Make Life Easy

User Manual

Comprehensive Device Management Program

DAQMaster

MWA-DAQU1-V4.1-US

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.

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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

- 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 3.5 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.
※	Annotation mark.

Table of Contents

1 DAQMaster Overview

1.1 Main Features

DAQMaster is a comprehensive device management program that provides GUI control for easy and convenient management of parameters and multiple device data monitoring.

The version of program is divided into general, pro, and application. Pro version supports variety of additional functions such as user convenience, device and data management as compared with general version.

All the features will be available for use for 30 days after installation. After the trial period, Pro version features will be limited without the purchase of the license.

※ For the information about application version, refer to the user manual.
Please visit Autonics website (www.autonics.com) to download the user manual.

(1) General Version

- Multiple Device Support

  Simultaneously connect and monitor multiple devices and set parameters.

- 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 and loading data as a project file includes added device information, data monitoring screen layouts, and I/O source selection. Organizing project list makes managing project files easier.

- Data Analysis

  Analyses DAQMaster data files (*.ddf) or database using data analysis tool by grid and graph. Grid data can be saved directly to .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. 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.

- Script Support

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

- Multilingual Support

  Supports Korean, English, Japanese, and Simplified/Traditional Chinese. It is also possible to customize the default language and to add new language by user.

(2) Pro Version

- Modbus Device Editor

  Can add the any Modbus devices which are not supported at DAQMaster to set and monitor the property and I/O.

- Trigger Event, Scheduler, Action

  Conducts preset action by user set condition (Trigger) and time (Schedule) automatically.

- Push Server

  Transmits push message to the client device. It is possible to use with Trigger Event, Scheduler.

- Database

  Database managing system turns information into database in real-time, making creation and management easier.

- Real time log

  Makes log file in real time following to the time set by user. Data is saved in CSV file.

- TCP/IP Server

  Displays and monitors the communication data through TCP/IP protocol.

- OPC DA

  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.

- OPC UA

  As a communication standard protocol for transmitting data such as sensors or PLCs, various data can be collected through the OPC UA protocol from the Server.

- MQTT Publisher/Subscriber

  Collected data can be published to the broker or subscribed to data from the broker through the MQTT protocol.

- DDE Server/Client

  Supports communication among process embedded in Microsoft Window system (IPC), allowing application programs to share and exchange information between the applications.

- Modbus Master/Slave

  Conducts read and write request from the outside through Modbus protocol.

- Virtual Tag

  It is possible to collect user-customized data or transfer multiple data through virtual tag.

- User Manager

  Adds account, creates user group, and manages authority of program usage function per each group individually.

1.2 DAQMaster Function Comparison Table by Version

Function			General	Pro
Runtime Screen			O	O
Data Monitoring			O	O
Parameter Setting			O	O
Project Management			O	O
Multi Device Support			O	O
Device Scan			O	O
Lua Script			O	O
Data Log			O	O
Tag Data Calculation			O	O
Modbus Map Table Report			O	O
Data Analysis	DDF (DAQ Data File)	Grid	O	O
		Graph		
		Alarm Spread		
		Analysis Spread		
	Database	DB Grid		
		DB Graph		
Utility (Tool)		Modbus Device Editor	X	O
		Script Editor	X	O
Scheduler	Action	Log Start	X	O
		Log Stop		
		Send to Telegram		
		Alarm Sound Play		
		Tag Error Message		
Trigger Event		Tag Alarm		
		Tag Output		
		Export Report		
		SMS		
		E-Mail		
Virtual Tag				
User Authority Management				
Realtime Log	CSV		O	O
	SQL	Oracle	X	O
		SQL Server		
		MySQL		
		DB2		

Function				General	Pro
		SQLite			
		PostgreSQL			
		InterBase			
		Nexus DB			
		Firebird			
		Sybase ASE			
		Sybase ADS			
		MS Access			
		DBF			
		Advantage			
	NoSQL	Mongo DB		X	O
Protocol	TCP/IP Server	Monitoring		X	O
		Security (Login)			
		Security (Protocol)			
		Reading Tag			
		Writing Tag			
	OPC	DA	1.0 (Format)	X	O
			2.0 (Format)		
			3.0 (Format)		
			Server		
			Client		
		AE	1.0 (Format)	X	O
			1.10 (Format)		
			Client		
		UA	TCP (Format)	X	O
			HTTP (Format)		
			HTTPS (Format)		
			Client		
	DDE		CF_Text (Format)	X	O
			XL_Table (Format)		
			Server		
			Client		
	WMI Manager			X	O
	Push Server			X	O
	Database Middleware Server			X	O
	MQTT		Publisher	X	O

Function				General	Pro
		Subscriber			
	CCLink IEF Basic			X	O
	Modbus	Master	RTU	O	O
			TCP		
			ASCII		
		Slave	RTU	X	O
			TCP		
			ASCII		
Multi Language (English, Korean, Japanese, Simplified/Traditional Chinese)				O	O

※ For registering Pro version license, refer to “5.2 License“.

2 Getting Started

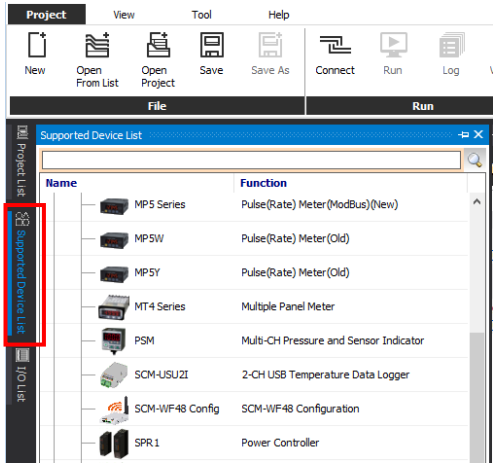
This chapter explains the basic contents in sequence to use DAQMaster for the first time.
For specific information on each function, refer to the related chapter in the user manual.

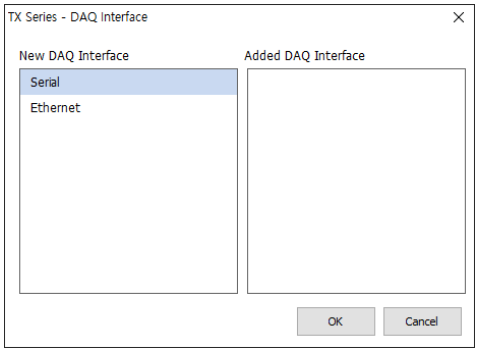
Device connection, parameter setting and basic monitoring will be proceeded when using TX Series as follows. After check the contents of instruction manual for the product to connect, apply it to the following steps.

1st Install DAQMaster program at Master device (ex. PC), connect to the product and run DAQMaster.

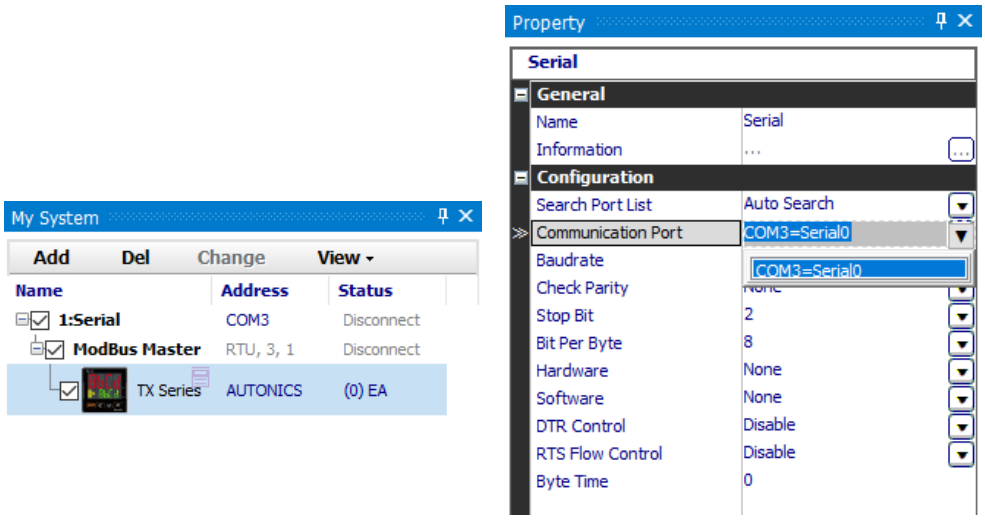
※ You can download DAQMaster program at Autonics website (www.autonics.com).

2nd Open the control panel by clicking [Support Device List] button and double-click the series or model name to communicate with. When DAQ Interface panel pops up, select the communication port currently in use and click [OK] button.

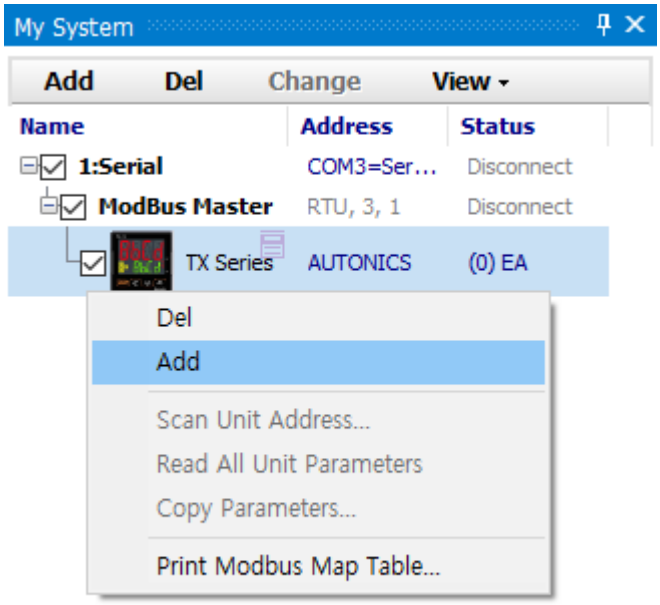




3rd Proper communication port setting is needed to connect the device. Select Serial in “My System” control panel. In “Property” control panel, click pull-down icon (▼) on “communication port” and select the communication port currently in use.

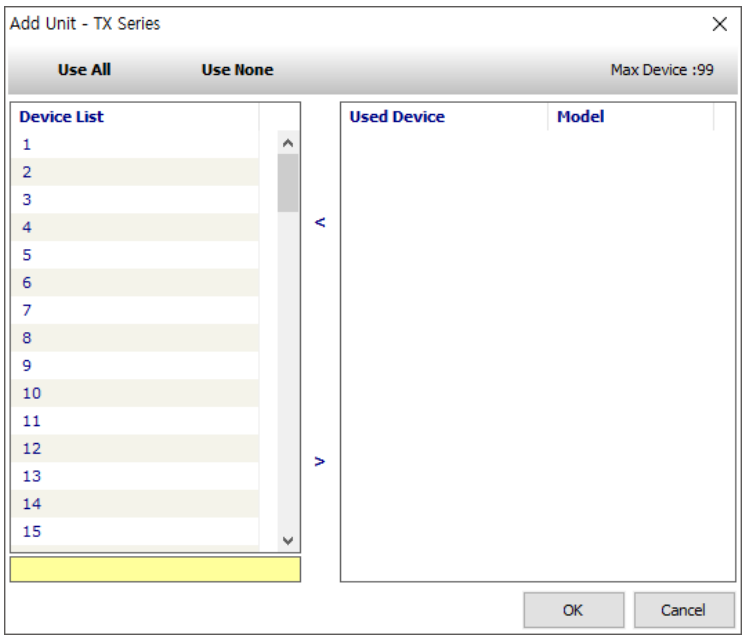


4th In control panel, right-click a newly added “Support Device name” (TX Series) and click “Add”.

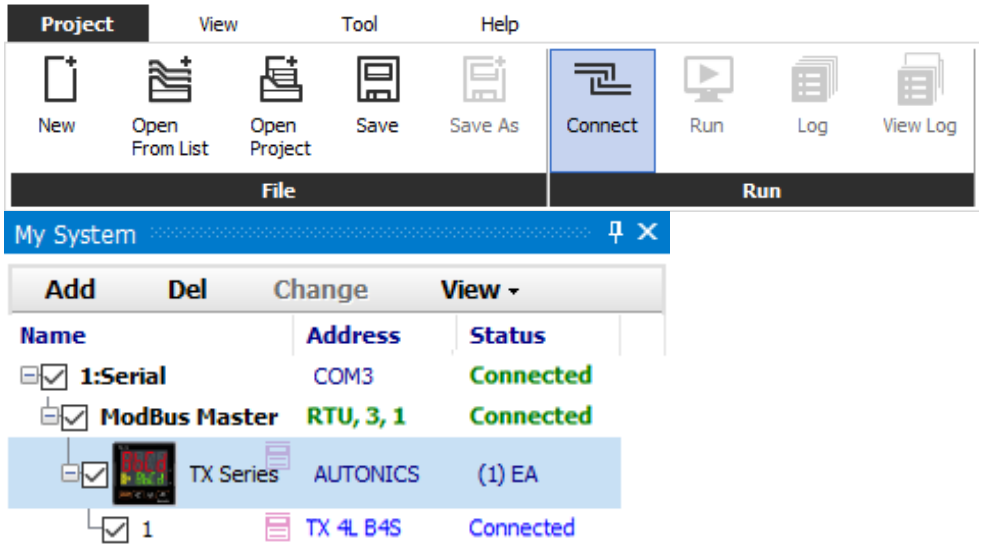


※ For more information about adding a unit to My System, refer to “5.10.1 Add”.

5th When “Add Unit” window pops up, double-click the connected device address to add and then click OK button.



6th Click the [Connect] button on the “Project – Run” menu and check the “My System” control panel. If the connection is successful, “Statues” row displays “Connected”. Click [Disconnect] button to unlink the communication, then continue with setup.

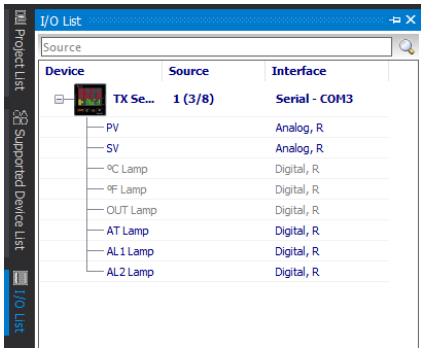


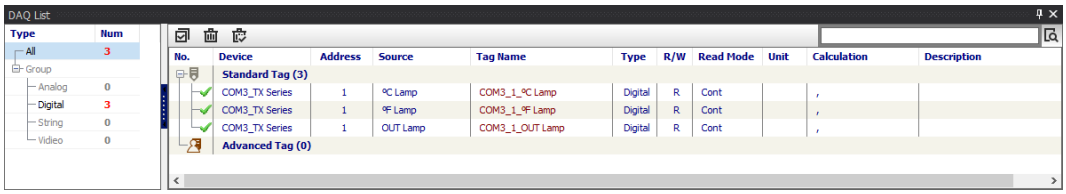
Note

For more information about the default address and setting method of each device, refer to the manual of the device.

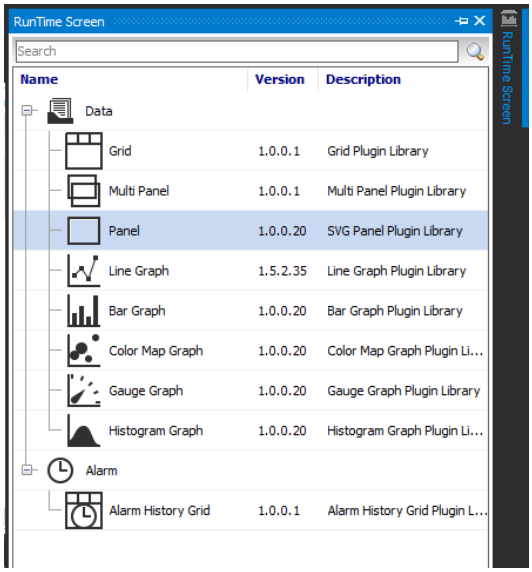
If there is a problem in connection, check the related settings again in the previous step “2nd Communication type” and “3rd Communication port”.

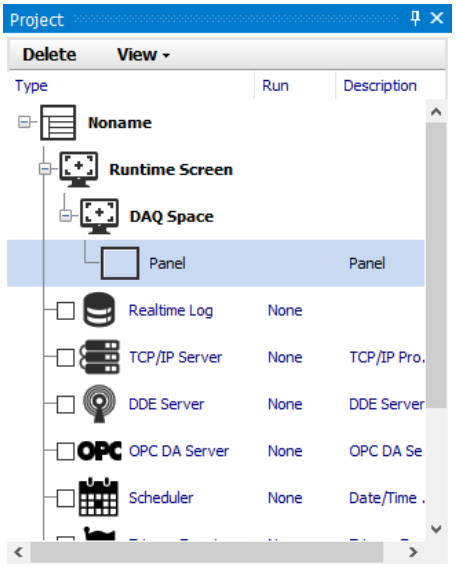
7th To monitor the data of the device that user needs, add I/O sources to DAQ List. Double-click I/O source in the “I/O List” control panel, then adds to the “DAQ List”. The added sources are changed to gray color and displayed in the “DAQ List”.



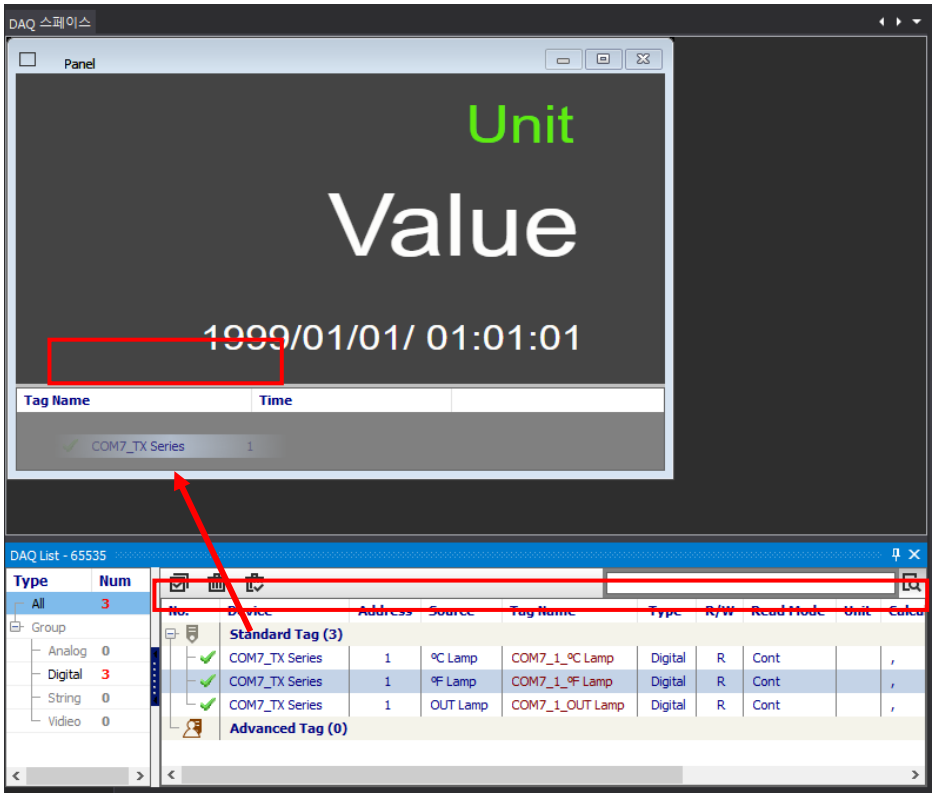


8th For visualized monitoring, double-click the desired runtime screen in the “RunTime Screen” and import to “DAQ Space”. Imported runtime screen is displayed in the “Project” control panel as well.





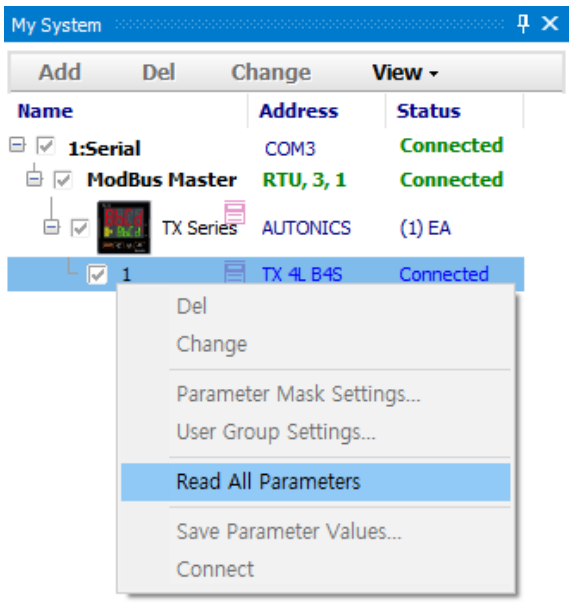
9th Drag the I/O source to be monitored from the “DAQ List” and drop it onto the RunTime Screen.



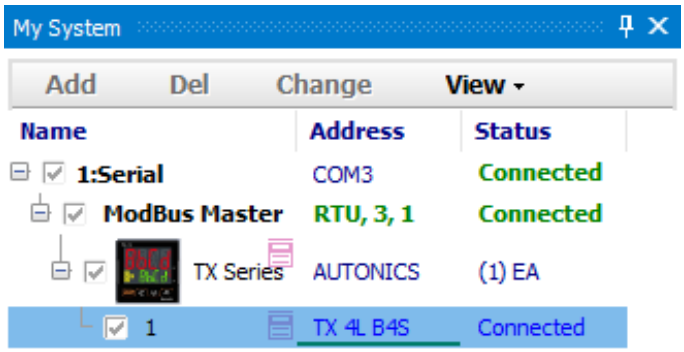
10th Basic settings for monitoring is finished now.

To connect the device to DAQMaster, click the [Connect] button in the “Project-Run” menu.

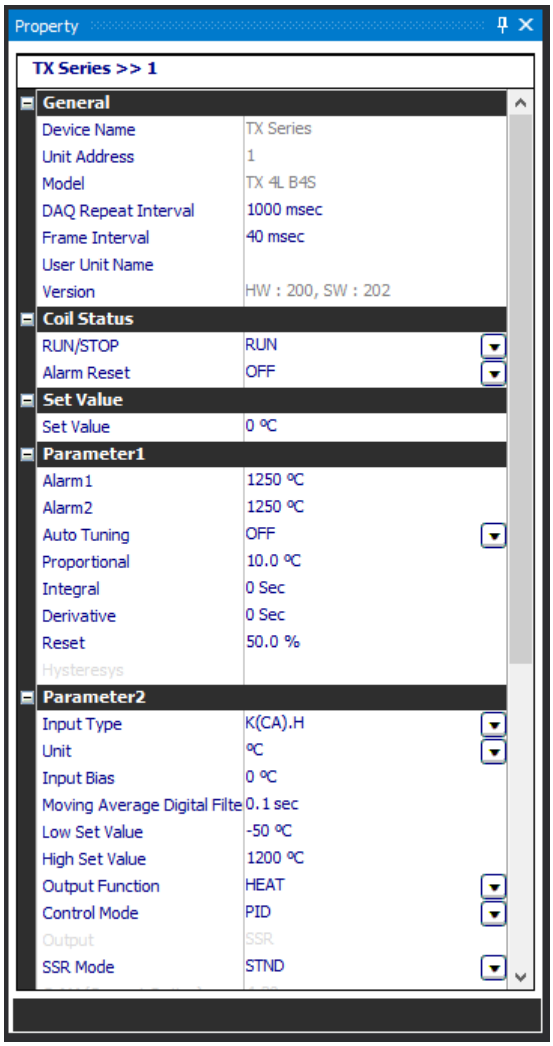
11th To check parameters of the device, right-click either the “Series name” in the “My System” or “address number”, then click “Read All Parameters”.



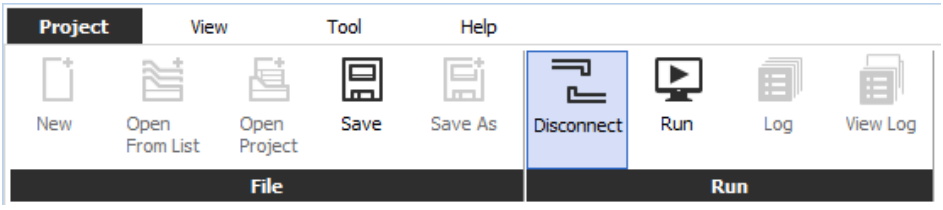
It is possible to check the progress for “read parameters” at the bottom of the model in “Add” row of the “My System” control panel.



Checking and setting parameter values is available in the “Property” control panel.



12th Click the [Run] button in the “Project – Run” menu to record data monitoring and data files of the device.



13th It is possible to monitor real-time data and use the data logging function in the DAQ WorkSpace.

3 Installation

3.1 System Requirements

Item	Minimum specifications
System	IBM PC compatible computer with 1GHz+ processor
Operations	Windows 7/8.1/10
Memory	2 GB+
Hard disk	1 GB+ of available hard disk space
VGA	Resolution: 1024×768 or higher
Others	RS232C serial port, USB port

3.2 Installing the Program

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

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

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

4th If you click [OK] button, the “Setup Wizard” window appears in the selected language. Click [Next] to proceed or click [Cancel] to stop the installation.

5th If click [Next] button, the “License agreement procedure” window appears. Read all the details of the “License agreement”. After considering the information, click [Agree] button to continue the installation.

6th If click [Agree] button, “Installation components” window appears. Choose the components to setup and click [Next].

7th If click [Next] button, “Install Location” window appears. Default installation path is already set. If you need to change the default path, click [Browse] button and select the desired destination folder. And then click [OK] to start installation.

8th If click [OK] button, installation progress is displayed. Wait until the installation is complete.

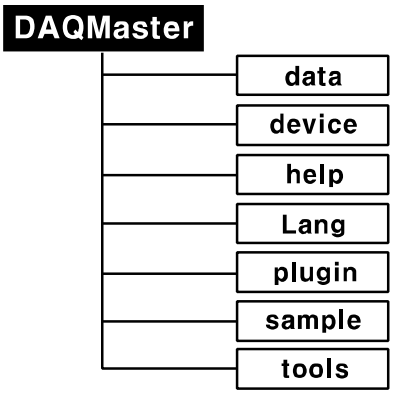
9th “Installation Complete” window appears after installation is completed. Click [Finish] button to run DAQMaster. It is possible not to run the program by unchecking the box of [Run DAQMaster] and click [Finish] button.

3.3 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 select the default installation path during installation, a DAQMaster folder is created under [C:\Program Files] as a sub-folder. If you select 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.

