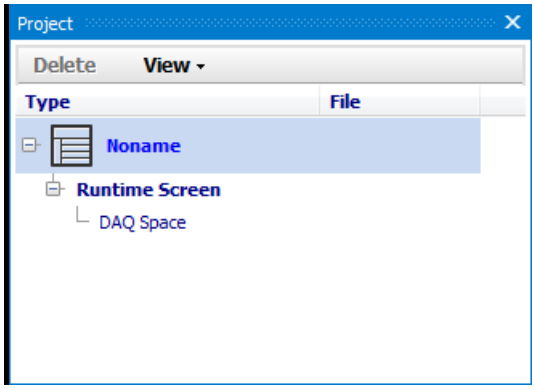


3.11 Saving Project

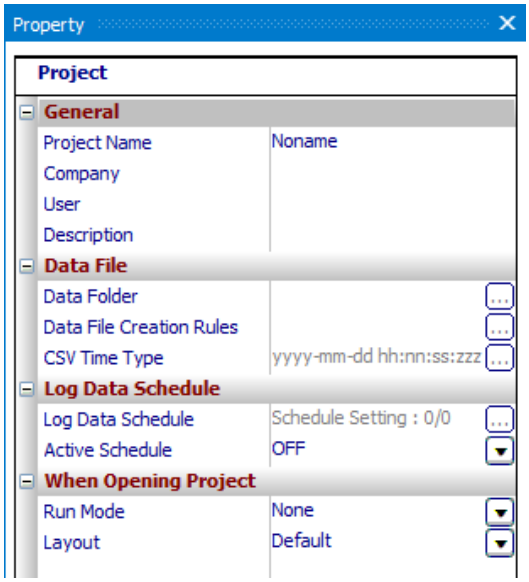
You can save the project you were monitoring.

Set values of device, RS-232 configuration, repeat interval, runtime screen are saved. Before saving, specify project properties as follows.

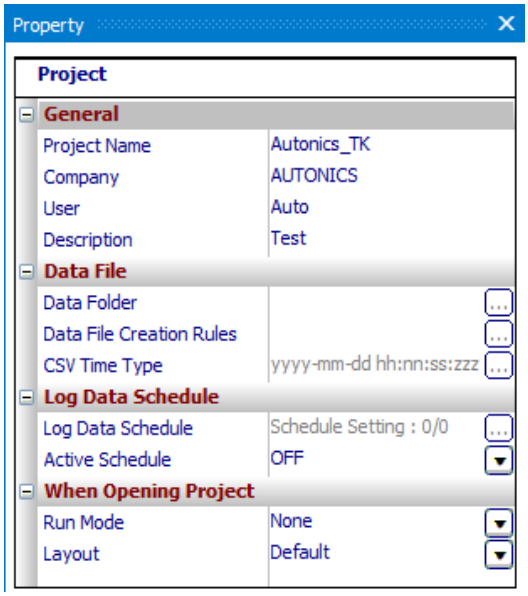
1st Select Noname at the top of the project tree.



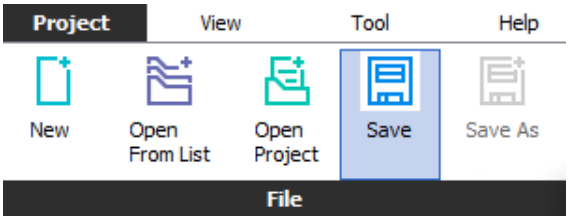
2nd In the Property window, the project name is marked as Noname. Company name, worker, and description are empty.

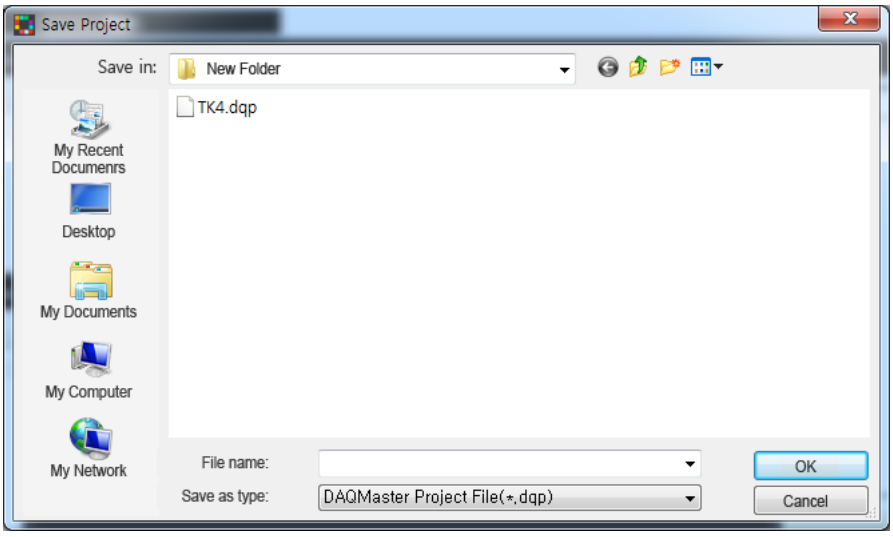


Enter basic project information, such as company name, worker, and other descriptions as below.



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





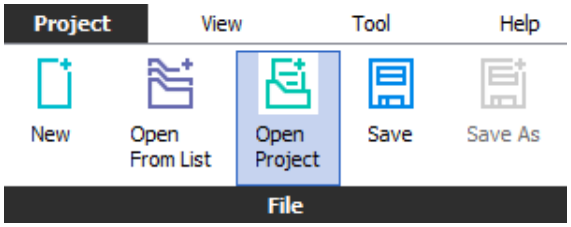
3.12 Opening a Project

Opens a saved project.

There are two ways to open a project: ‘Open Project’ and ‘Open From List’. You can only open a project when communications are disconnected.

3.12.1 Open Project

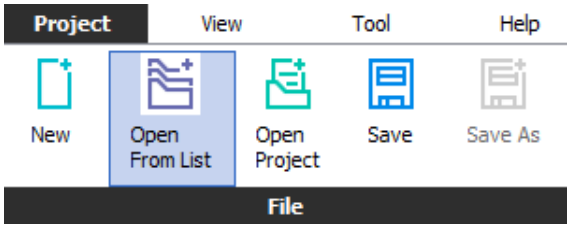
Directly selecting a project file is the most common way to open a project file.



3.12.2 Open Project List:

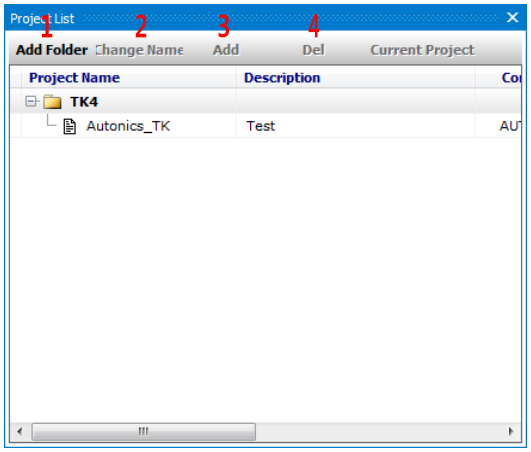
This method opens a file from a list of frequently used projects.

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



You can creat a parent folder in the Project List by clicking ‘Add Folder’ and manage saved project files under the parent folder. You can also change folder/file names as well as add or delete folders/files.

Selecting a folder in the Project List activates Add Folder, Change Name, Add, and Delete menus. Selecting a project file in the Project List activates Add folder, Add and Delete menus.



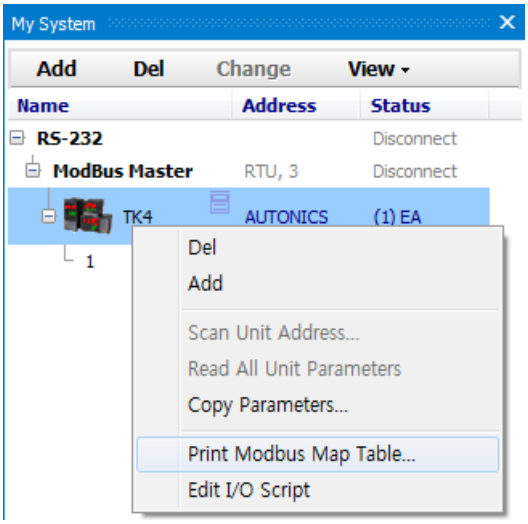
No	Item	Description
1	Add Folder	Adds a folder.
2	Change Name	Changes the name of folder.
3	Add	Adds a project file. Click Add opens Project List window..
4	Delete	Removes selected folder or file.

3.13 Modbus Map Table Report

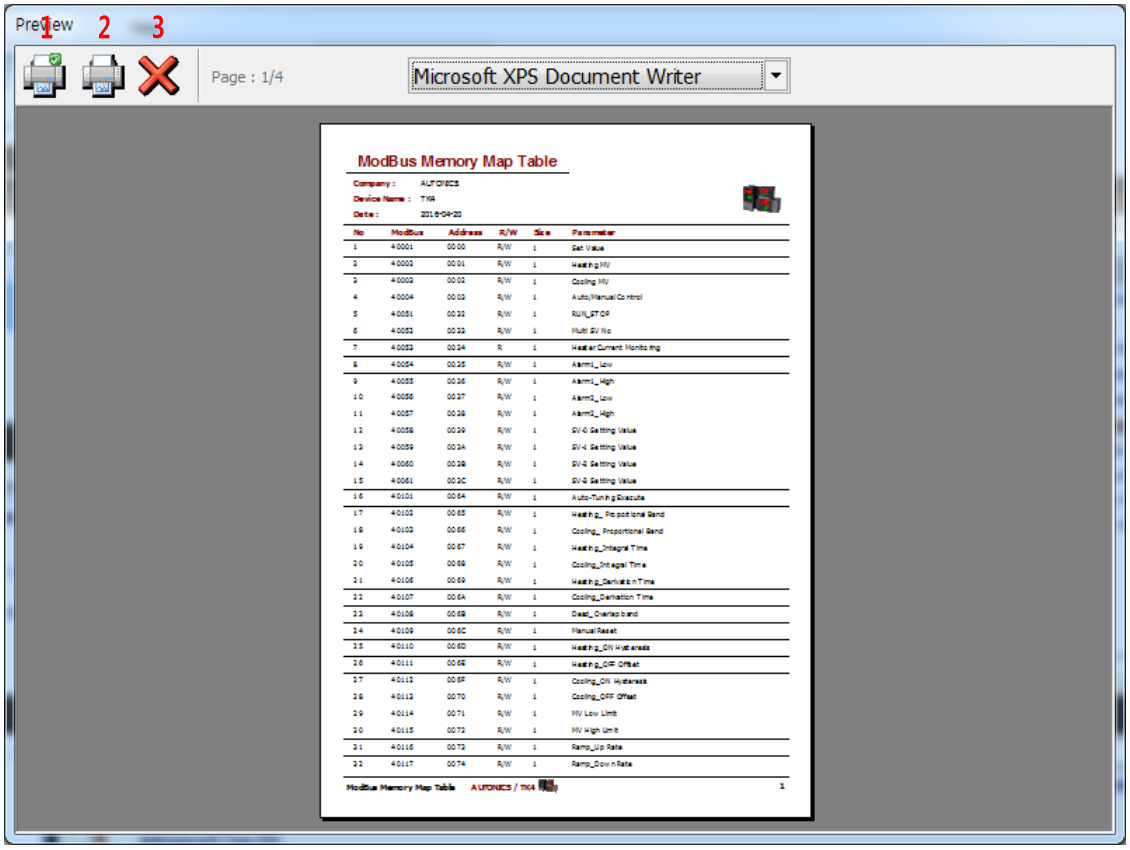
This feature outputs ModBus map table of a device, which uses ModBus communications, as a report.

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

In the status that a device is added, right-click the device in My System and Select Print ModBus Map Table from the pop-up menu.



Below is a preview window.

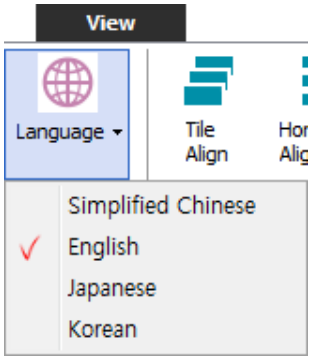


No	Item	Description
1	Printer Setup	Configures the printer to print. Printer setting options vary by a printer model.
2	Print	Prints the ModBus map table.
3	Close	Closes the print preview window.

4 Changing Program Language

4.1 Change Language

Changes the program language. Default language is the program installation language.

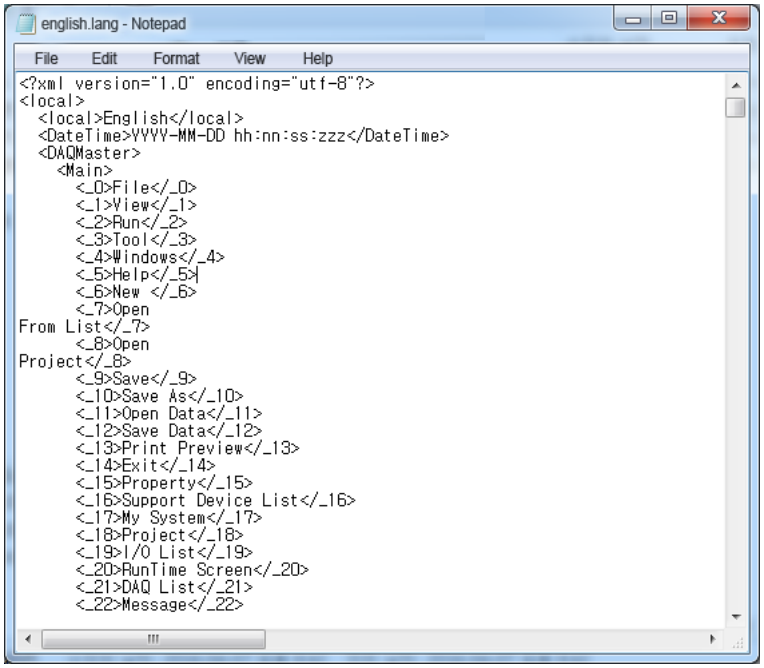


Select “Tool > Language” from the main menu. Language option is applied immediately and the program is displyed in the selected language.

4.2 Modifying and Adding Languages

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

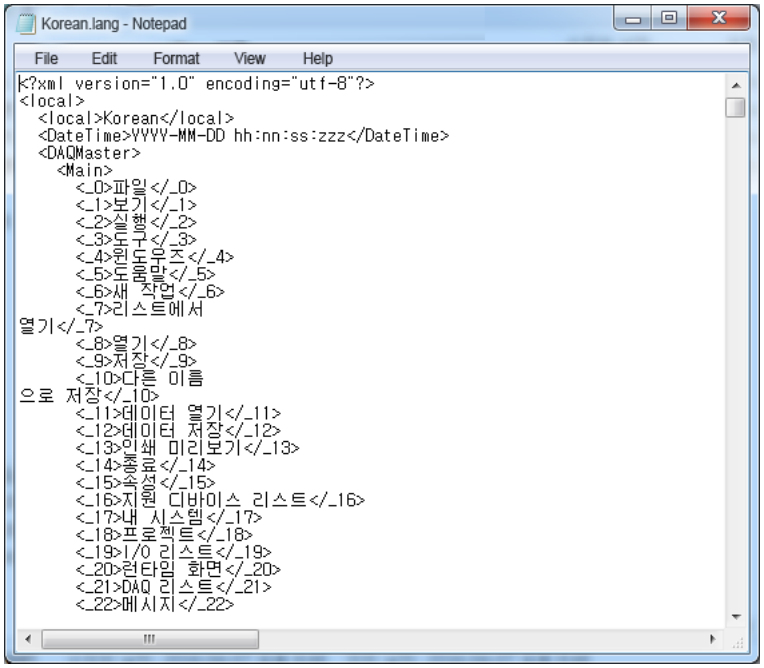
To modify language, open the language file in Notepad as below, modify and save.



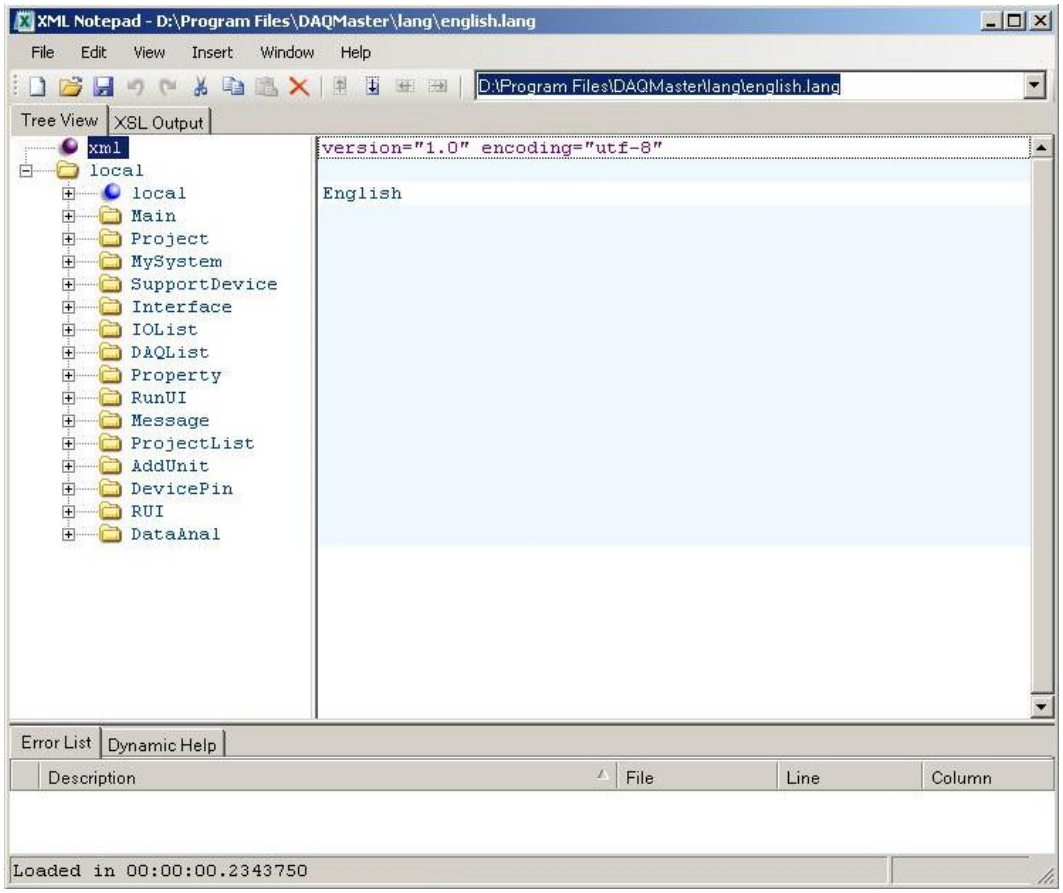
To add a language, copy and rename the existing language file.

Change the title of language In <local>English</local> section in English. (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'.)



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

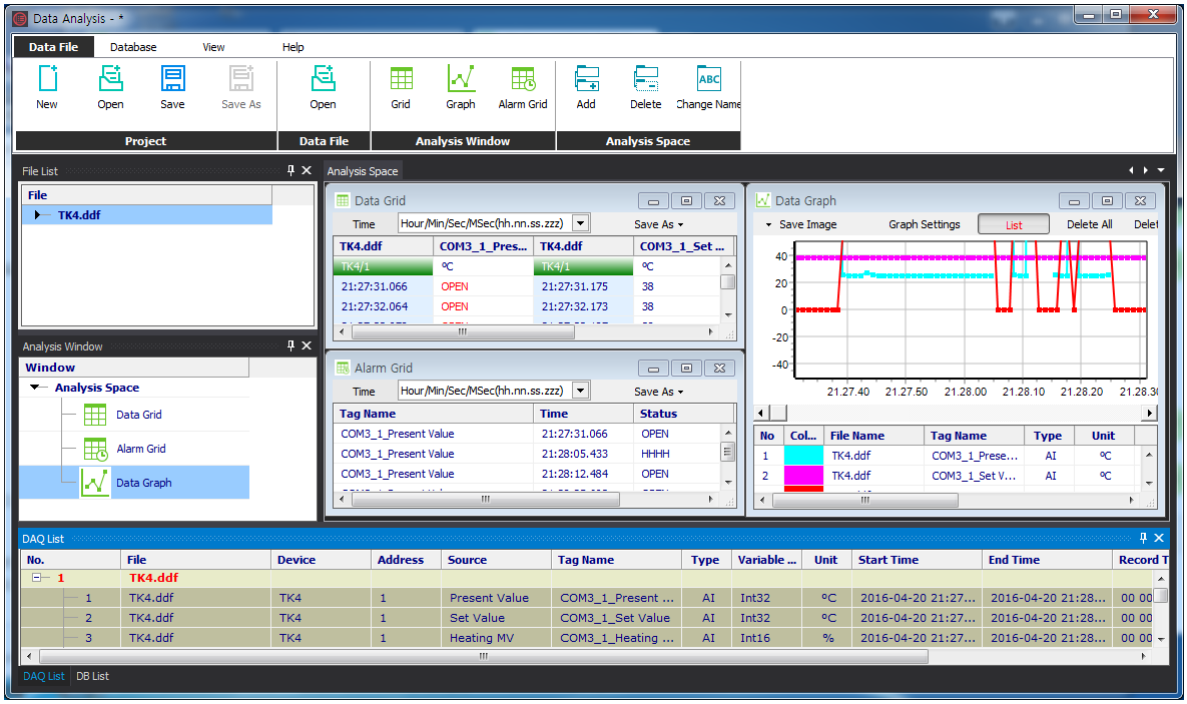


5 Data Analysis

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

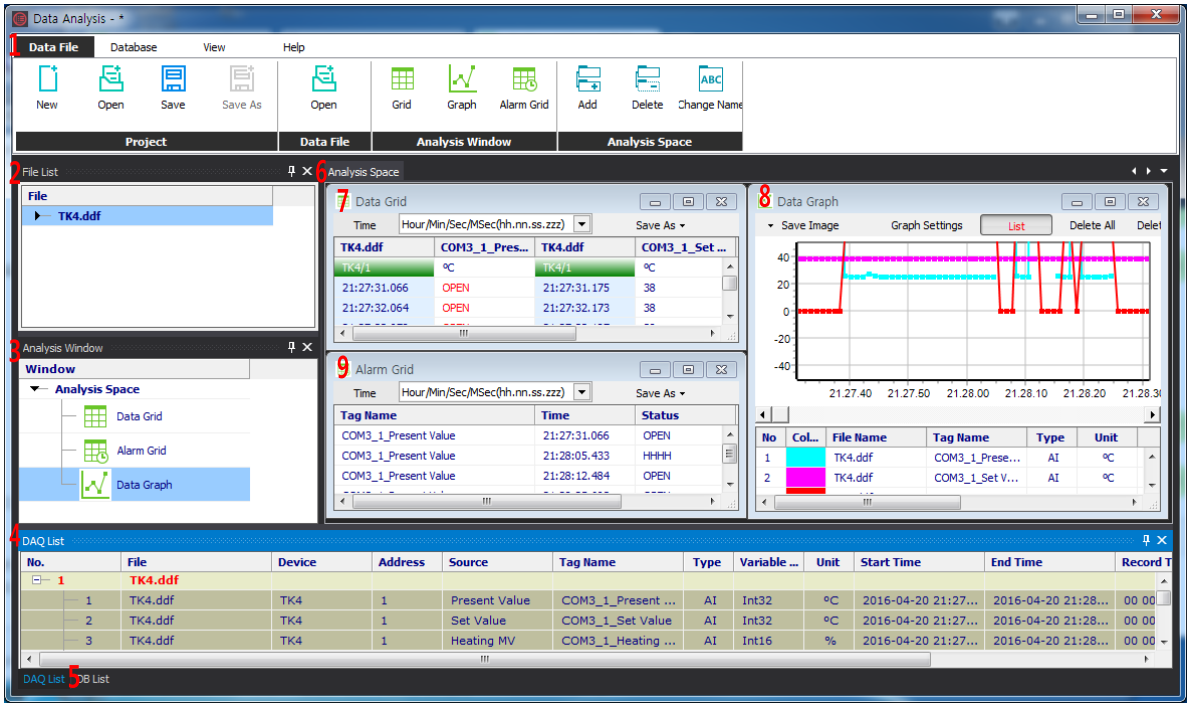
You can save monitored data files as a different file name.

The screen below shows data analysis in progress.



5.1 Screen Layout

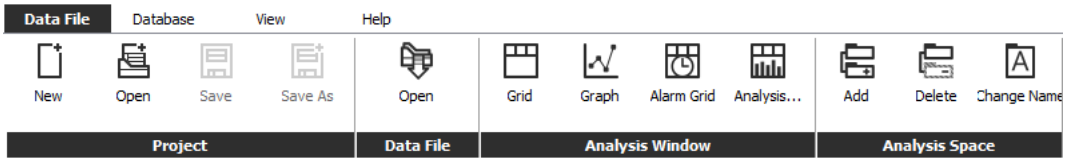
DAQMaster data analysis screen is divided into sections as shown in the below screenshot and each section is composed of following items.



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 anaylsis windows.
- Save As: Saves the opened data file or anaylsis windows as other file name.

(2) File

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

(3) Analysis Window

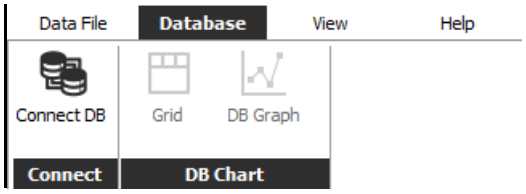
You can add the items (grid, graph, alarm grid) for displaying Analysis Space.