(3) Plug-in folder

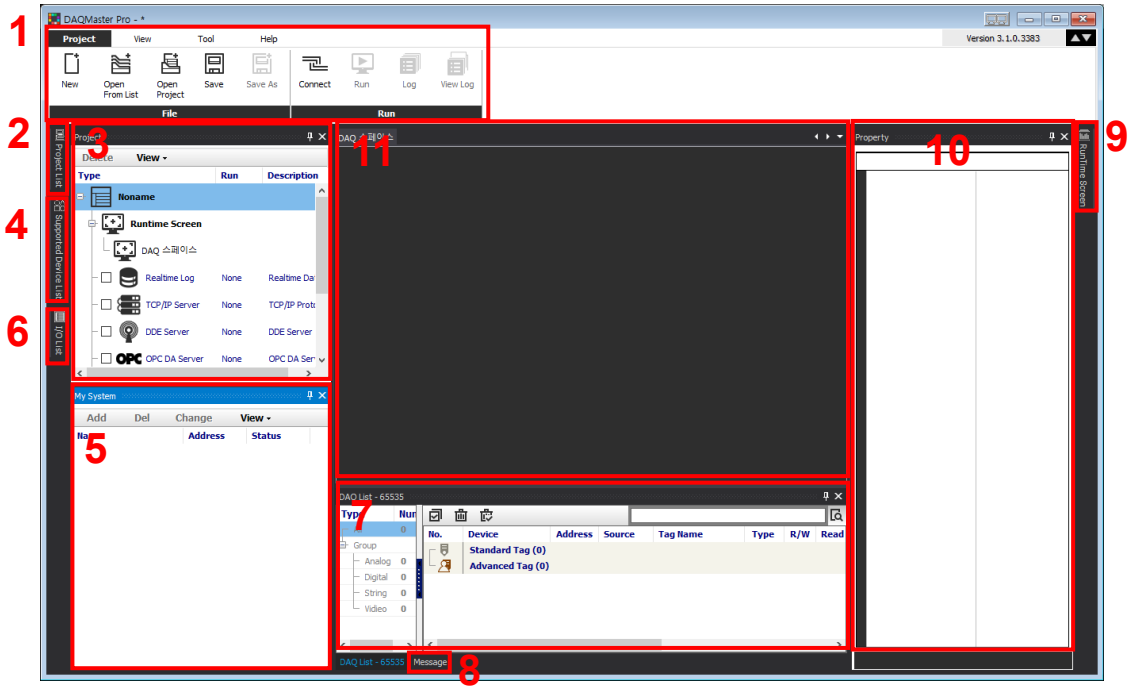
This folder contains core library files (*.dll) for ModBus communications as well as runtime screen files (*.rpu). The [prop] folder under the [plug-in] folder stores library files that have special functions for each specific device.

3.4 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.

4 DAQMaster Screen Layout

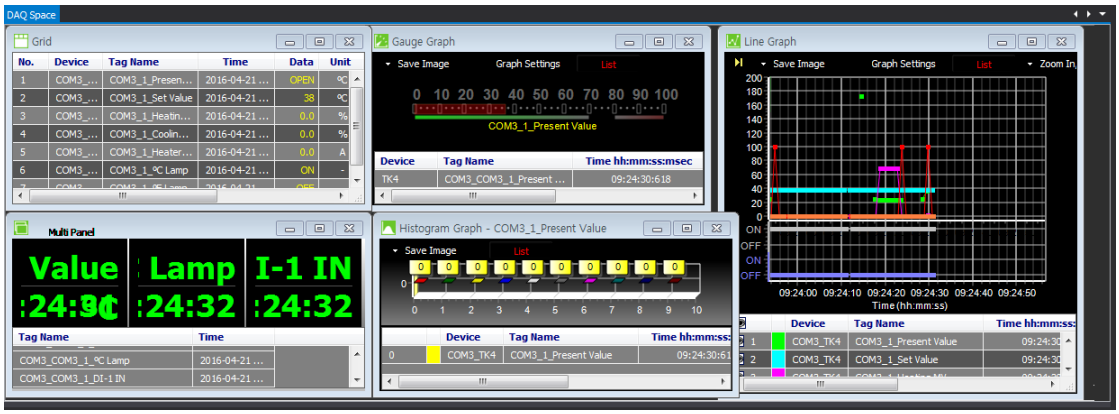


The program screen is divided into sections as shown in the preceding screenshot and each section is composed of the following items.

NO.	Item	Description
1	Menu	Displays DAQMaster menus by category. If you select a menu, sub-menus 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	DAQ Space	Displays added user interfaces.

4.1 DAQ Space

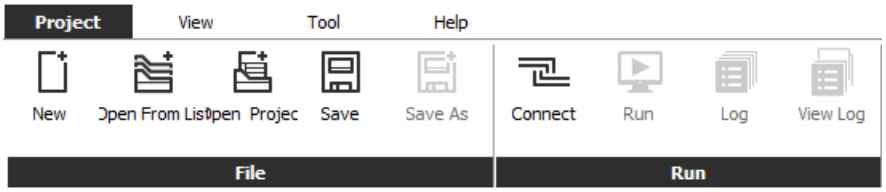
DAQ WorkSpace displays “Runtime screen” and runs the programs of the functions that the DAQMaster supports. The DAQ Space shows each UI and program screen.



- Settings: Right-click “DAQ Space” tab to add or delete the DAQ Space, or change DAQ Space name.
- Switch: Click left/right icon(◀/▶) on the upper right side of the DAQ space window to switch among the different spaces. Click pull-down icon (▼) to select activating space in the list.

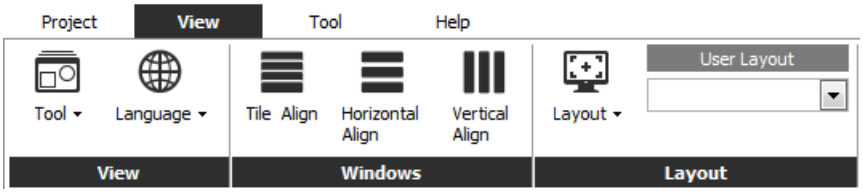
4.2 Menu

(1) Project



- **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.
- **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



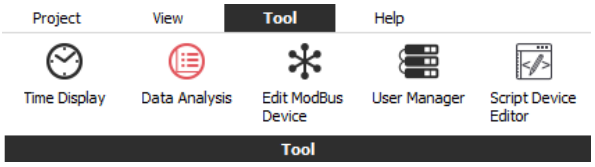
- **View**
  - Tool: Set for Property, Support Device List, My System, Project, I/O List, Run Time Screen, DAQ List, Message of the project.
  - Language: Changes the program language.
- **Windows**

  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.
- **Layout**

  Applies the default layout or executes saving, deleting, and loading user-defined layout.
  - Default: Changes control panels to the default layout.

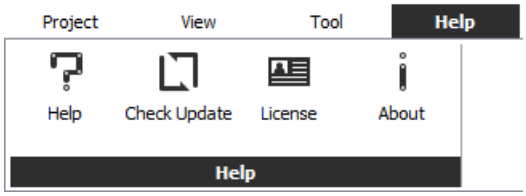
- Runtime: Displays the run time screen only.
  It is possible to load the hidden control panel at “View-Tool” menu.
- Save Layout: Saves the current layout.
  Click [OK] in the “Save Layout” window and add the user layout.
- Delete layout: Select the saved layout and delete it. Click [OK] in the “Delete Layout” window.

(3) Tool



- Time Display: Displays monitoring time.
- Data Analysis: Runs the data analysis program. Allows analysis of DAQMaster data file (*.ddf).
- Edit ModBus Device: Runs Modbus Editor.
- User Manager: Runs User Manager.
- Script Editor: Runs Script Device Editor

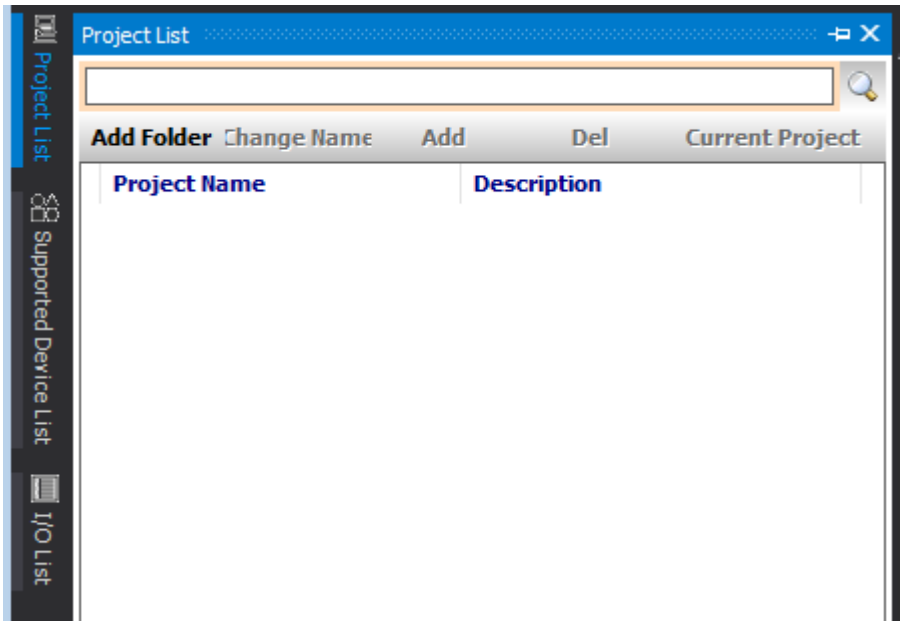
(4) Help



- 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.
  ※ For registering license, refer to “5.2 License“.
- About: Checks the DAQMaster version.

4.3 Project List

It is possible to conveniently open and manage frequently used project files by adding to the list.



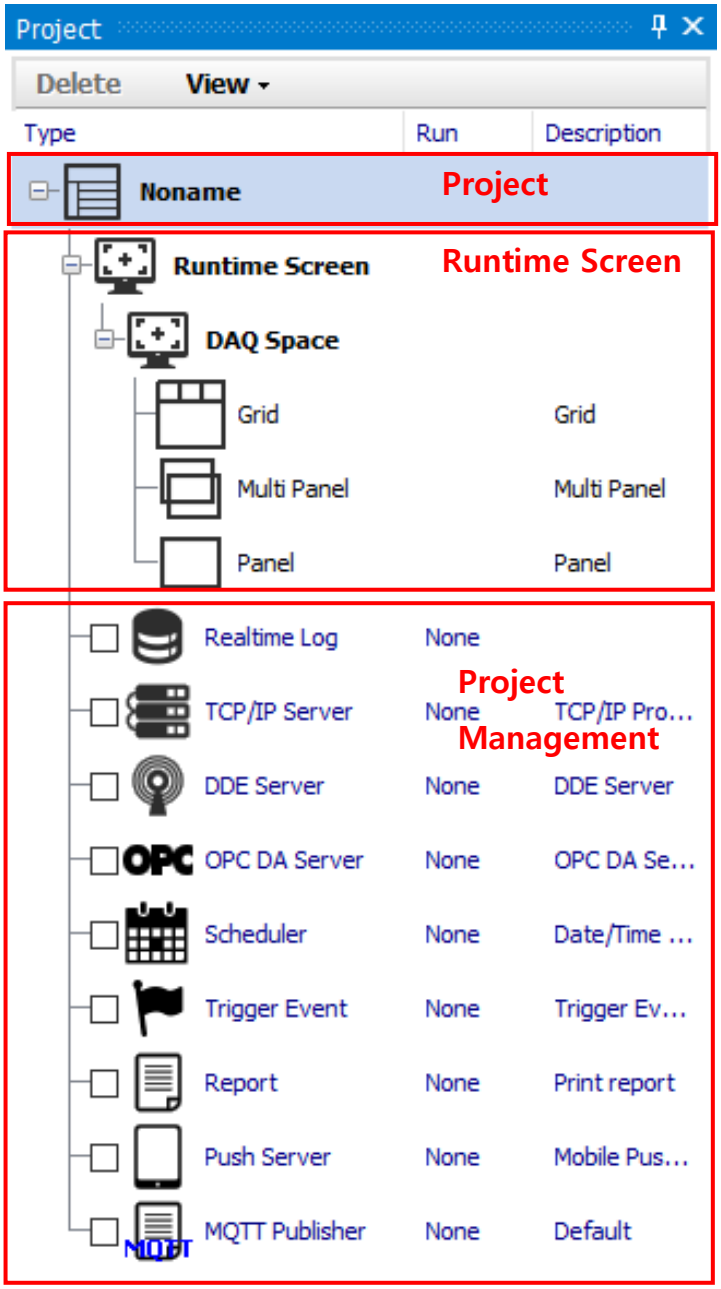
※ For more information about “Project List”, refer to “5.3 Project List“.

4.4 Project

Displays the basic information of the currnet project and the runtime screen.

It is possible to check the status of project management function DAQMaster supported and execute the program.

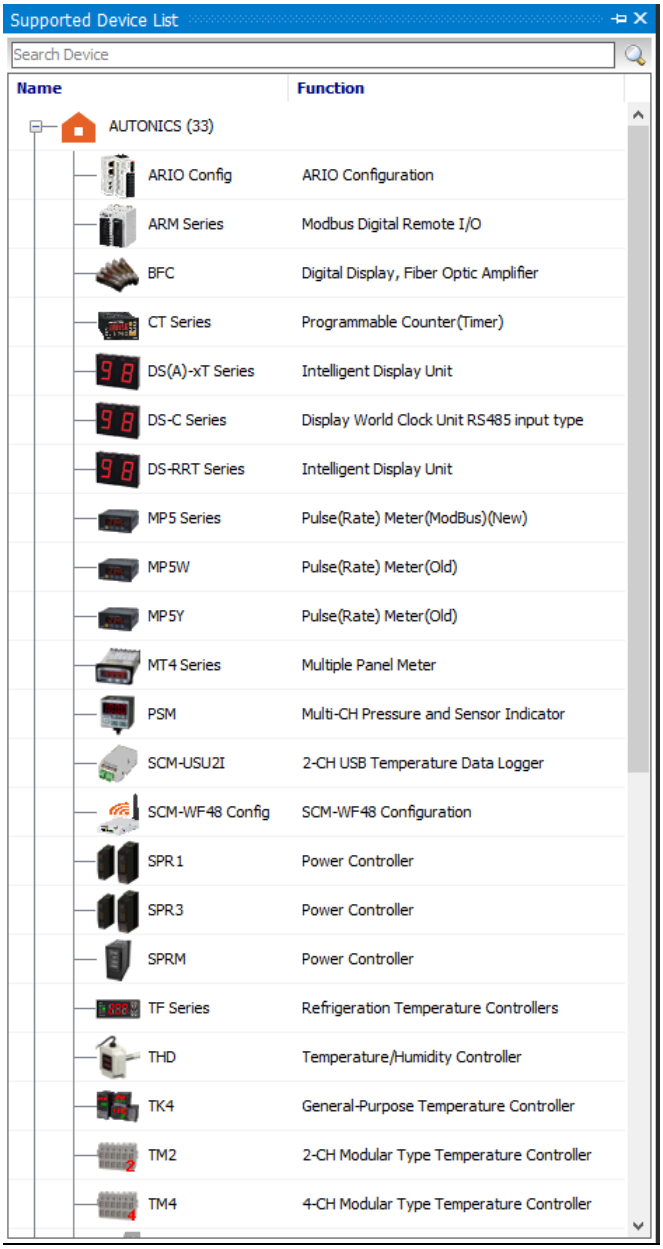
- Project, RunTime screen: After select the related item on the project control panel, it is possible to set it in the “Property” control panel. Refer to “5.9.1 Property In Project“.
- Project management: You can check and execute the conditions of project management functions supported by the DAQMaster.



4.5 Support Device List

"Support Device List" control panel shows a list of devices supported by DAQMaster.

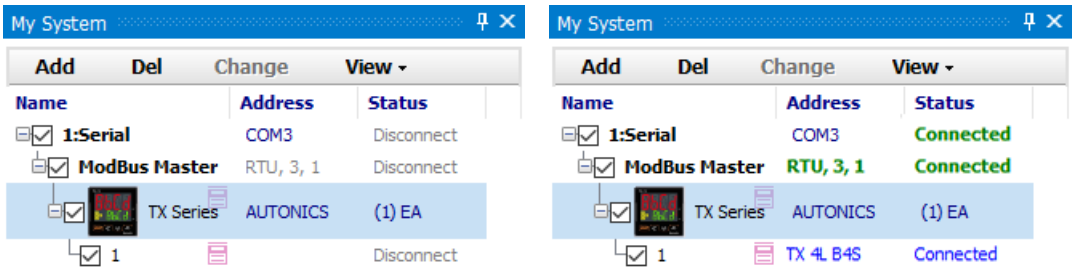
Support device list will be updated continuously.



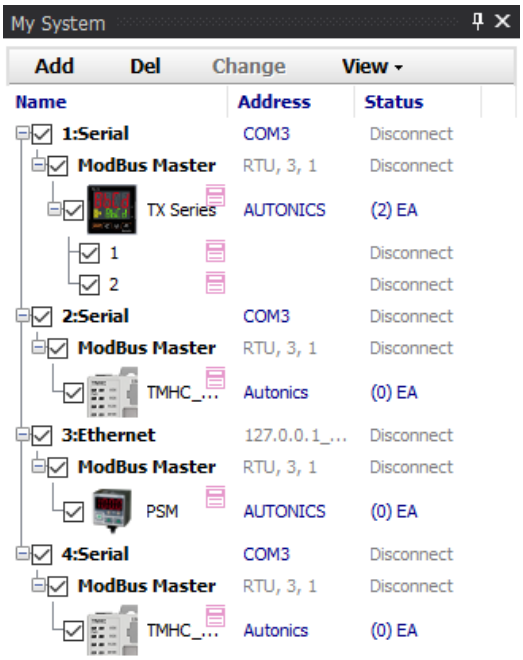
4.6 My System

"My System" displays devices and units added from the device list in a tree structure. It is also possible to check and configure connection status.

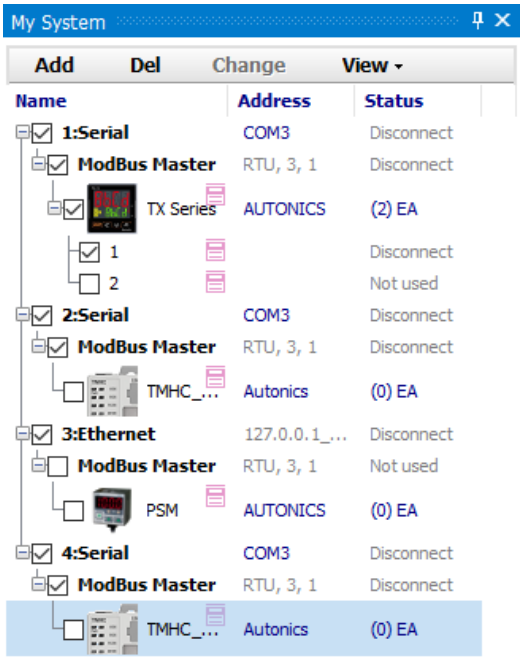
You can add/change/delete devices and units (addresses) of My System.



- Serial: Allows property modification related to Serial communications in "Property" control panel when devices are disconnected.
- ModBus Master: Allows property modification related to ModBus Master protocol in "Property" control panel when devices are disconnected (mode name and the number of re-try are displayed).
- Device (TX): 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.



- Select enable/disable by checking check box on the left side of items.

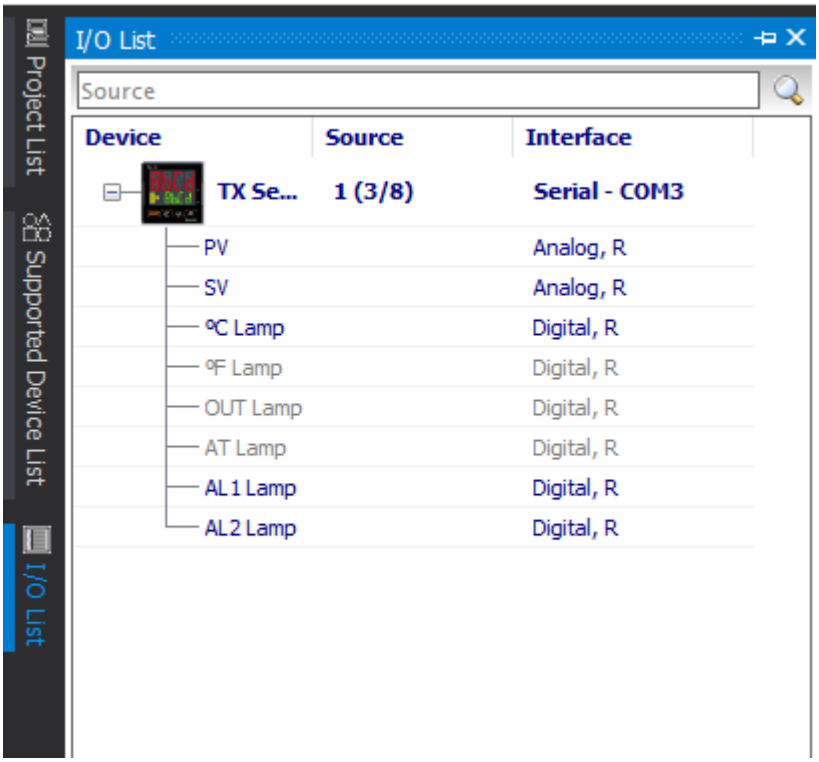


4.7 I/O List

After connecting the device, “I/O List” shows parameters for monitoring the added devices.

To monitor connected device, it is needed to add the source from “I/O list” to “DAQ list”.

Searching function is available and added sources are shown in gray.



Note

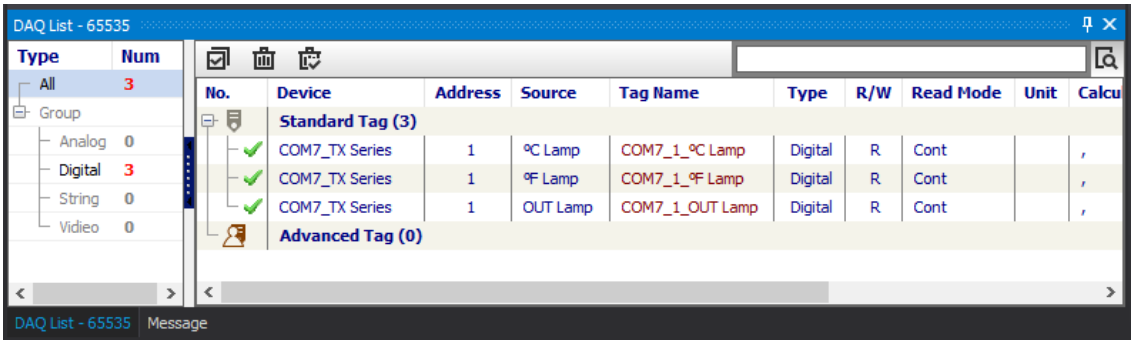
I/O source cannot be added to “DAQ List” in “Run” status.

For more information about “Run” status, refer to “5.10.3 Run“.

4.8 DAQ List

"DAQ List" shows added source lists from I/O list.

To add DAQ list, double-click each source, or right-click and select "Add to DAQ list."



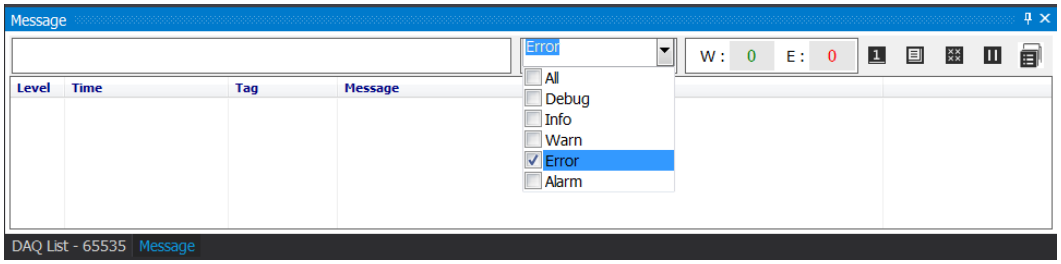
Note

Elements of the DAQ List cannot be added to "Runtime Screen" in "Run" status.

For more information about "Run" status, refer to "5.10.3 Run".

4.9 Message

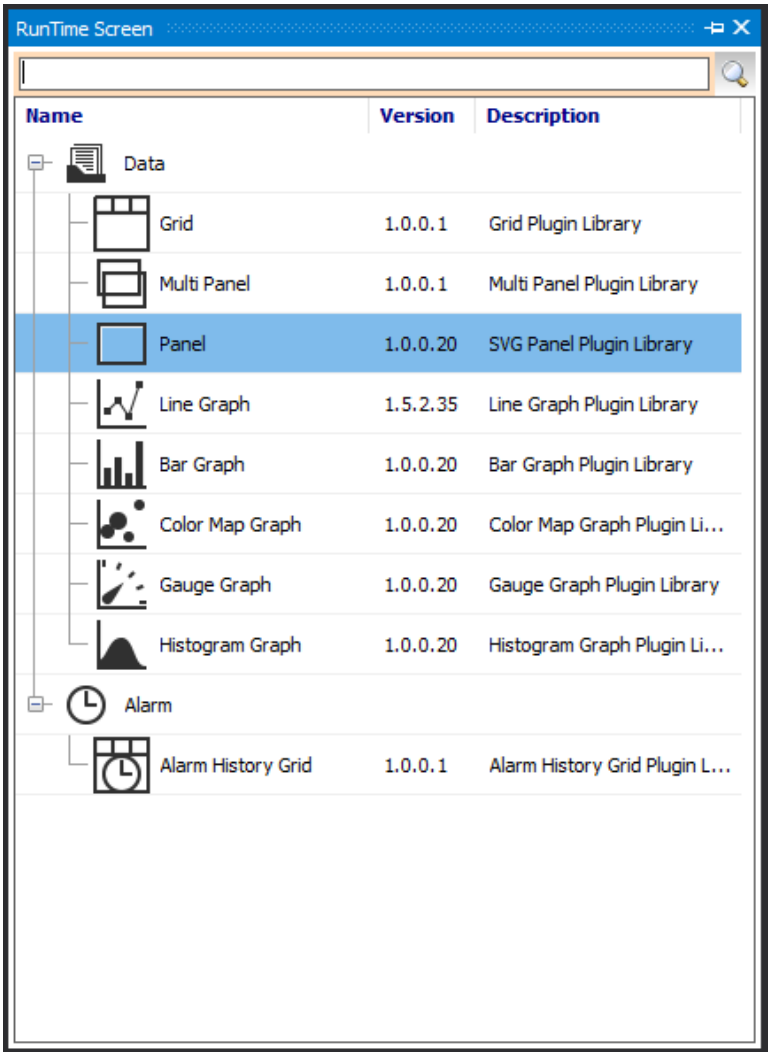
Records events (communication status (start/stop communication, error), log status (start/stop log), etc.) during running the program.



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

4.10 RunTime Screen

Double-click UI item in “RunTime Screen” to add it to “DAQ WorkSpace”.