(4) Analysis Space

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

5.1.1.2 Database

This menu is available only for DAQMaster Pro version.



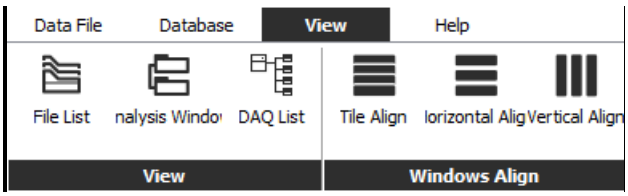
(1) Connect

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



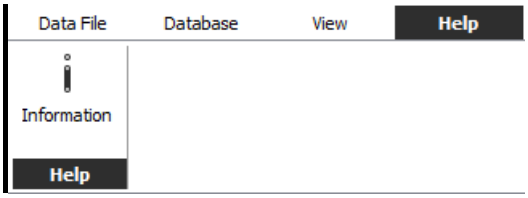
(1) View

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

(2) Align Windows

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

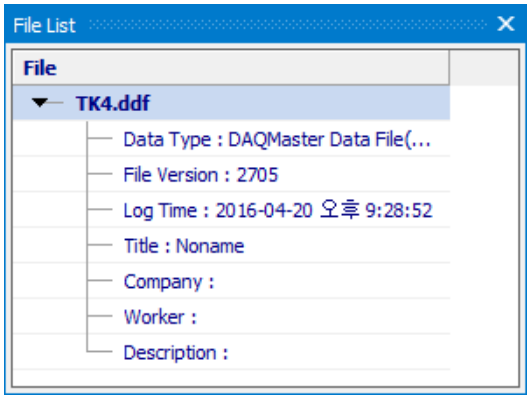
5.1.1.4 Help



Information for DAQMaster data analysis program.

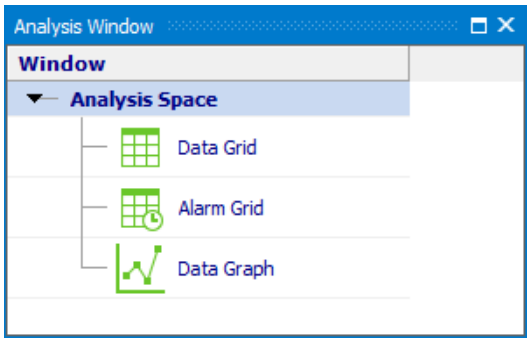
5.1.2 File List

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



5.1.3 Analysis Window

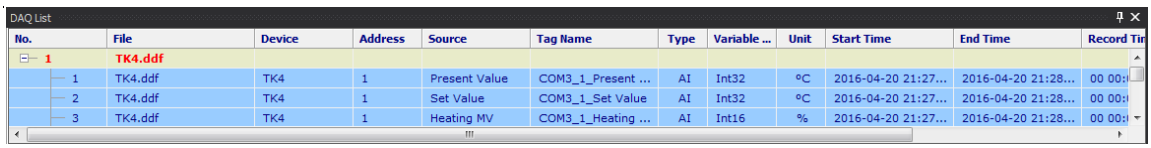
Shows items at the Analysis Space.



5.1.4 DAQ List

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

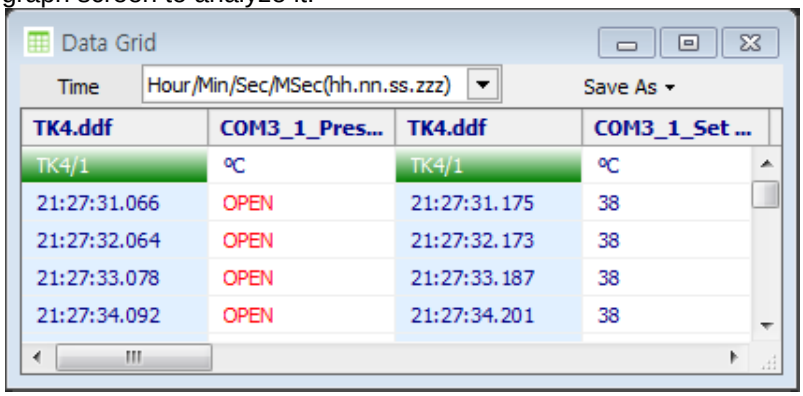
I/O sources can be analyzed through the analysis screen.



5.1.5 Analysis Space

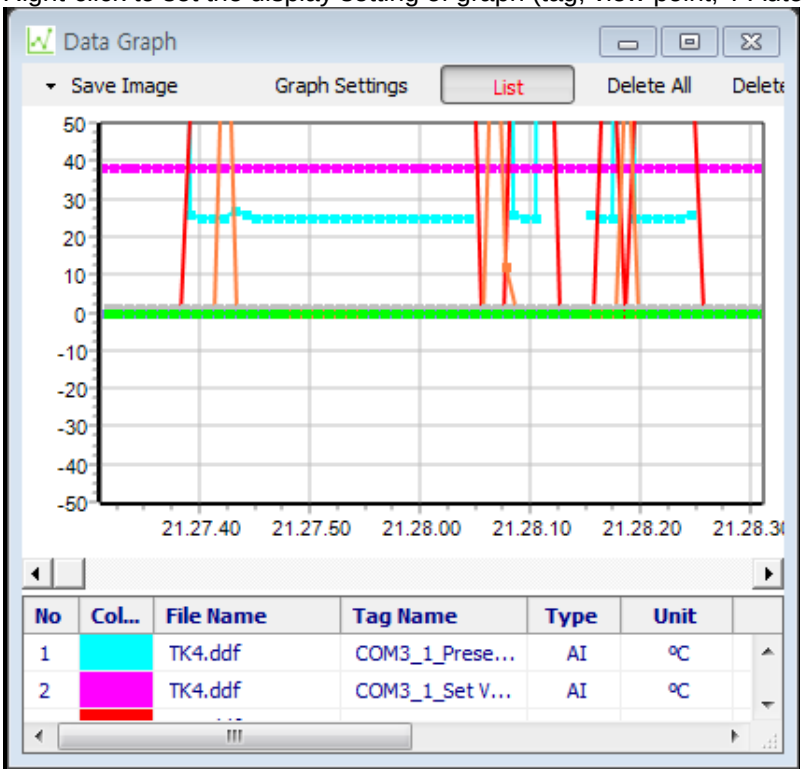
(1) Grid

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



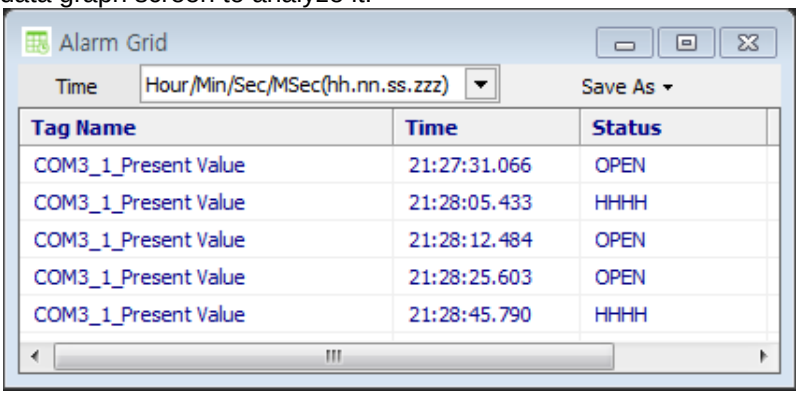
(2) Graph

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



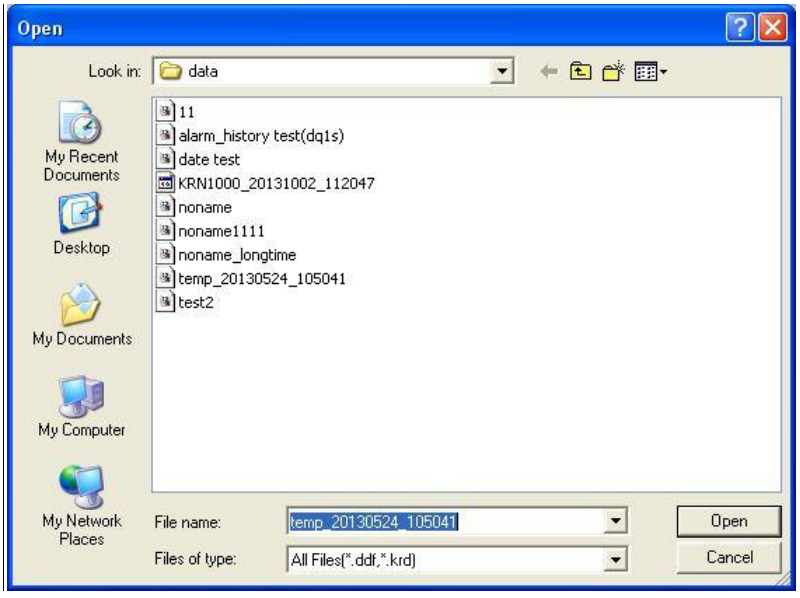
(4) Analysis Spread

This function is only for KRN1000.
Analyzes tag values in spread. Displays data with in designated range, which is set by users.

5.2 Analyzing Data

5.2.1 Opening Data Files

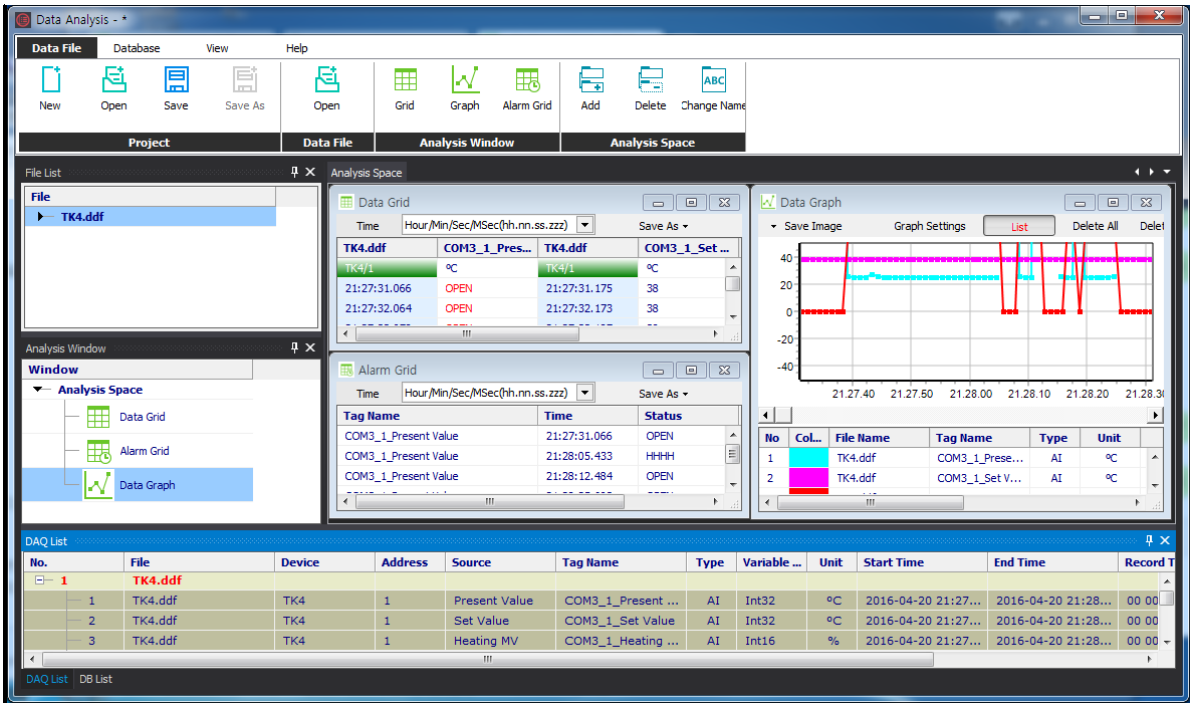
Select “Data File > Project > Open” to open a data file.



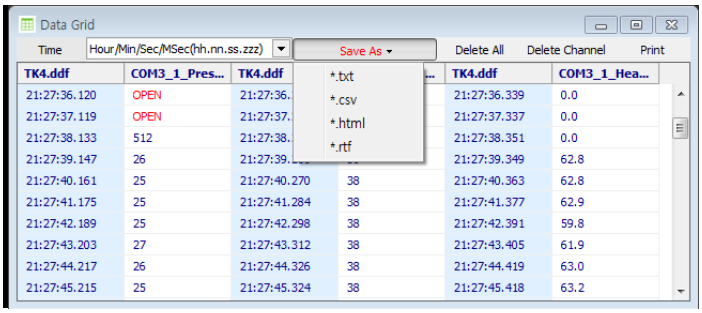
5.2.2 Add Analysis Screen

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.

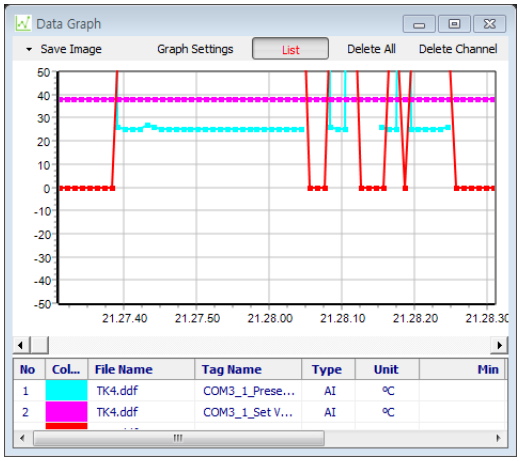


The file displayed on the Data Grid screen and the Alarm Grid can be saved as a different file name in *.txt, *csv, *.html or *rtf formats.

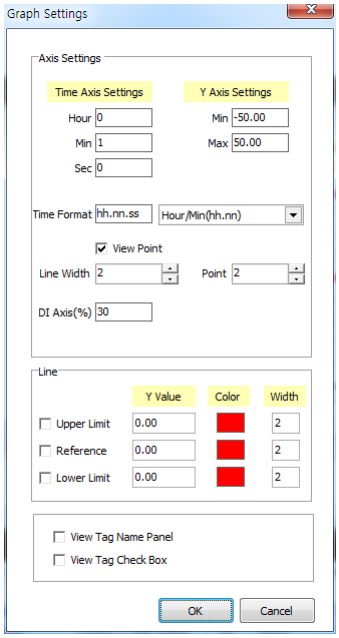


You can use zoom with the mouse wheel feature on the data graph screen for analysis.

In Save Image, You can save the currently shown graph screen as an image .

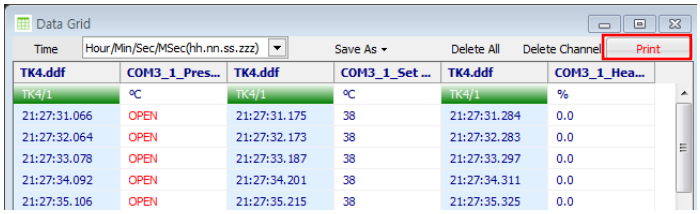


You can set time axis, time format, graph line width, etc of the graph in Graph Settings.

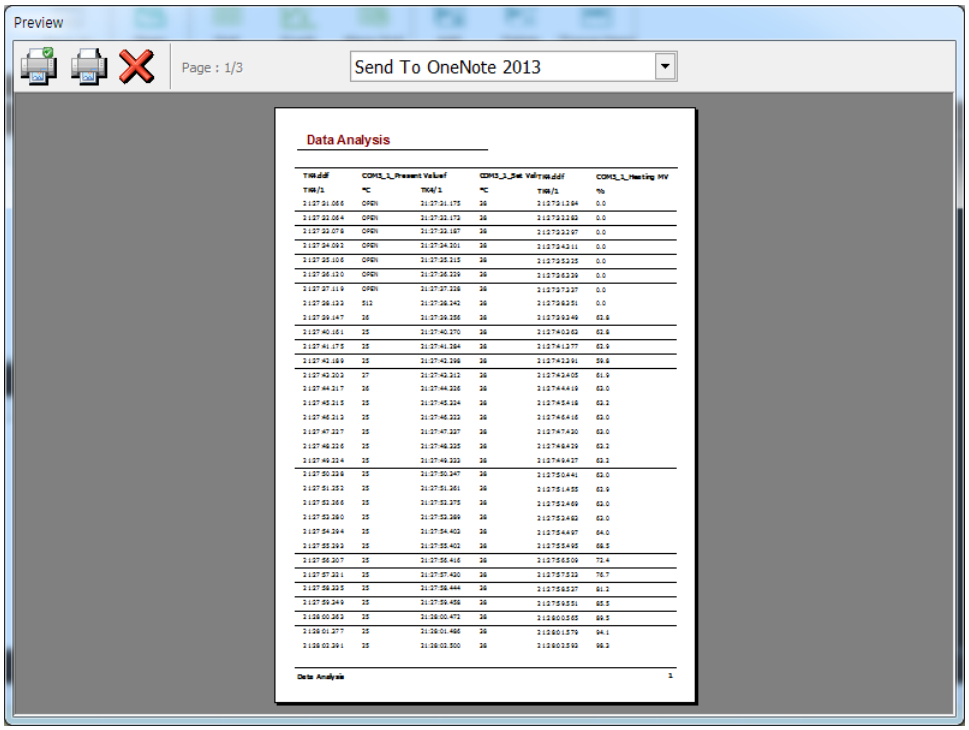


5.2.3 Print

Data Analysis program supports printing graph, grid, etc.



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

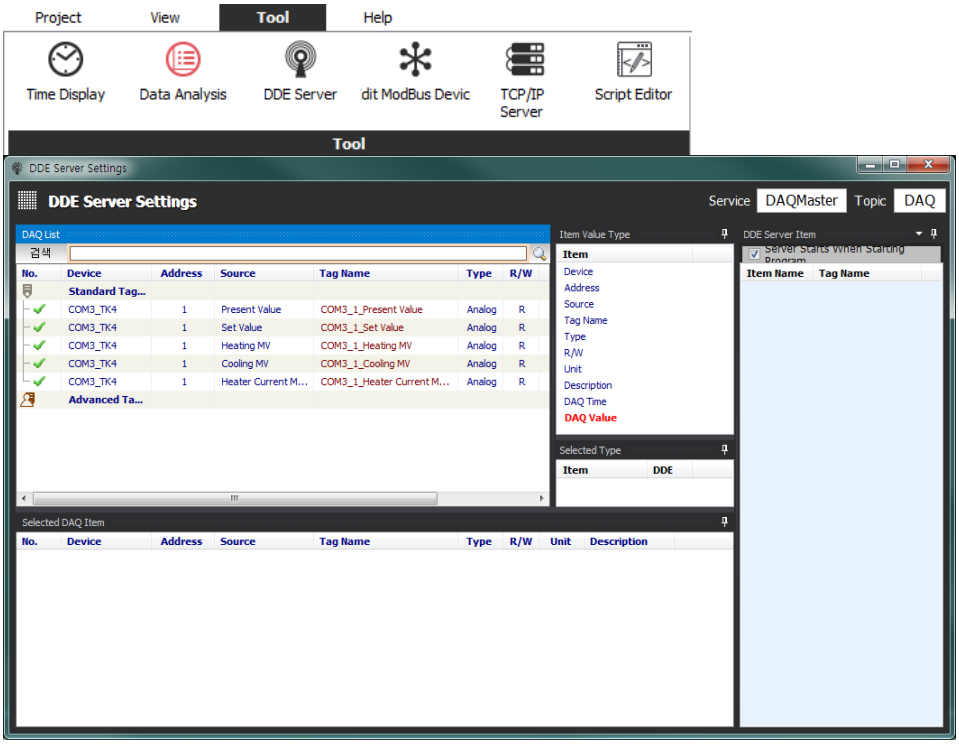


6 DDE Server

DAQMaster performs as a DDE(Dynamic Data Exchange) Server, allowing communication among programs in Microsoft Windows system. This DDE Server became DAQMaster uses shared memory. DAQMaster provide protocol or format of instructions and message to applications.

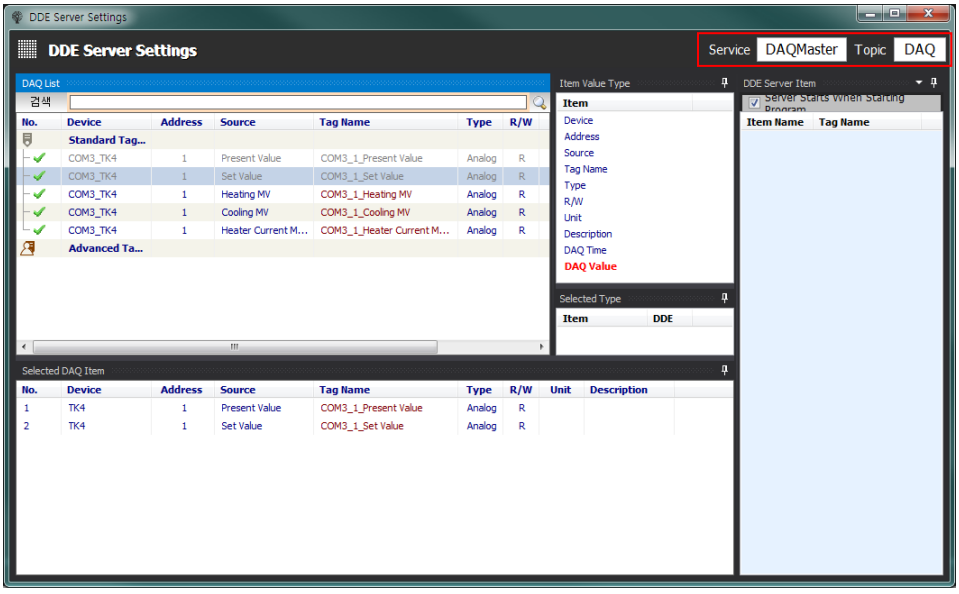
External programs can exchange data of DAQMaster with each other through DDE Server.

1st Click “Tool > DDE Server” in main menu to open DDE Server Settings dialog.



2nd From DAQ List, double-click Tag to provide to DDE Client.

(Service: DAQMaster, Topic: DAQ are set)

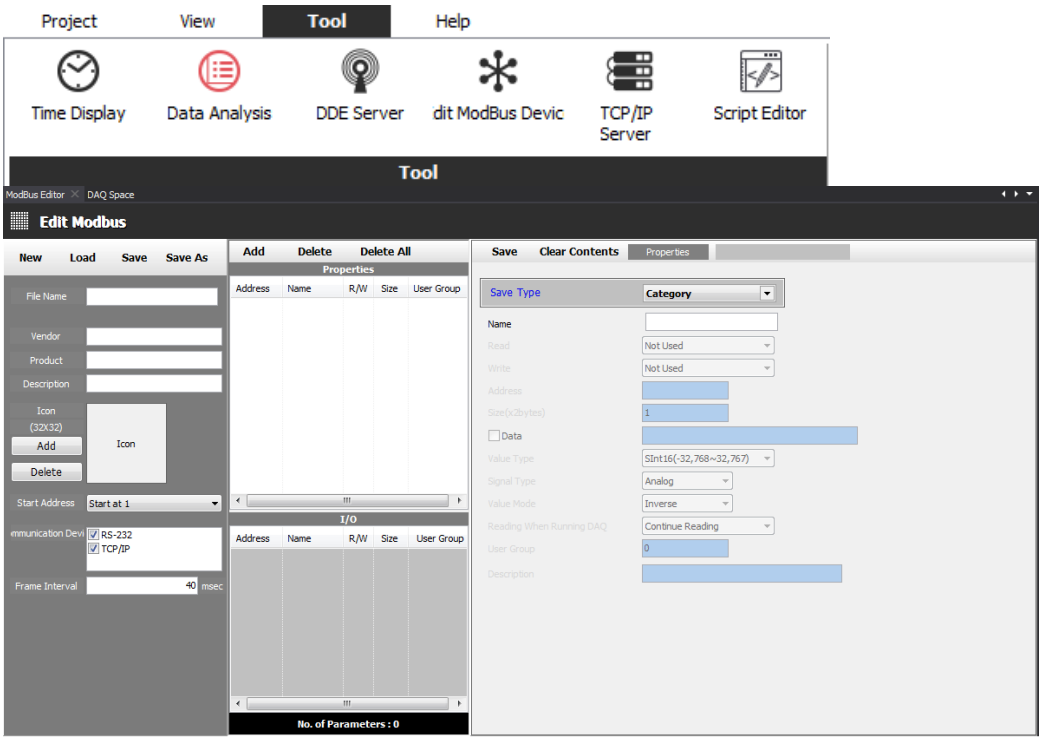


7 Edit ModBus Device

You can add the any modbus device which are not supported at DAQMaster and set and monitor the property and I/O. This function is available only for DAQMaster Pro version.

(1) Creating Device File

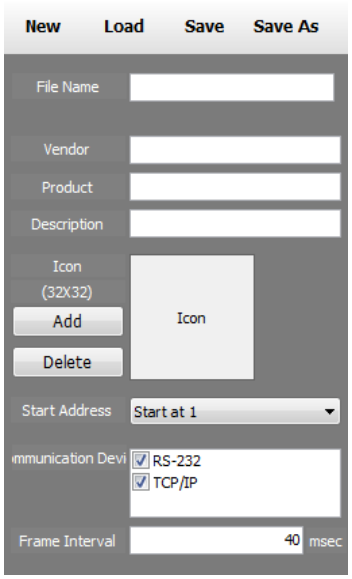
1st Double-click 'Tool' of menu and Edit Modbus executes at DAQ Space.



Modbus Device File Setting | Properties and I/O List | Properties and I/O Edit

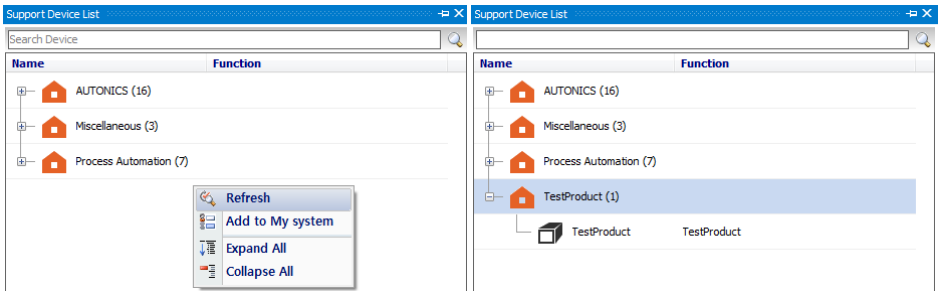
2nd At Modbus Device File Settings, you can create new device file (*.udv) or load the saved user device file (*.udv).

Enter vender name, product name, description, etc. and click 'Save' or 'Save As' to save the file.



3rd ‘Save’ or ‘Save As’ dialog box appears. Enter file name. The save file name is displayed at File Name of Modbus Device File Settings

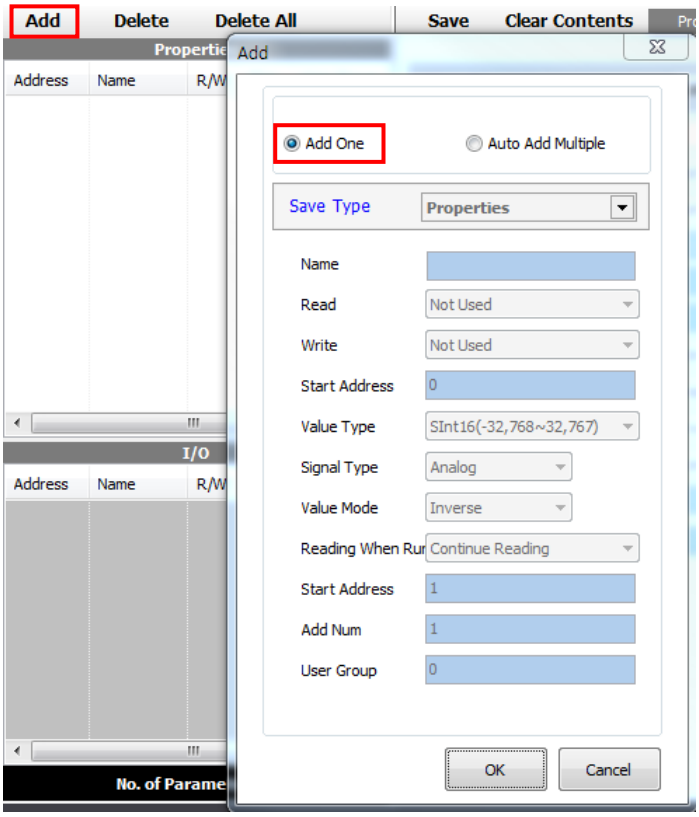
4th Refresh Support Device List and check the newly added device.



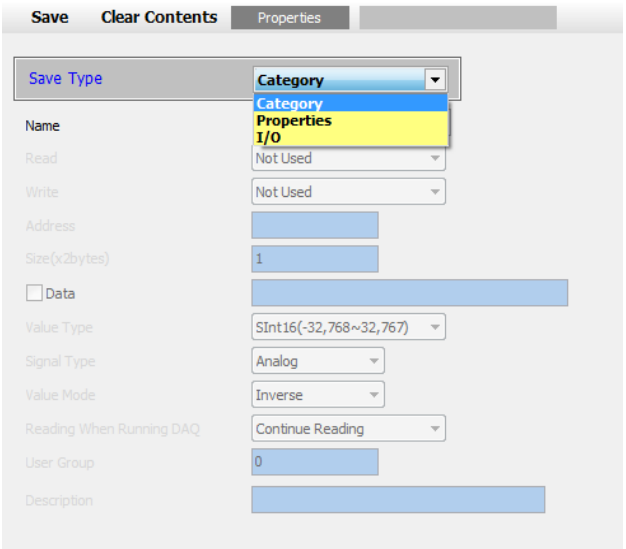
(2) Adding device properties and I/O

6) Add One

1st Click 'Add' at Properties and I/O List' of Edit Modbus and 'Add' dialog box appears. Select 'Add One' and click 'OK'.

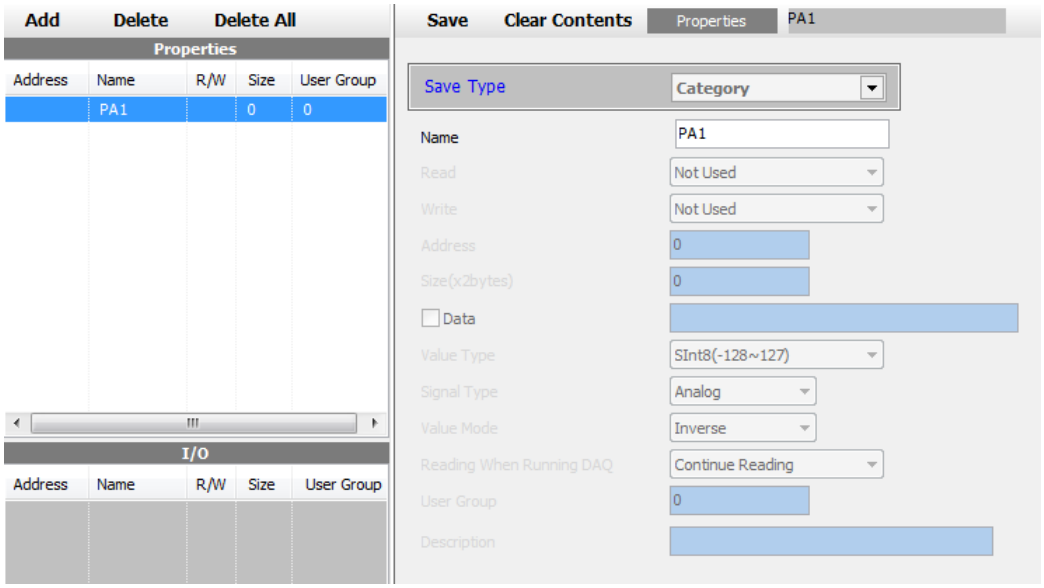


2nd Set save type and the desired contents at Properties and I/O Edit of Edit Modbus. In case of add one, set the one save type among category, properties, or I/O.



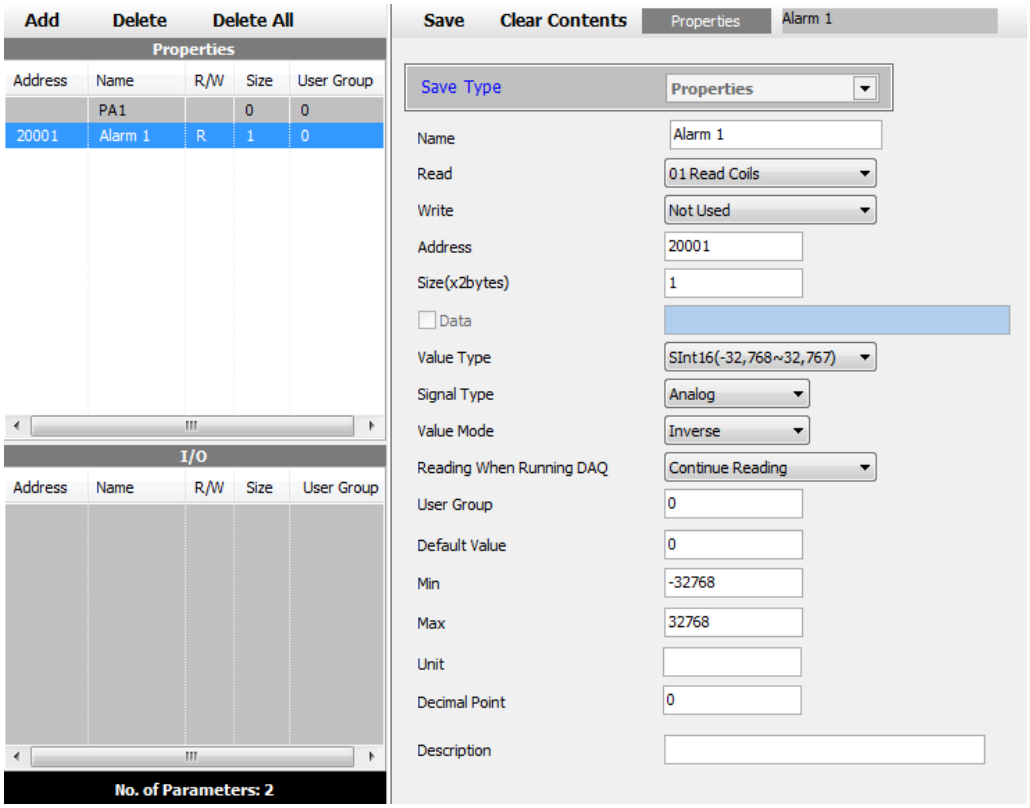
3rd When save type is ‘category’,

Set the category name. Click ‘Save’ and the category is added at the properties list.



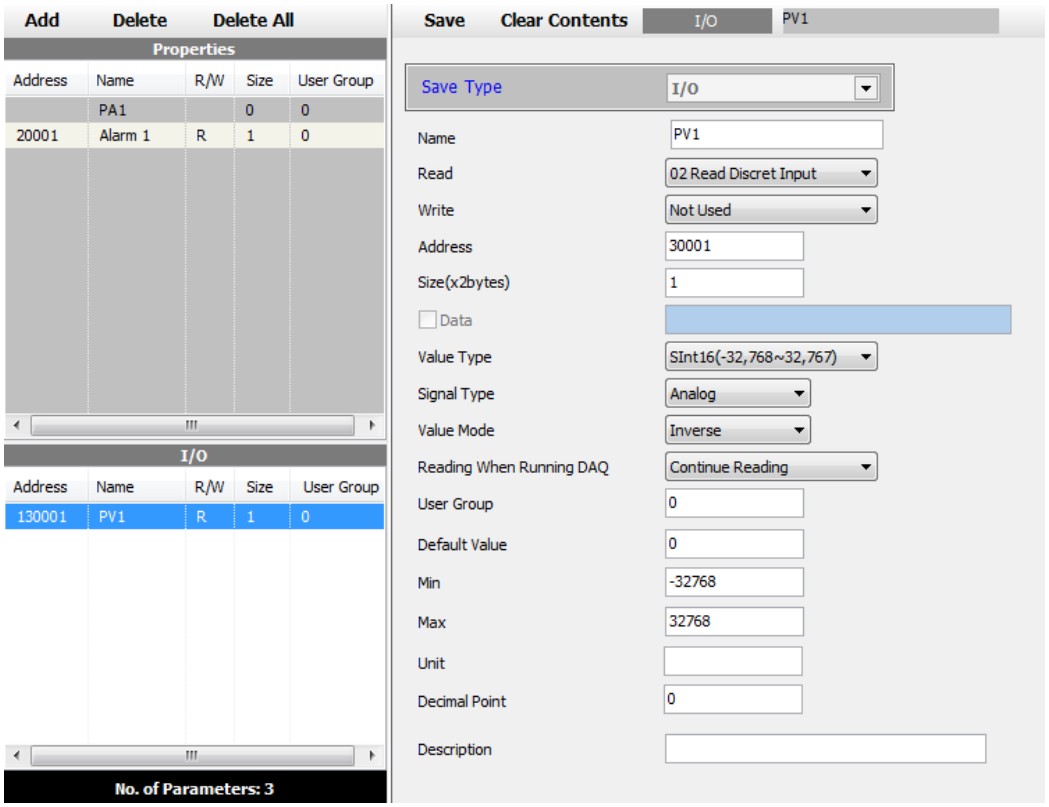
4th When save type is ‘properties’,

Set name, read/write type, address, size, value type, etc of properties. Click ‘Save’ and the properties is added at the properties list.



5th When save type is ‘I/O’,

Set name, read/write type, address, size, value type, etc of I/O. Click ‘Save’ and the properties is added at the I/O list.

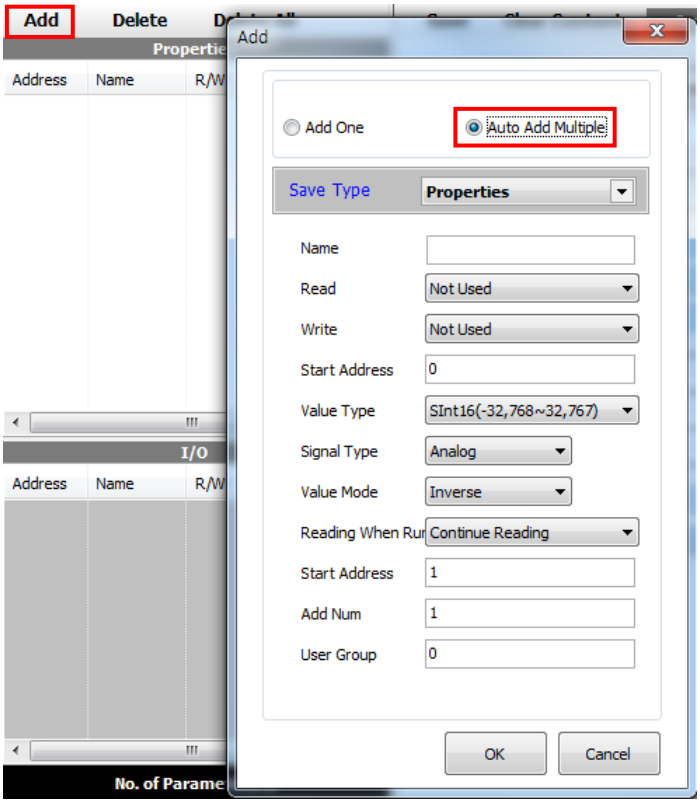


6th To edit the properties and I/O, click the desired one at Properties or I/O List. At the Properties and I/O Edit, the contents are displayed. After the edit, click ‘Save’.

7) Auto Add Multiple,

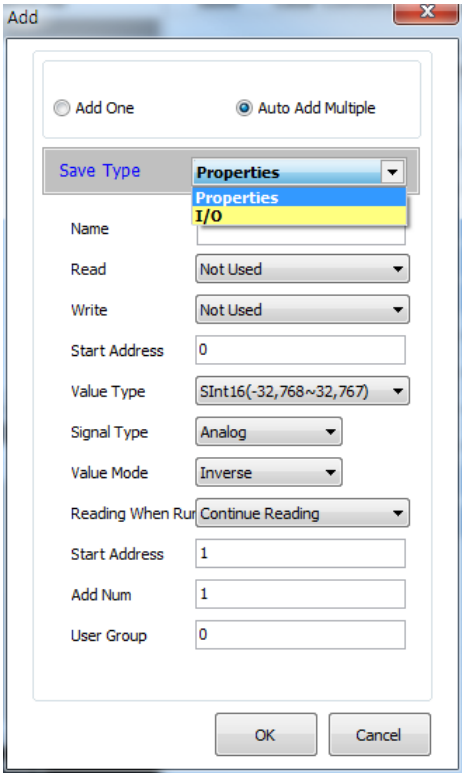
1st Click ‘Add’ at Properties and I/O List’ of Edit Modbus and ‘Add’ dialog box appears.

Select ‘Auto Add Multiple’ and below menu is activated.



2nd Select save type at ‘Add’ dialog box.

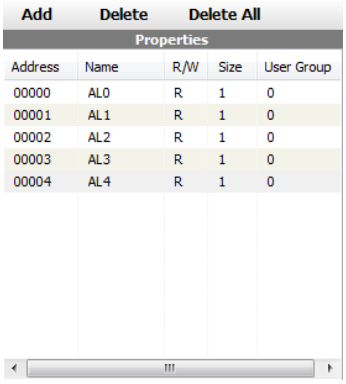
In case of auto add multiple, set tye one save type between properties, or I/O.



3rd Set name, read/write type, address, size, value type, etc of properties or I/O for auto add multiple.

Set start number and add number to add multiple properties or I/O.

For example, property name: AL, Start number: 1, Add number: 5, total 5 properties are automatically added as AL1 to AL5 name.



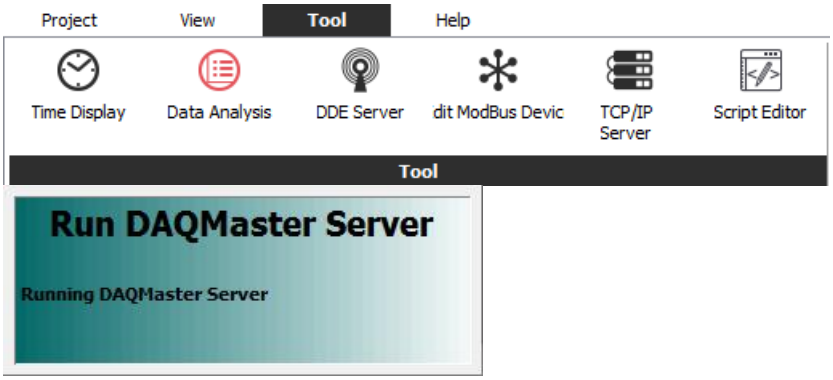
Set user group which helps to reduce time for reading/writing data for the same group.

4th To edit the properties and I/O, click the desired one at Properties or I/O List. At the Properties and I/O Edit, the contents are displayed. After the edit, click ‘Save’.

8 TCP/IP Server

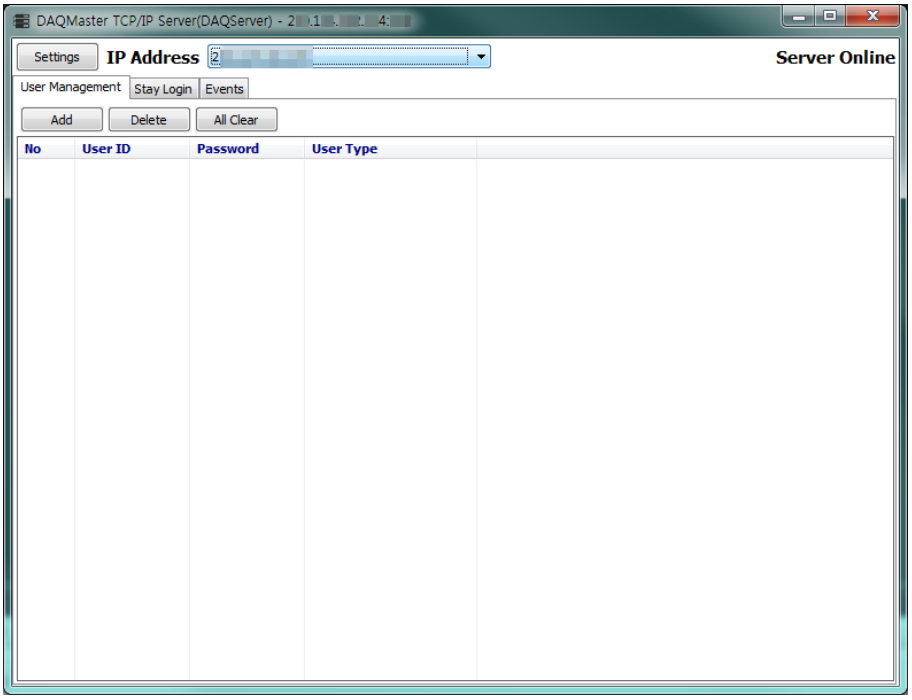
DAQMaster performs as TCP/IP Server and exchanges monitoring data with DAQMaster Client in JSON format. Network data can be displayed in server, allowing data monitering.

1st Click “Tool > TCP/IP Server” in main menu to operate DAQMaster Server. Pop-up message saying ‘Run DAQMaster Server’ appears at the corner of the screen.



2nd Icon is generated on the Windows taskbar. When you double-click this icon, DAQMaster TCP/IP Server setting dialog pops up.

TCP/IP address (highlighteded with red box) is displayed automatically. In order to connect Client, this addess is need to be entered.



3rd Click ‘Settings’ to set TCP/IP Port. (Default option: 5050)

4th In ‘User Management’ tap, you can manage a list of client users accessible to TCP/IP Server by adding, deleting, edting user ID and password.

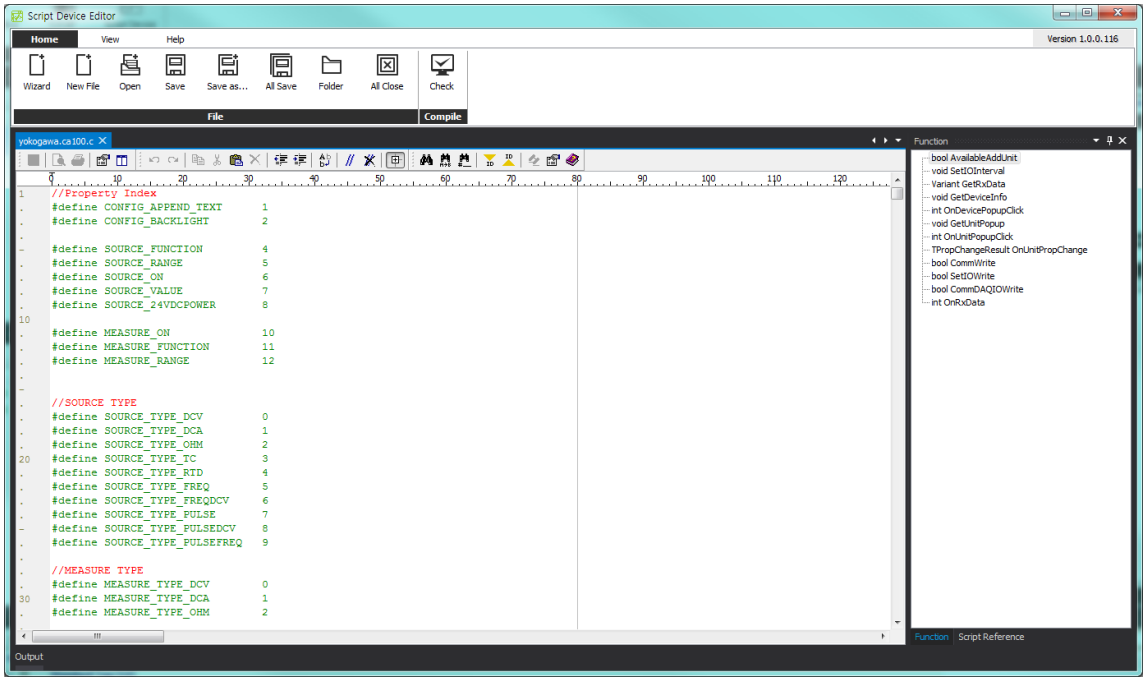
In ‘Stay Login’ tap, you can check log-in/log-out time and detailed connection information of listed users.

In ‘Events’ tap, you can see every events releated to logged communication.

9 Script Editor

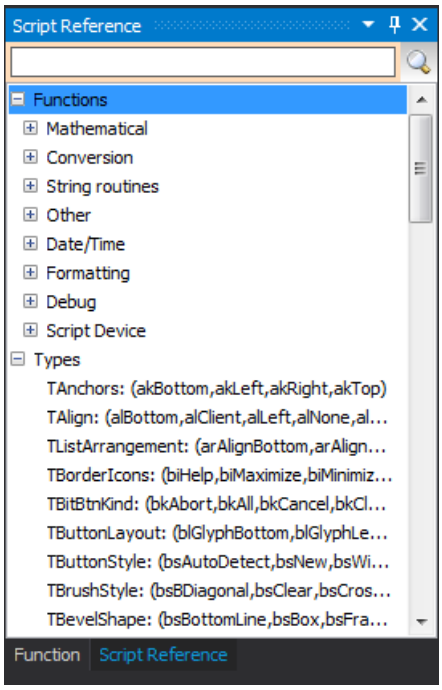
With Script Editor, you can edit script of Script Decive.

Click “Tool > Script Editor” in the main menu to execute ‘Script Device Editor’



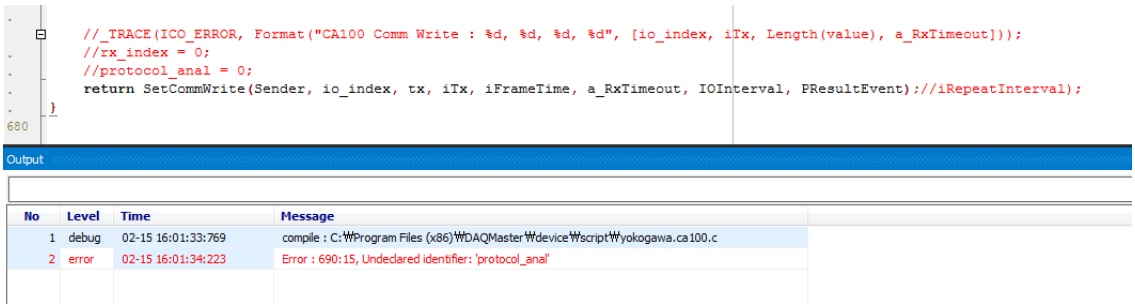
Supported scripting language is C, JS, Basic, and PAS.

Script Device Editor provides script reference.



'Check' in Compile checks whether scripting language has error or not.

When errors are detected in the scripting language, output box pops up at the bottom of the screen and shows details about errors. (double-clicking erroneous item leads you to the point)



If checking is over without error, modified script language is loaded automatically and ready to use when running DAQMaster.

10 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.