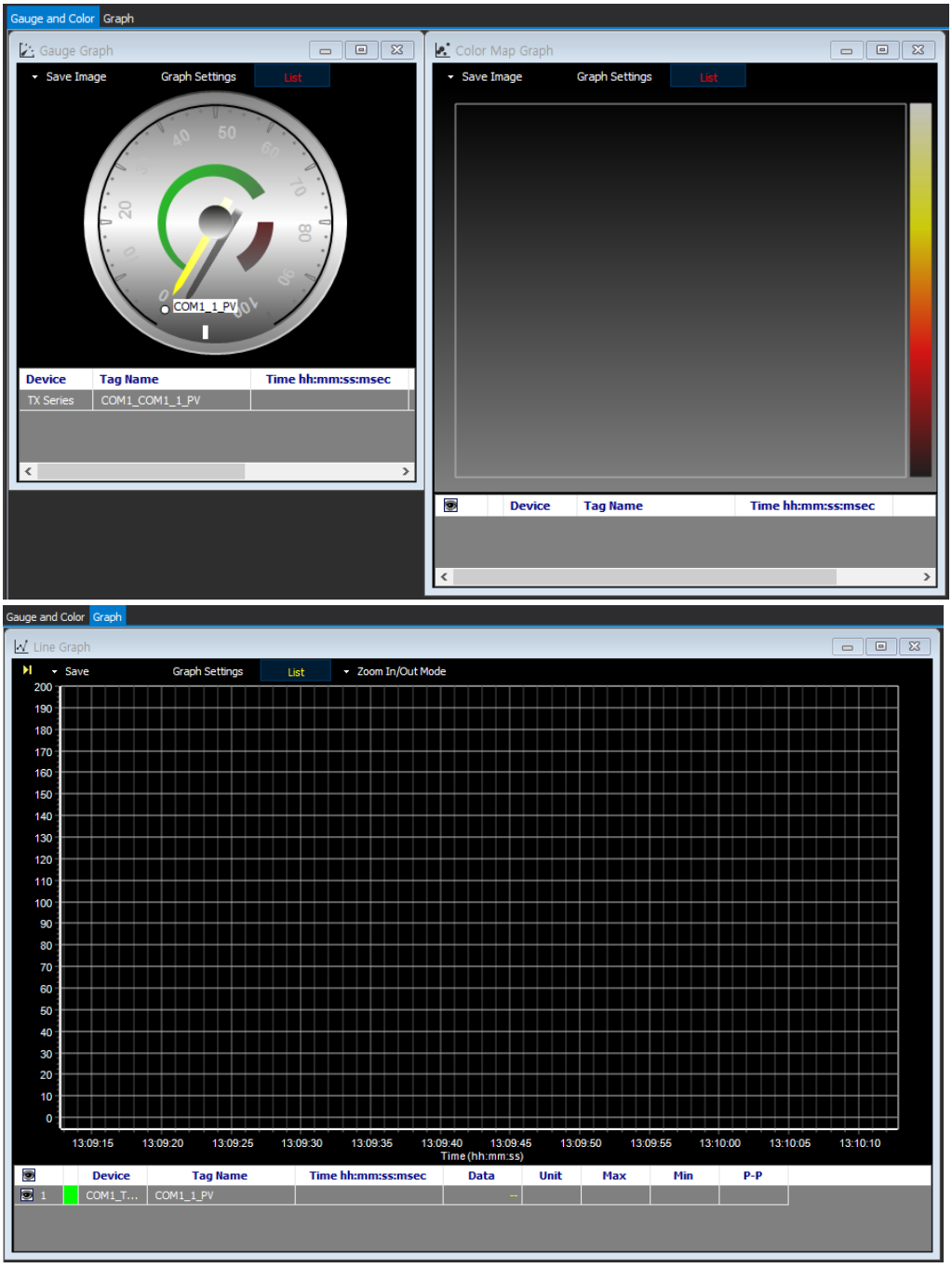


Note

Refer to “5.8 RunTime Screen” to know how to add a library displayed in the “RunTime Screen”.

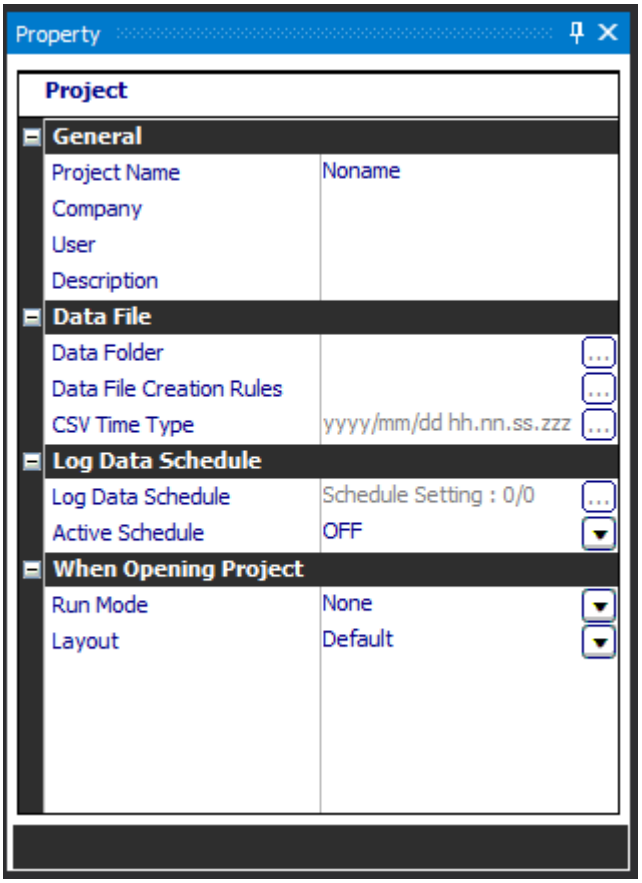
Ex.

The name of the DAQ WorkSpace is changed to “Gauge and Color” and “Graph” space is added.



4.11 Property

It is possible to check the conditions and change the values of “Project”, “My System”, and “DAQ List” etc in the “Property” control panel.



Note

For more information about setting properties of each parameter, refer to “5.9 Property“.

5 Basic Function

This chapter explains the basic function to use DAQMaster.

5.1 Start and Exit

5.1.1 Start

Double-click DAQMaster icon on the desktop or select “Start > Program > DAQMaster” to execute DAQMaster.

5.1.2 Exit

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

Projects are not saved automatically. Please make sure whether the project is saved when close the program.

5.2 License

“DAQMaster Pro” demo version is provided when installing at first time.

When installing DAQMaster, it provides pro demo version.

After demo period (30 days) is over, pro functions are deactivated. But the function of general version is still available.

For the information about the differences of function between pro and general version, refer to “1.2 DAQMaster Function Comparison Table by Version“.

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

(1) Registration

1st Click [License] button of the “Help” menu.

2nd When “License” window pops up, click [Request Serial Number].

3rd When “Request Serial Number” pops up, enter user information (last name, family name, company, etc.) and click [Save clipboard]. Based on the information, ask the serial number and register code to the retailer.

4th Enter the provided serial number and register code from retailer.

5th Click [Register] button to register pro version and it will be able to use pro functions continuously.

(2) Connecting USB dongle

1st Plug the USB dongle for DAQMaster Pro license to your PC and run the DAQMaster Pro.

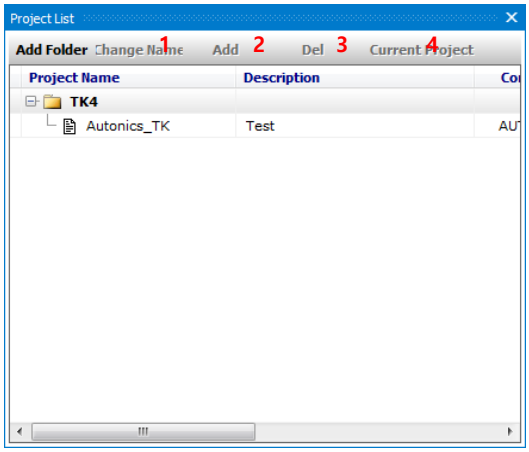
2nd The license key is installed automatically. (it may take some time.)

5.3 Project List

You can manage the project files conveniently by adding frequently used projects like the favorites menu of the Internet browser.

You can create a 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.

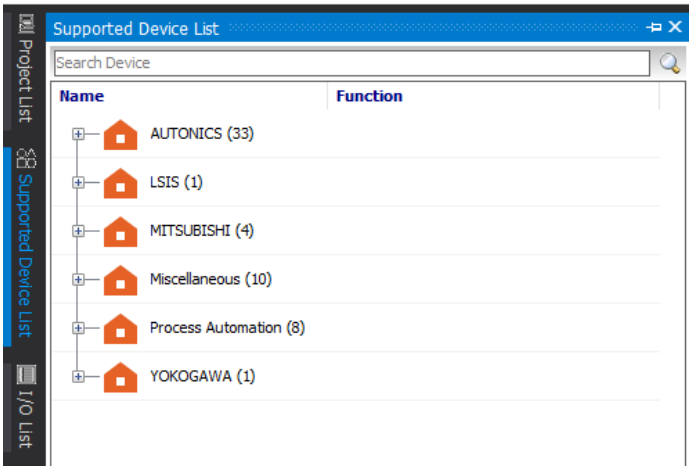


No	Item	Description
1	Add Folder	Adds a folder.
2	Change Name	Changes the name of folder
3	Add	Adds a project file. Click add opens “Project List” control panel.
4	Delete	Removes selected folder or file.

5.4 Support Device List

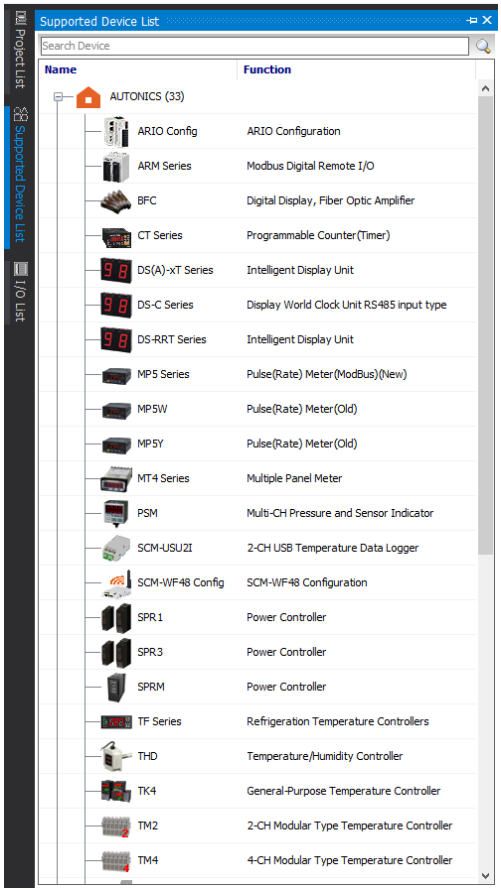
The displayed devices are only able to communicate. (The Support Device List will be updated continuously.)

These lists are the devices supported by the DAQMaster.

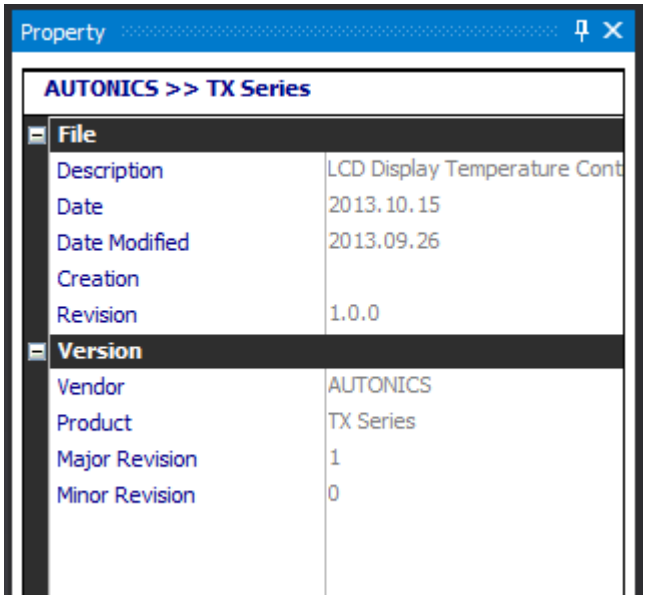


5.4.1 Add Device

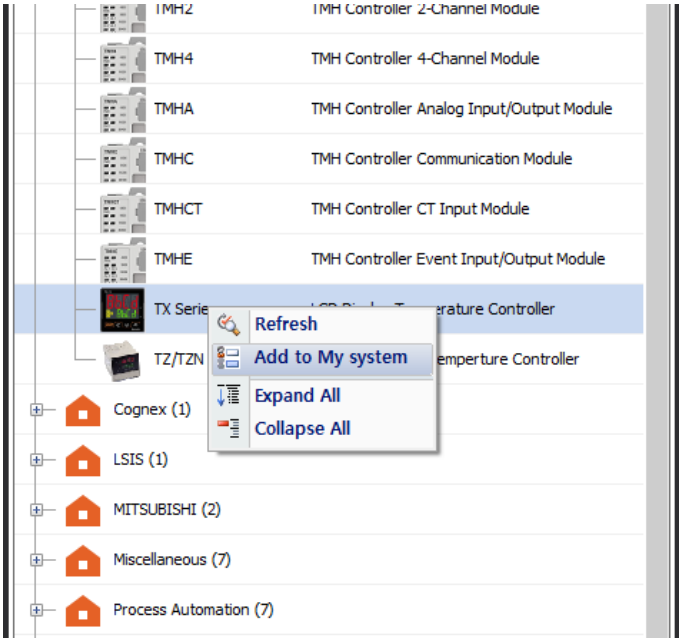
1st If you double-click a name of series/model or click the device expand button [+] in the "Support Device List", support device list will appear.



2nd When selecting a device, you can see the basic information about the device in the "Property" control panel as follows.

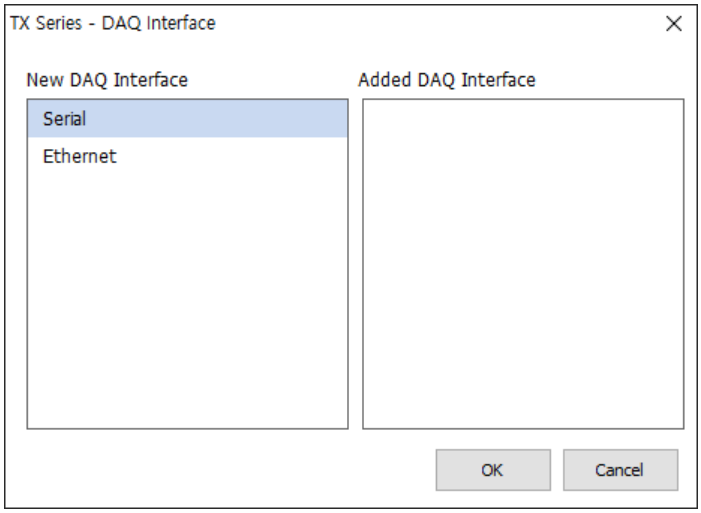


3rd Select the series/device name (TX Series) you want to add to "My System". Double-click or right-click the selected device and click [Add to My System] to add the device.

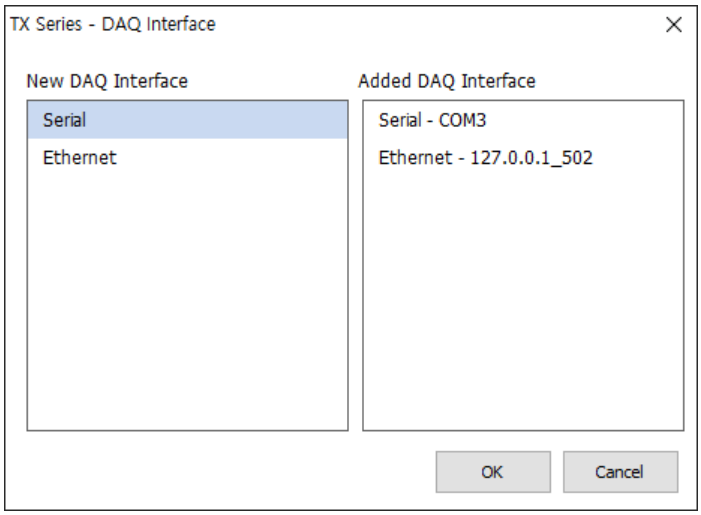


- Refresh: Updates "Support Device List" control panel when device files (*.dev) are added.
- Add to my system: Adds device to My System to communicate.
- Expand all: Shows the list of all supported devices.
- Collapse all: Hides the list of all supported devices.

4th Select Serial or Ethernet on the new “DAQ interface” and click [OK] or double-click the interface.
You can modify the configuration of the added Serial or Ethernet in properties.



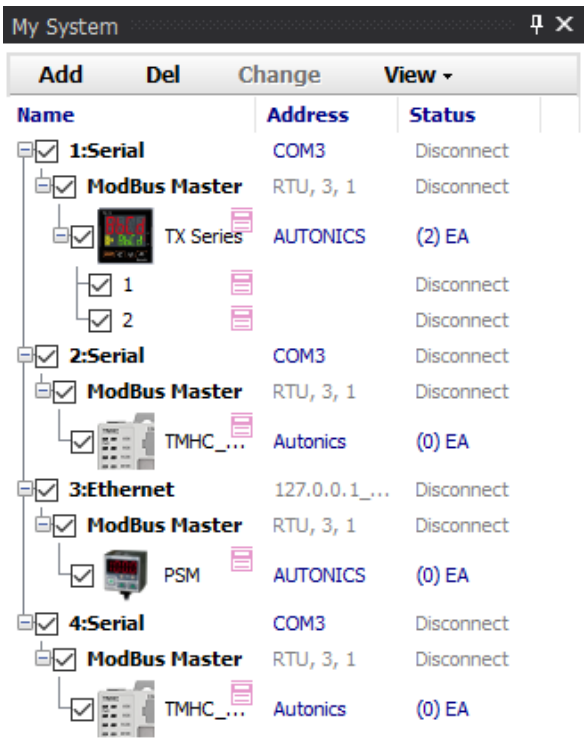
5th If there is another devices added earlier, you can see added “Protocol-Port Name” on the Added DAQ Interface.



5.5 My System

"My System" control panel displays device and communication interfaces added from the "Support Device List" control panel in a tree structure as well as connection status. You can also add, change and delete device units.

It is possible to set or modify by selecting an item in "Property" control panel.



- Select the protocol (Serial, Ethernet etc.): modify communication related items in the "Property" control panel.
- Select Modbus Master: check the information about Modbus Master and set the preferences in the "Property" control panel.
- Select the device name (TX Series): check the information about the connected device in the "Property" control panel.
- Select Unit (1): displays parameter information of the connected device in the "Property" control panel.

Note

Some of the communication-related items are able to be changed in "Disconnect" status only.

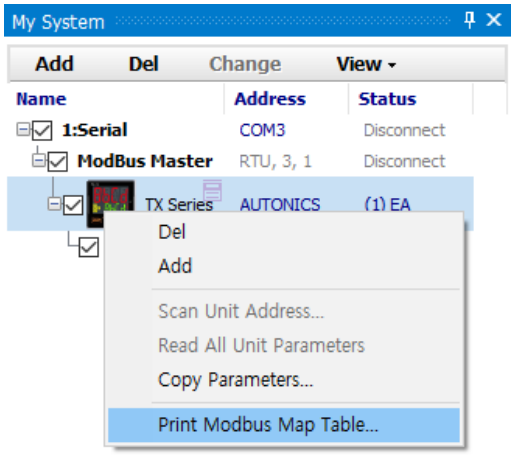
For more information about setting properties of each parameter, refer to "5.9 Property".

5.5.1 Modbus Map Table Report

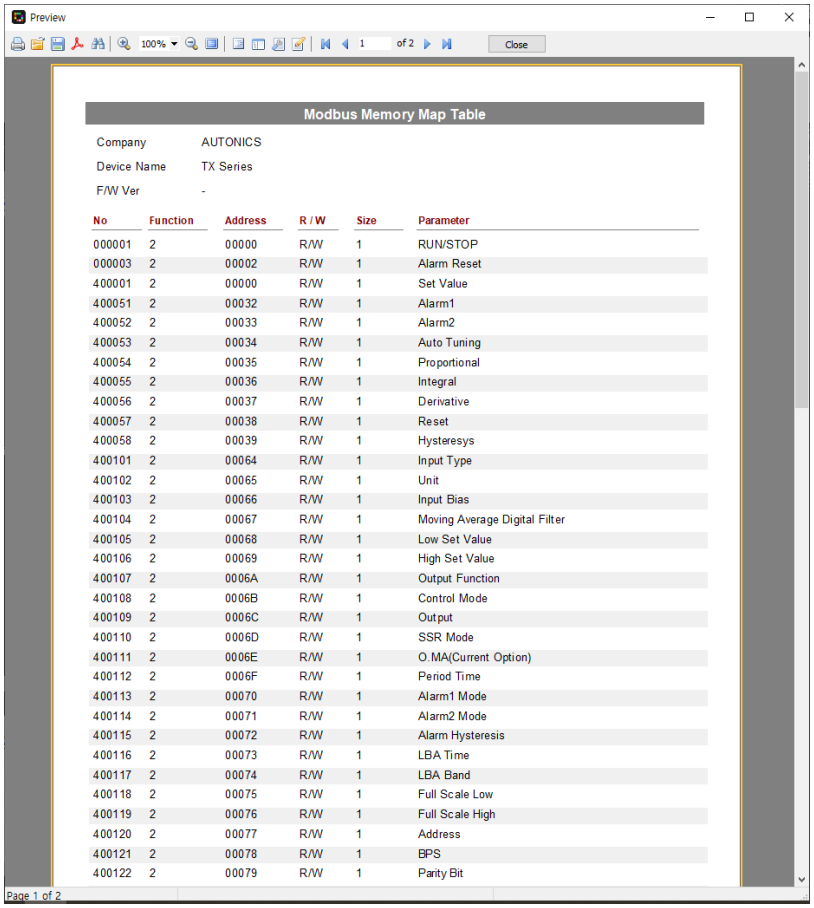
This feature outputs ModBus map table of a device, which uses ModBus communications, as a report.

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

1st 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.



2nd In the preview window, setting Print, Print, and save are available.



Modbus Memory Map Table

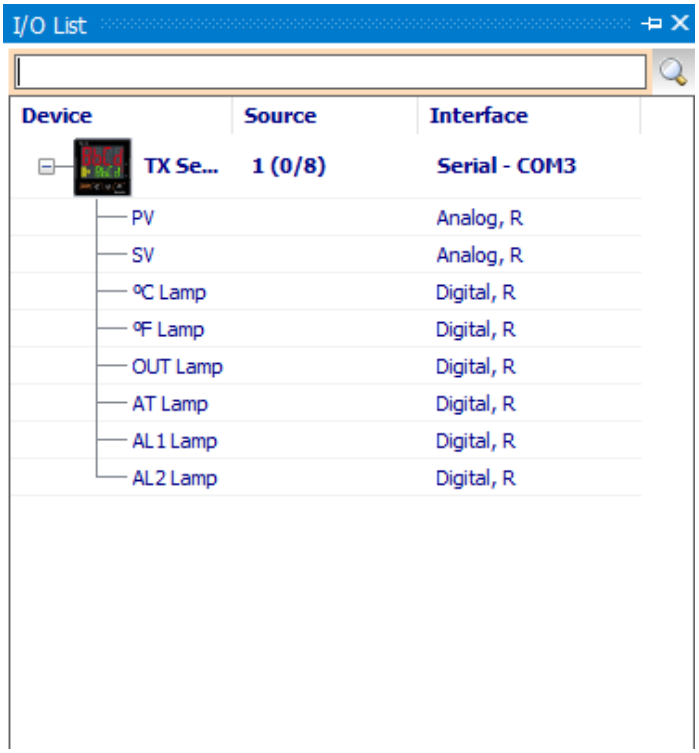
Company AUTONICS
Device Name TX Series
F/W Ver -

No	Function	Address	R / W	Size	Parameter
000001	2	00000	R/W	1	RUN/STOP
000003	2	00002	R/W	1	Alarm Reset
400001	2	00000	R/W	1	Set Value
400051	2	00032	R/W	1	Alarm1
400052	2	00033	R/W	1	Alarm2
400053	2	00034	R/W	1	Auto Tuning
400054	2	00035	R/W	1	Proportional
400055	2	00036	R/W	1	Integral
400056	2	00037	R/W	1	Derivative
400057	2	00038	R/W	1	Reset
400058	2	00039	R/W	1	Hysteresys
400101	2	00064	R/W	1	Input Type
400102	2	00065	R/W	1	Unit
400103	2	00066	R/W	1	Input Bias
400104	2	00067	R/W	1	Moving Average Digital Filter
400105	2	00068	R/W	1	Low Set Value
400106	2	00069	R/W	1	High Set Value
400107	2	0006A	R/W	1	Output Function
400108	2	0006B	R/W	1	Control Mode
400109	2	0006C	R/W	1	Output
400110	2	0006D	R/W	1	SSR Mode
400111	2	0006E	R/W	1	O.MA(Current Option)
400112	2	0006F	R/W	1	Period Time
400113	2	00070	R/W	1	Alarm1 Mode
400114	2	00071	R/W	1	Alarm2 Mode
400115	2	00072	R/W	1	Alarm Hysteresis
400116	2	00073	R/W	1	LBA Time
400117	2	00074	R/W	1	LBA Band
400118	2	00075	R/W	1	Full Scale Low
400119	2	00076	R/W	1	Full Scale High
400120	2	00077	R/W	1	Address
400121	2	00078	R/W	1	BPS
400122	2	00079	R/W	1	Parity Bit

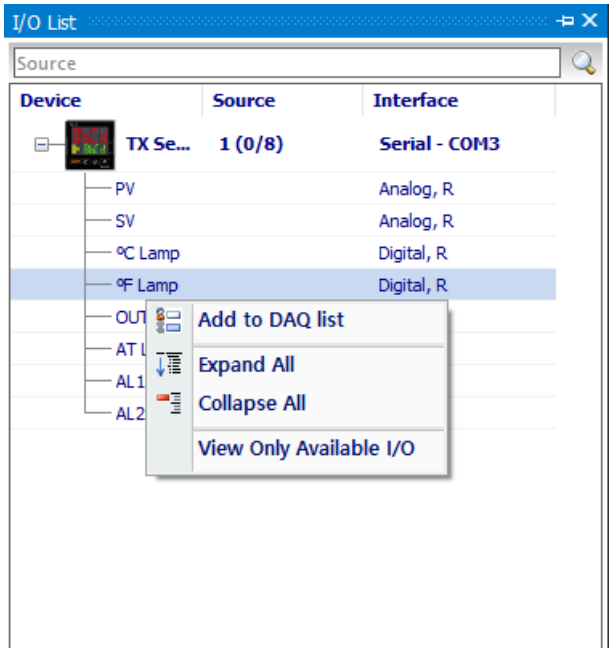
5.6 I/O List

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.

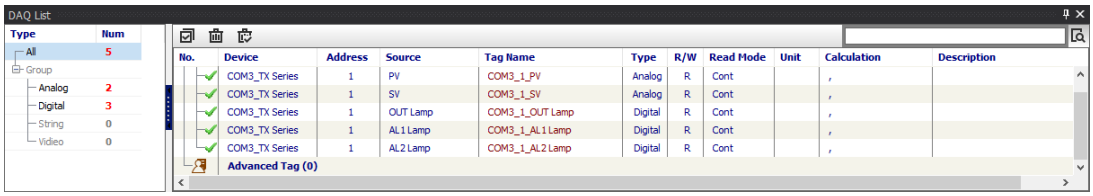
I/O List shows which units are added to My System. If you click expand button (+), it displays a list of available I/O sources to add. You can search the desired I/O and add it.



1st Double-click or right-click sources you want to communicate, and select Add to DAQ List.



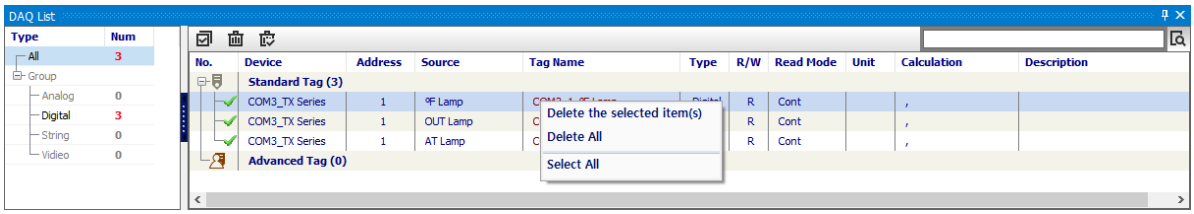
2nd I/O sources are added to DAQ List as below.