10.1 TK Series(high accuracy standard PID control temperature controller) TF3 Series (refrigeration temperature controller) KPN Series (high performance and high accuracy process controller)

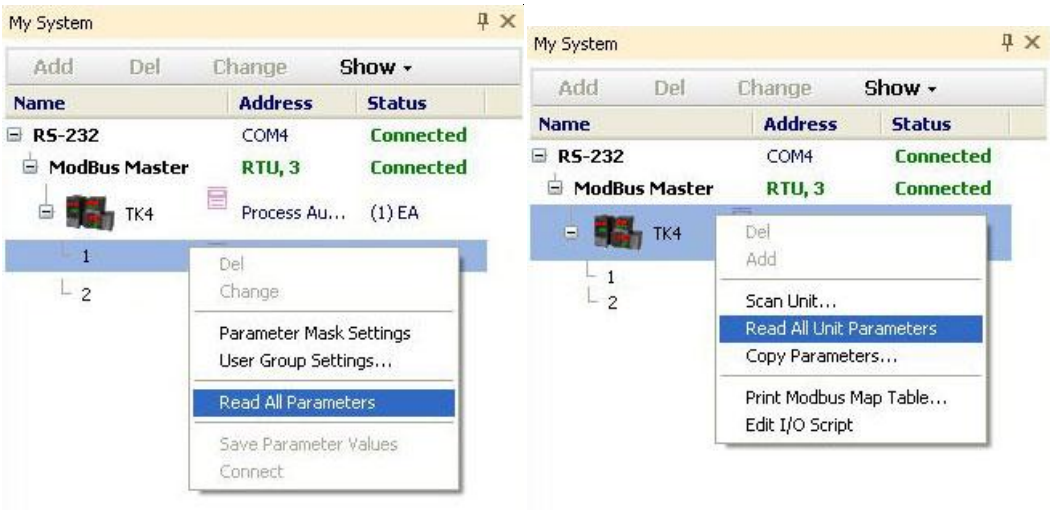
Save parameter values, copy parameters, parmaeter mask and user parameter group is available by DAQMaster. (Following explanation is based on TK)

(1) Save parameter values

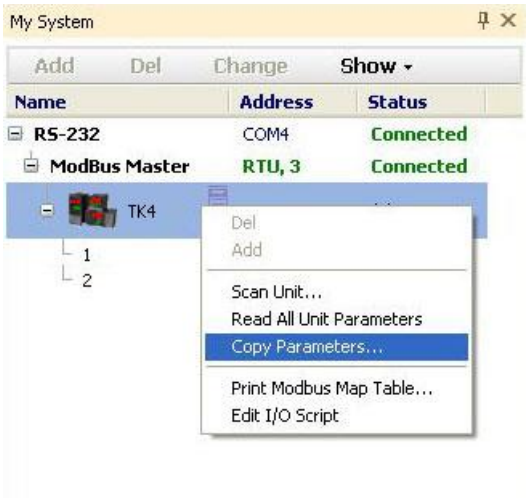
When several same model units cannot be connected to DAQMaster at once and parameter copy is not available, you can save the setting of the device as a file and utlize the file at a later.

1st Connect the TK device which parameters are saved.

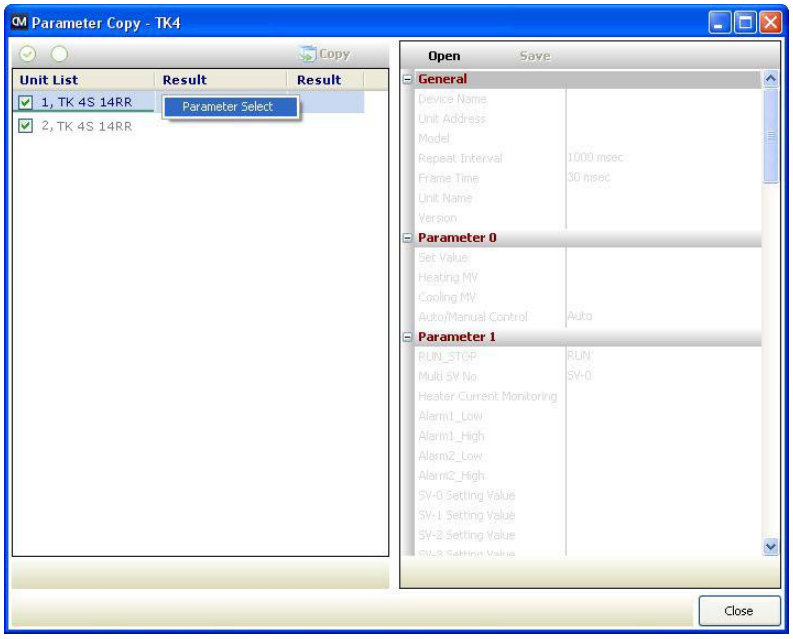
2nd Click ‘Read All Parameters’ of the unit device which parameters are saved or ‘Read All Unit Parameters’ of TK at My System.



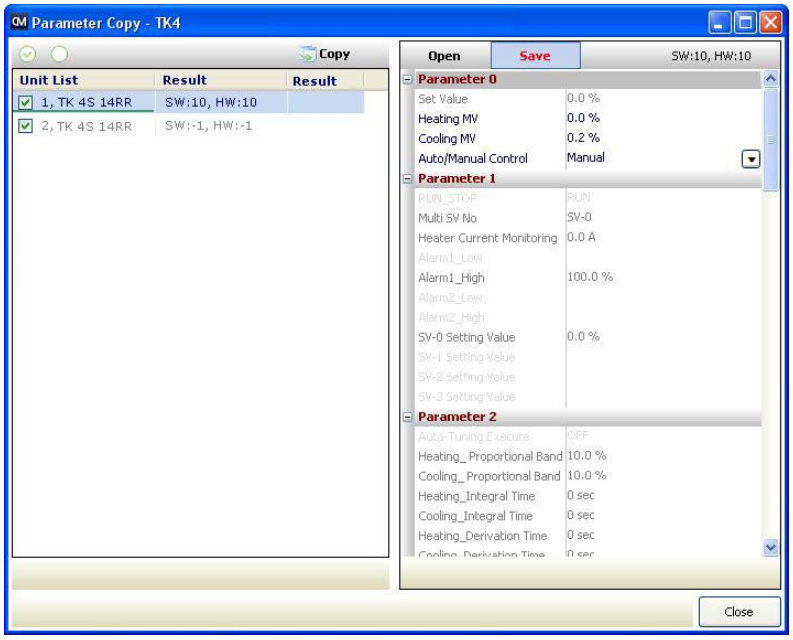
3rd Select TK at My System and right-click to select ‘Copy Parameters’ and Parameter Copy dialog appears.



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 in *.prx file.



(2) Copy parameters

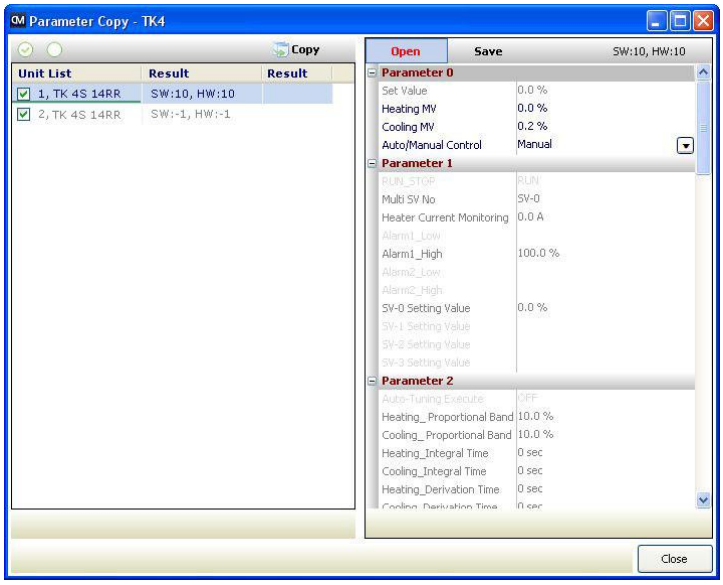
To connect the several same model units at once, you can copy the parameters. You can copy the saved parameter file or the parameter settings of the dedicated device(standard unit) to the other devices(target units).

- To copy the saved parameter file,

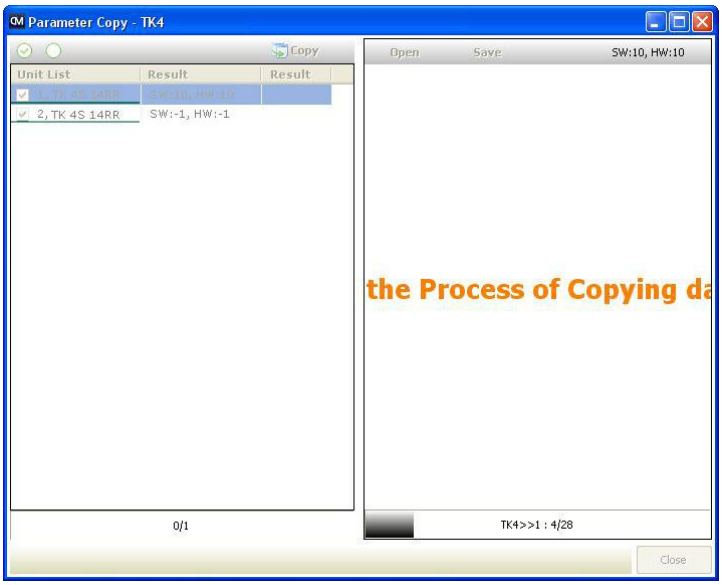
1st Same orders 1st to 3rd of the Save parameter values.

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.



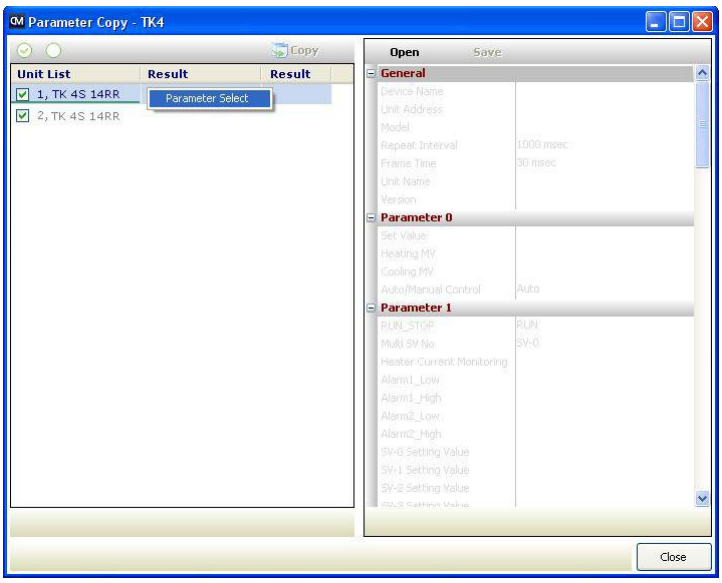
5th After completing copy, ‘Copy Complete!’ dialog box appears. Click ‘OK’ and copy is finish.

- To copy the parameter settings of the dedicated device(standard unit) to the other devices(target units),

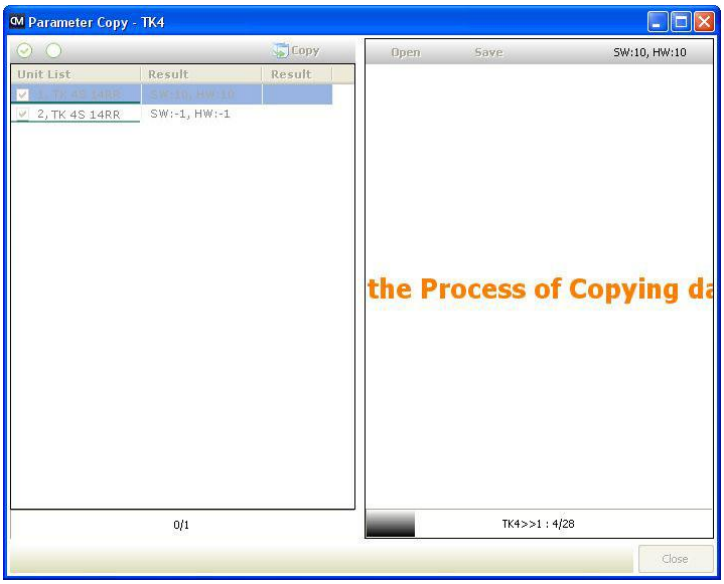
1st Same orders 1st to 3rd of the Save parameter values.

2nd 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.

3rd 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.



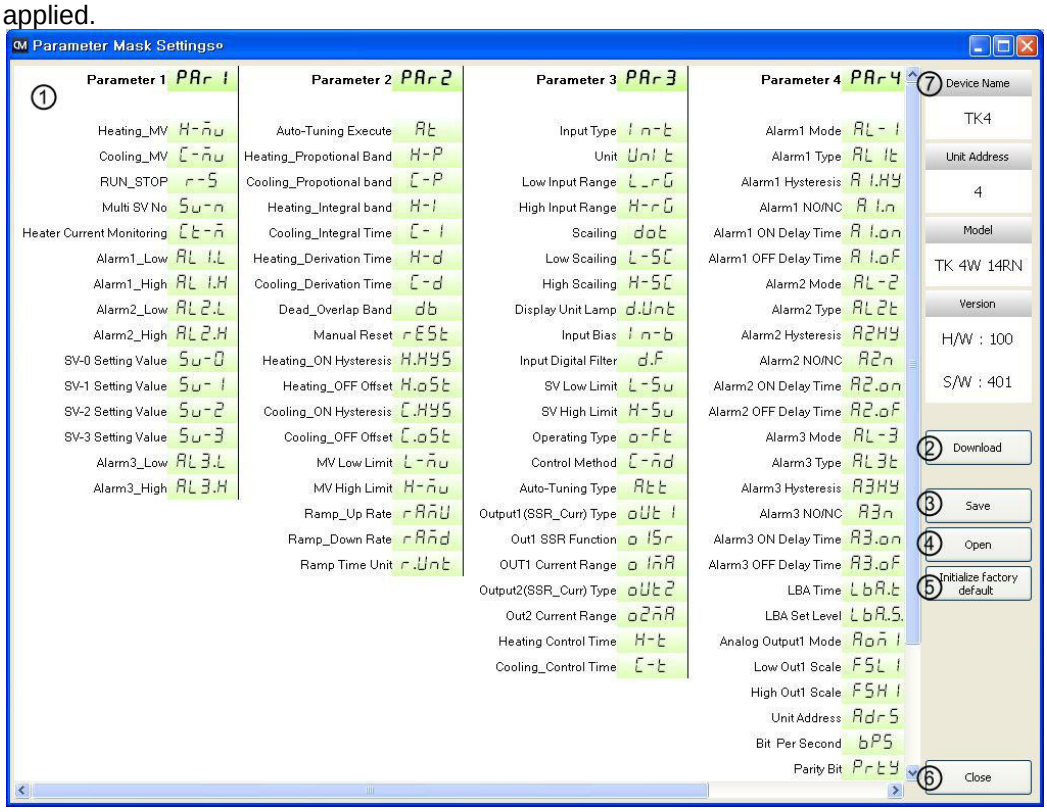
4th Click ‘Copy’ and copy is progressing. ‘the Process of Copying data’ text appears at the right side of the dialog.



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

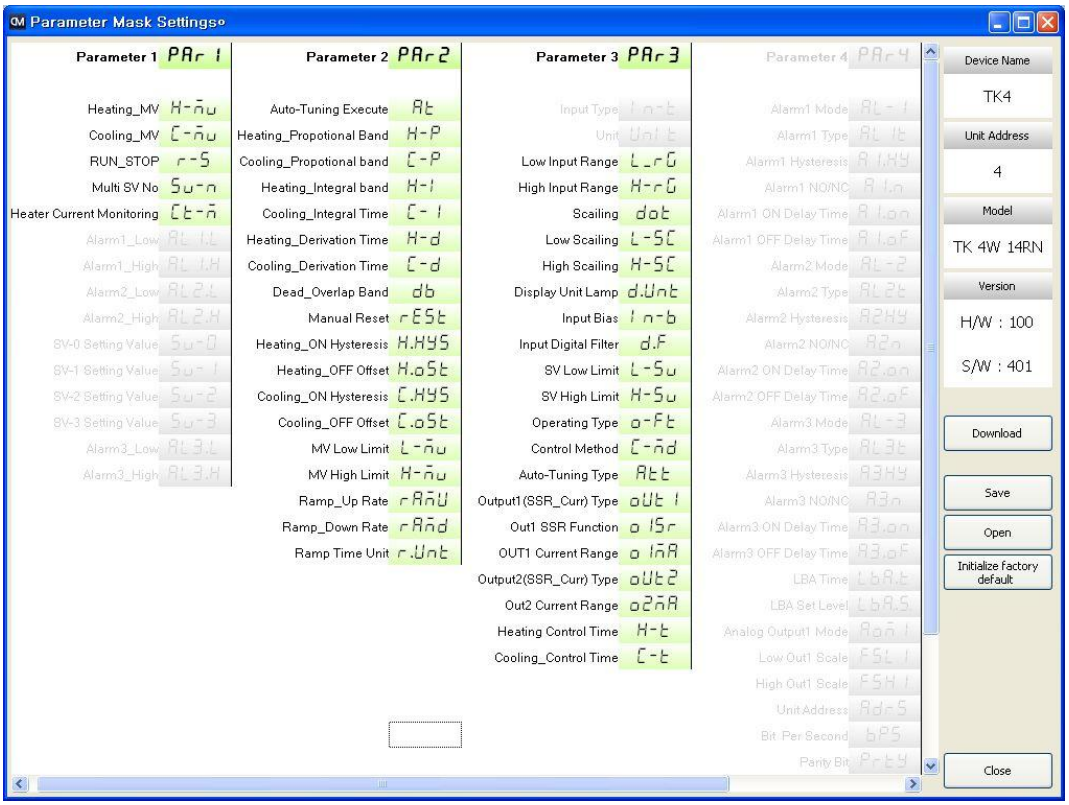
(3) Parameter mask

This feature is able to hide unnecessary parameters to user environment or less frequenctly used parameters in parameter group.
Masked parameters are not only displayed. The set values 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.

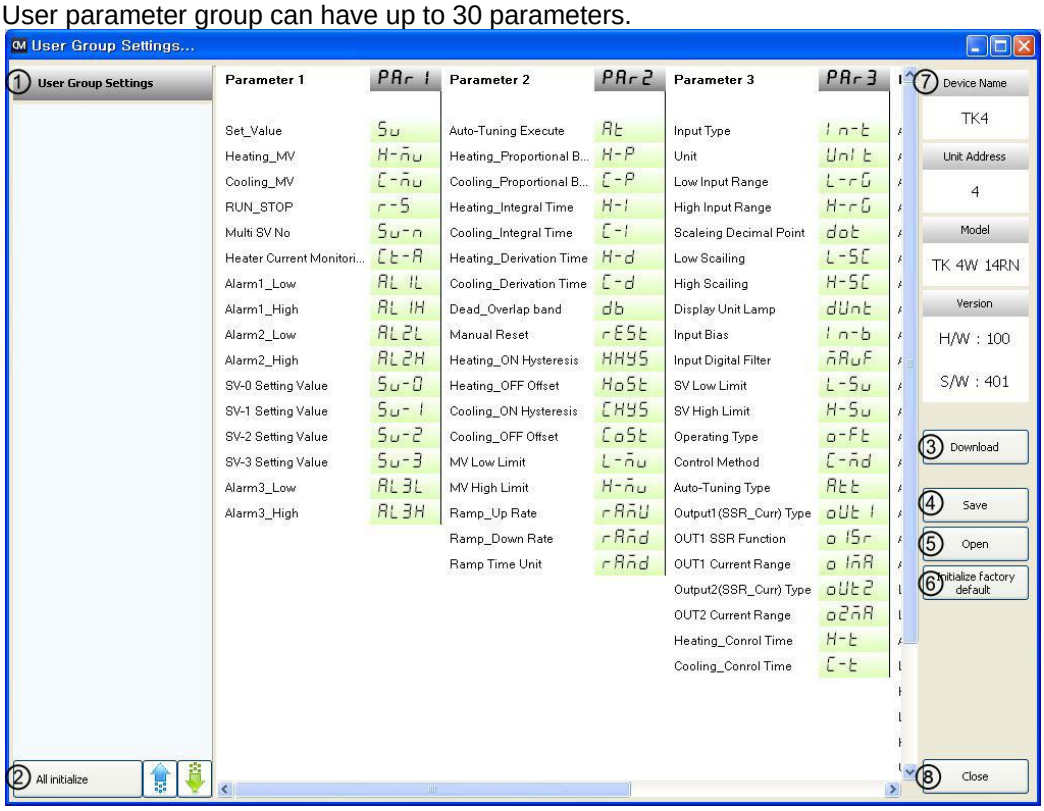
Ex.



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

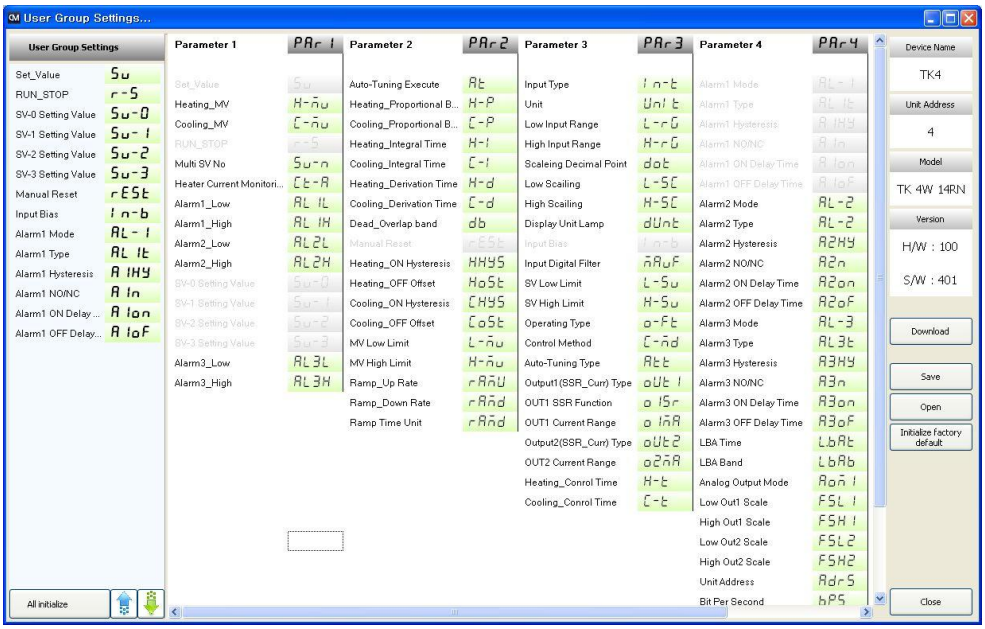
(4) User parameter group [PArU]

This feature is able to set the frequently used paramters to the user paramter 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.

Ex.

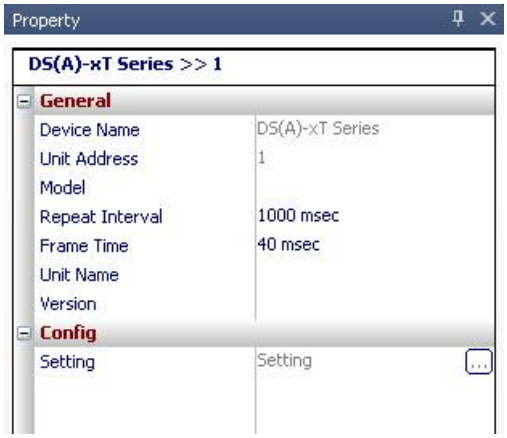


Example of the set user group with SV setting, control output RUN/STOP, alarm outptu 1 low/high-limit, SV-0/1/2/3 set value, manual reset, input correction, alarm output 1 mode/option/hysteresis/contact type/ON delay time/OFF delay time parameters.

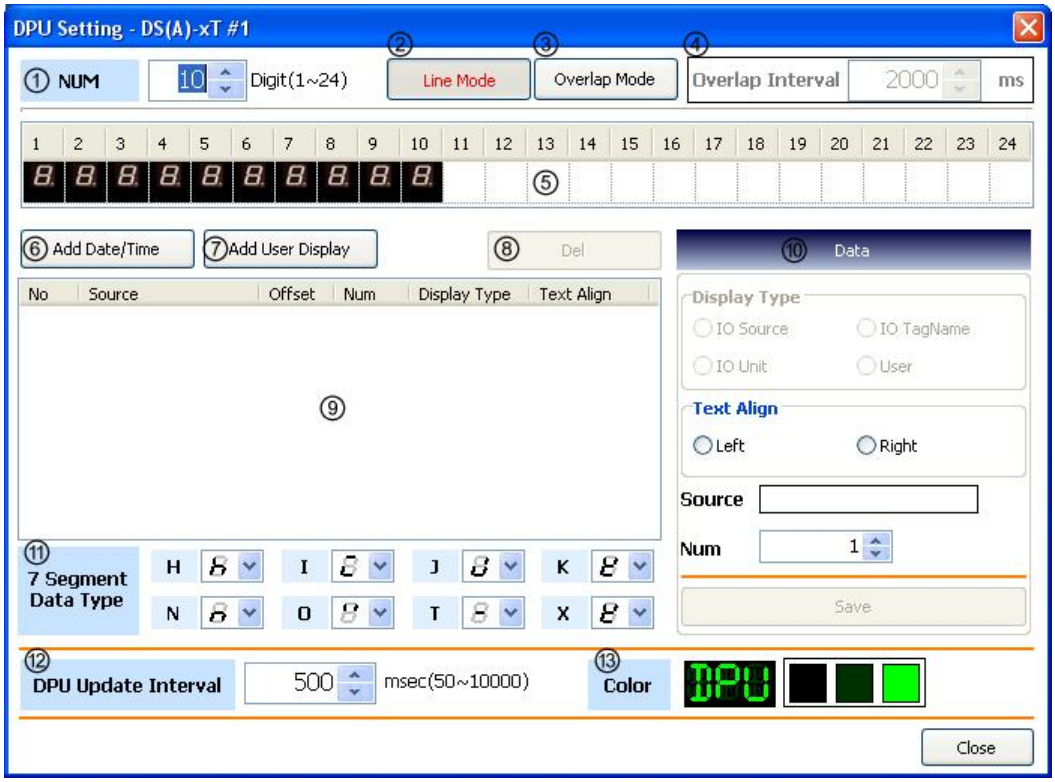
10.2 DS/DA-□T(Intelligent Display Unit)

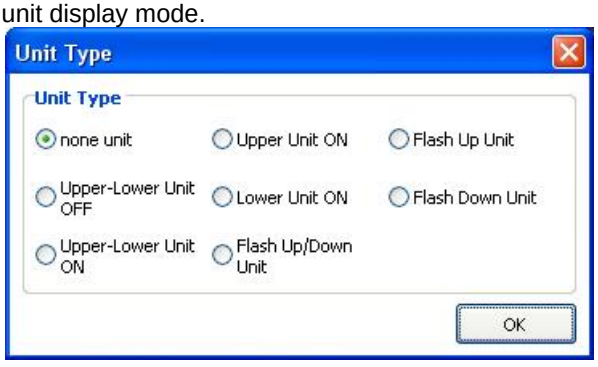
DS/DA displays I/O source value, unit, and user set value by DAQMaster.

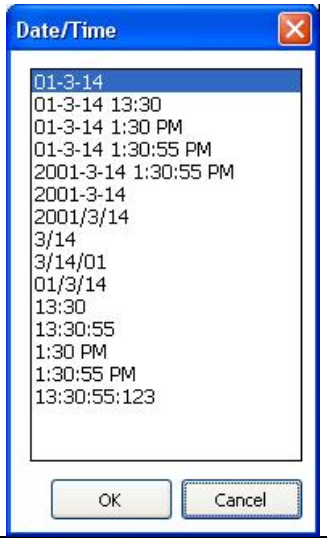
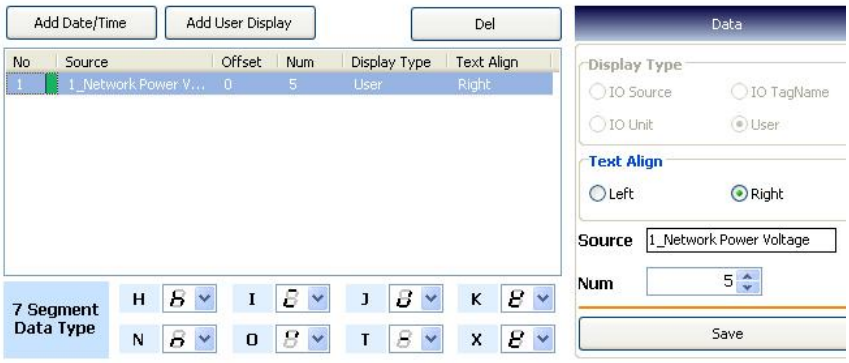
Connect DAQMaster and DS, DA(RS485 input type) and click '…' button located on the right of Setting at Config in the Property window. A display unit screen is open at DAQ Workspace.

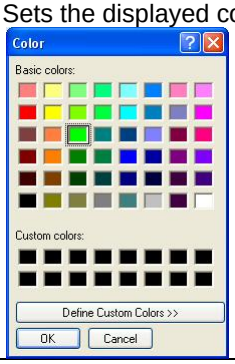


Double-click a moniring screen of a display unit screen at DAQ Workspace and Setting dialog appears.



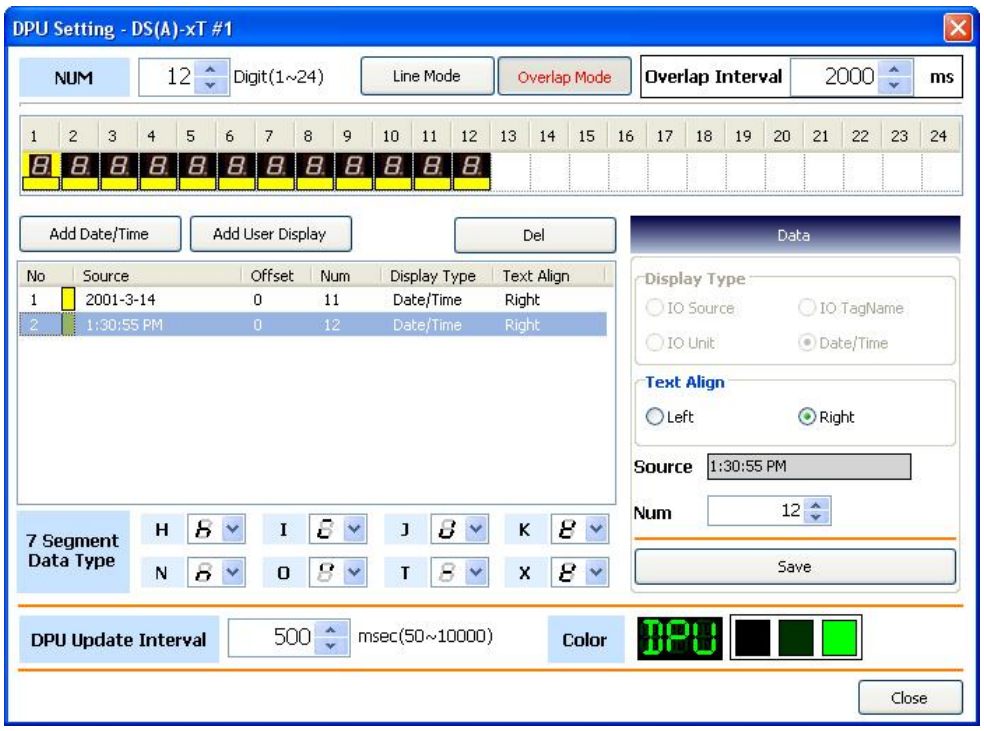
No.	Item	Description
①	NUM	Set the number of display units. Set range is 1 to 24.
②	Line Mode	Displays the added sources of list at the connected display units in a line.
③	Overlap Mode	Displays the added sources of list at the connected display units by overlapping at the set interval time.
④	Overlap Interval	Activated for overlap mode. Set the interval time for overlap display.
⑤	Display parts	Displays the connected display units and sources in the set color. Right-click this part to select the segment.  When selecting unit segment, Unit Type dialog box appears to select the unit display mode. 

⑥	Add Date/Time	Select one of date and time information types. 
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	 ▪ Display type - IO Source: Displays the value of the source. - IO TagName: Displays the name of the source. - IO Unit: Displays the unit of the source. ▪ Text Align: Sets the alignment at the display units. ▪ Source: Displays the name of I/O source and it is editable. ▪ Num: Sets the desired number of display units. ▪ Save: Saves the settings.
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. 

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.

10.3 SCM-WF48 (Wi-Fi/RS485·USB Communication Converter)

Communication setting of SCM-WF48 is editable with DAQMaster.
Connect DAQMaster and SCM-WF48 after setting communication mode to USB with USB/485 communication mode switch on the side of the SCM-WF48 device.

Double-click SCM-WF48 in My System to open SCM-WF48 Config tap in DAQ Space.

(1) Connecting device

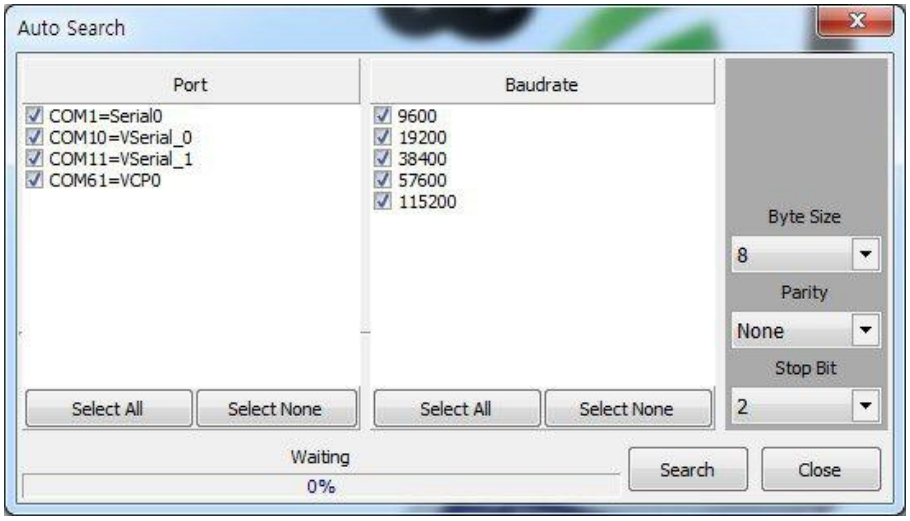
You can connect SCM-WF48 to DAQMaster in manual mode or auto mode.

1) Manual connection

Enter the port, baudrate, byte size, parity, stop bit values in the upper side of the SCM-WF48 Config tap equal to SCM-WF48 device and click 'Connect'.
Followings are default values of SCM-WF48.

Baudrate	9600
Byte Size	8
Parity	None
Stop Bit	1

2) Auto connection

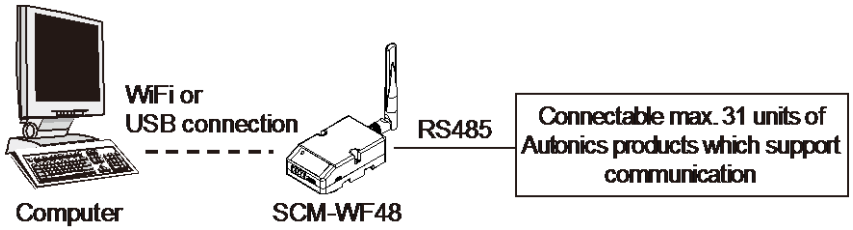


Click ‘Auto Search’ to open ‘Auto Search’ dialog.
If you select items to search and click ‘Search’ button, DAQMaster displays accessible SCM-WF48.
When PC is connected with over 2 SCM-WF48 devices, DAQMaster is automatically connected with first SCM-WF48 in numerical order of port number.

(2) Setting communication mode

Select communication mode of SCM-WF48 from AP mode and Station mode.

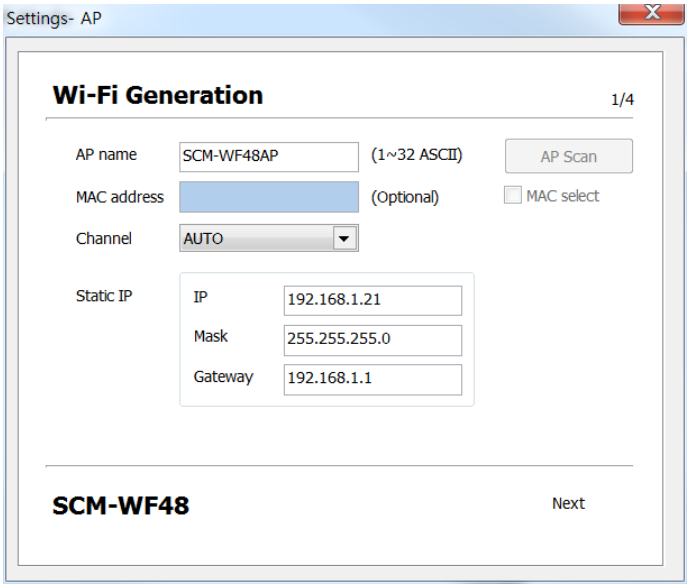
1) AP mode



SCM-WF48 performs as AP (access point).
PC, smart phone, PLC are connected directly with SCM-WF48 using Wi-Fi to communicate with other devices which are connected to SCM-WF48 with RS485 wired connection.

1st Click ‘AP Mode’ to operate AP mode setup wizard.

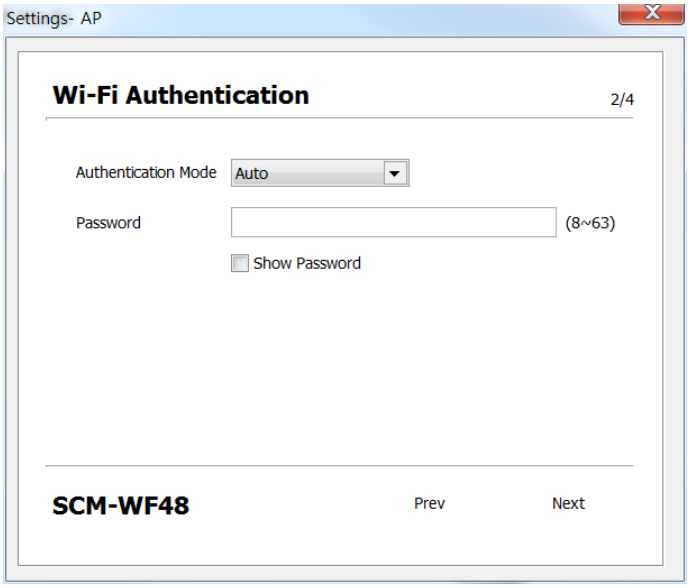
2nd Set Wi-Fi generation.



- AP name: Sets displaying name.
  Default is SCM-WF48AP.
- Channel: Sets Wi-Fi frequency. (setting range: Auto, 1~14)
  If the number of channel is same or next to each other with another wirelessly connectied devices, communication interference occurs and makes communication status unstable.
- Static IP: Sets IP, Mask, Gateway as follows.
  Please check network environment ahead of setting.

IP	192.168.1.1
Mask	255.255.255.0
Gateway	192.168.1.1

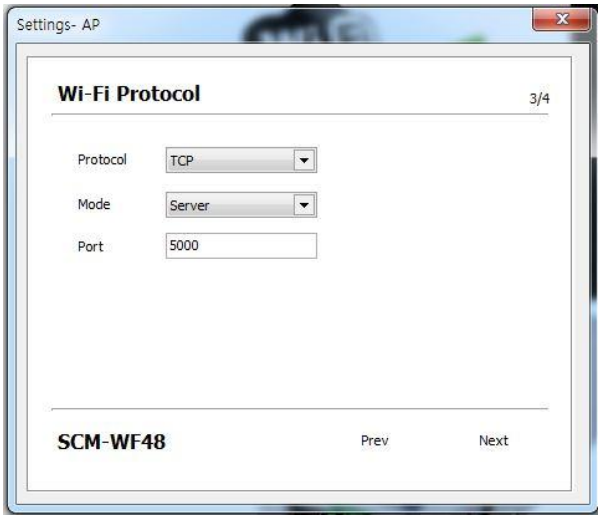
3rd Set Wi-Fi authentication.



Followings are types of authentication.

Type		Description
Auto		Selects mode of authentication automatically. Passphrase is required for connection. If you enter passphrase at the first time, DAQMaster connects automatically without passphrase.
Open		Selecting SSID connects AP, without passphrase.
PWA	WEP	Encrypts connection and communication. In order to strengthen security, PWA mode is recommended. Passphrase is required for connection. Order of security safety: WPA2TKIP > WPA2AES > WPAAES, WPA2 > WPA > WEP
	WPA	
	WPA2	
	WPAAES	
	WPA2AES	
	WPA2TKIP	

4th Set Wi-Fi protocol.



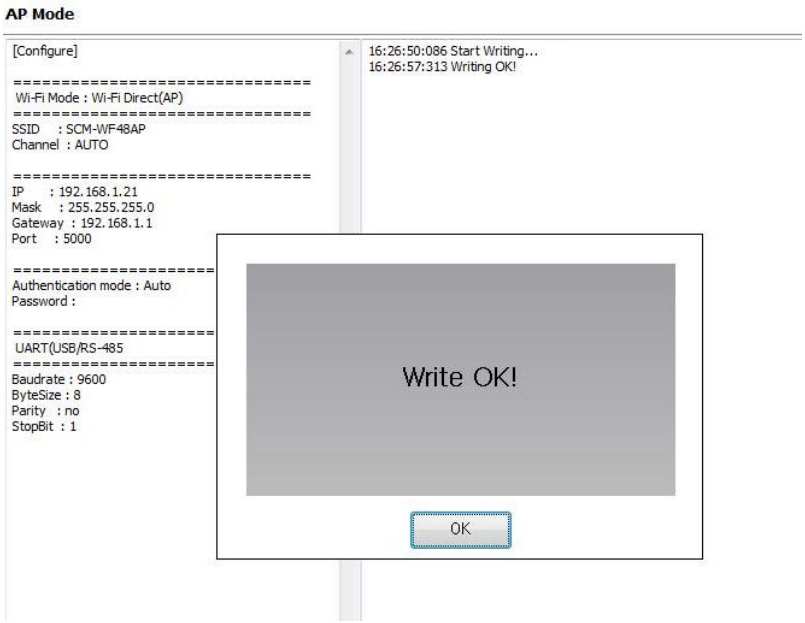
- Protocol: Select Wi-Fi protocol from TCP, UDP.
- Mode: 'AP mode' only supports Server mode.
- Port: A set of server and client has set in same port value.
  (In Modbus communication, 502 port is used in general)

5th Set UART.

Enter the Baudrate, Byte Size, Parity, Stop Bit values equal to the device which is connected to SCM-WF48 device with RS485 or USB and click 'Write'.

6th On the SCM-WF48 Config tap, setting values are displayed on the left side and progress for connection is shown on the right side.

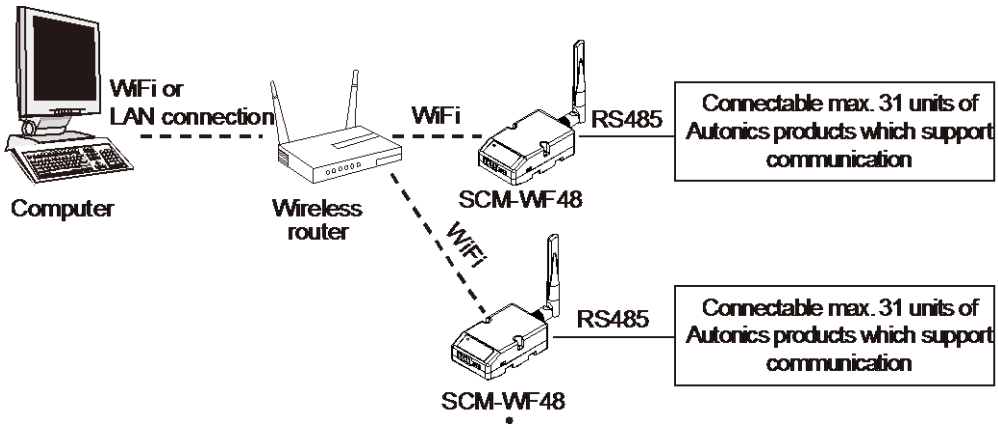
When applying setting values is completed, message saying ‘Write OK!’ pops up.



7th AP mode setting is finished.

Please reboot SCM-WF48 device in order to apply setting values to the device.

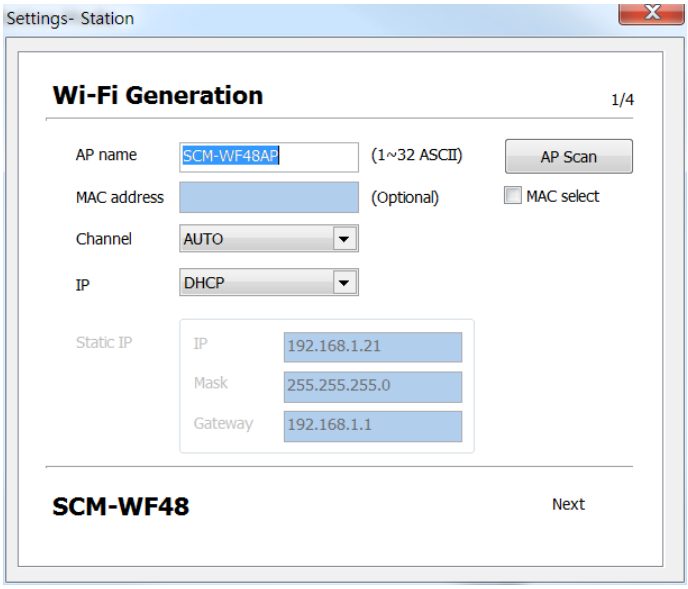
2) Station mode



SCM-WF48 is linked to another AP.
Wireless router and SCM-WF48 is connected using Wi-Fi therefore PC, smart phone, PLC connected to wireless router can communicate with other devices which are connected to SCM-WF48 with RS485 wired connection.

1st Click 'Station Mode' to operate Station mode setup wizard.

2nd Set Wi-Fi generation.



- AP name: Sets displaying name.
  Default is SCM-WF48AP.
- AP Scan: Scans AP.
  When scanning AP, it may be necessary to repeat again.
- MAC select/address: Check the 'MAC select' and you can enter MAC address.
  When the same SSIDs exist, enter the MAC address and connect the desired SSID.
- Channel: Sets Wi-Fi frequency. (setting range: Auto, 1 to 14)
  If the number of channel is same or next to each other with another wirelessly connectied devices, communication interference occurs and makes communication status unstable.
- IP: Selects IP from DHCP and Static IP.

  DHIP: DAQMaster sets IP automatically.

  Static IP: User sets IP manually.

- Static IP: Sets IP, Mask, Gateway as follows.
  Please check network environment ahead of setting.

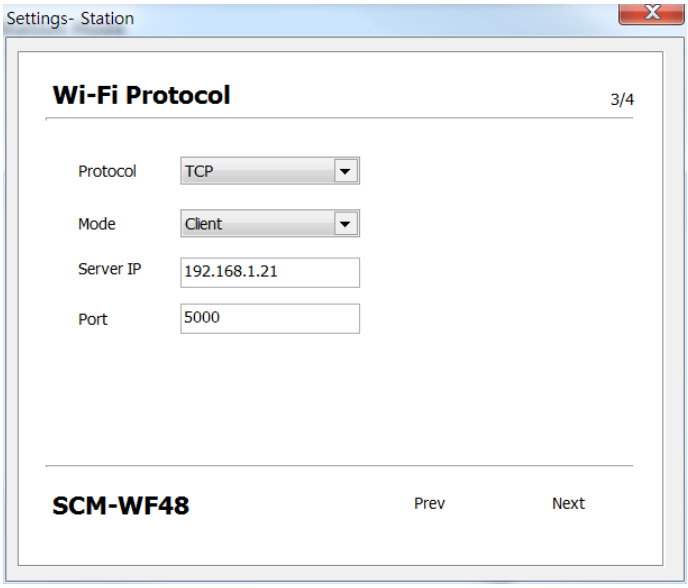
IP	192.168.1.1
Mask	255.255.255.0
Gateway	192.168.1.1

3rd Set Wi-Fi authentication.

Followings are types of authentication.

Type		Description
Auto		Selects mode of authentication automatically. Passphrase is required for connection. If you enter passphrase at the first time, DAQMaster connects automatically without passphrase.
Open		Selecting SSID connects AP, without passphrase.
PWA	WEP	Encrypts connection and communication. In order to strengthen security, PWA mode is recommended. Passphrase is required for connection. Order of security safety: WPA2TKIP > WPA2AES > WPAAES, WPA2 > WPA > WEP
	WPA	
	WPA2	
	WPAAES	
	WPA2AES	
	WPA2TKIP	

4th Set Wi-Fi protocol.



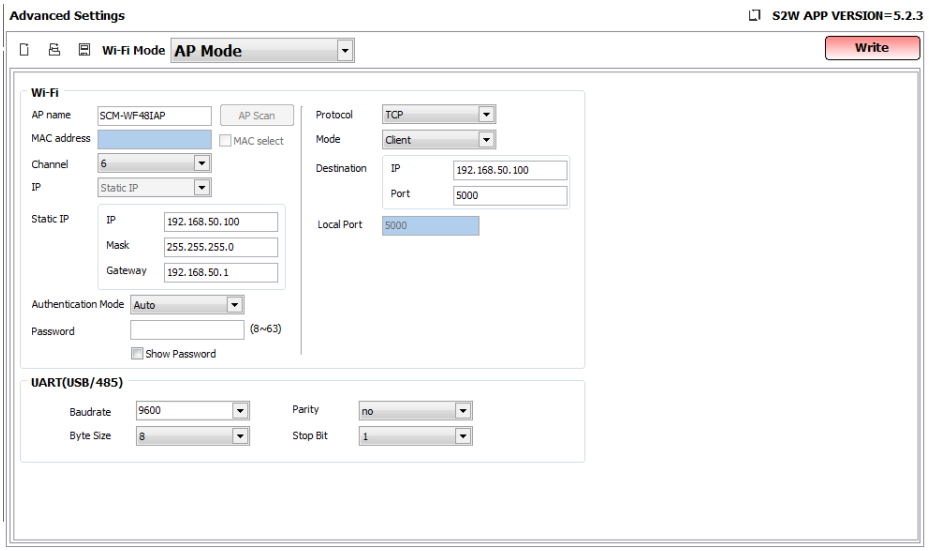
- Protocol: Select Wi-Fi protocol from TCP, UDP.
- Mode: Select Mode from Server and Client.
  Server: SCM-WF48 operates as server.
  Client: SCM-WF48 operates as client. Connecting information of server is required.
- Server IP: Enter server IP.
- Port: A set of server and client has set in same port value.
  (In Modbus communication, 502 port is used in general)

5th The other settings are same as AP mode. Refer to the '1) AP mode'.