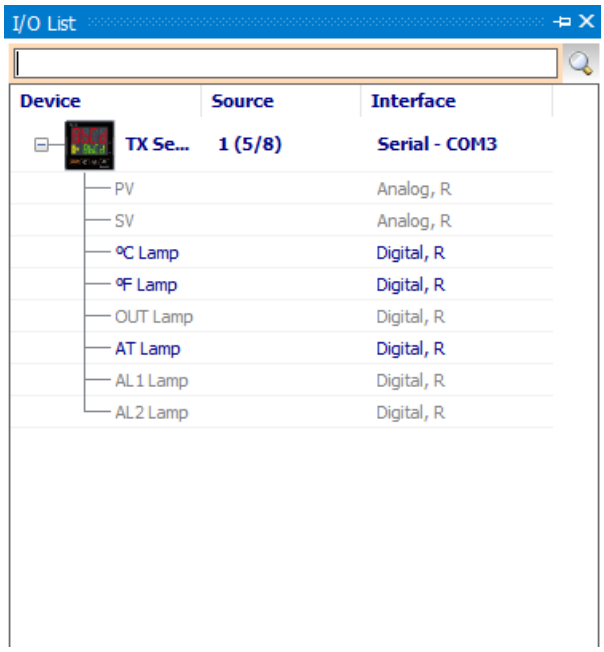
Note

I/O source cannot be added to DAQ List in “Run” status.

1st 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.



2nd Sources added to DAQ List are grayed out in the I/O List. The image below shows that PV(Present Value), SV(Set Value), OUT Lamp, AL1 Lamp, and AL2 Lamp are added to DAQ List.



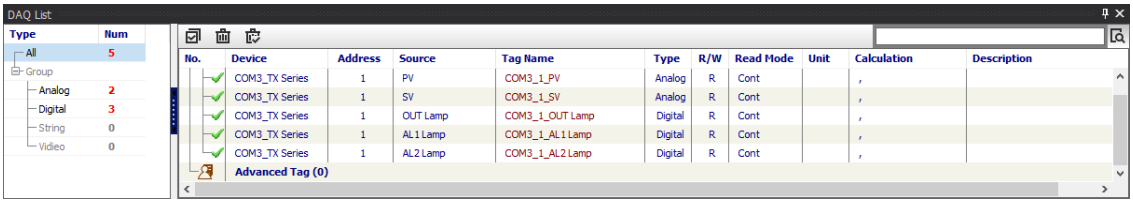
5.7 DAQ List

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

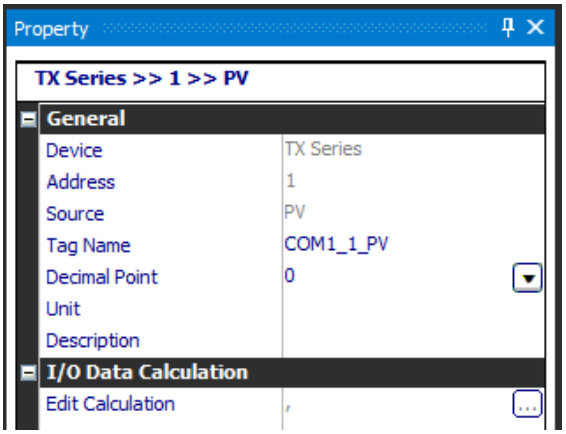
The left side of the control panel shows the number of I/O sources and if select that number, the devices are rearranged by the signal type.

It is easy to find the general and user-defined tag by the function for searching tag on the right corner of the "DAQ List".

In the property control panel, calculating I/O data and setting the trigger is available by selecting the name of I/O source in the right side.



When selecting a source in the "DAQ List", it is possible to check/modify it in Property control panel.



General items of Property is as below.

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

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

- Edit Calculation: When reading a tag value, apply the data formula to get the desired data.
- Trigger: Set the event is activated when a tag value matches the user-defined conditions.

Note

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

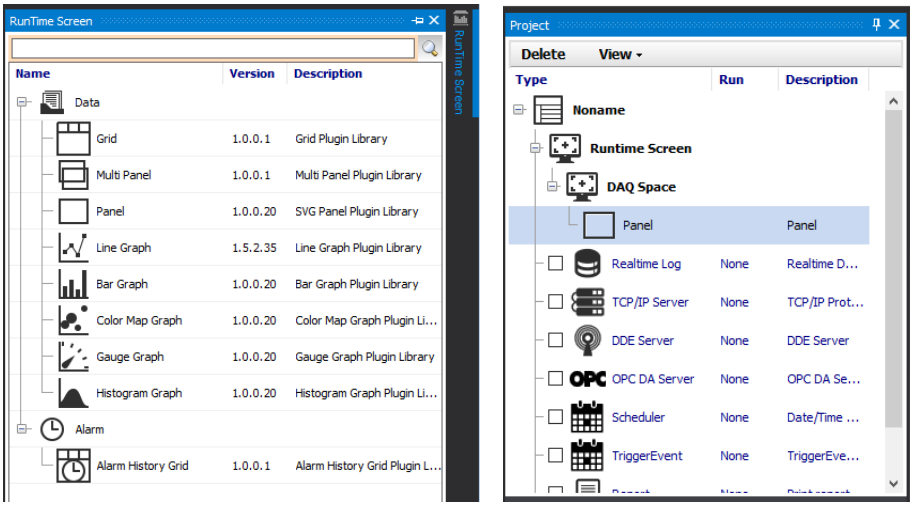
For more information about setting properties of each parameter, refer to “5.9 Property“.

5.8 RunTime Screen

This function is for visual data monitoring.

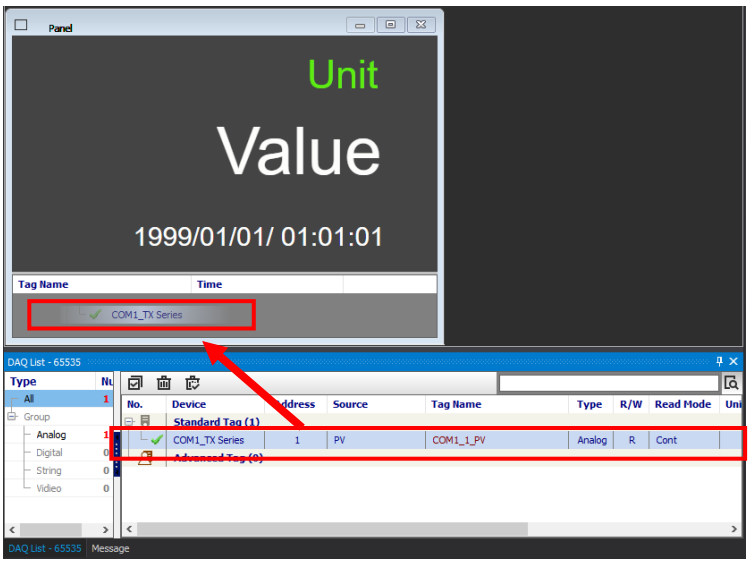
(1) Load RunTime Screen

Double-click UI item in the Runtime Screen Library to load to the “DAQ WorkSpace”. The loaded runtime screen is also displayed in the “Project” control panel.



(2) Add I/O sources

Click the I/O source to be monitored in the “DAQ list” window and drag it to the panel of that list in the runtime screen.

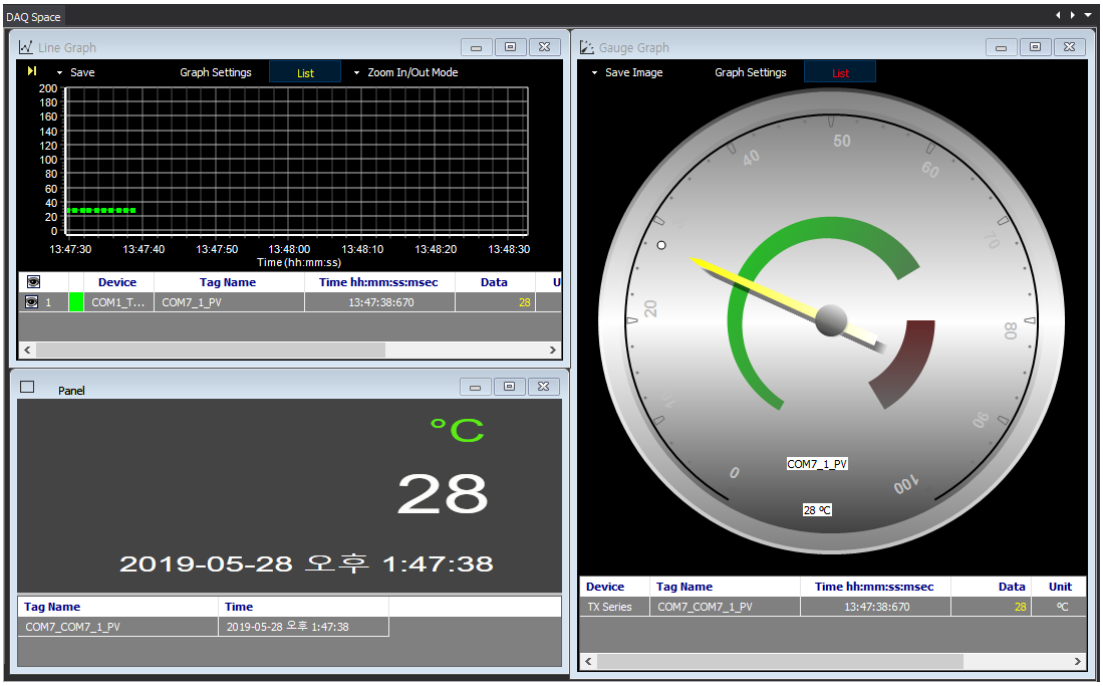


Note

Panel library displays I/O source data as Flash type. (If an error occurs while adding Panel to Runtime Screen Library, install Adobe Flash Player.)

Ex.

This is the example of the Runtime Screen Library. (Line Graph, Panel and Gauge Graph are applied.)

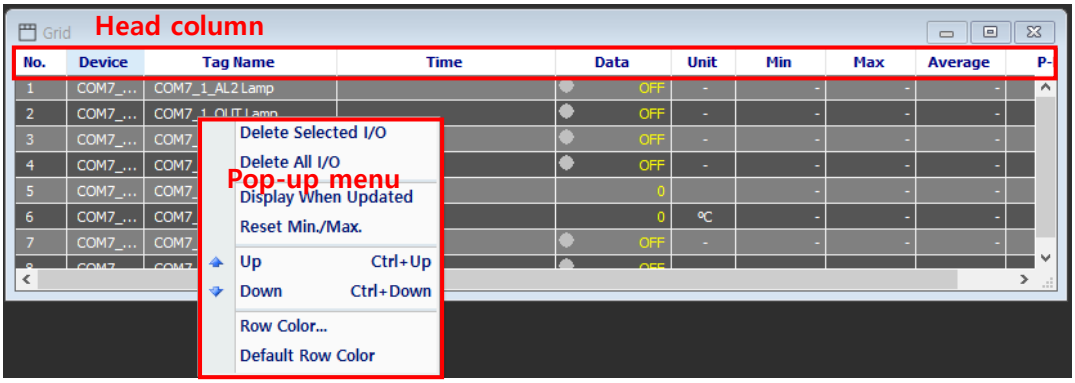


5.8.1 Data

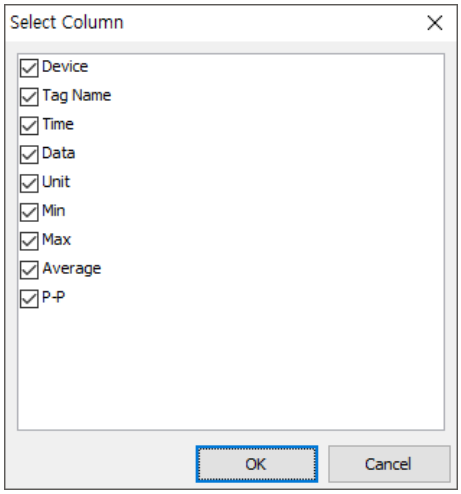
▪ Grid

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

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

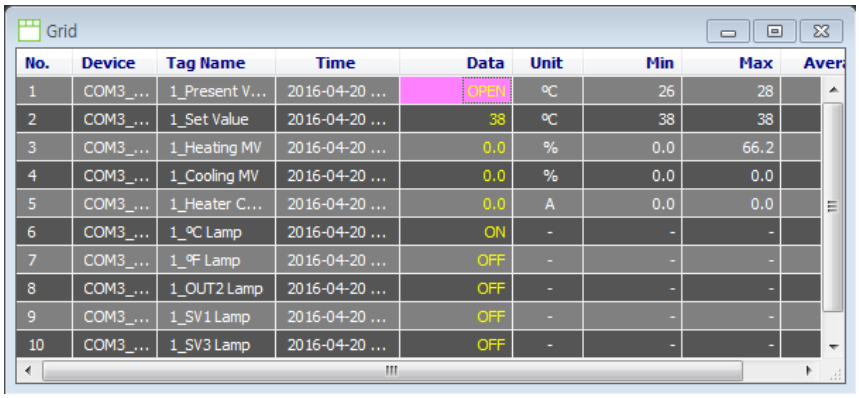


- Edit grid column: Right-click the head of grid, “Select Column” dialog box appears. You can check the desired item to show.



- Display updates: The color of “Time” column inverts upon updates by checking “Display When Updated” from the pop-up menu.
- Reset: Select “Reset Min./Max.” in the pop-up menu to renew the time of data collection.

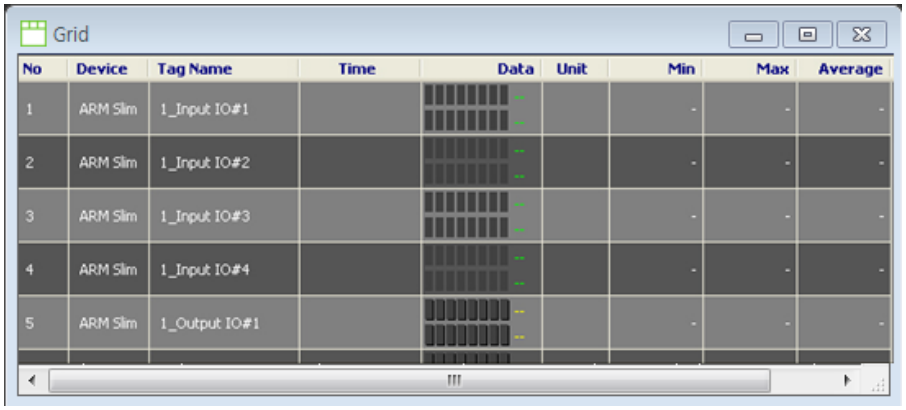
- Display alarm: If a parameter value causes an alarm, it flashes as below.



※ For more information about the alarm, refer to the manual of the device.

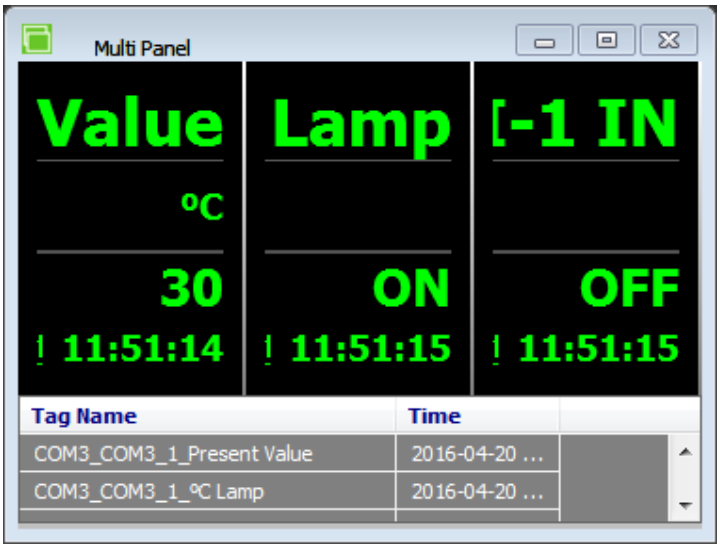
- The Output by bit: Only in case of the device that supports this function, the output data is represented by bit as below. Double-click the value of a row of “data” and edit it.

※ For more information about the output by bit, refer to the manual of the device.

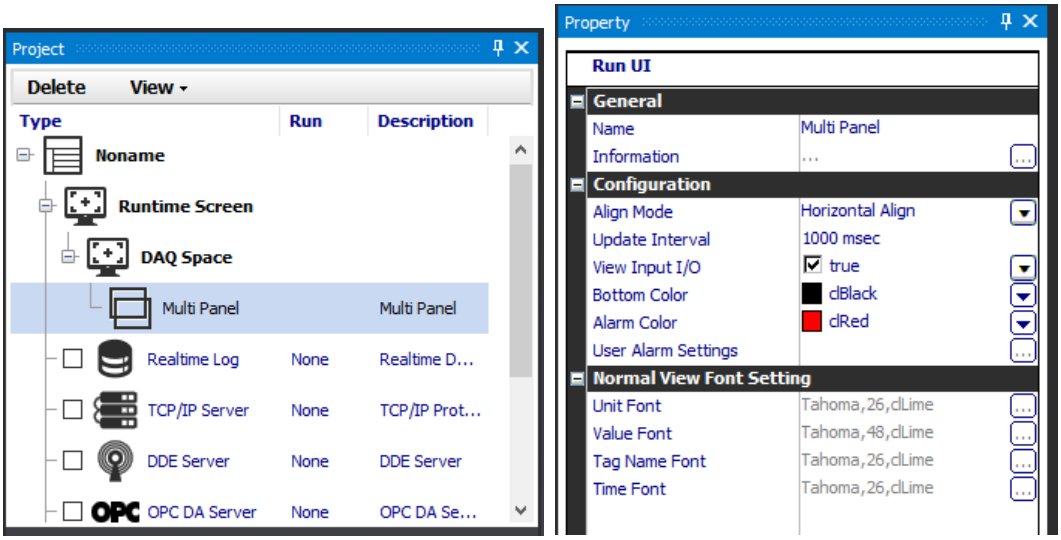


- **Multi panel**

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 flashes in the set alarm color.



You can change align mode, color, update interval and etc. in the “Property” control panel by selecting “Runtime screen – Multi Panel” in the “Project” control panel.



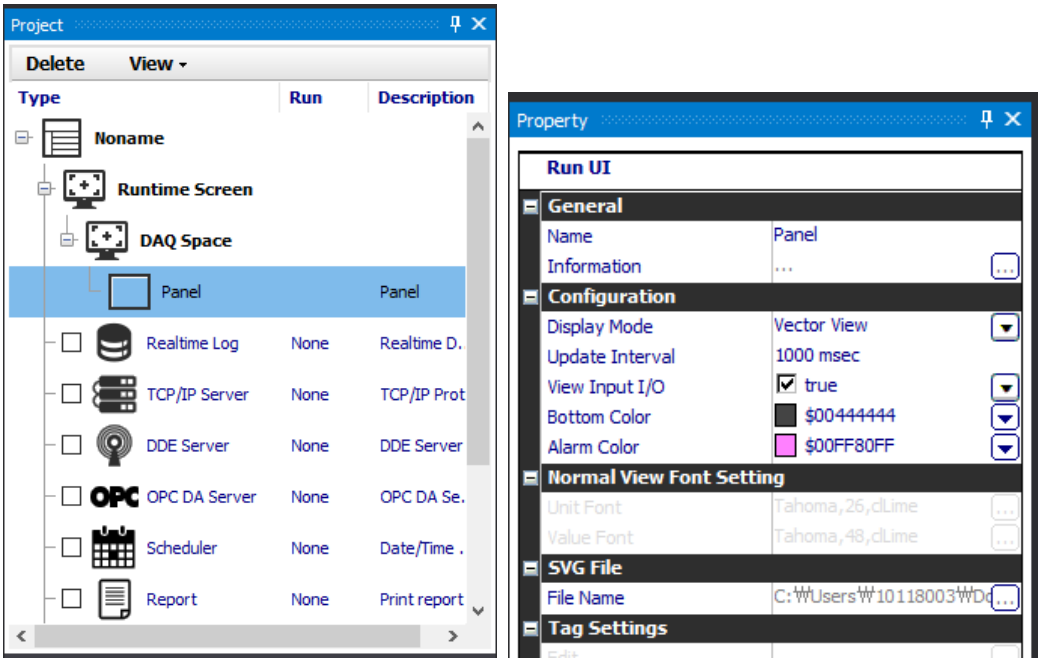
- Align mode: Set the align mode for several I/O source. It supports horizontal, vertical, horizontal grid align and vertical grid align.
- User Alarm Settings: Sets user alarm option to the user-defined items

※ The other settings are same as “Panel graph”. Refer to the “Panel“.

- **Panel**

Panel displays a I/O source data in character. A Panel can display one I/O source only. 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” control panel to modify properties (such as color, update interval) in the “Property” control panel.



(1) Setting Preferences

- Display Mode: You can select Normal or Vector.

  ※ When the number of registered tag item is under 1, switching “View mode” is available.

  ※ Vector View mode is supported only on ‘DAQMaster (32bit)’.

  · Vector View: It is possible to display by the mapping process of a tag in SVG file and device tag item. The character property edit is possible by the SVG editor except the color of background and alarm.

- Normal View: Display 1 information of device tag item, and changing the color of character is possible through “Normal View Font Setting” in “Property” control panel.

- Update Interval: Interval of the panel update.
- View Input I/O: Show/hide settings of the I/O source list.
- Bottom Color: Sets the background color of the panel. In case of the SVG file, it is possible to apply the background color when the name of SVG tag ID is designated as “DAQMasterSvg”.
- Alarm Color: The value of the device tag item exceeds the limit, the background color of the panel flashes as defined alarm color. In case of the SVG file, it is possible to apply the background color when the name of SVG tag ID is designated as “DAQMasterSvg” and it is applied when the number of registered tag item is under 1.

(2) Normal View Font Setting

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

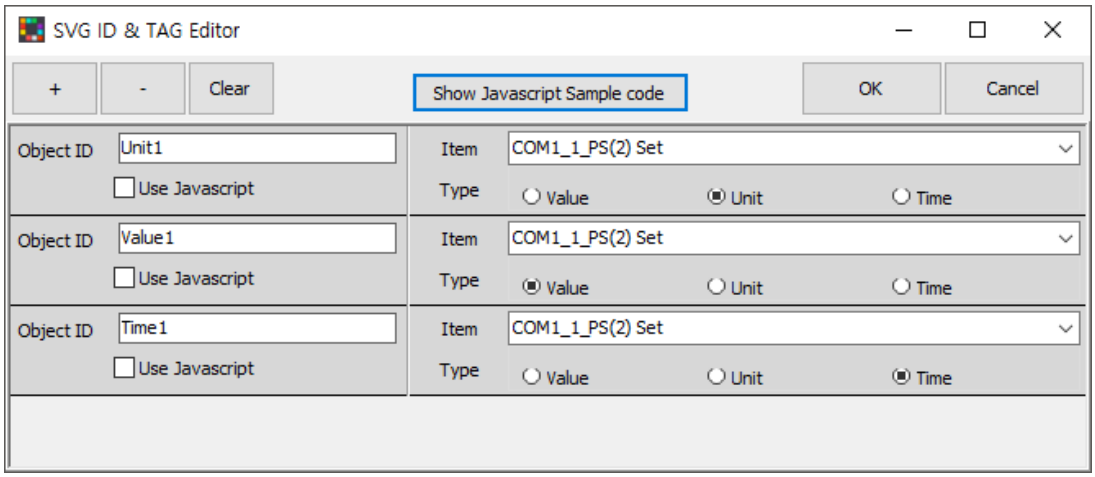
(3) SVG file

File name: Select registered SVG file list, preview it, and apply it to the “Panel”. Selected file path saved as a project file of each panel, but the SVG Panel does not display data if there are differences between save path and actual file path.

(4) TAG settings

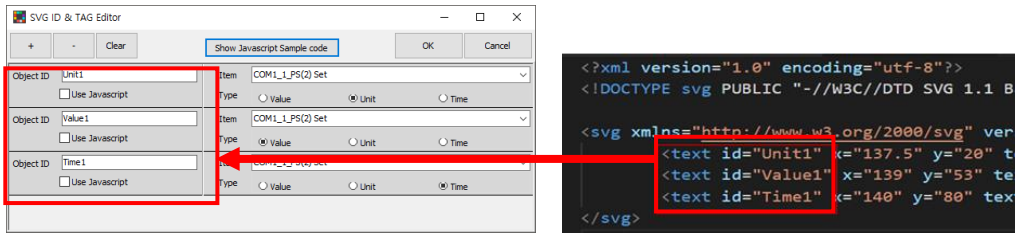
TAG setting is activated when 1 or more tag item of device is registered in “Vector View” mode.

Edit (OBJECT ID & TAG Editor): Mapping the information of text tag and device item is possible in the SVG file. After mapping is complete, refresh the screen as the information of the actual device item when connecting the communication. If delete the device tag item of registered panel, related mapping data is also deleted.



- + (Add): The item is created by base on “OBJECT ID”, and it is possible to connect to value of item
- - (Delete): The last added item is deleted.
- Clear (Delete all): All items are deleted.
- Interlocking SVG file

  1. Enter the text ID information in the SVG file to OBJECT ID in the “OBJECT ID & TAG Editor”.

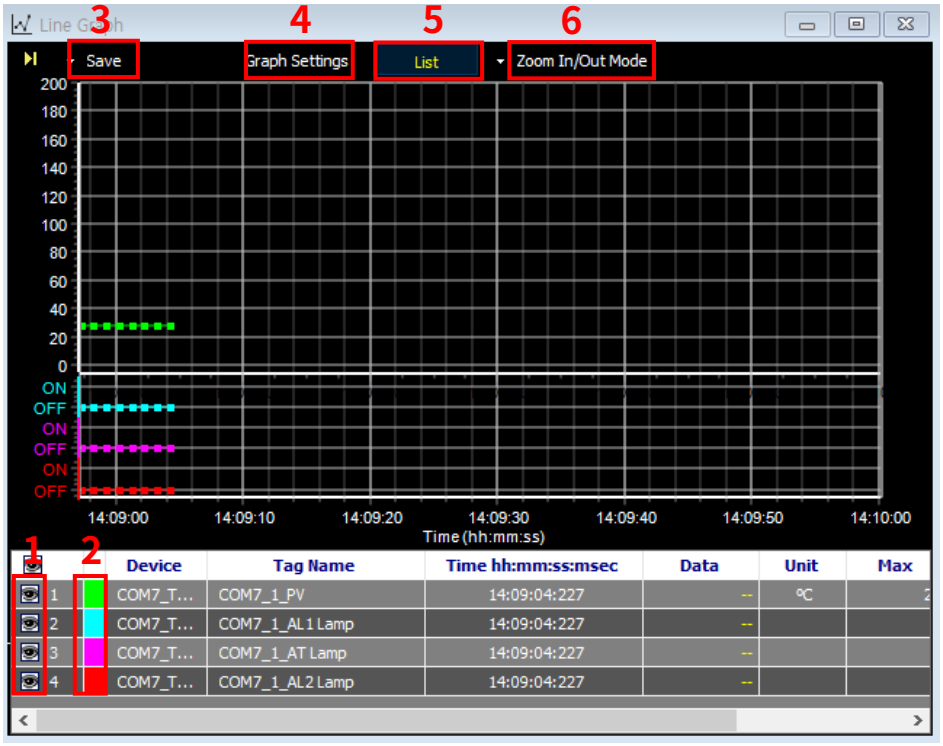


  2. Select the device tag item and type (Value, Unit and Time).

- Check the “Use JavaScript option”: Convert background color and DATA (information of Unit, Value, and Time) set by DAQMaster to JavaScript code.
- Show JavaScript Sample code: The item which “Use JavaScript option” is checked call the data of panel display internally through the specific JavaScript function. It is possible to deal with the data by referring to the sample code which contain the source information.