3) Advanced settings

Set network communication at once without setup wizard.

You can save/ load/save as the communication settings.



Note

Notes for SCM-WF48 communication setting

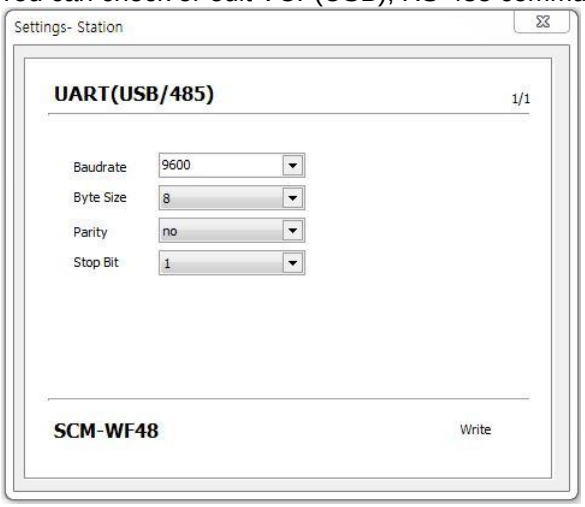
- Single Wi-Fi network needs at least one AP.
- Single network consisting of wire and wireless connection needs at least one DHCP server.
- At least one set of server and client is necessary.

(3) Utility

'UART Settings', 'Reset Factory Default', 'Profile' allows you to check or edit the setting value.

1) UART Settings

You can check or edit VCP(USB), RS-485 communication setting values.

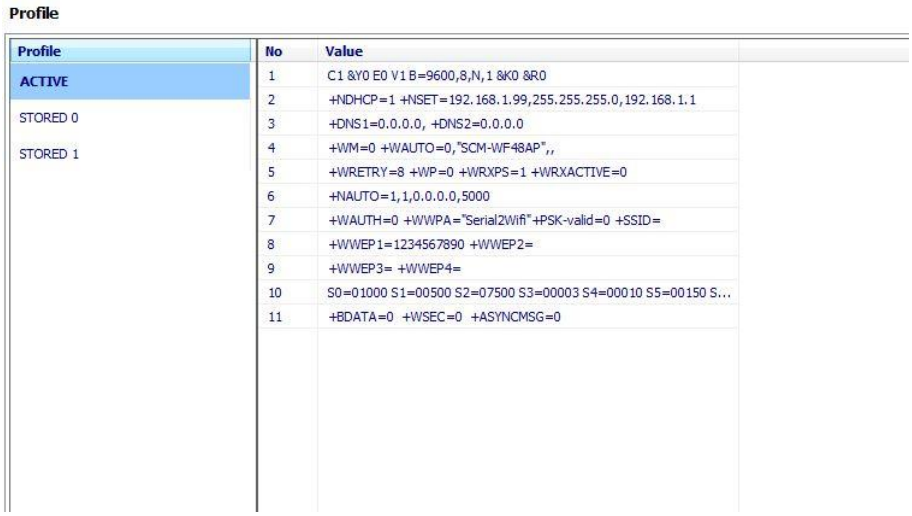


2) Reset Factory Default

Initializes Baudrate, Byte Size, Parity, Stop Bit of SCM-WF48 to its factory default settings.

3) Profile

Displays Wi-Fi setting information of SCM-WF48.



(4) Firmware version upgrade

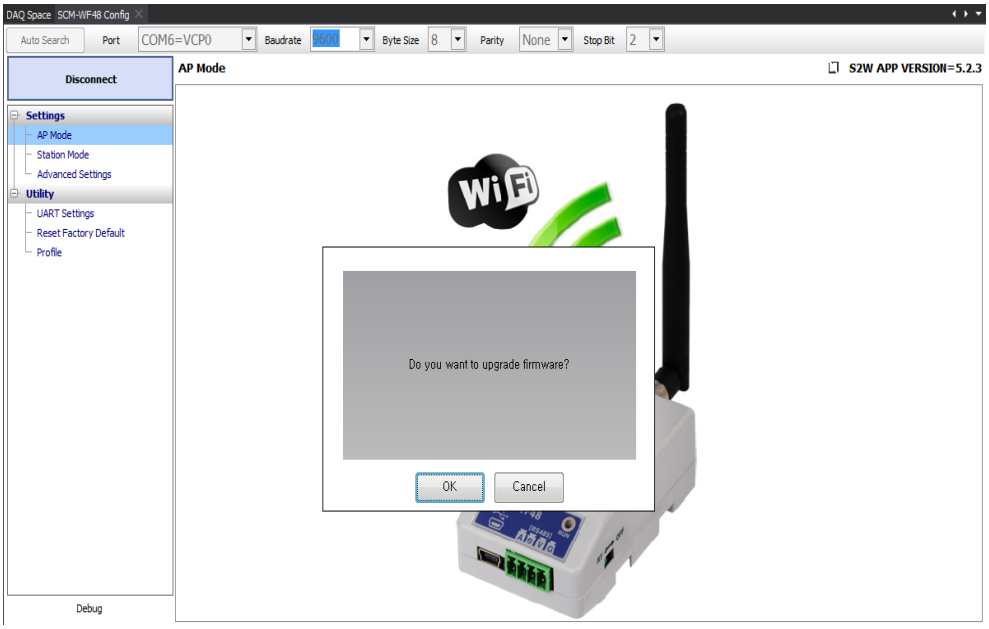
After connecting SCM-WF48, you can check the firmware version and upgrade it at top-right of SCM-WF48 Config tab. (your computer should have wireless lan and Internet connection is required.)

S2W APP VERSION=5.2.3

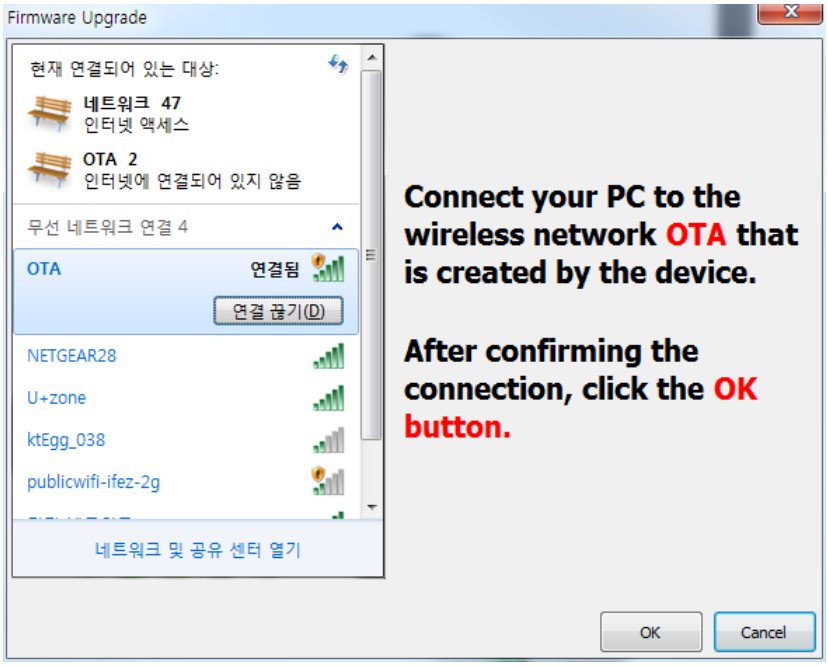
1st Click the icon.

2nd The dialog for firmware version upgrade appears.

Click the 'OK' button.

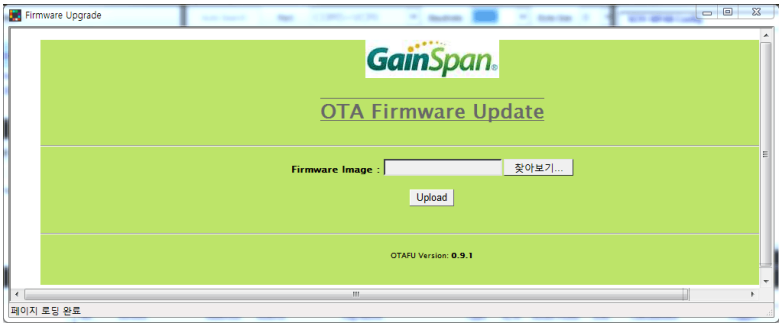


3rd The ‘Firmware Upgrade’ dialog box appears.



Wireless network connection of PC sets as OTA and click ‘OK’.

4th It connects to ‘OTA Firmware Update’.



Add the SCM-WF48 firmware which is downloaded at Autonics web site.

Click the ‘Upload’ button.

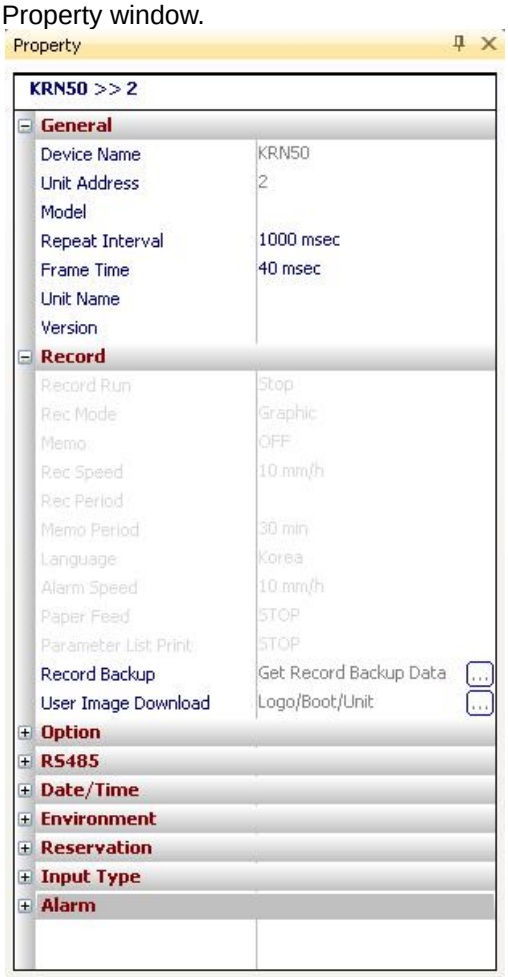
5th Firmware upgrade is completed.

10.4 KRN50 (50mm compact hybrid recorder)

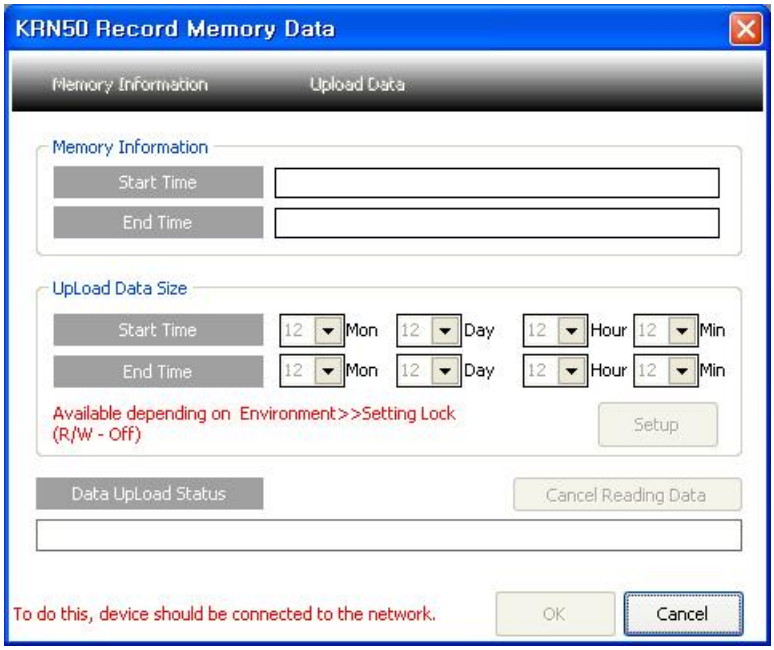
The following are special features for KRN50 while in communication with DAQMaster.

(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'.)



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.

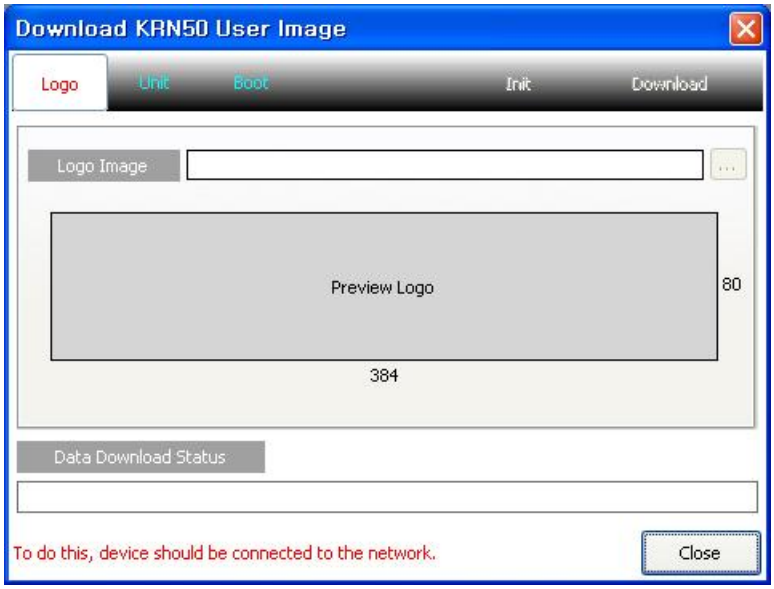
5th If you click OK, recorded data will be shown in two screens - the Grid and the Graph.

(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

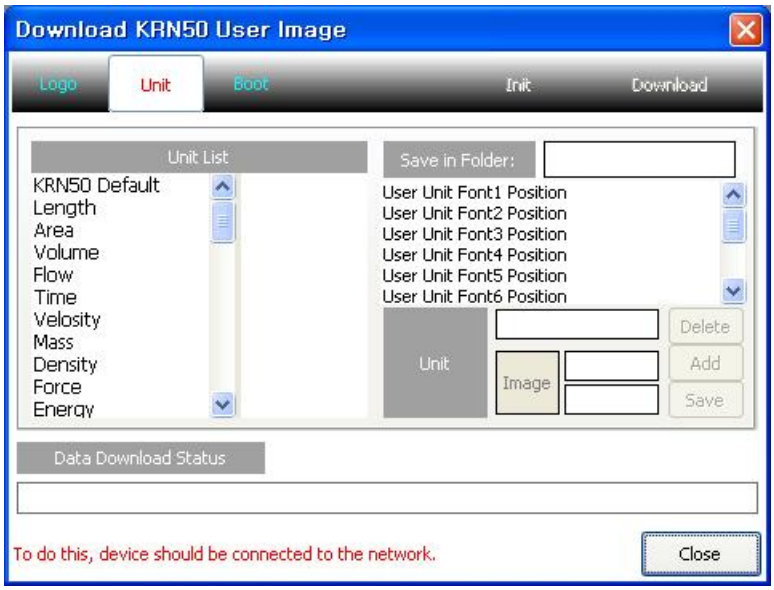
You can change the company logo image on contents that are printed on recording paper.
Logo image should be 384 X 80 pixel of bitmap file.



2) Download Units

There are 0-9 user units.

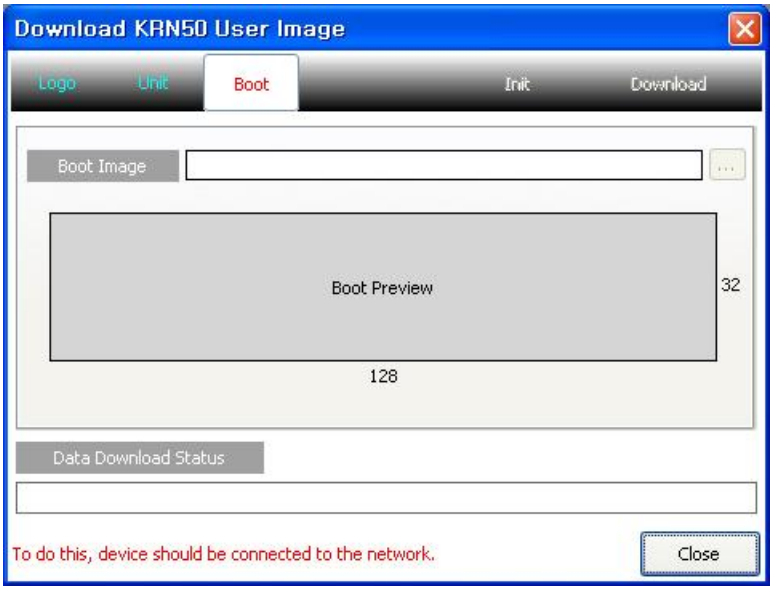
The download procedure is: select a unit list → select a destination to save → double-click a unit image to add the image → download.



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.



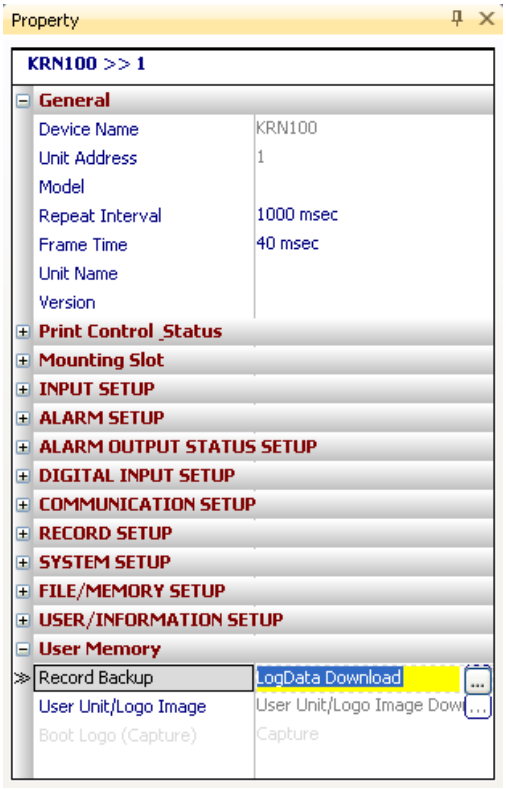
10.5 KRN100 (100mm hybrid recorder)

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

(1) Accessing Record Backup Data

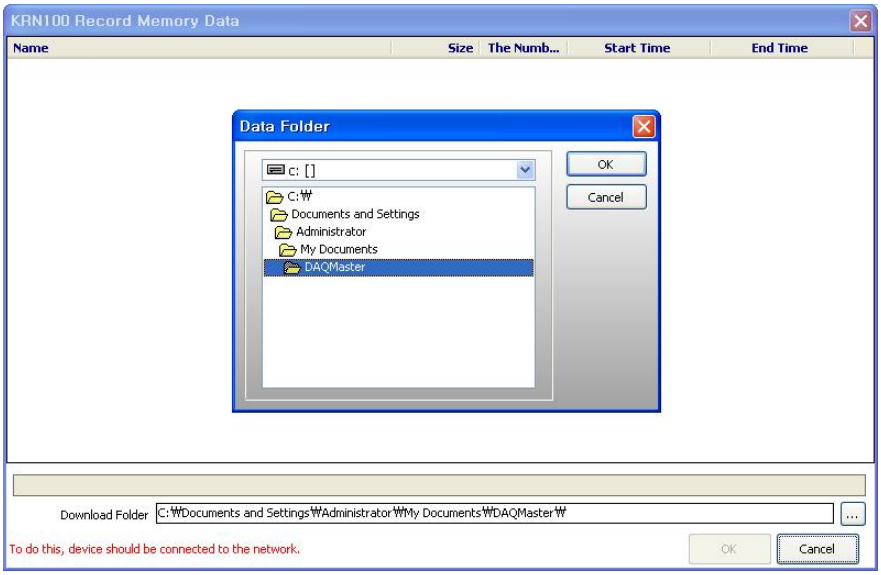
It is available to access saved backup data of KRN100 and to analyze backup data by data analysis feature.

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



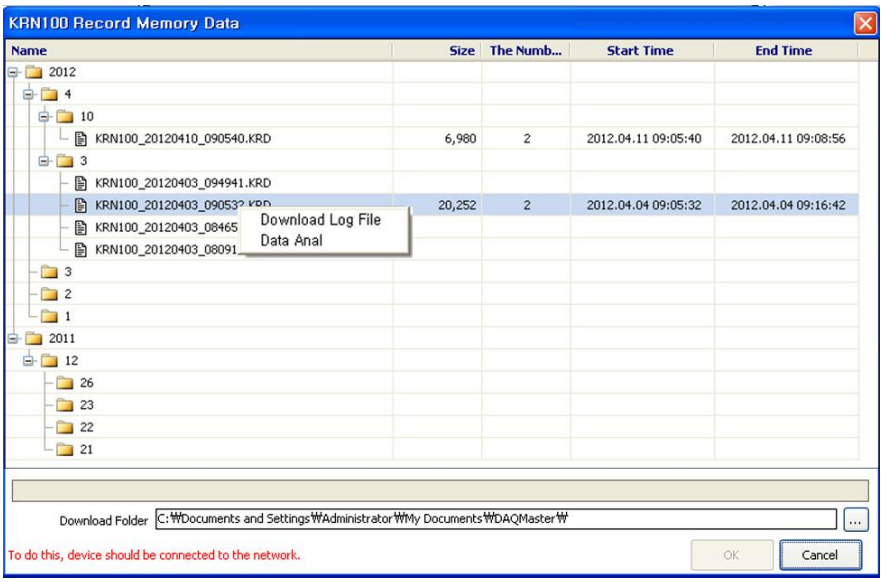
According to the USER INFORMATION SETUP of KRN100, it cannot read the memory. (Refer to the user manual for KRN100.)

1st Designate the folder for record backup data to be saved.



2nd 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.



3rd After completing download to the desginated folder, the below message appears.

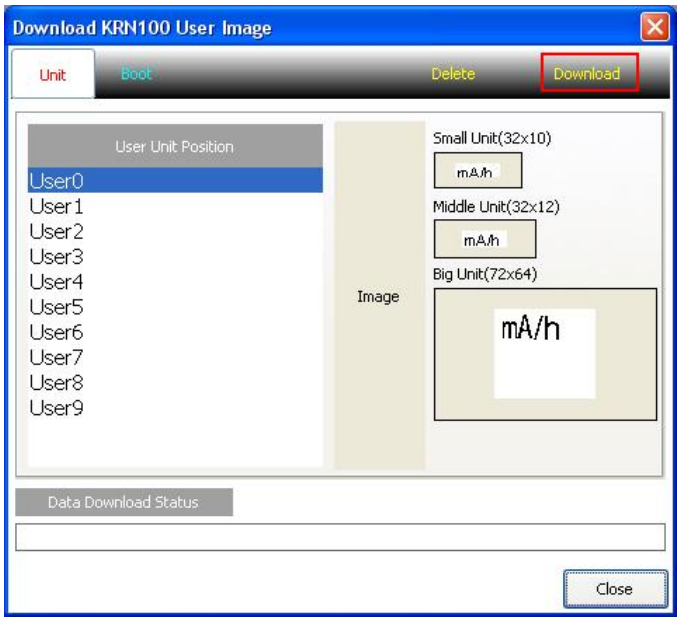
(2) Downloading User Images

You can add user unit and boot images of KRN100.

4) Download units

There are 0-9 user units.

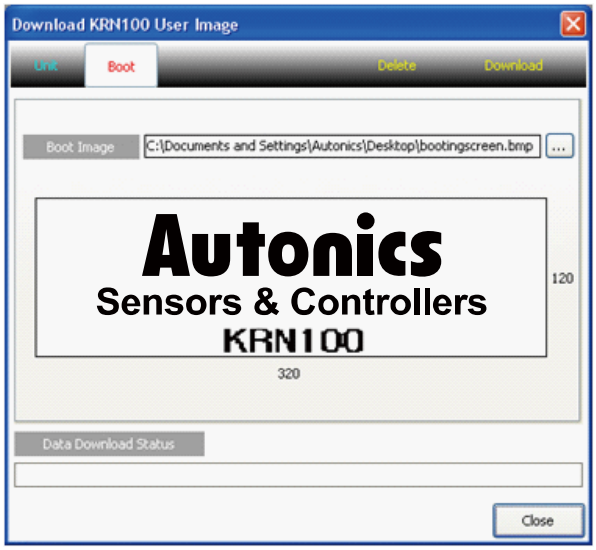
The download procedure is selecting User Unit Position, double-click Small Unit, Middle Unit, Big Unit image, and selecting the image. After this, Download button is active.



5) 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.