▪ Line Graph

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



- **I/O source list**

  Use the checkbox of "  " to show/hide the graph.

- **Change graph color**

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

- **Save image**

  Save image feature saves the current graph screen as an 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.

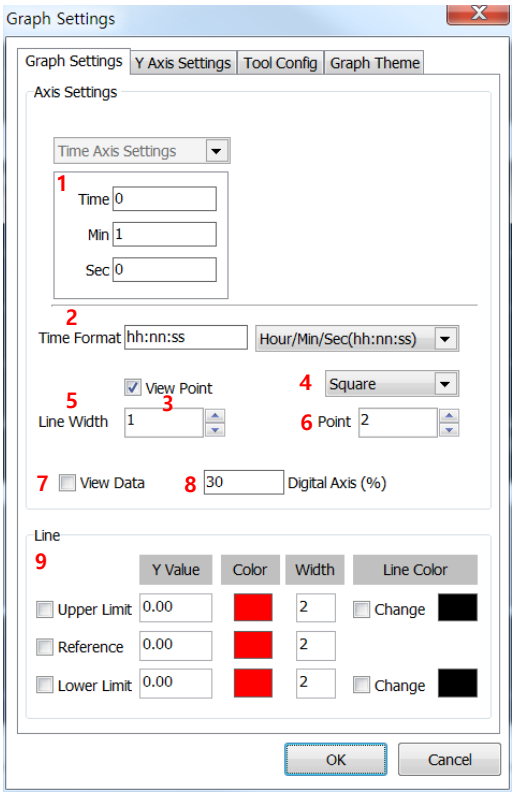
  · Save To Clipboard (MetaFile): To use this image file directly for other application program, saves in MetaFile (*.wmf) to clipboard.

  · Save CSV: Saves in CSV file(*.csv).

- **Graph settings**

  · Graph Settings tab

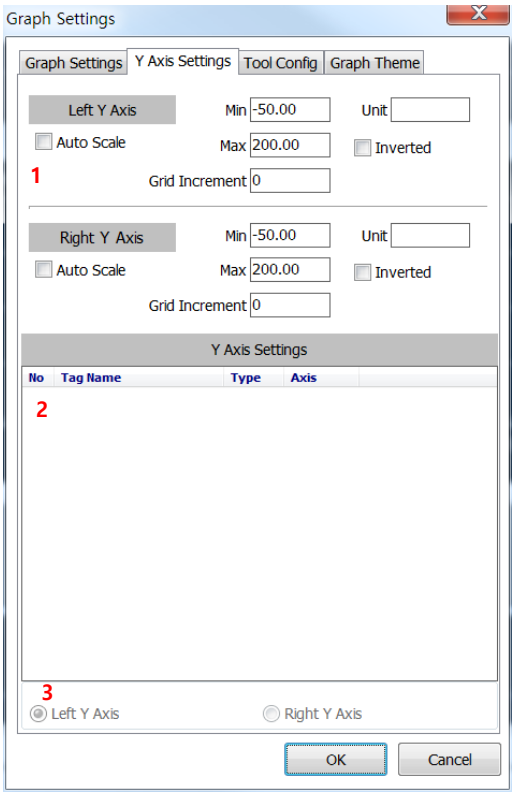
  Graph Settings allows you to change the general Graph environment.



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

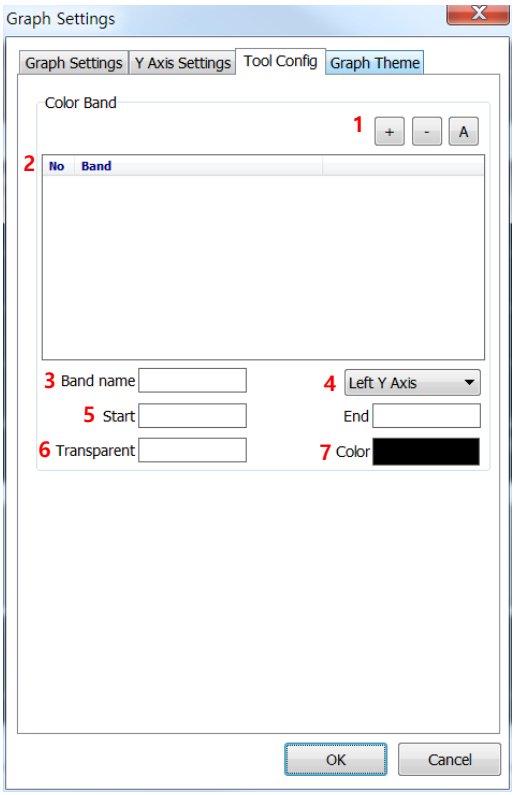
  Set Y axis direction and range of each tag.



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

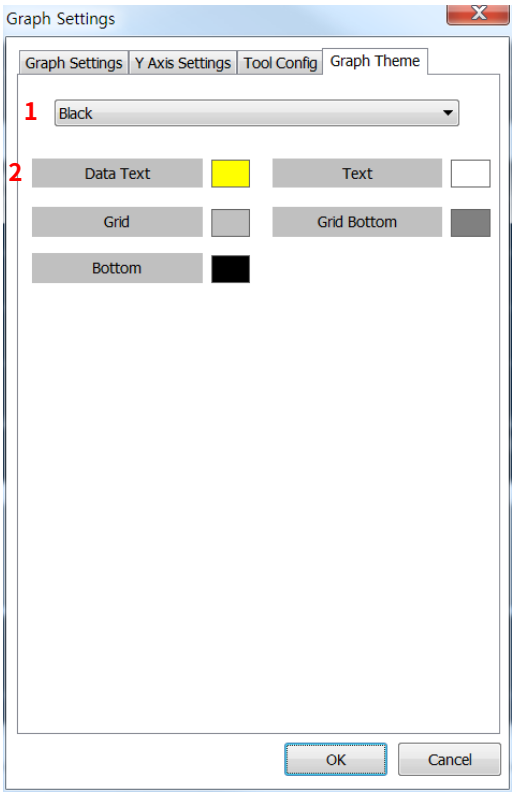
  You can set the color band to recognize and emphasize the desired range.

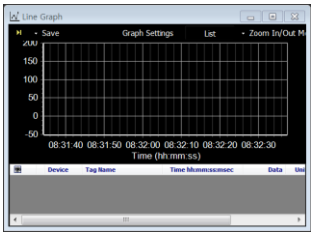
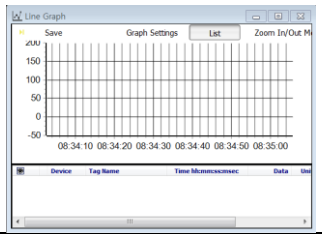


No	Item	Description
1	Add/Delete/Delete all	Adds/Deletes/Deletes all color band.
2	Band list	Displays the added color bands list.
3	Band name	Sets color band name.
4	Band standard	Sets Y axis (left/right) of color band standard.
5	Start/End range	Sets color band's start/end range.
6	Transparent	Sets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

- **List**

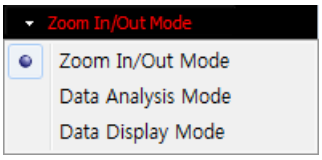
  List displays or hides I/O source list items at the bottom of the graph.

  Whenever click the List button, the graph screen switched between On and Off mode.

- **Graph display mode**

  - **Zoom In/Out Mode**

    Zoom controls Zoom In/Zoom Out of the graph.

    · Zoom In

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

    · Zoom Out

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

    · Change X/Y Axis

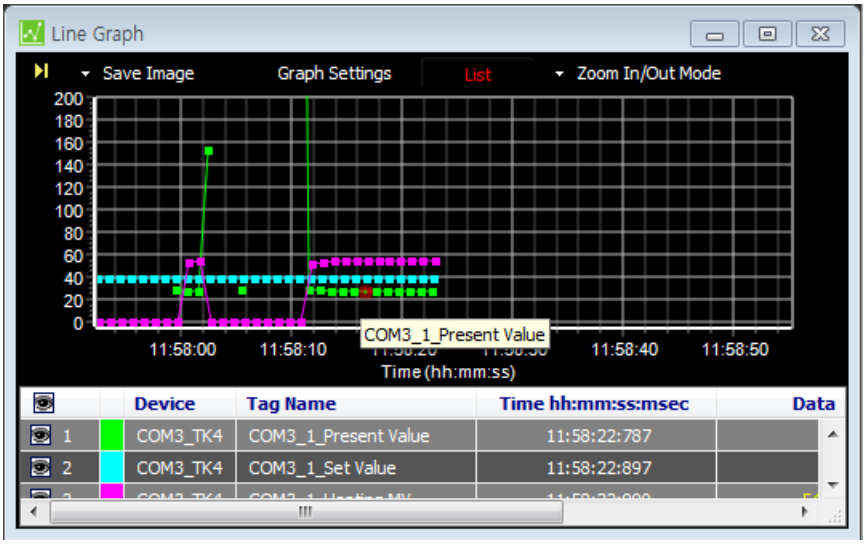
    On the graph, hold right mouse button and drag to change positions of X/Y axes.
    If the graph is enlarged or X/Y axes positions have changed, X axis does not automatically move when data has updated.
    The program preserves user-changed graph scale and axes positions. It considers this as graph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

    · Mouse wheel functions

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

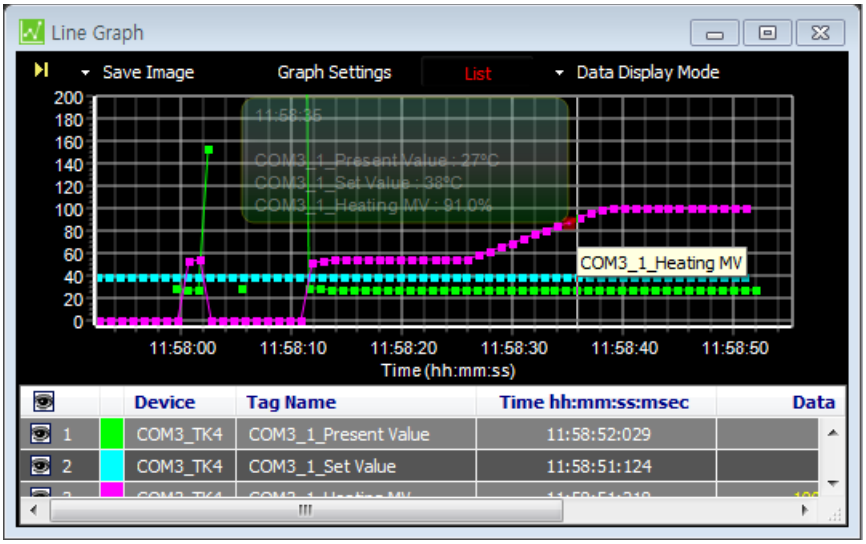
- **Data Analysis Mode**

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



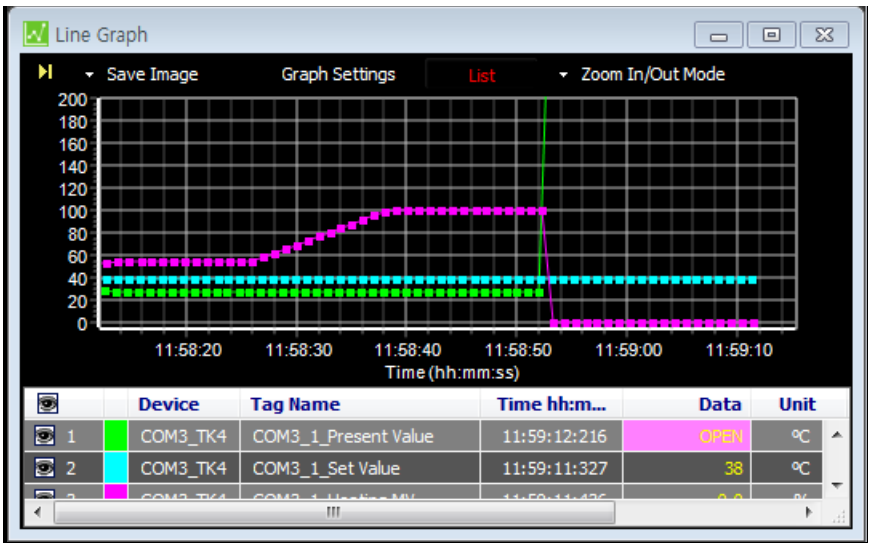
- **Data Display Mode**

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



Note

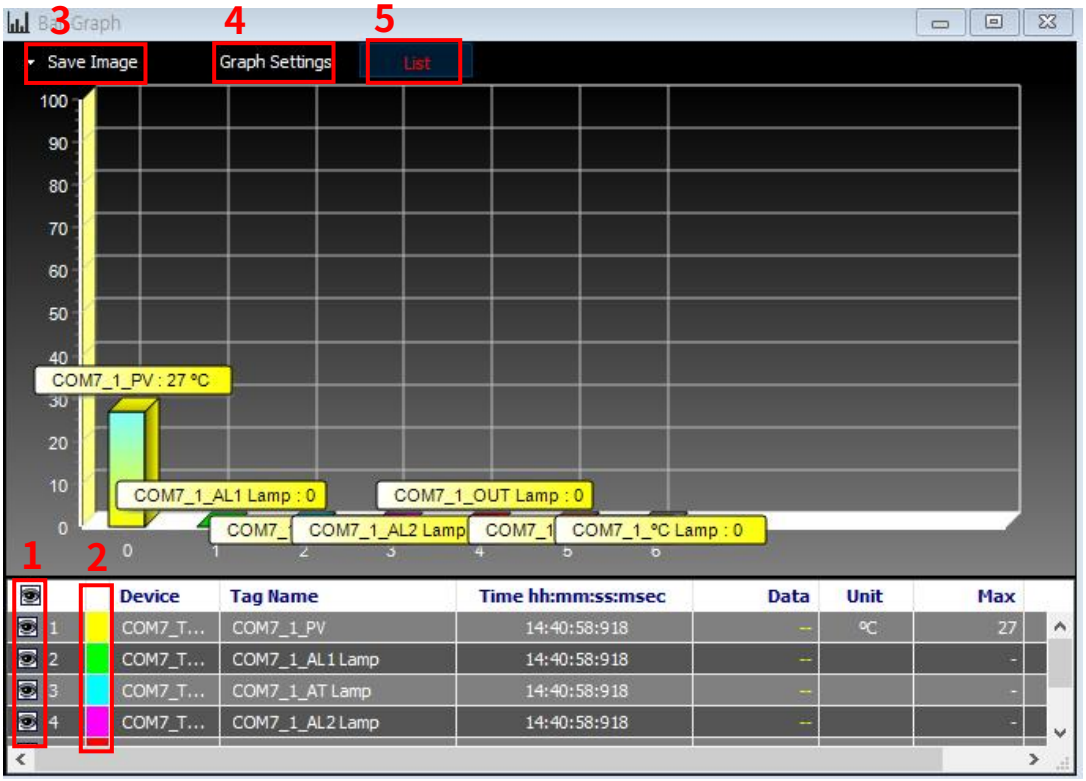
If any parameter value causes an alarm (refer to the manual of the device), it flashes as below.



- **Bar Graph**

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

Added I/O source list items are displayed at the bottom of the graph.



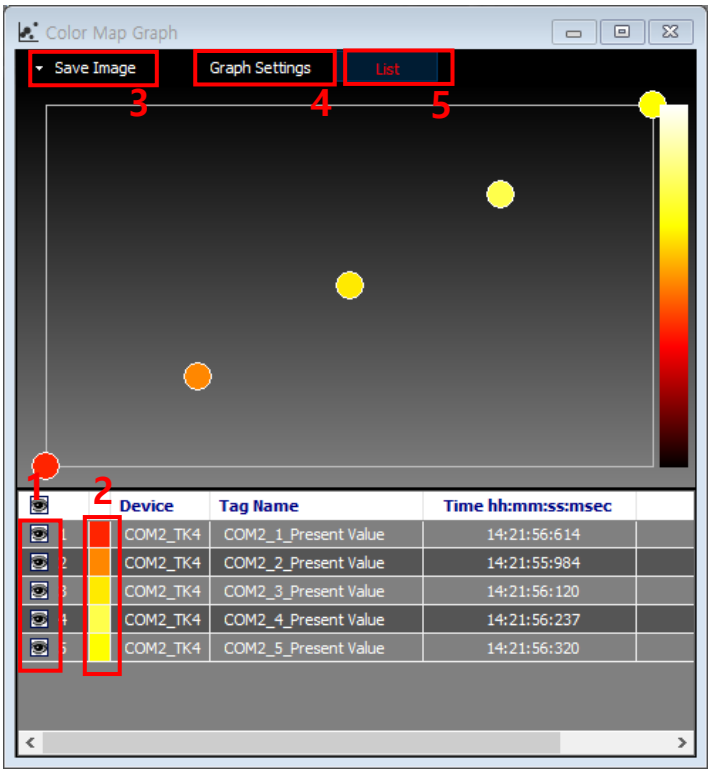
No	Item	Description
1	I/O source list	Use the checkbox of “ ” to show/hide the graph of each I/O source.
2	Change graph color	To change the color of each I/O source, double-click the color in front of the device.
3	Save image	Save Image feature saves the current graph screen as an image. Save Image dialog 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.

4	Graph settings	Graph Settings allows you to change the general Graph environment.  • Axis Set: Sets the range of Min. and Max. values of the X/Y axes. • Origin: Sets the start value of bar's Y Axis. • 3D View: Sets the display status of the bar. • Bar Style: Sets the horizontal and vertical styles of the bar.
5	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.

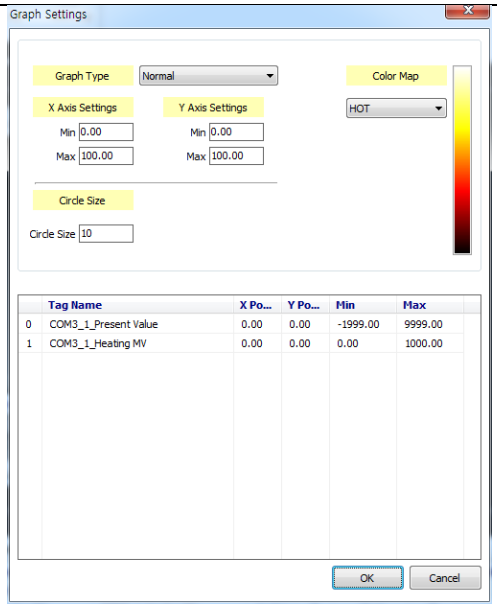
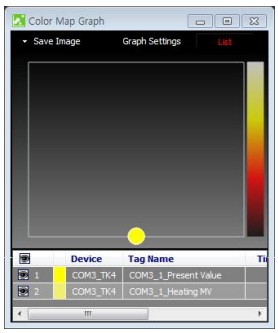
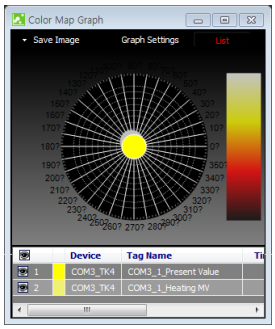
▪ Color Map Graph

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.



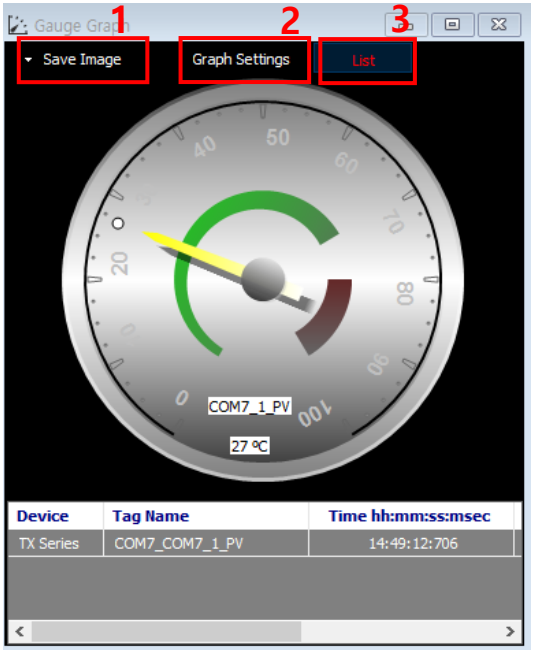
No	Item	Description
1	I/O source list	Use the checkbox of "  " to show/hide the graph of each I/O source.
2	Display graph color	Displays the color of the graph according to the value.
3	Save image	Save Image feature saves the current graph screen as an image. Save Image dialog appears when Save Image 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.
4	Graph settings	Graph Settings allows you to change the general Graph environment.

		 • Graph Type ・Normal  ・Polar  • X/ Y Axes set: Sets max./min. value of X/Y axes range. • Circle size: Sets displayed circle size. • 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. • Color Map: Sets color map. Color map supports HSV, JET, HOT, COOL, and GRAY mode.
5	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.

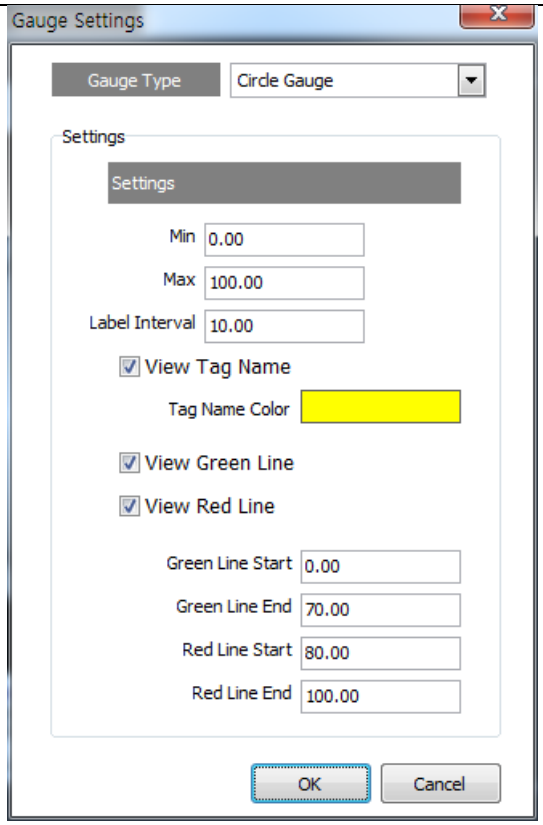
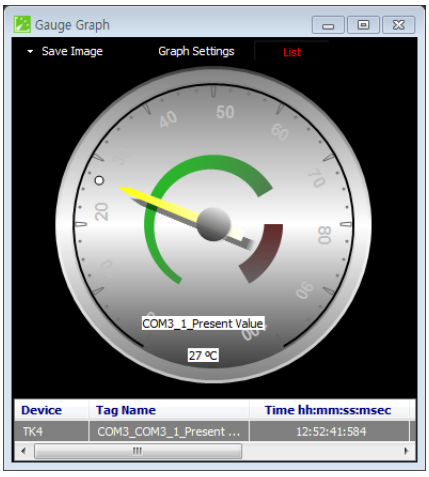
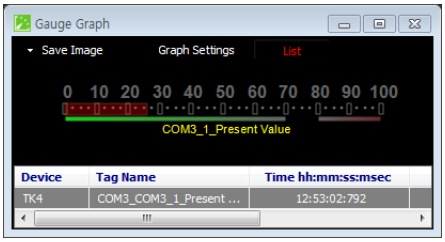
- **Gauge Graph**

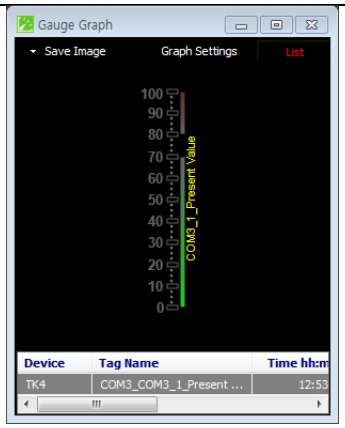
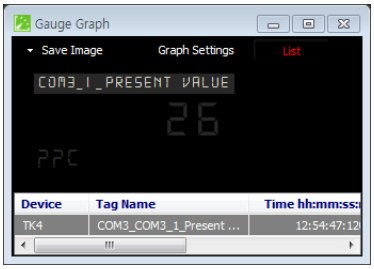
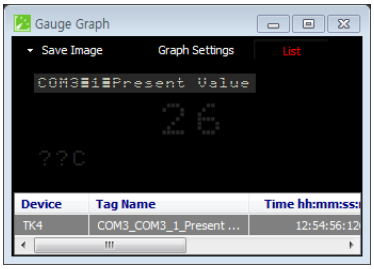
A Gauge Graph can display only one I/O source.

One Gauge Graph represents the only one I/O source.



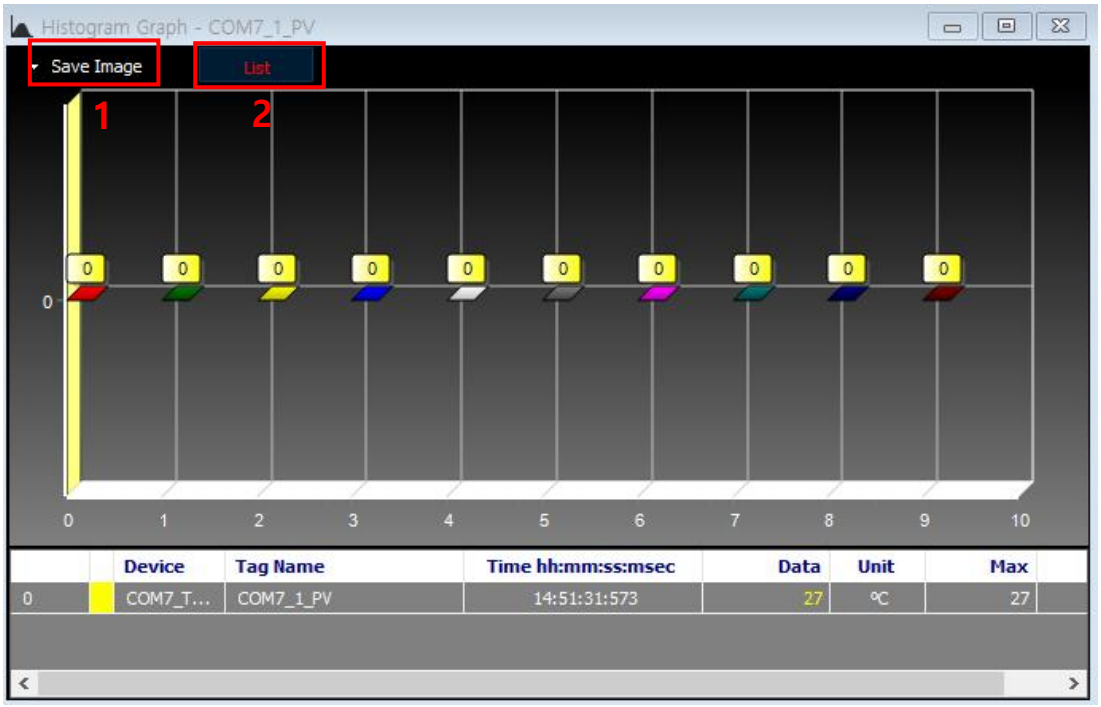
No	Item	Description
1	Save image	Save Image feature saves the current graph screen as an image. Save Image dialog appears when Save Image button is clicked. Images can be saved in “*.bmp”, or “*.wmf” format. • Save To File: Saves in Bitmap (*.bmp) or Windows metafile (*.wmf). • Save To Clipboard (Bitmap): 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	 • Gauge Type: Sets gauge graph type. ・Circle Gauge  ・Horizontal Liner  ・Vertical Linear

		 ・Numeric Gauge  ・LED Gauge  • Minimum, Maximum, Label Interval: Sets minimum/maximum value and label interval displayed on graph. • TagName Visible: Sets display and color option of tagname. • Green/Red Line Visible: Sets display option of green/red line in graph. • Green/Red Line Setting: Sets start/end value of green/red line.
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.

- **Histogram graph**

It divides 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.



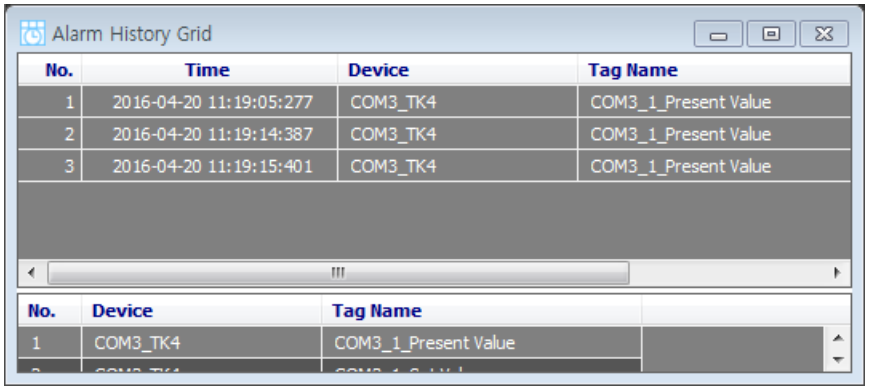
No	Item	Description
1	Save image	Save Image feature saves the current graph screen as an image. Save Image dialog appears when Save Image button is clicked. Images can be saved in “*.bmp”, or “*.wmf” format. • Save To File: Saves in Bitmap (*.bmp) or Windows metafile (*.wmf). • Save To Clipboard (Bitmap): 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	displays or hides the I/O source list at the bottom of the graph. Clicking the List button toggles item display on and off.

5.8.2 Alarm

▪ Alarm History Grid

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

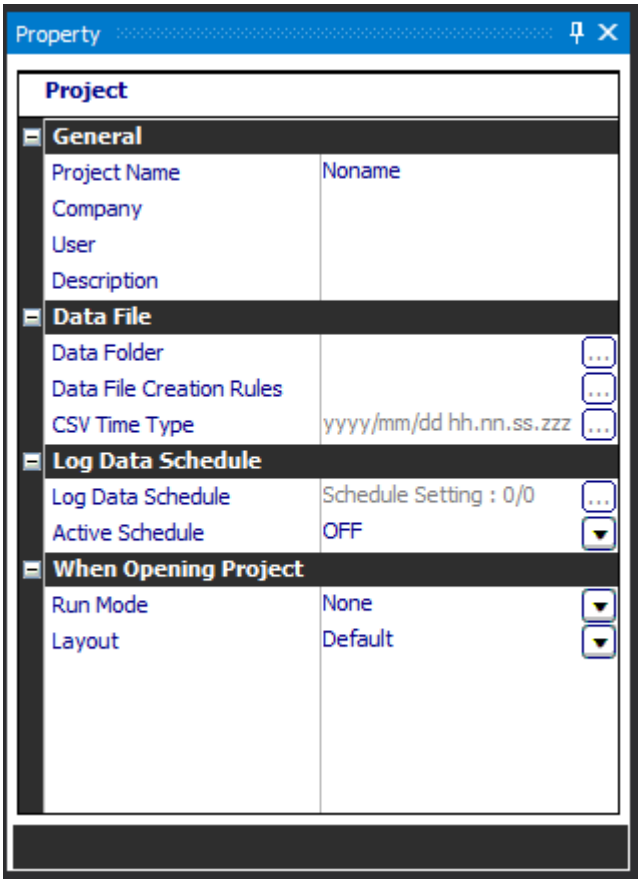
Whenever an alarm occurs in Run status, the alarm list is updated directly.



5.9 Property

5.9.1 In Project

After click the project name (default: noname) in the “Project” control panel, can change the values of parameter in the “Property” control panel.



- **General**

  It is possible to describe the basic project information such as project name, company name, worker and other descriptions.

- **Data File**

  It is possible to set the value of the path of “Data Folder”, “Data File Creation Rules”, and “CSV Time Type”.

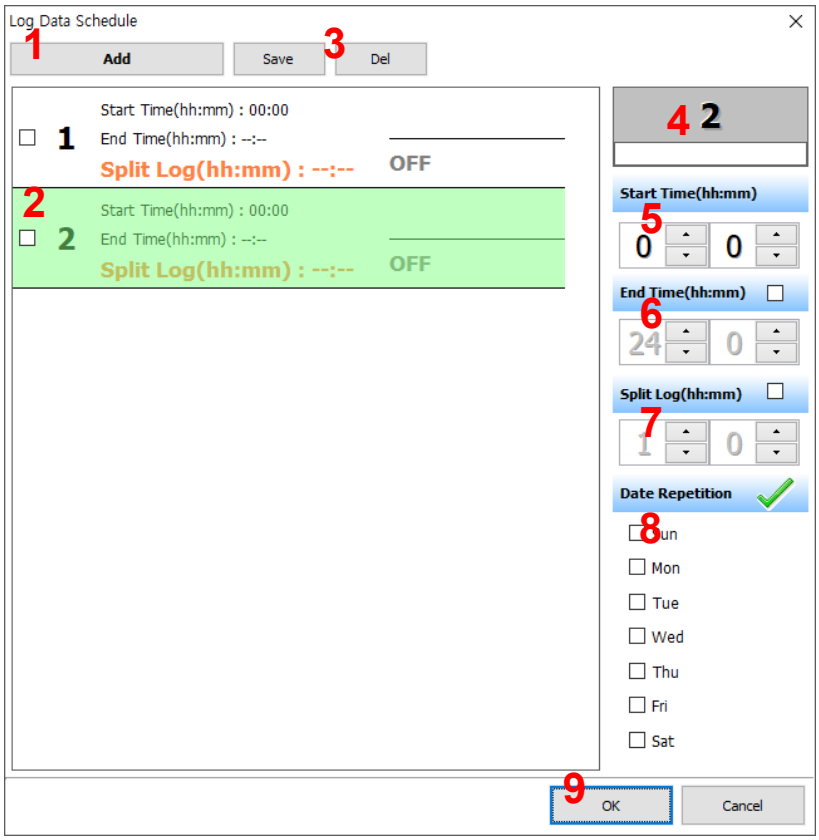
  Log data files are saved in *.csv or *.ddf file format.

  - Data Folder: Sets the path of the folder that project data is saved.
  - “Data File Creation Rules: Sets the rules of making file name, format and path of the folder.
  - CSV Time Type: Sets the form of time to be recorded in the log data.

▪ Log Data Schedule

Saves log data at the scheduled time automatically.

- Log Data Schedule: Sets time of log data to be saved.



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 the ③. “Delete” button.
3	Saves or deletes the set items.
4	Sets log data name. After select the data schedule item and enter the desired data name. The file name of data file creation rule is displayed next to the data name.
5	Sets start time.
6	Sets end time.
7	Sets split save time. In case of setting 1 hour 30 minutes, it saves the file for 1 hour 30 min. and creates another file to save.
8	Sets repetition day of week.
9	Saves log data schedule items.

- Active Schedule: Sets whether to activate log data schedule.

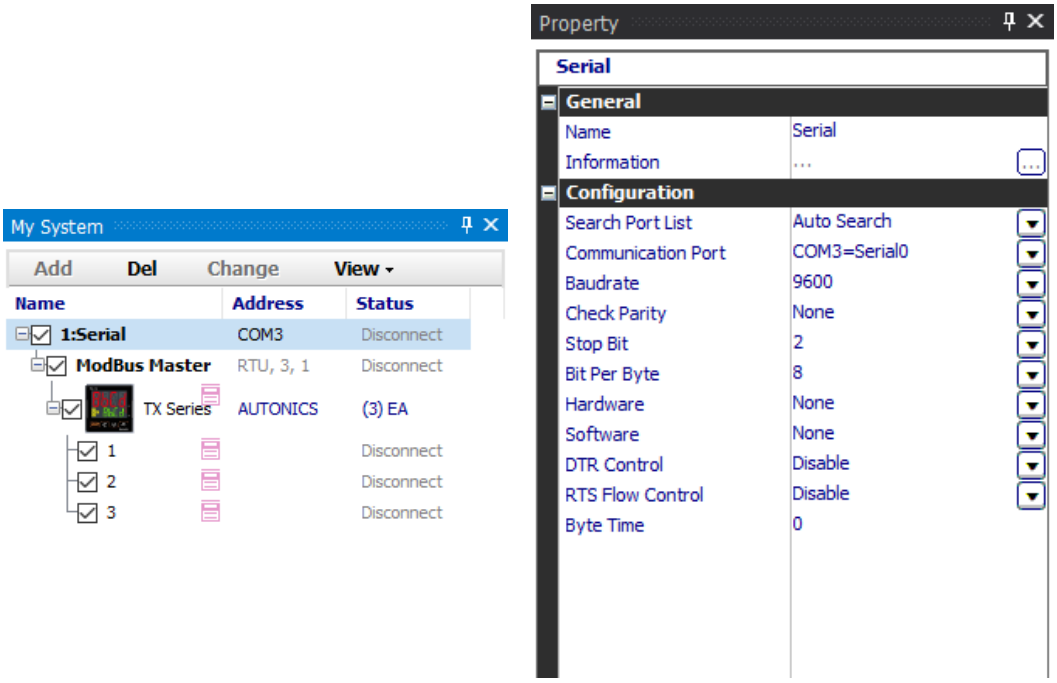
▪ **When Opening Project**

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

5.9.2 In My System

- **Serial**

It is possible to change the Serial related settings. Click Serial in “My System” control panel and check the “Property” control panel.

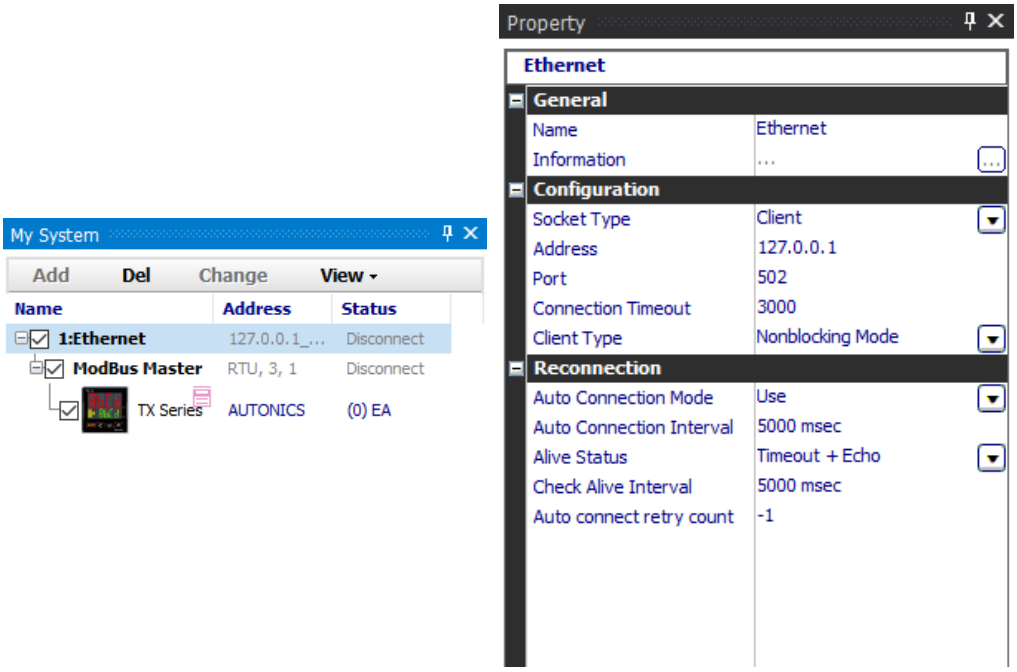


The “Property” control panel displays the information about the communication port currently in use.

Item		Description
Search Port List	Fix Init List	Loads communication port list of computer at the time when Serial is added, saves it to the port list and then fixes it.
	Auto Search	Rearranges the port list automatically when it is changed.
Communication Port		Shows available COM Ports and can select it. Set the connected COM Port.
Baud rate		1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200bps
Check Parity		Selects the parity bit for communication. (none, odd, even, mark, space)
Stop Bit		Selects the stop bit for communication. (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
Byte Time		Sets transfer interval of packet per byte.

- **Ethernet**

Sets Ethernet protocol for communication. Select the Ethernet in “My System” and check “Property” control panel.



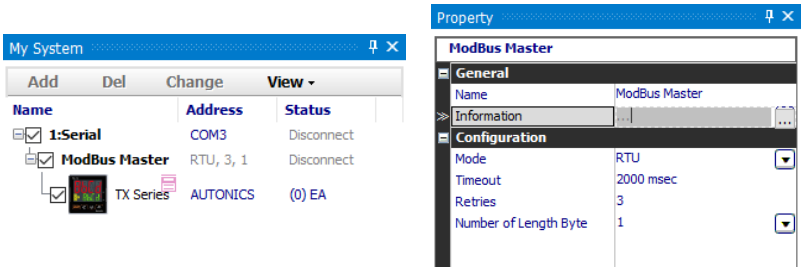
“Property” control panel displays information about the communication port currently in use. The name that is displayed in “Property” control panel can be modified by clicking “Name” in “Property” control panel

Refer to the following table to check the “Configuration” items.

Item		Description
Socket Type	Client	Sets as Client Mode.
	Server	Sets as Server mode.
Address		Enters the designated IP Address from the main device.
Port		Sets port number.
Connection Timeout		Sets the time of the timeout for connection.
Client Type	Non-Blocking	Progresses next transmission without the response.
	Blocking	Progresses next transmission after receiving response.
Auto Connection Mode	Use	Attempts to reconnect when Ethernet is disconnected or connection failure occurred for the first time.
	Not Used	Not use auto connection mode.
Auto Reconnection Interval		Sets interval time of Auto Reconnection.
Alive Status		Attempts to reconnect after receiving the error massage (Timeout, Echo) from Ethernet Server without disconnection.
Check Alive Interval		Sets check cycle of the Alive status.
Auto connect retry count		Sets the number of retries for Auto connection.

▪ Modbus Master

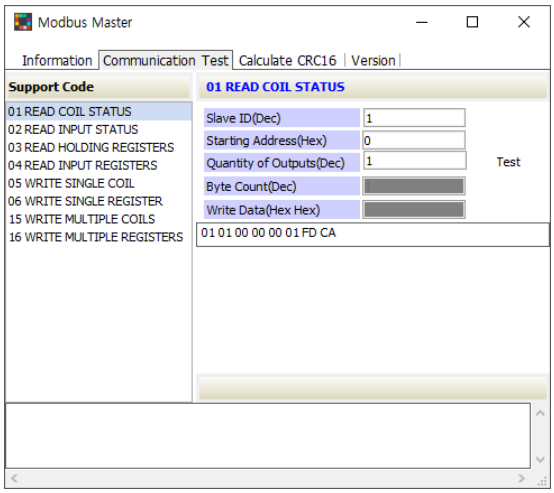
Can change protocol related setting for ModBus. After selecting “ModBus Master” and clicking “[…]” of the “Property” control panel, “ModBus Master” window is opened.



- ModBus Master Communication Test

  Conducts the test to check whether the communication is normal.

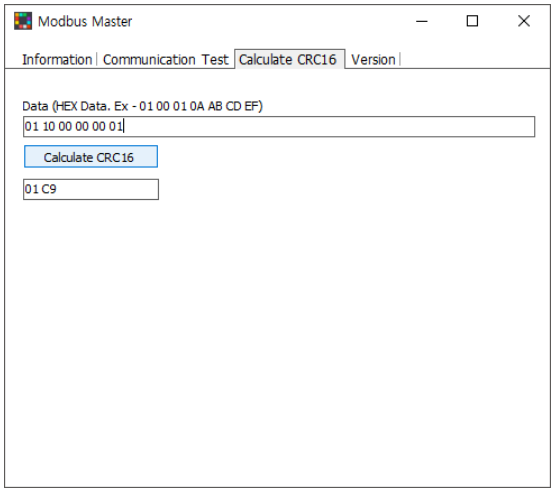
  Enter the “Communication Test” tab, and click [Test] button to execute communication test.



- Calculate CRC16

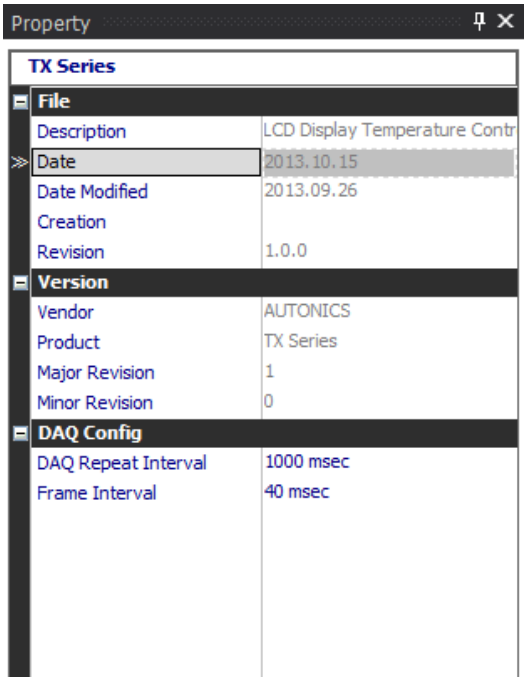
  Verifies the protocol by CRC16.

  Input the Hex data to “Data” section and click [Calculate CRC16] to convert CRC16 data.



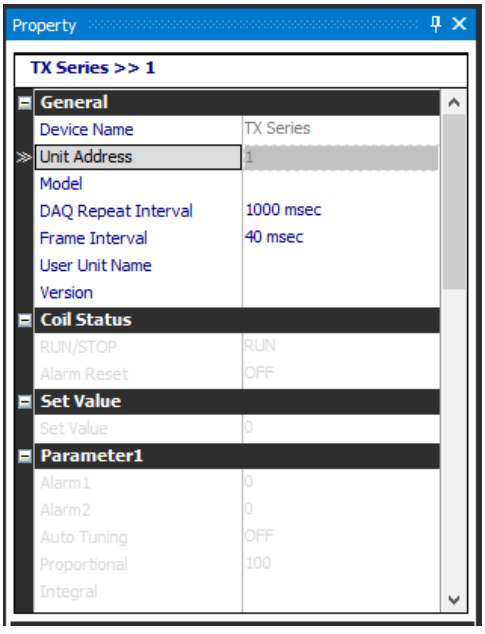
- **Device (TX Series)**

  Click the device name (TX Series) in “Name” of “My System” control panel to see basic device information in “Property” control panel.



- **Address**

  Click the connected address number in “My System” control panel to see detailed device information.



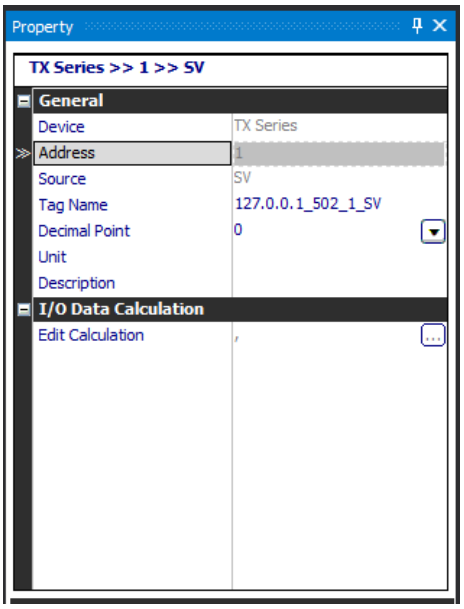
Note

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

For the information about reading parameters, refer to “5.10.2 Connect“.

5.9.3 In DAQ List

If you select items in “DAQ List” that were added from “I/O List”, “Property” control panel displays item information, I/O Data calculation and Trigger setting.



- **General**

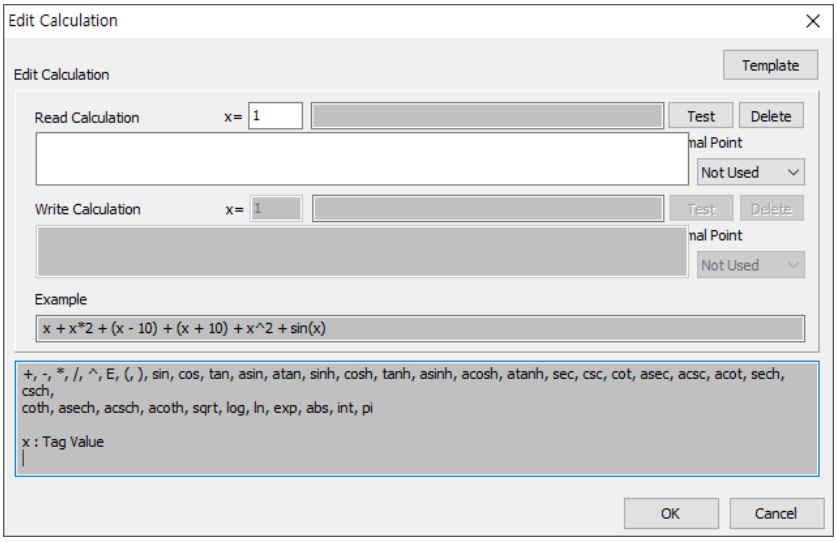
  You can also change Tag Name, Decimal Point, Unit, and Script variables in General properties and edit Tag value formulas in I/O Data Calculation.

- **I/O Data Calculation**

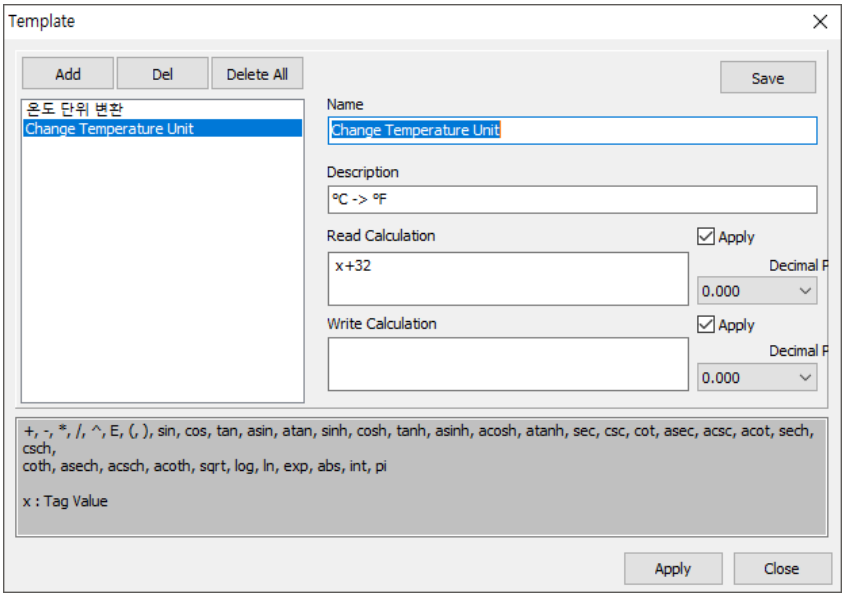
  You can get the calculated data by editing formula. “x” is input or output tag value from the device.

1st Click [...] button next to “Edit Calculation” to open “Edit Calculation” window.

2nd Click “Templete” at the top-right of the “Edit Calculation” window to edit and save. It is useful to apply read/write calculation directly.



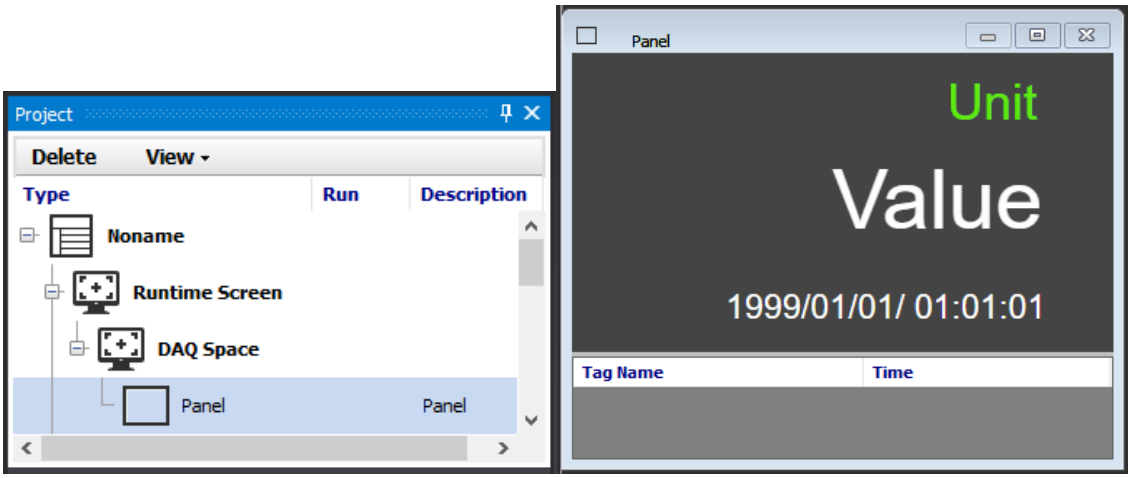
3rd Enter the desired formular and click the “Save” and “Apply”. The saved template is applied the “Edit Calculation” dialog box.



4th This function displays the value on DAQMaster or enter the value to device which is calculated from x. the calcuated output value at DAQMaster or enter a value.

5.9.4 In RunTime Screen

Select the items of RunTime screen in the “DAQSpace” or “Project” control panel, to change the value of basic parameters in the “Property” control panel.



The property parameters have a different option per each item.