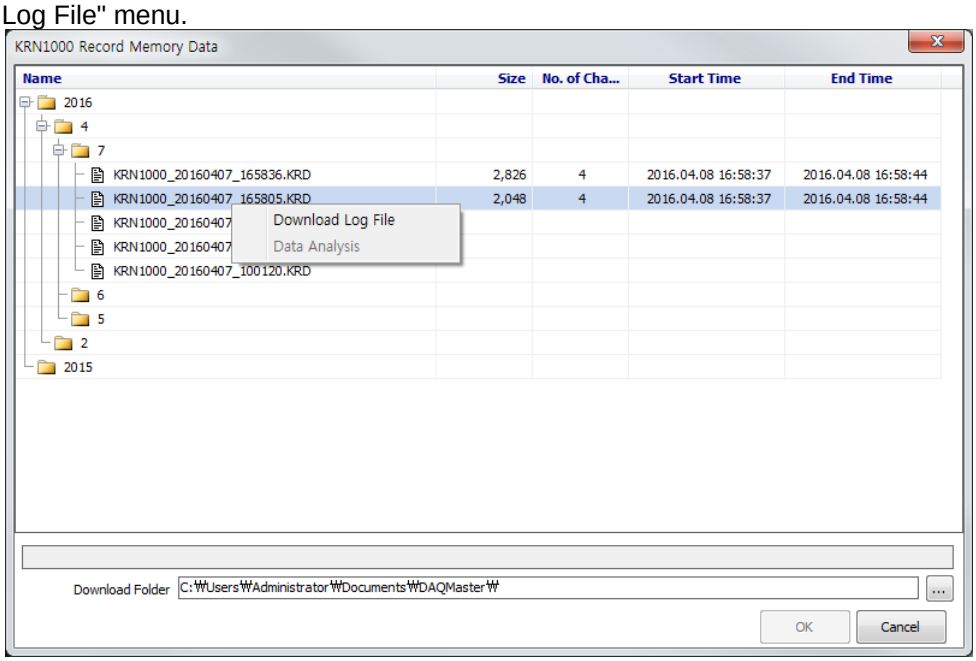


10.6 KRN1000 (LCD touch screen paperless recorder)

The following are special features for KRN1000 while in communication with DAQMaster.

(1) Record Backup

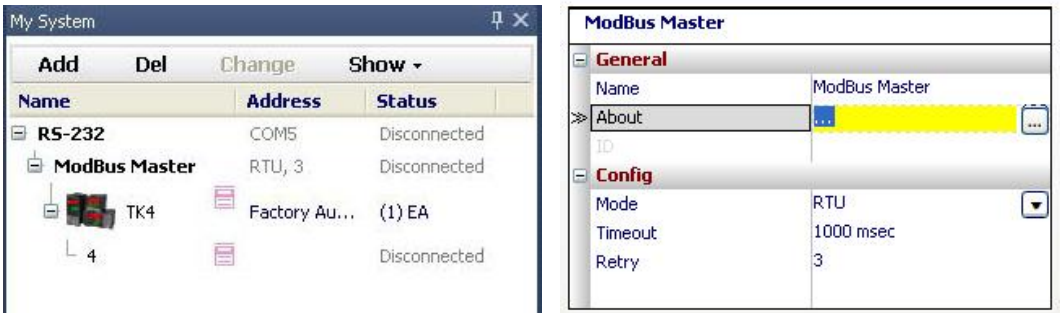
You can download backup data which is saved in KRN1000 internal memory from “Record Backup” section.
Directory form is year, month, day. Click the relevant icon and check below list.
To download backup file, click the file name with right mouse button and select "Download Log File" menu.



Backup files are strucured as tree type directory at KRN1000 internal memory. You can easily fine and download the desired file.

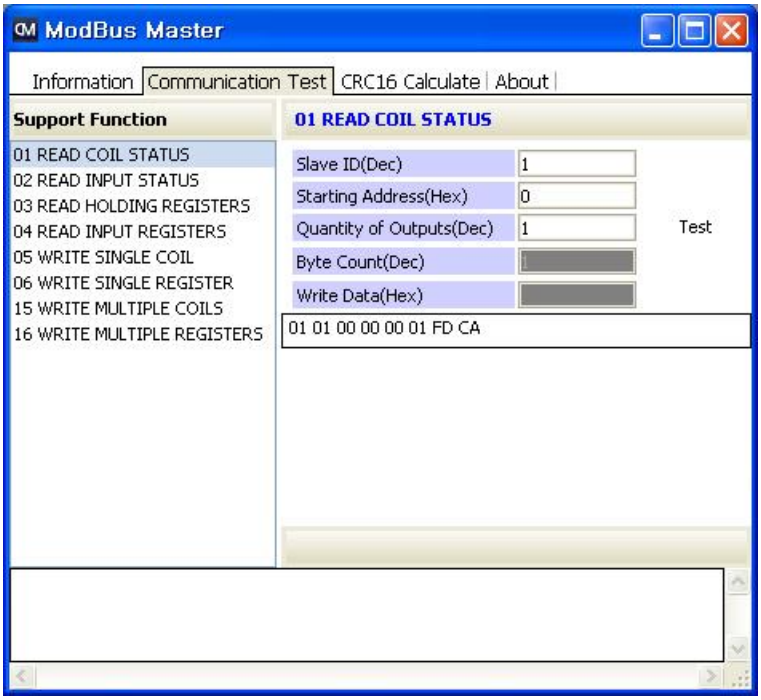
10.7 ModBus Master

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



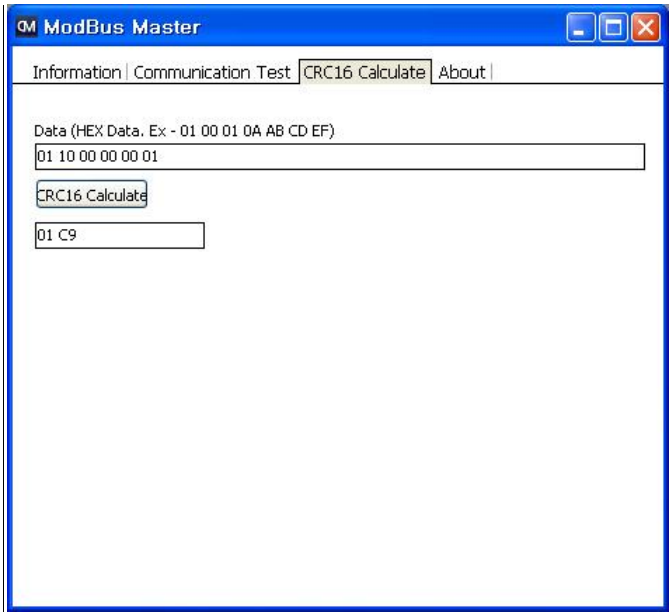
(1) ModBus Master Communication test

Click 'Communication Test' and it executes communication test.



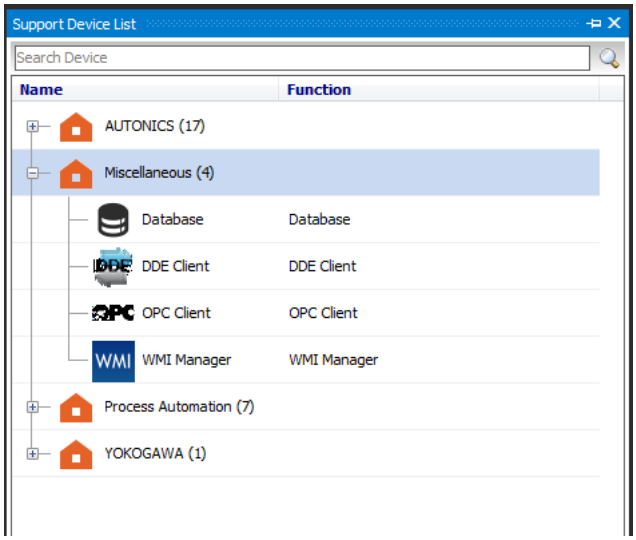
(2) CRC16 calculate

This is calculating CRC16 of protocol.
To calculate CRC16, enter Hex data to data and click ‘CRC16 Calculate’. It creates two CRC16 data.



10.8 Miscellaneous

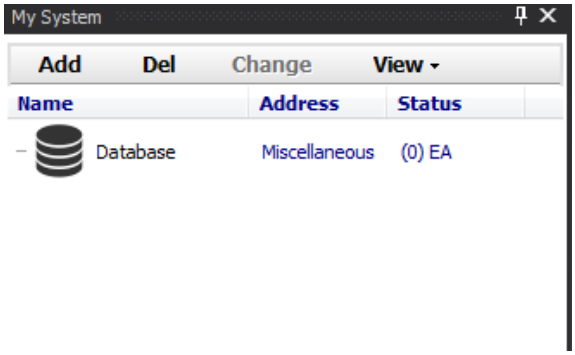
You can add or edit the miscellaneous devices which are not supported at DAQMaster. This function is available only for DAQMaster Pro version.



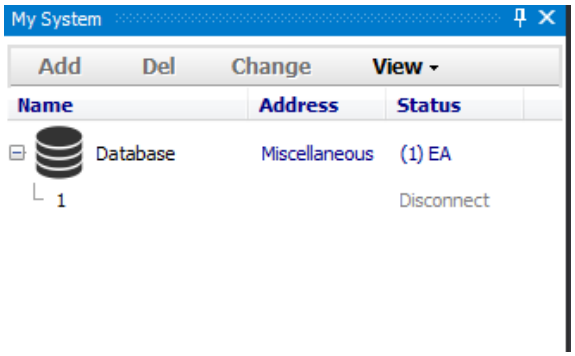
10.8.1 Database

1st Double-click ‘Database’ of Miscellaneous at Support Device List to add it at My System.

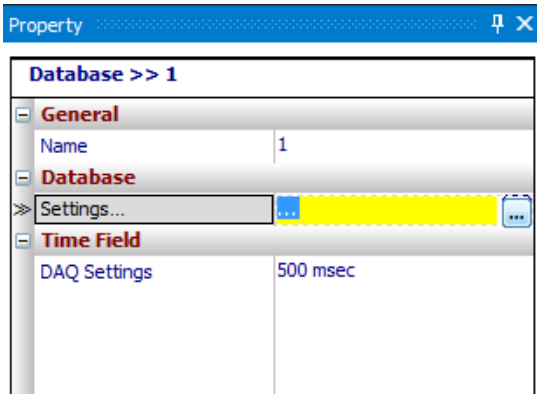
(Enter ‘Database’ at search box.)



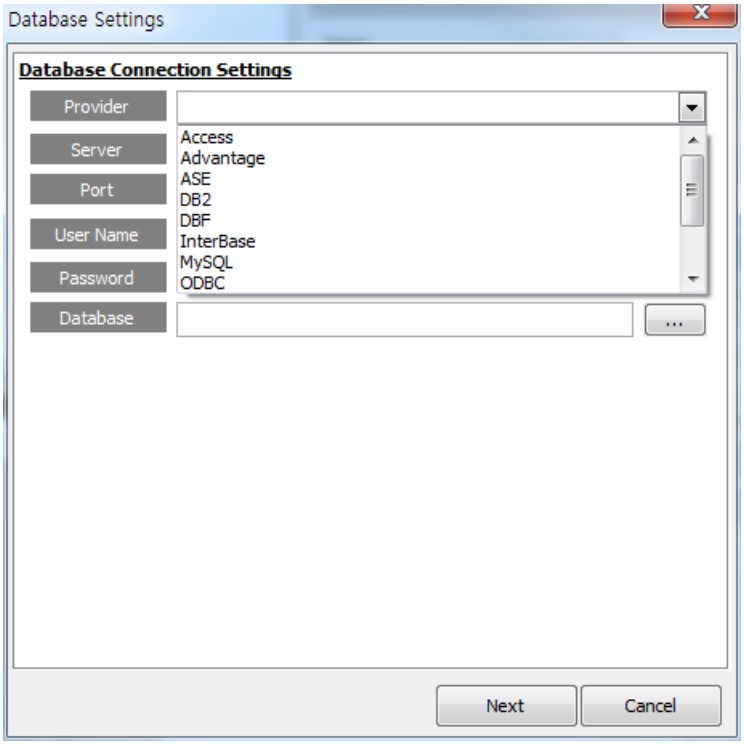
2nd At My System, Database is added. Click ‘Add’ to add unit(s).



3rd Click the added unit and Database property is displayed at Property window.



4th Click '...' button of Settings and 'Database Settings' dialog box appears.



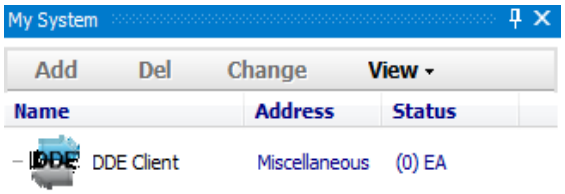
You can set provider, server, port, user name, password, database at Database Settings dialog box.

It is available for various database and supports I/O function.

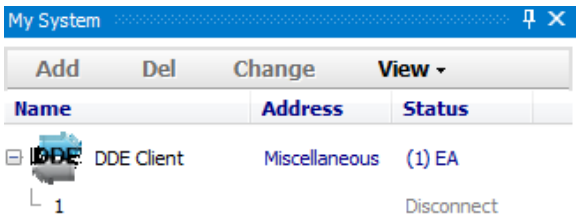
10.8.2 DDE Client

1st Double-click 'DDE Client' of Miscellaneous at Support Device List to add it at My System.

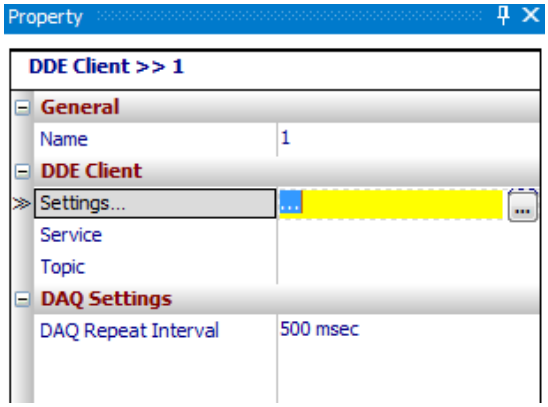
(Enter 'DDE Client' at search box.)



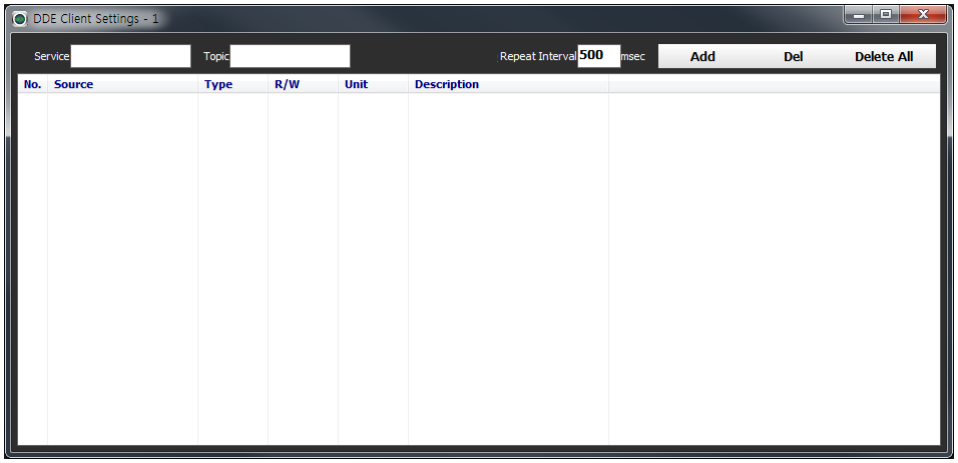
2nd At My System, DDE Client is added. Click 'Add' to add unit(s).



3rd Click the added unit and DDE Client property is displayed at Property window.

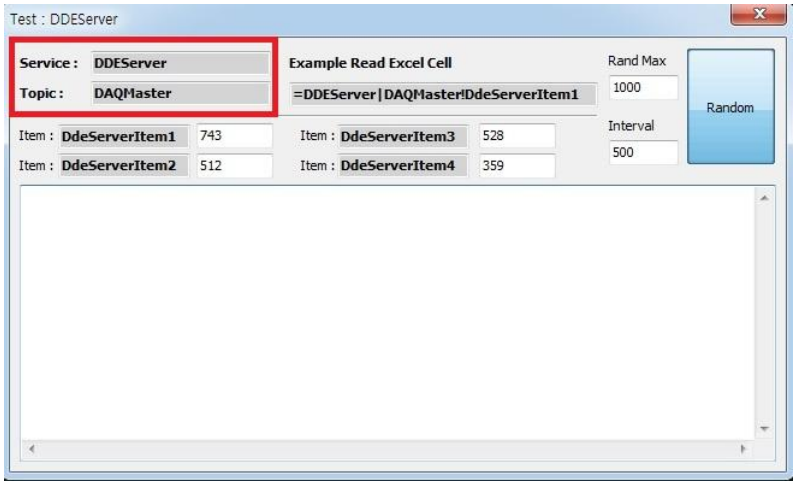


4th Click '...' button of Settings and 'DDE Client Configuration-1' dialog box appears.



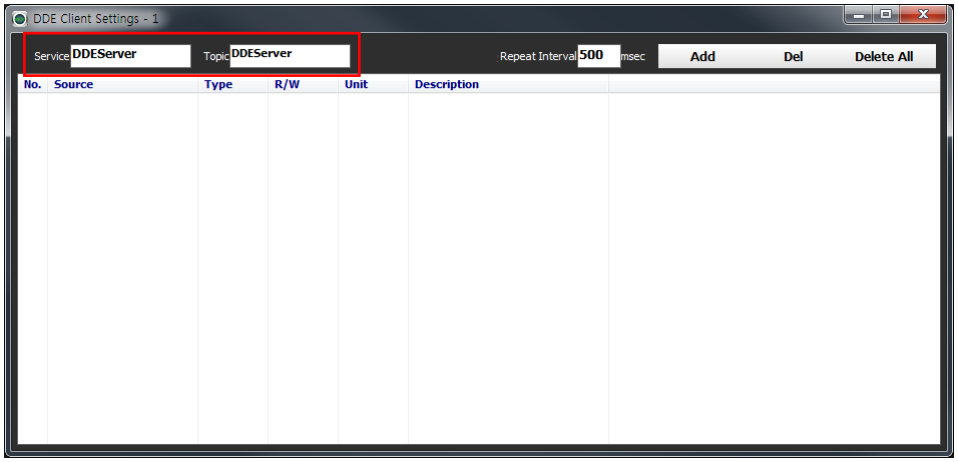
5th For connecting DDE Server, enter Service, Topic of DDE Server as as Service and topic of DDE Client Configuration-1.

Below is for Test: DDE Server.



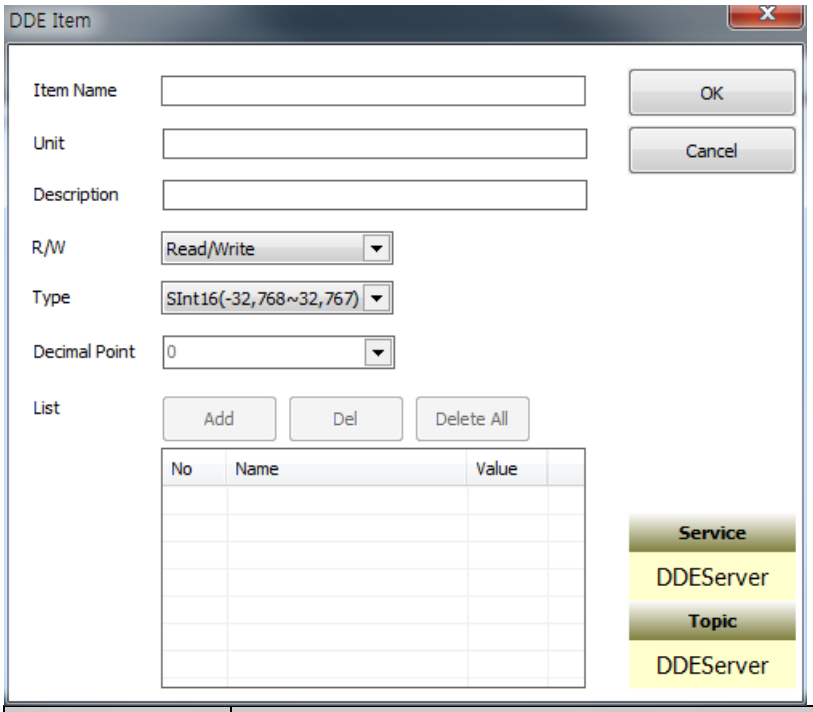
When DDE Server Service: DDE Server, Topic: DAQMaster,

Enter service of DDE Client Configuration-1 as 'DDEserver', and topic as 'DAQMaster'.



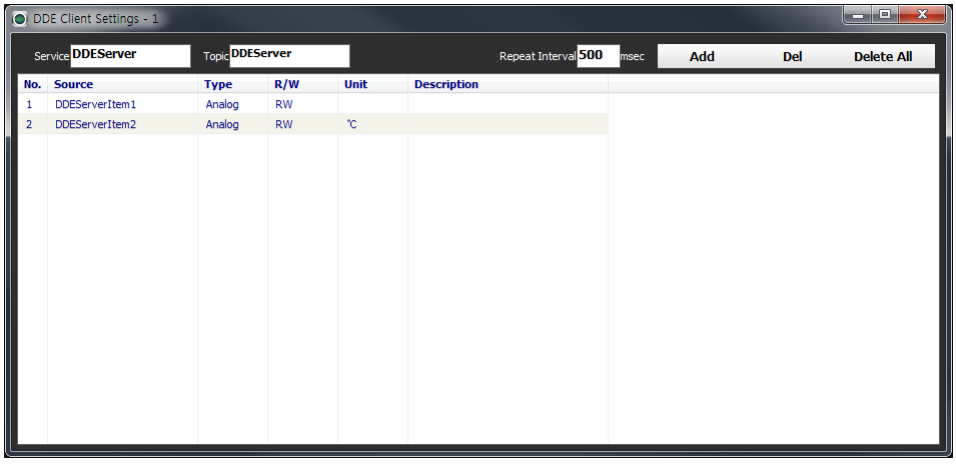
6th Click ‘Add’ at ‘DDE Client Configuration-1’ dialog box to add DDE Item.

Test: DDE Server supports for items (DdeServerItem1 to 4).

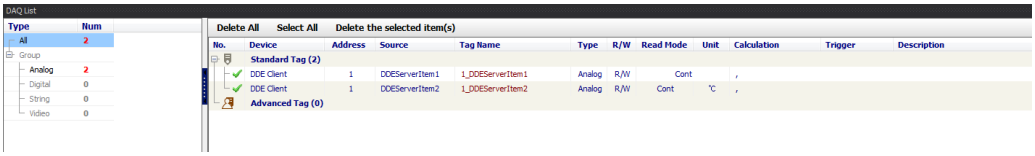


Item	Description	
Item Name	Enter DDE Server item name.	
Unit	Set data unit.	
Description	Enter description of the item.	
R/W	R	Reading is only available.
	W	Writing is only available.
	R/W	Reading/Writing is only available.
Type	Set data display method.	
Decimal Point	Set decimal point position	
List	Displays item list.	

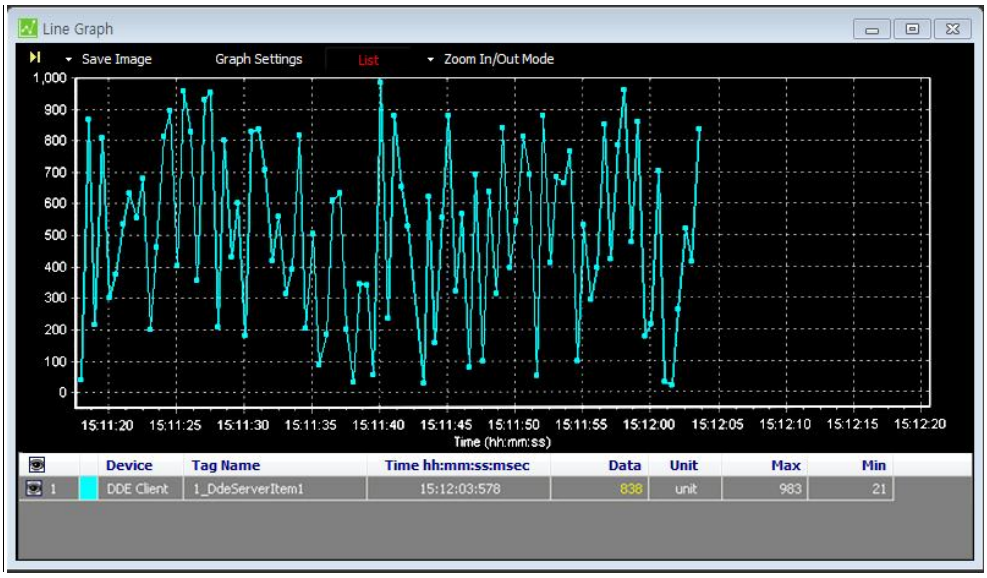
The below is when added two items.



7th Check the added item at I/O List and it is available to be added at DAQ List.



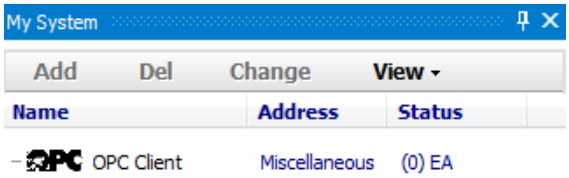
8th At runtime screen, monitoring is available by various graph types.



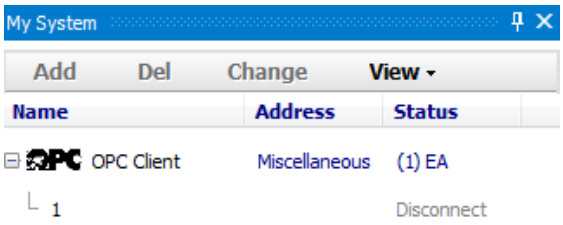
10.8.3 OPC Client

1st Double-click ‘OPC Client’ of Miscellaneous at Support Device List to add it at My System.

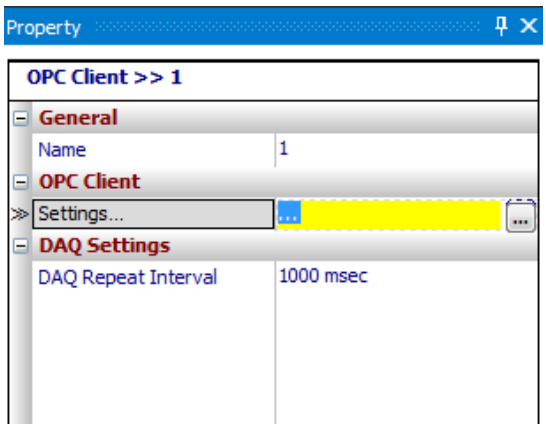
(Enter ‘OPC Client’ at search box.)