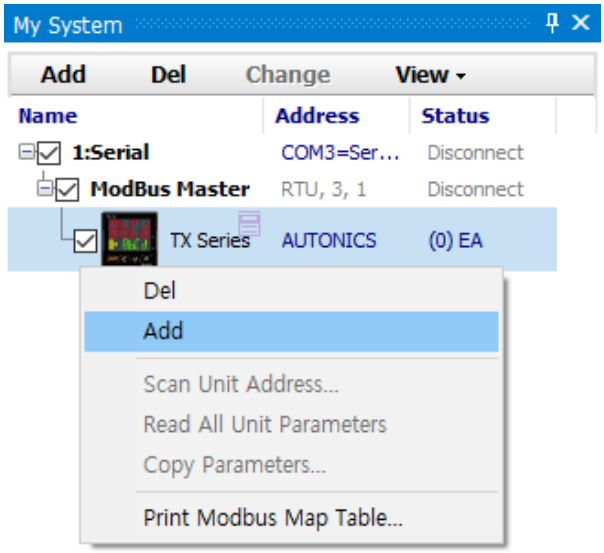
5.10 Add, Connect, Run, Log

5.10.1 Add

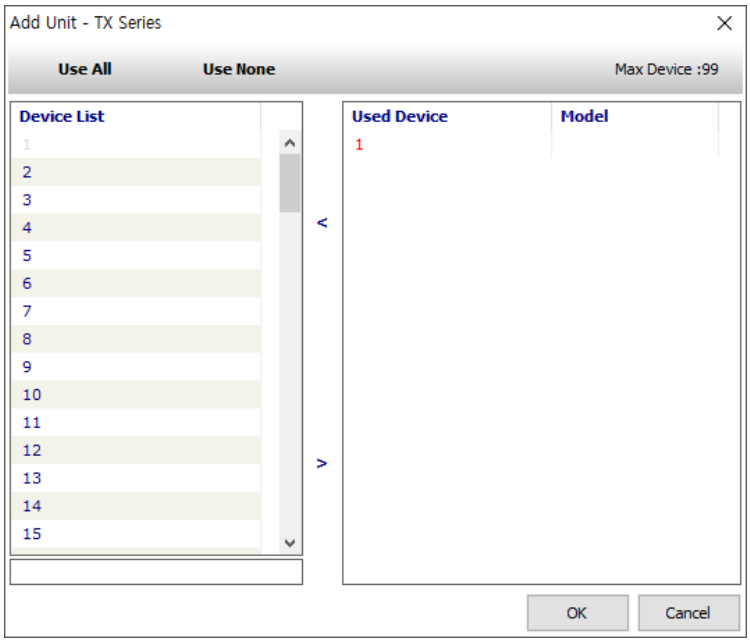
- **Adding a Unit to My System**

This is used to connect few of devices or when you know the address number of each unit.

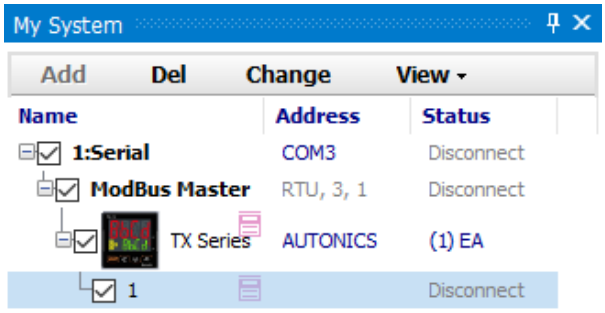
1st When selecting the device name in “My System” control panel, [Add] button is enabled. To add a unit (address), click the [Add] button in upper menu, or right-click the device name and select [Add].



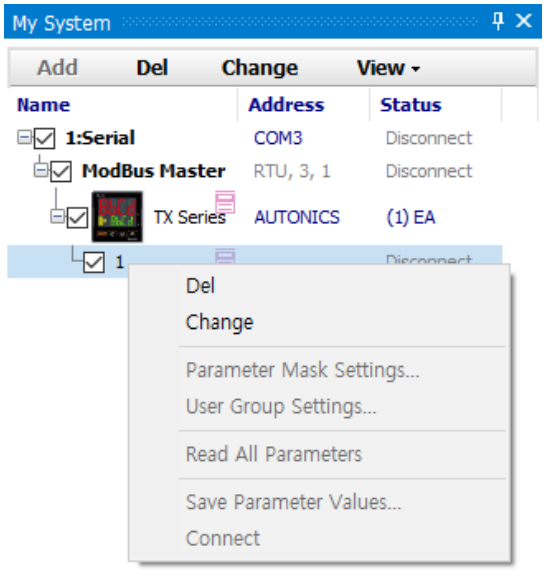
2nd Select address number, Double-click or use [>] button to add, and click [OK] button.



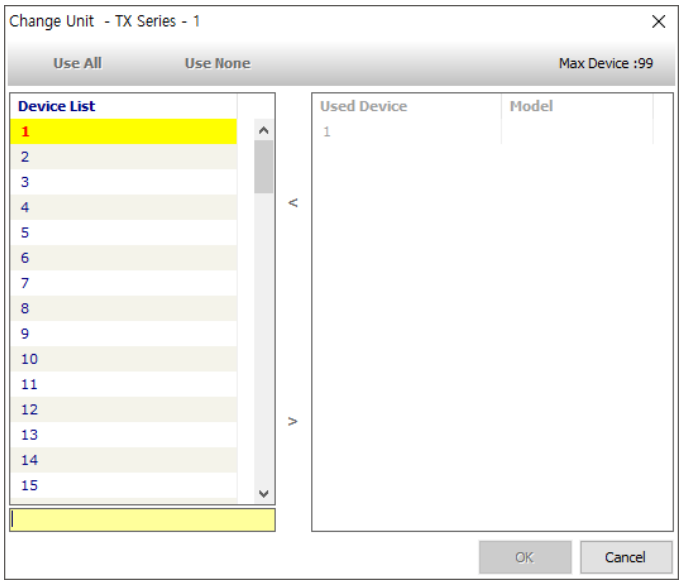
3rd You can see the unit (address: 1) added under the device in My System after click [OK] button. If you want to add multiple devices, click [Add] button. (Up to 99 devices can be added.)



4th When selecting the unit address (1) activates [Change] button, click the [Change] button on menu or right-click and select “Change”.To change the unit address,



5th If you click [Change] button, the current address (1) highlights in yellow. Select a new address and click [OK] to change the unit address.



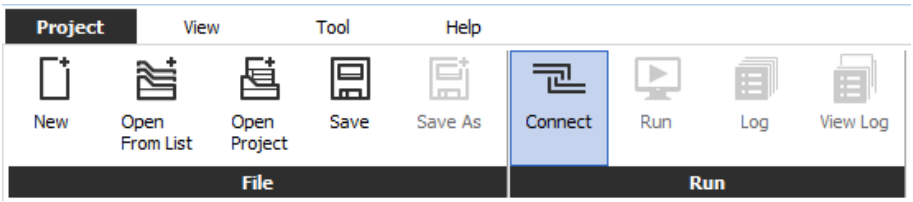
Note

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

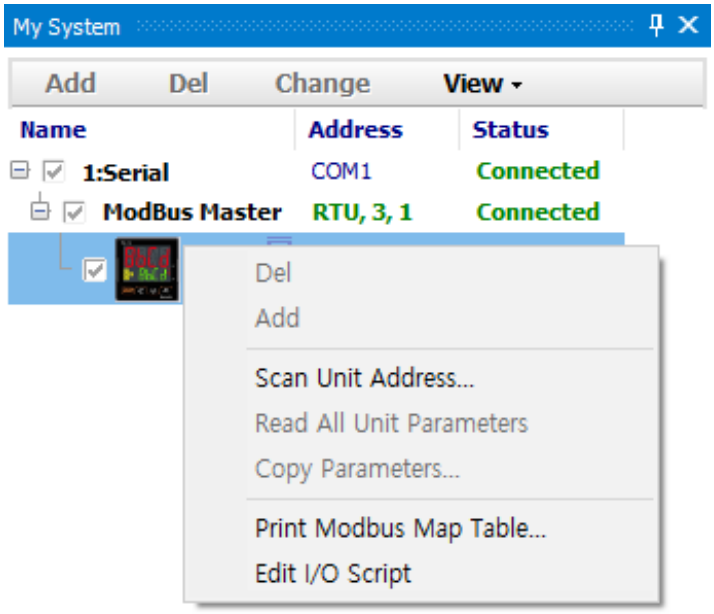
- **Scan Unit**

  “Scan Unit” features scanning multiple connected device units or adding the units you does not know the address number per each unit.

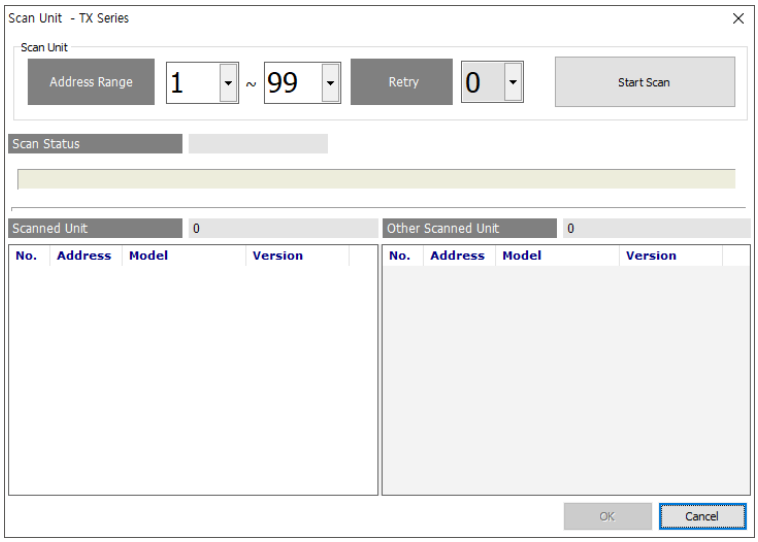
1st Click [Connect] button on the “Project – Run” menu to connect.



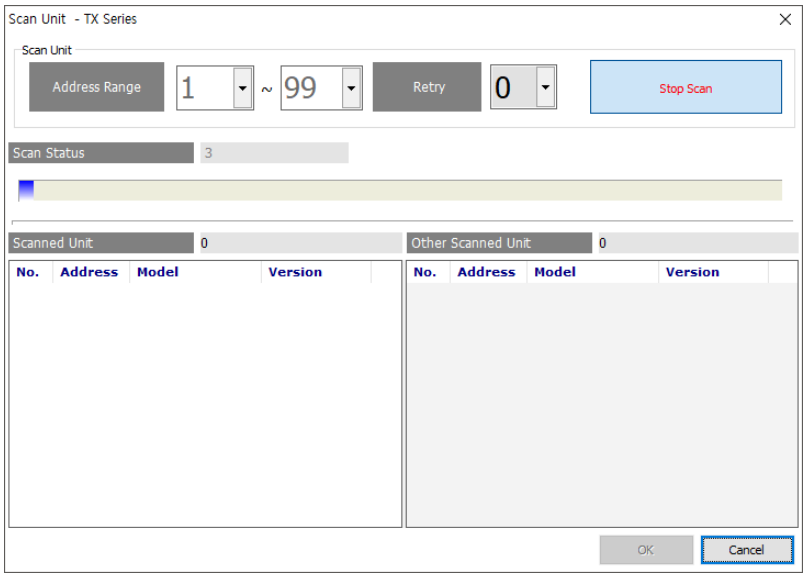
2nd Right-click the series name (ex. TX Series) in “My System” control panel and click the “Scan Unit Address”.



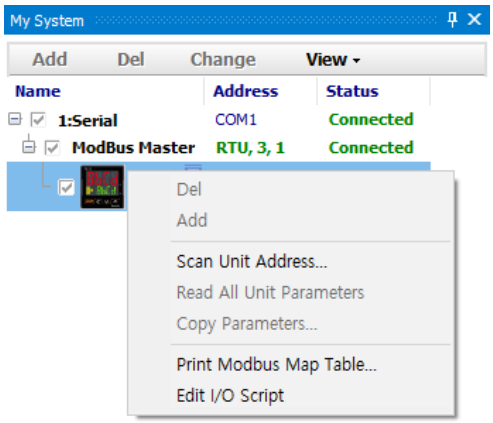
3rd When “Scan Unit” window pops up, click [Start Scan] to start.



4th All desired units are listed in the window, click [Stop Scan] to stop scanning and select the Unit. Click [OK] button to add it to the “My System”.

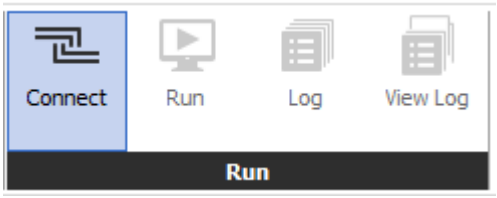


5th If “Status” rows are marked as “Connected” in “My System” control panel, the connection status is normal. Click [Disconnect] to disconnect, and go on the settings.



5.10.2 Connect

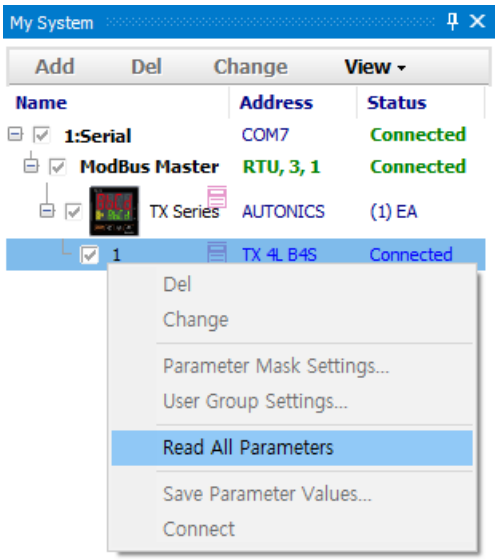
If click the [Connect] button on the “Project - Run” menu, DAQMaster attempt to connect to the device unit that added in my system. Checking the connection status in My System is available. If the connection is successful, Status displays “Connected”.

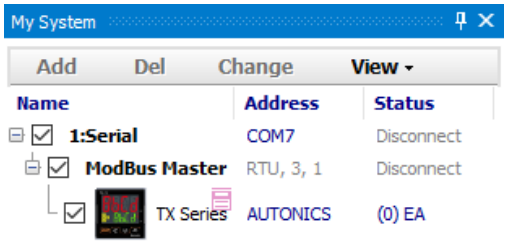


- Parameter setting

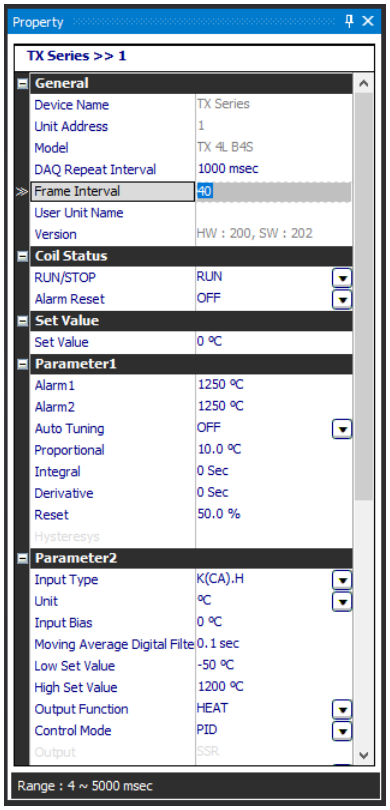
  To edit a parameter of a connected unit in DAQMaster, it is needed to load parameters of the connected unit.

1st Select “Unit address number” in “My System” control panel and then right-click it to execute the “Read All Parameters”.





2nd When the reading is completed, the “Property” control panel displays the parameters. Checking and changing parameter is also available.



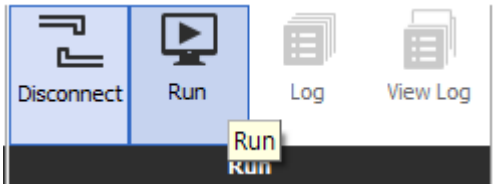
- If you only want to monitor parameter without editing, click [Run] button on “Project – Run” menu.
- When parameter values are changed in the “Property” control panel, changed values are immediately applied through communication with the device.
- During a parameter value change, all property values are displayed in gray (not modifiable). After changing, they are restored to the original color.
- To apply the changed value, change the value and press Enter key (for edit type), or select an item with the mouse or the Alt + arrow keys, and press enter (for list type).
- If a unit or a range related parameter is changed, all the parameters related to both are changed.
- If an out-of-range value is entered, the input is ignored and the value is restored to the original. The range is displayed at the bottom of the “Property” control panel.
- The input format fixed parameter is only editable in the format.
- Values of parameters in “Disable” status are not displayed and the item names are grayed out.
- In Reading mode, name and value of parameters are grayed out.
- The language of the parameters is not changed regardless of the selected language when installing the program.

5.10.3 Run

Starts real-time monitoring between the DAQMaster and unit device through the communication.

- **Run**

  Click the [Run] button on the “Project – Run” menu in “Connect” status between the DAQMaster and unit device.



- **Switch to the monitoring screen**

  Click [Runtime] button on the “View – Layout” menu.

  Switch to the monitoring mode based on the Runtime screen and the size of windows is minimized except for the upper menu.

※ To open the minimized window, click each window in [Tool] button on the “View-Tool” menu or click [Default] button on the “View – Layout” menu to restore default.

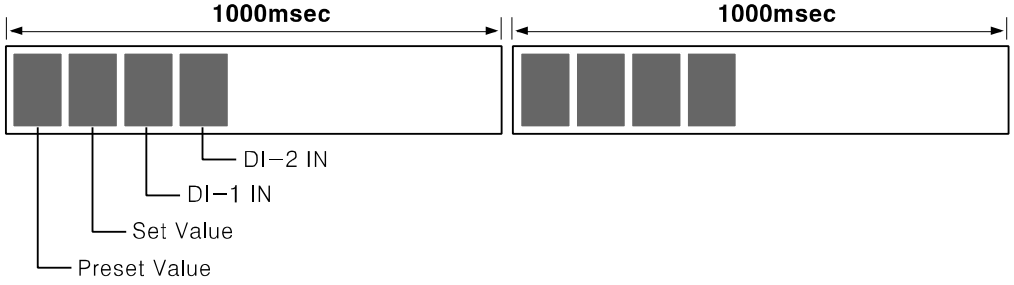
Note

- **Setting a reading repetition of the unit (DAQ Repeat Interval)**

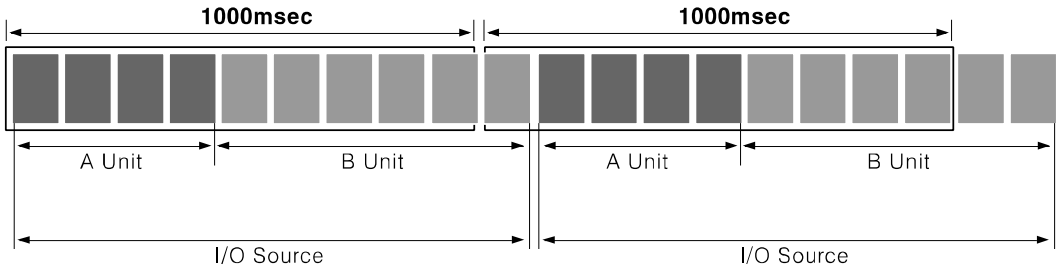
  Click the connected “Address number” in the “Name” row of “My System” control panel, and set “DAQ Repeat Interval” under “General” in “Property” control panel.

  It is a reading repetition time of the I/O source from connected unit in “Run” status. The default value is 1000 msec.

  If four I/O sources are added to DAQ List, the program receives 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 base on the 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 has the minimum interval instead of “DAQ Repeat Interval” set value.

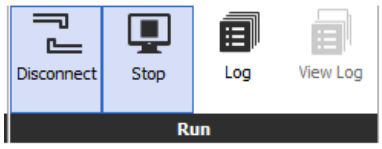
As a result, if actual I/O data reading time exceeds the set “DAQ Repeat Interval” set value(time), the program and the units communicate on the minimum time interval required to read all I/O sources.

If the environment requires a precise set value and rapid repetition interval, add Serial port(s) and split the device connection.

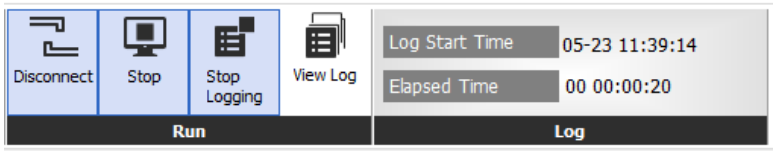
5.10.4 Log

Saves communication data between DAQMaster and the device to the user-defined file.

1st When the status is “Run”, the [Log] button is activated on the upper menu.



2nd If you start logging, log start time and elapsed time are displayed on the right side.



3rd If you click [Stop Logging], saving file is available. Files are saved as DAQ Data File (*.ddf) and CSV File (*.csv) format.

4th If you click [View Log], the data analysis program is activated.

※ For the information about data analysis program, refer to “8.1 Data Analysis“.

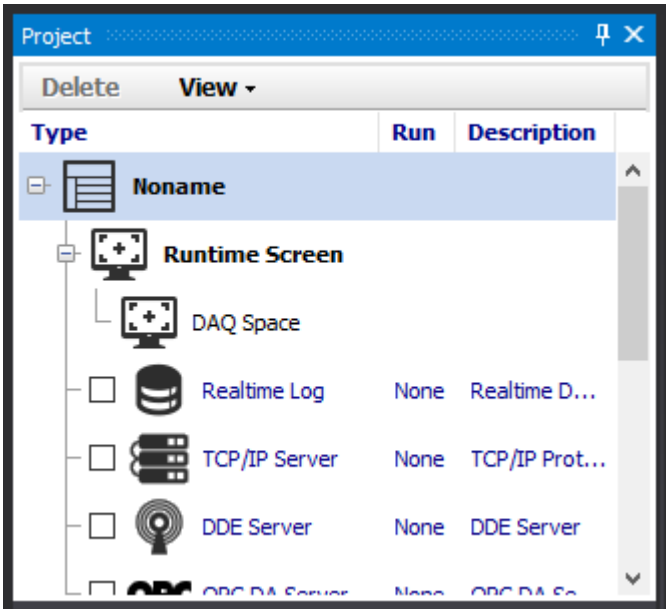
5.11 Save and Open Project

5.11.1 Save

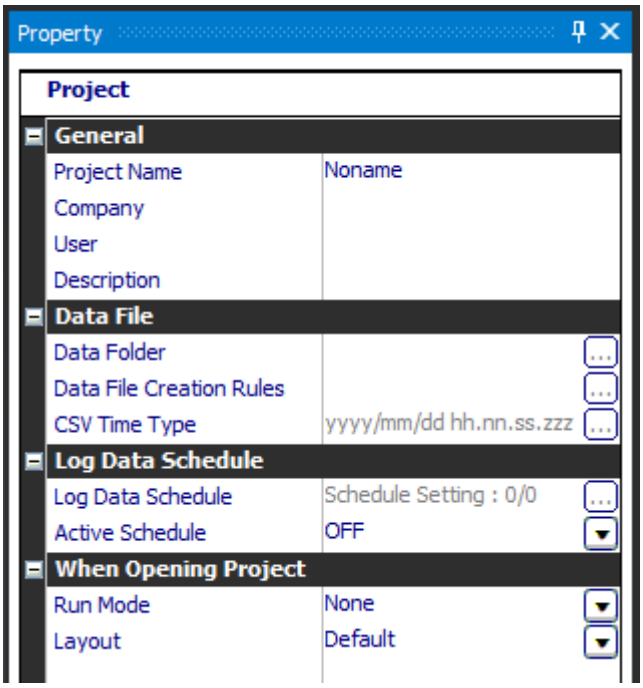
Saves the project on monitoring.

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

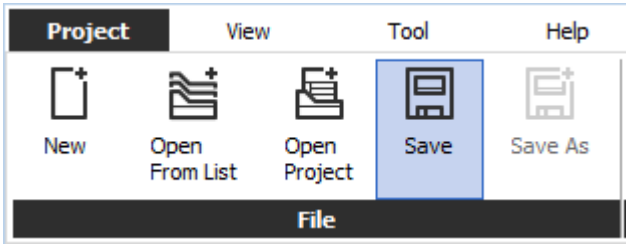
1st Select “Project name” (default: nonname) at the top of the project tree.



2nd In the “Property” control panel, you can edit the basic project information.



3rd Click [Save] button in the “Project - File” menu and save the project in the desired location.



5.11.2 Open Project

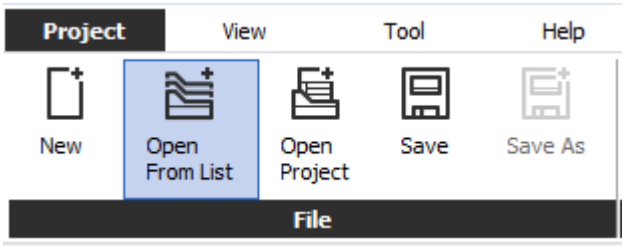
Opens a saved file.

There are two ways to open a project, “Open Project” and “Open From List”. It is possible to open a project when communication is not connected.

- **Open project**

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

  Click [Open] button in the “Project - File” menu and select a file.

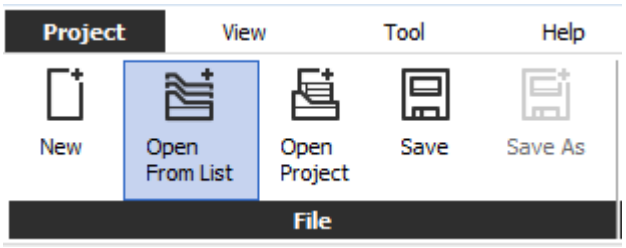


- **Open From List**

  It is used to open a file from a list of frequently used projects.

  “Project List” control panel opens by clicking [Open From List] button in the “Project - File” menu.

  Select the desired project name in the “Project List” control panel.



Note

For more information about “Project List”, refer to “5.3 Project List“.

5.12 Program Language

5.12.1 Change Language

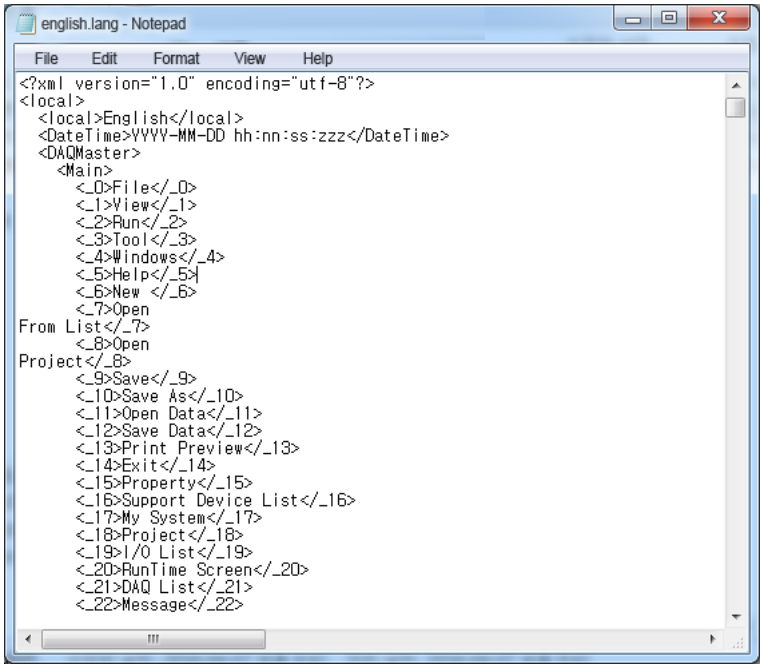
Changes the language of DAQMaster. Default language is the program installation language.

Click [Language] button to select the language option in the “View - Language” menu.