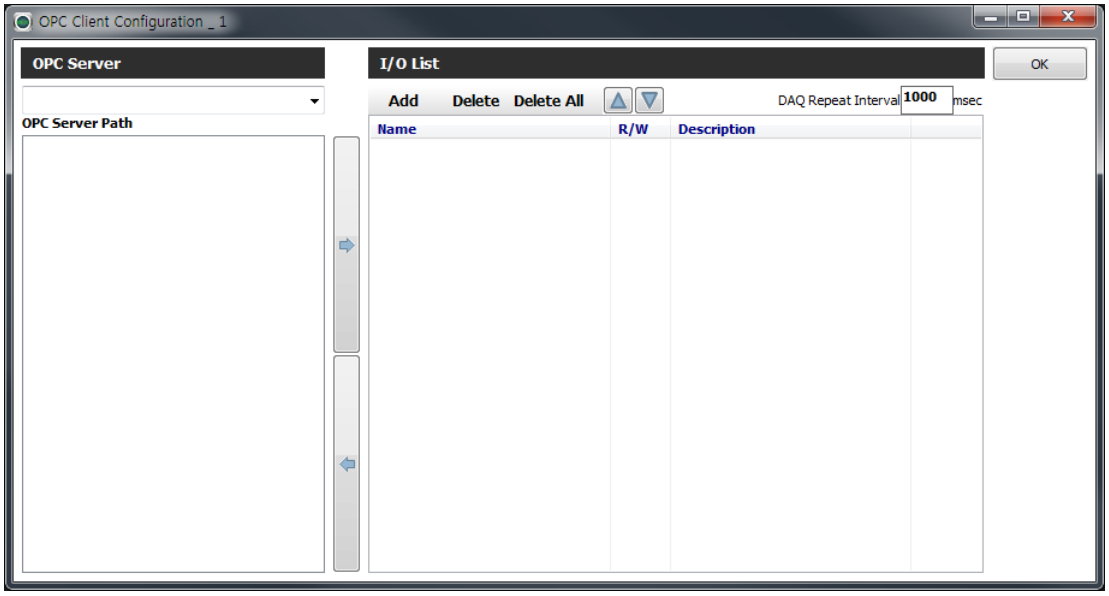
2nd At My System, OPC Client is added. Click ‘Add’ to add unit(s).



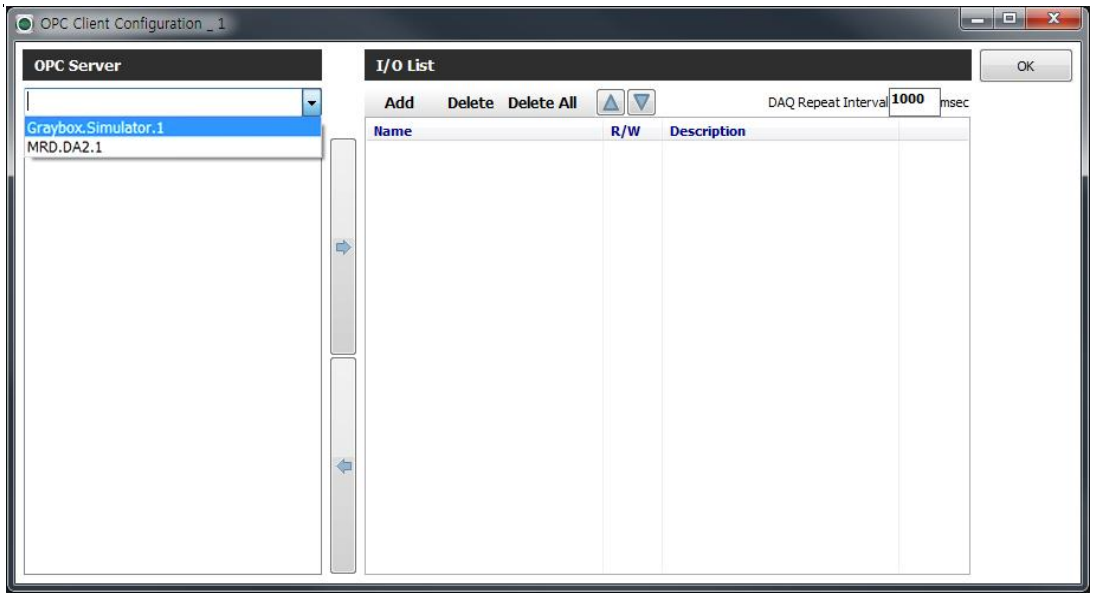
3rd Click the added unit and OPC Client property is displayed at Property window.



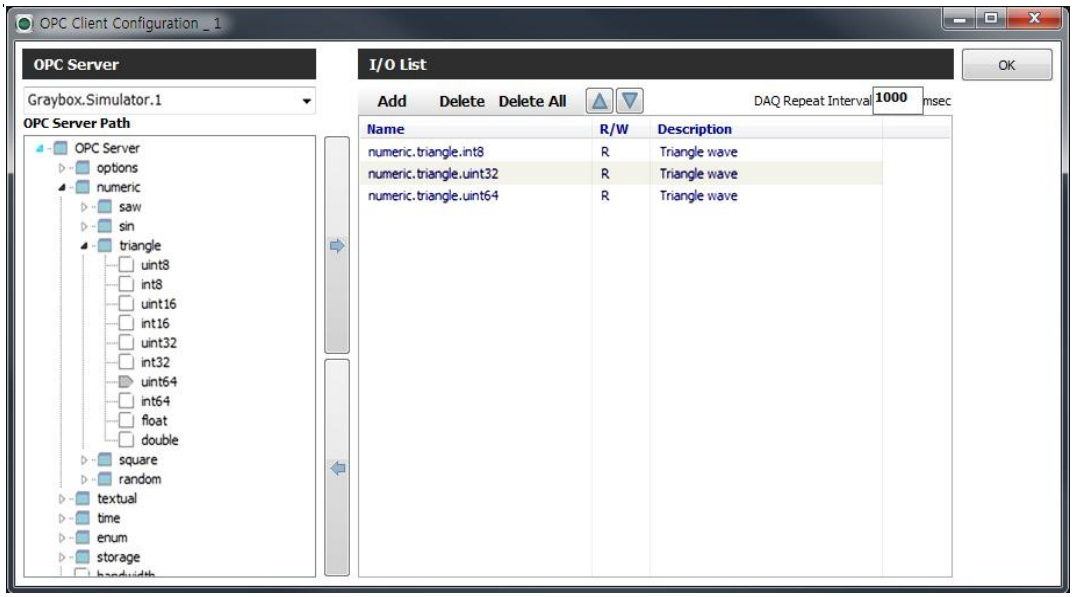
4th Click '...' button of Settings and 'OPC client Configuration_1' dialog box appears.



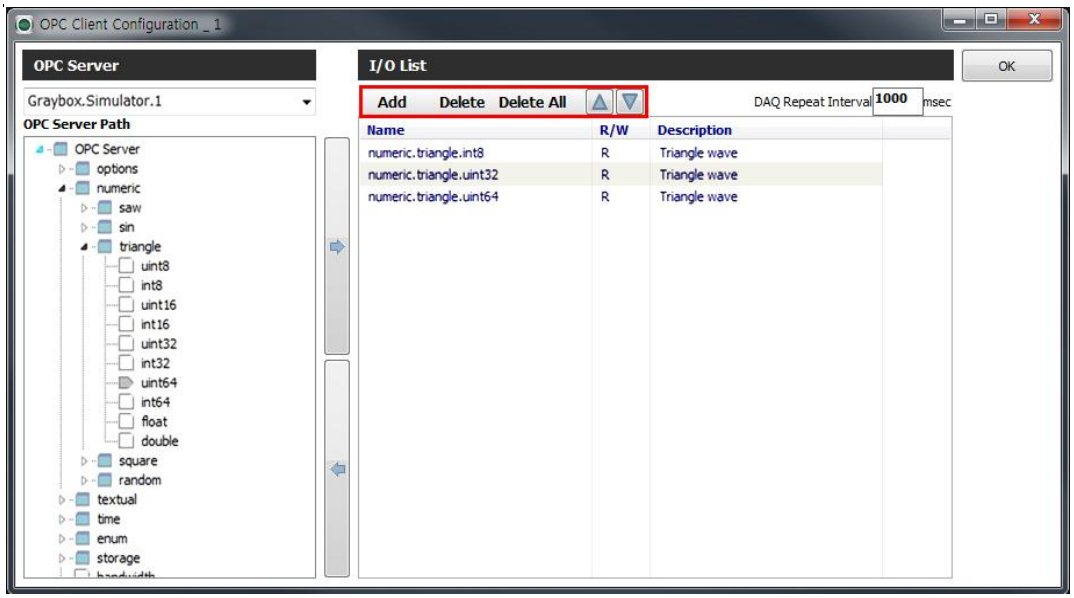
5th Click '▼' button at OPC Server to select the desired OPC server.



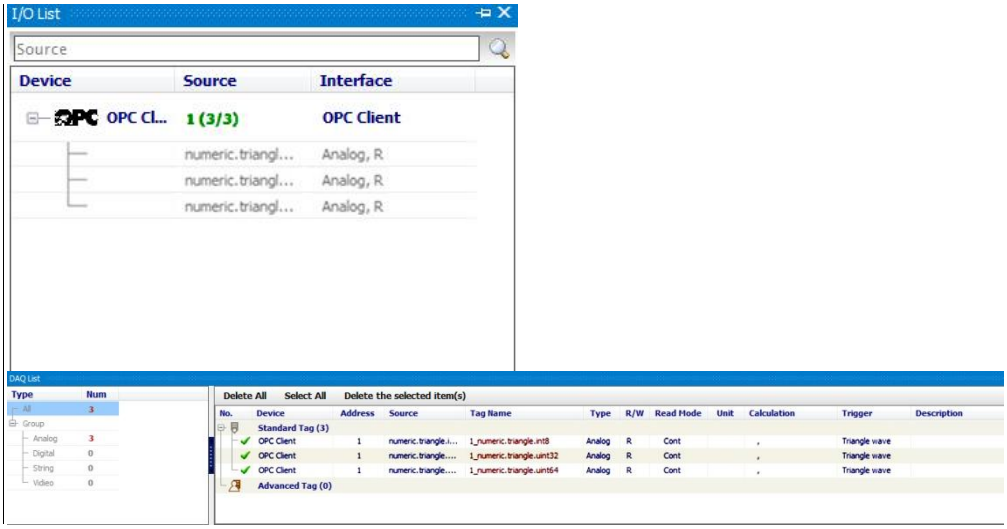
6th When selecting OPC Server, OPC server path is displayed as list.
Double-click OPC server path or select OPC server path and click '→' button, the path is added at I/O List.



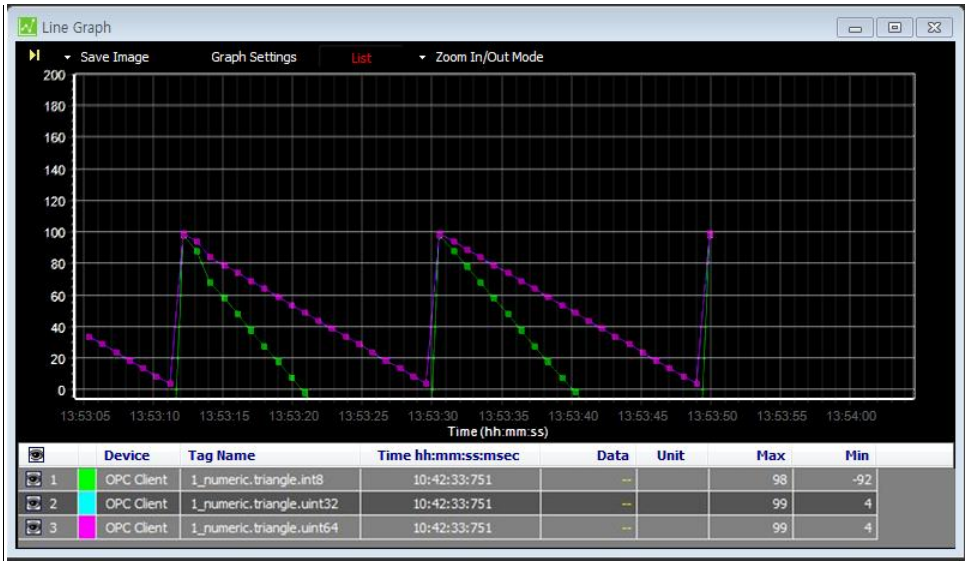
7th You can add or delete OPC server path by 'Add, Delete, Delete All' of upper menu of I/O List.



8th Check the added path at I/O List and and it is available to be added at DAQ List.

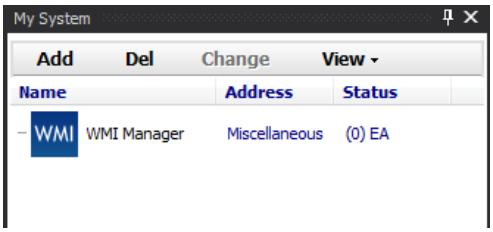


9th At runtime screen, monitoring is available by various graph types.

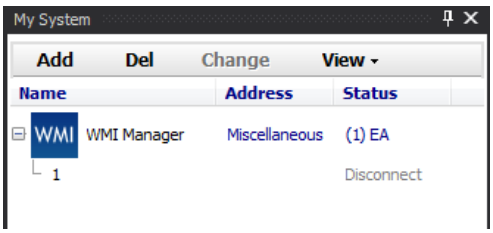


10.8.4 WMI Manager

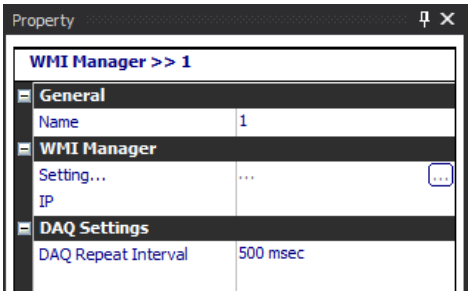
1st Double-click ‘WMI Manager’ of Miscellaneous in Support Device List to add it to My System. (Enter ‘OPC Client’ at search box.)



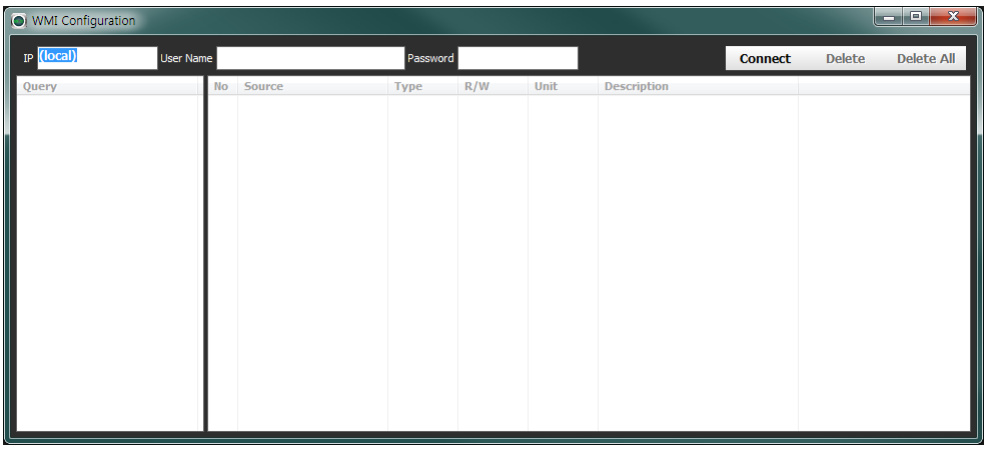
2nd Click ‘Add’ to add unit to WMI Manager in My System.



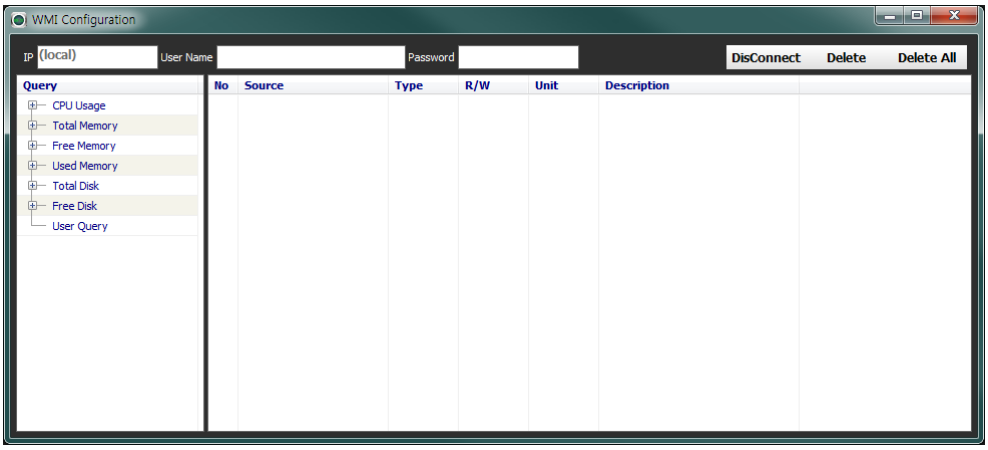
3rd When you click a unit in My System, you can check properties of WMI Manager in the Property box.



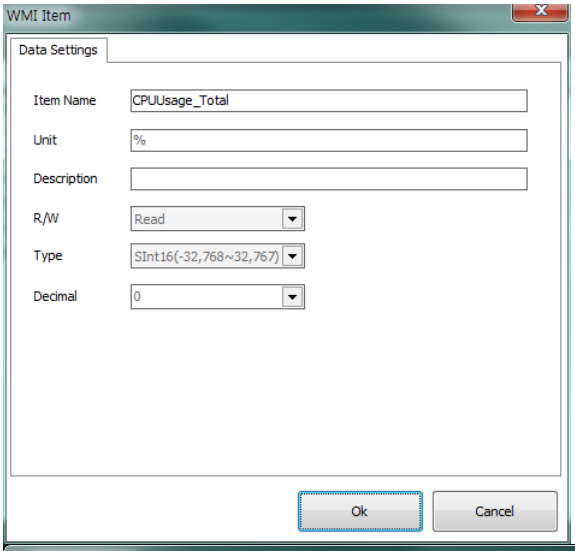
4th Click […] button in the Property box to open ‘WMI Configuration’ window.

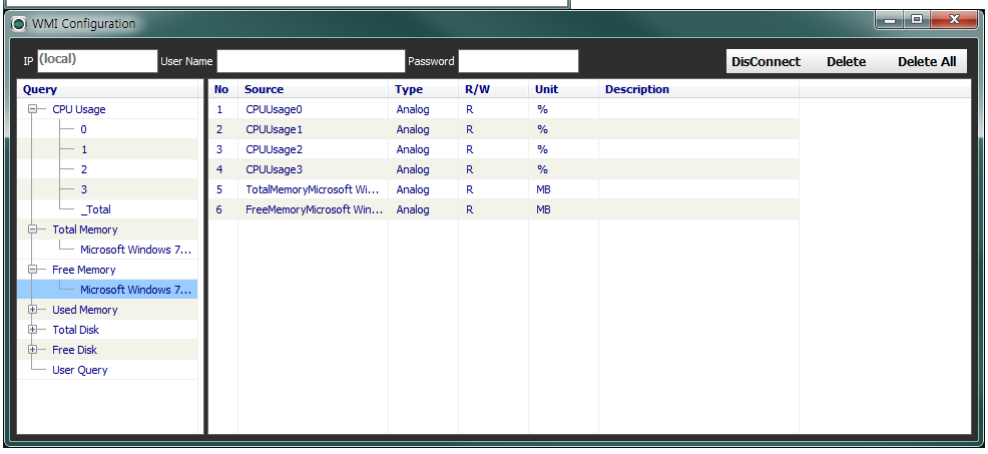


5th Click ‘Connect’ to monitor local CPU load. When connecting is completed, items such as CPU Usage, Total Memory, Free Memory appears in the Query list.



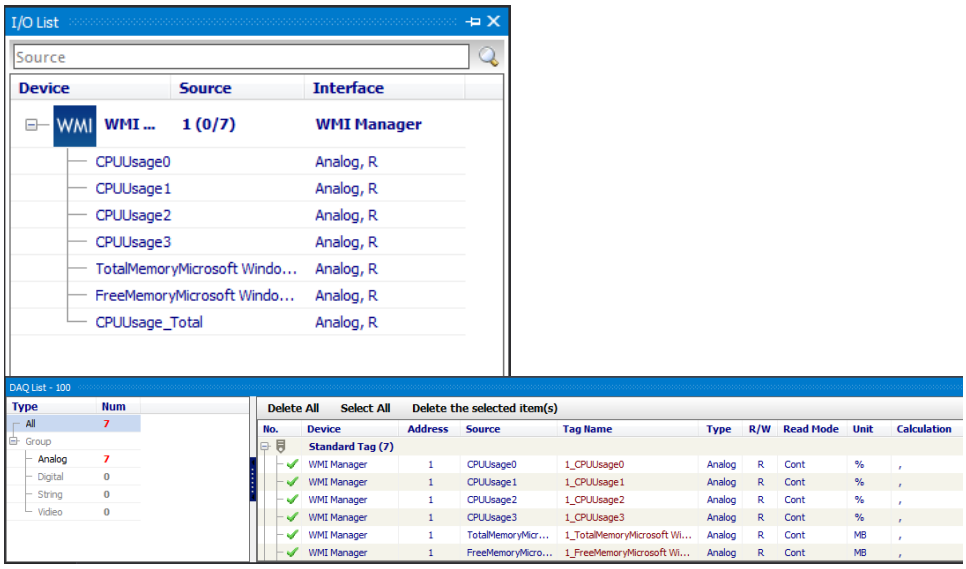
6th Double-click item to monitor in order to open setting dialog and click ‘OK’ in dialog to add in source list in the right side. You can edit the source list with ‘Delete’ and ‘Delete All’ button.



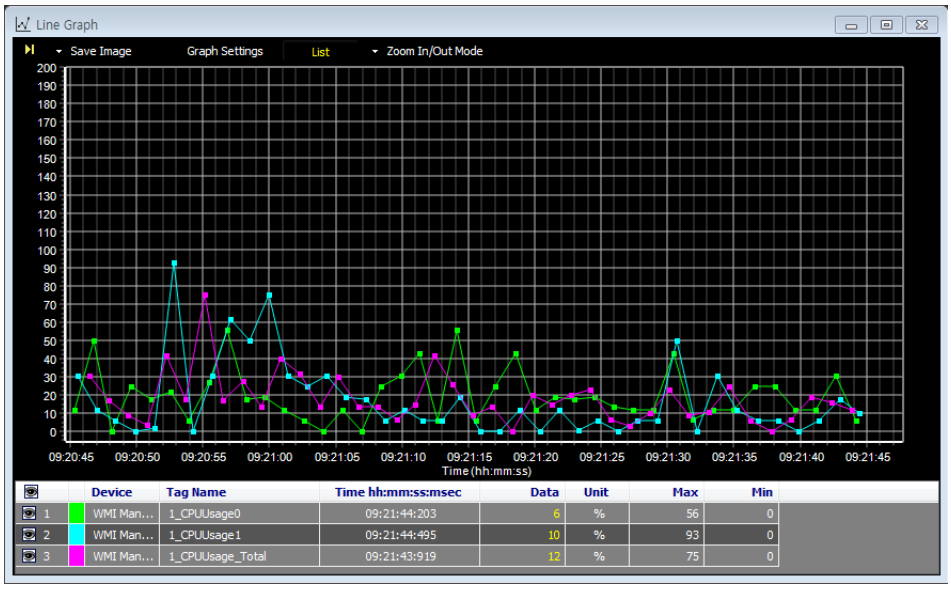


In User Query, you can perview a result in diverse WMI Query format.

7th Added query items to source list are registered automatically in I/O list. The items can be listed in DAQ list like another I/O source.



8th You can moniter selected query items at the runtime screen in various kinds of graph style.



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■ **India Autonics Automation India Private Limited**
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■ **Indonesia PT. Autonics Indonesia**
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■ **Malaysia Mal-Autonics Sensor Sdn. Bhd.**
Unit No 613 & 614 , Block A, Kelana Bisiness Centre 97, Jalan SS7/2, Kelana Jaya, 47301
Petaling Jaya, Selangor Malaysia.
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Estado de Mexico C.P. 53370
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■ **Russia Autonics Corp. Russia Representative Office**
Office 2008, entrance "B", section 3, str. Ulofa Palme, 1, Moscow, 119590, Russia
Tel/Fax : 7-495-660-10-88 / E-mail : russia@autonics.com

■ **Turkey Autonics Otomasyon Ticaret Ltd. Sti.**
Serifali Mh. Turker Cd. Burhan Sk. No:23 Kat:2 Umraniye, Istanbul, Turkey
Tel : 90-216-365-9117(9113, 9114) / Fax : 90-216-365-9112 / E-mail : info@autonics.com.tr

■ **USA Autonics USA, Inc.**
1353 Armour Blvd, Mundelein, IL 60060, USA
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■ **Vietnam Cong Ty Tnhh Autonics Vina**
Nguyen Hung Phu Office Building, No.400 Nguyen Thi Thap Street,
Tan Quy Ward, District 7, Ho Chi Minh City, Vietnam
Tel : 84-8-3771-2662 / Fax: 84-8-3771-2663 / E-mail: vietnam@autonics.com

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