5.12.2 Modifying and Adding Languages

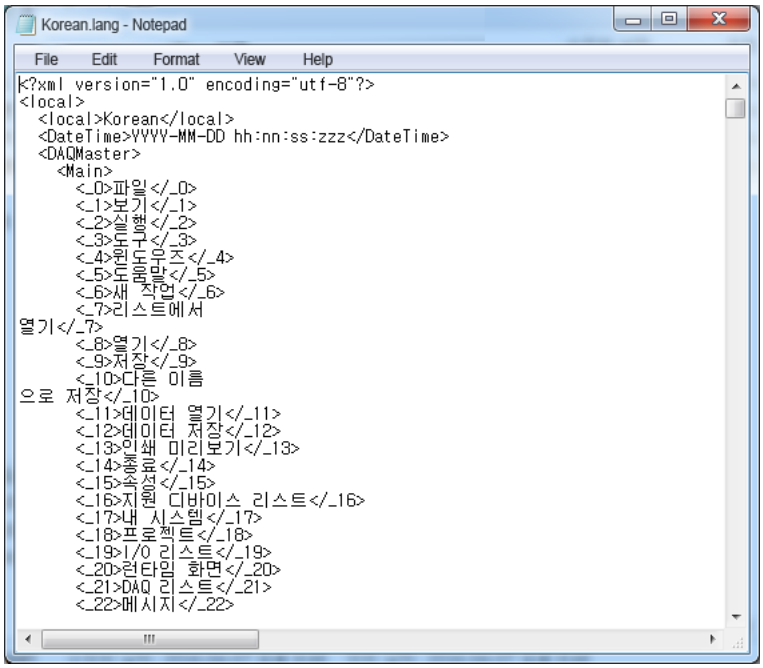
DAQMaster program allows users to add and modify the language. Language files reside in “lang” folder in the installation folder. Its default format is XML.

To modify or add language, open the language file in Notepad as below.

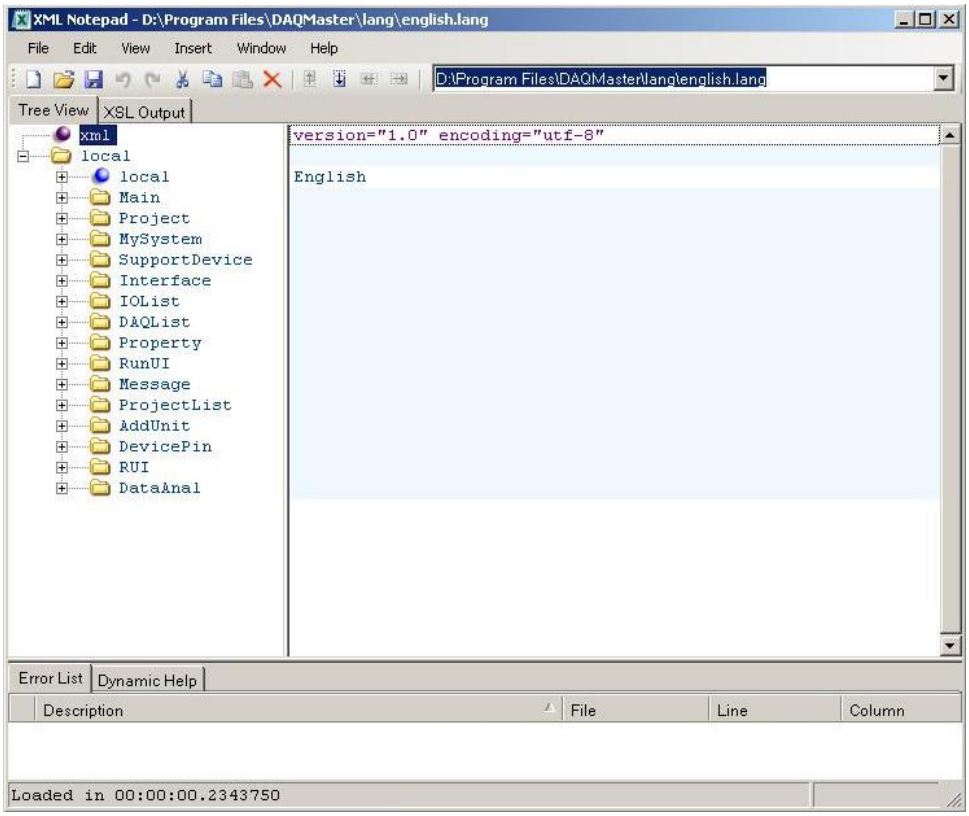


To add a language, copy and rename the existing language file.

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.

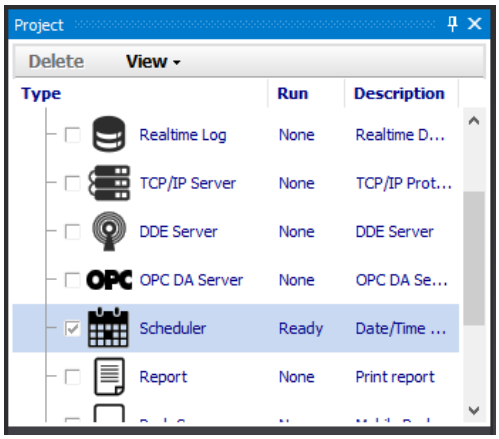


6 Project management

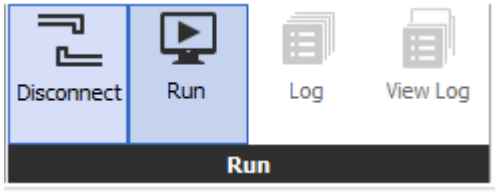
This chapter explains how to manage the DAQMaster projects.

6.1 Run

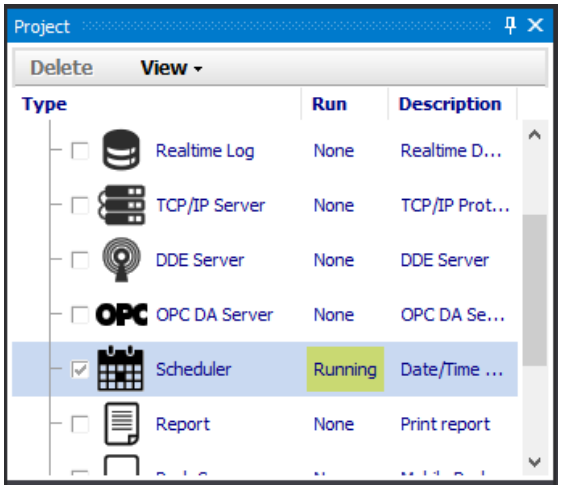
1st Check the checkbox next to the name of project management in the “Project” control panel whether activate it.
Select the checkbox. When the phrase of “Run” row is changed as “Ready”, function is activated to use.



2nd Click [Connect] button in the “Project - Run” menu.



3rd Click [Run] button in the “run” tab. The phrase of “Run” row in the “Project” control panel is changed as “Running” and that function is activated.

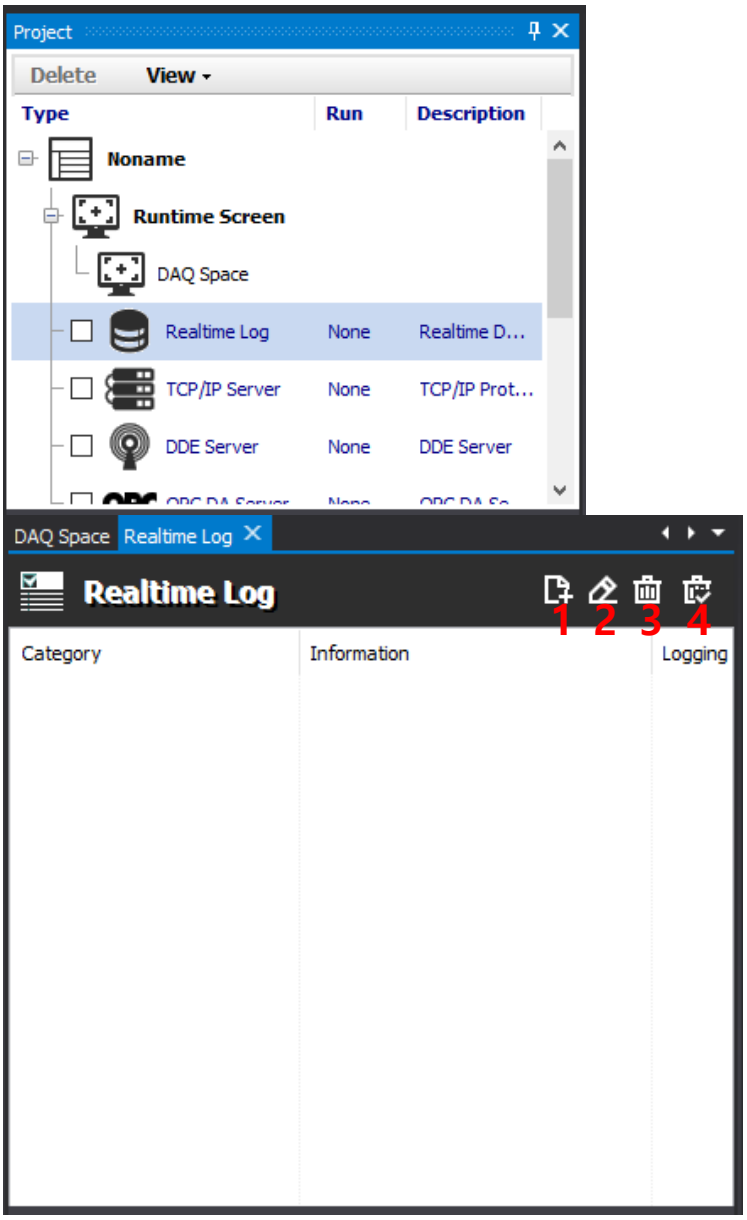


6.2 Realtime log

Executes logging per each I/O following to set cycle and condition.

6.2.1 Setting

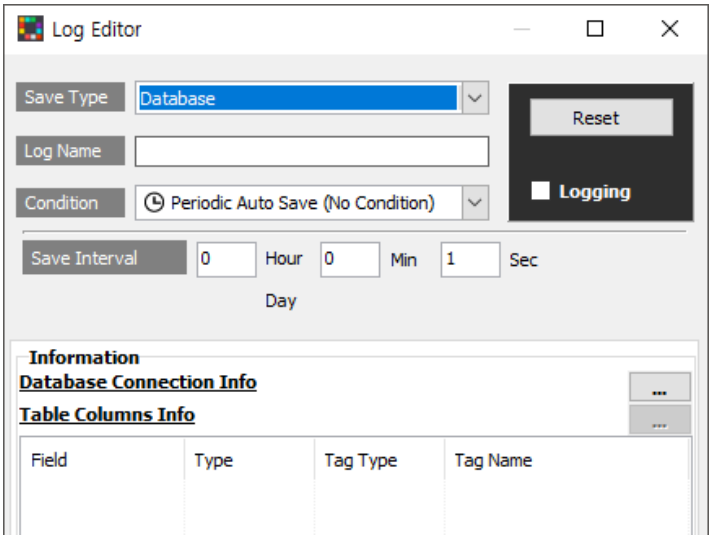
When double-click [Realtime Log] button in the “Project” control panel, “Realtime Log” window is opened on “DAQ Space” and it is possible to modify the detail setting.



No	Item	Description
1	Log Editor	Executes the Log Editor
2	Edit	Edits the value of selected log
3	Del	Deletes selected log
4	Delete All	Deletes all logs on the list.

(1) Log Editor

- **Save Type: Database**



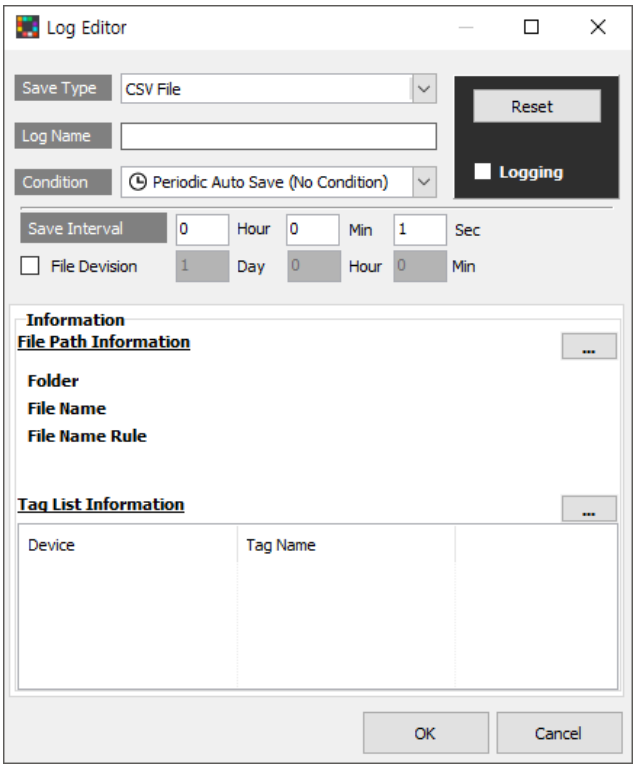
- Log Name: Enter a log name
- Condition: Select the condition which log follow.

Condition	Description
No condition	No condition
Equal (=)	When selected tag value is equal to the set value, logging starts.
Less Than (<)	Execution when selected tag value is less than the set value.
Greater Than (>)	Execution when selected tag value is greater than the set value.
Equal or Less than (≤)	Execution when selected tag value is equal or less than the set value.
Equal or Greater than (≥)	Execution when selected tag value is equal or greater than the set value.
Not equal (!=)	Execution when selected tag value is not equal to the set value.
Rising edge	Execution when selected tag value is rising edge, logging starts.
Falling edge	Execution when selected tag value is falling edge, logging starts.

- Save Interval: set time interval to save log.
- Logging: Starts logging when DAQMaster is executed. A File (*prf) is created in the designated folder.
- Reset: Initialize all parameter settings of the Log Editor.
- Information: Sets the database related items.

  ※ For more information about database, refer to “---- Database”.

- **Save Type: CSV File**

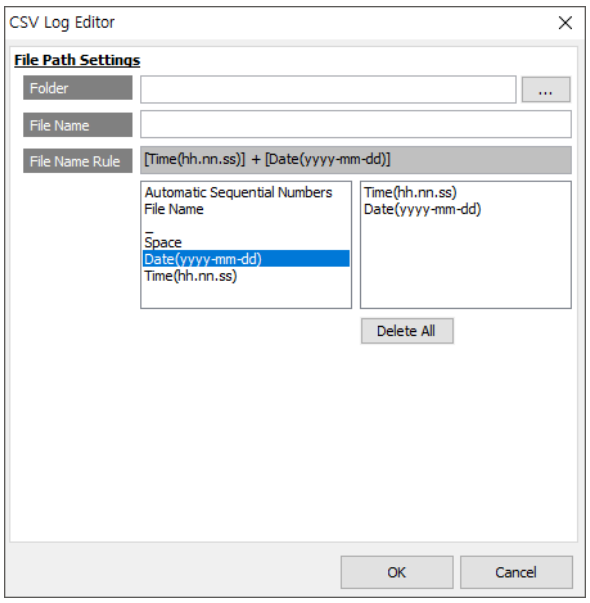


- Log Name: Enter a log name
- Condition

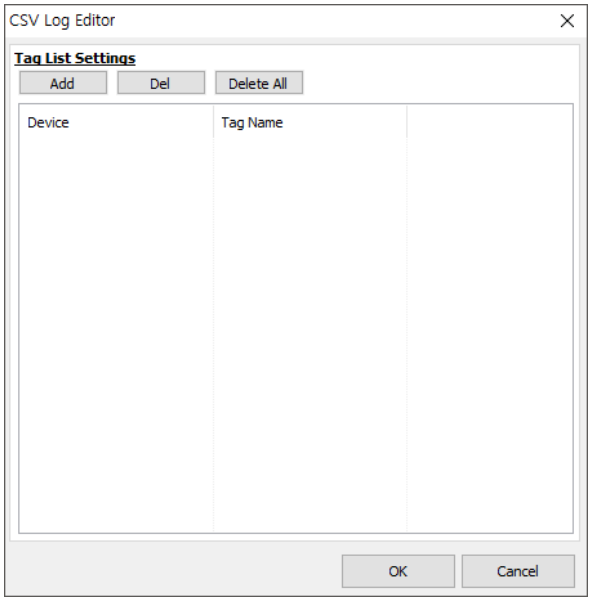
Condition	Description
No condition	No condition
Equal (=)	When selected tag value is equal to the set value, logging starts.
Less Than (<)	Execution when selected tag value is less than the set value.
Greater Than (>)	Execution when selected tag value is greater than the set value.
Equal or Less than (≤)	Execution when selected tag value is equal or less than the set value.
Equal or Greater than (≥)	Execution when selected tag value is equal or greater than the set value.
Not equal (≠)	Execution when selected tag value is not equal to the set value.
Rising edge	Execution when selected tag value is rising edge, logging starts.
Falling edge	Execution when selected tag value is falling edge, logging starts.

- Save Interval: Set time interval to save log.
- Logging: Starts logging when DAQMaster is executed. A File (*prf) is created in the designated folder.
- Reset: Initialize all parameter settings of the Log Editor.
- File Path Information: In information box, set “File Path Information” and “Tag List Information.” Proceed the file path information settings as below.

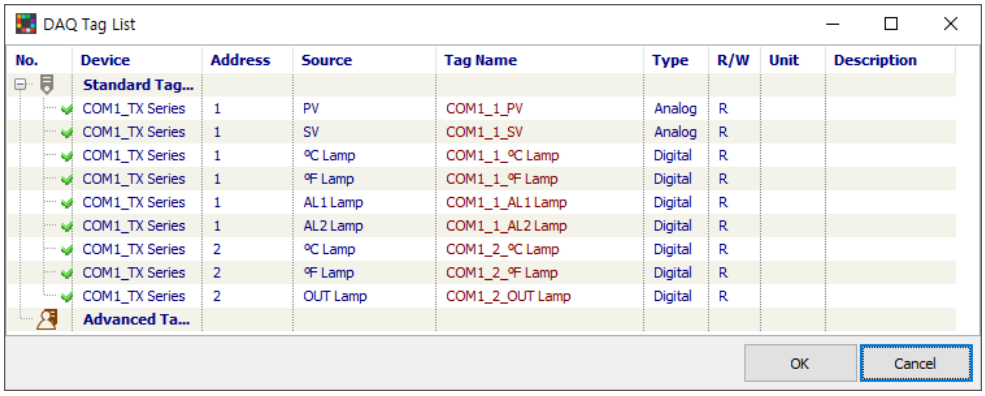
1st Click [...] button in “File Path Information” to set “File Path Settings: Folder, File Name, File Name Rule”.



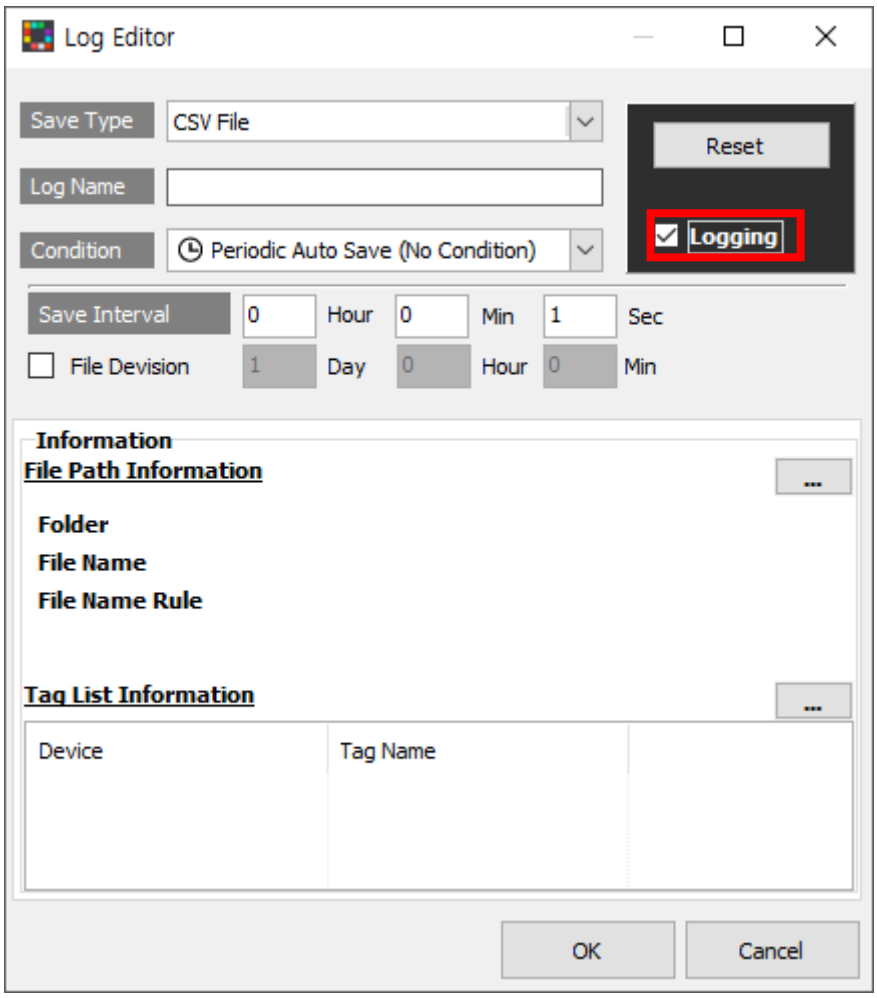
2nd Click [...] button in “Tag List Information” to set “Tag List Settings”.



3rd Click [Add] button in the “Tag List Settings” and add tags.



4th To starts logging when DAQMaster is executed, check “logging”. If “logging” is checked, a file (*prf) is created in the designated folder and log is written.

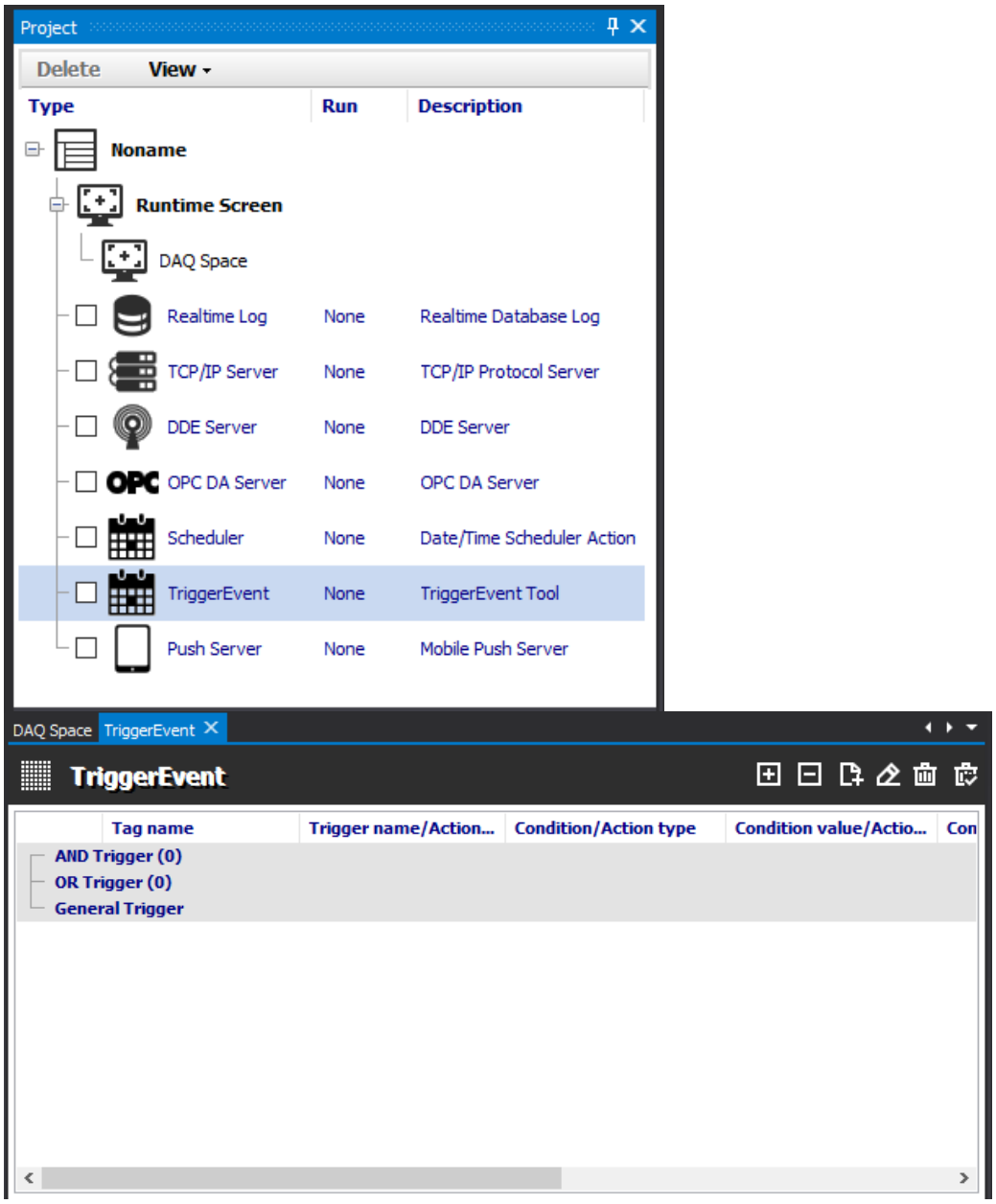


6.3 Trigger Event

Conducts preset action by user set condition (Trigger) automatically.

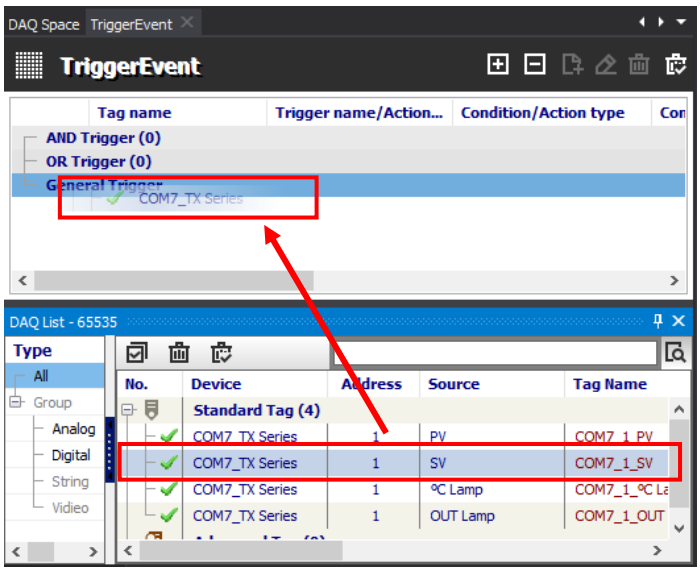
6.3.1 Setting

1st Double click [TriggerEvent] button in “Project” control panel, “TriggerEvent” window is opened on “DAQSpace”.

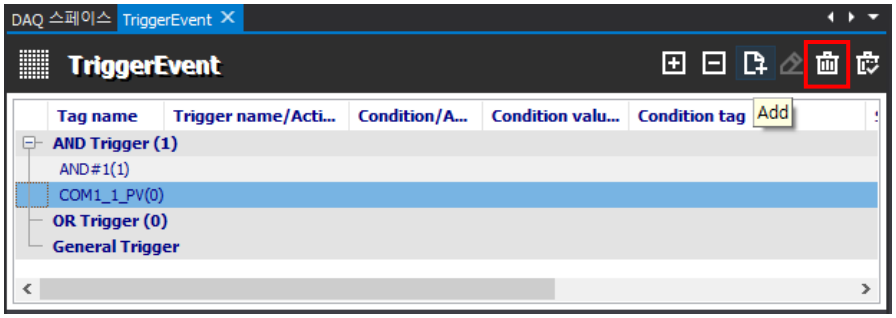


- AND Trigger: If all registered tags meet the criteria, perform an “action”.
- OR Trigger: If at least one of the registered tags meets the criteria, perform an “action”.
- General Trigger: If each single registered tag meets the criteria, perform an “action” independently.

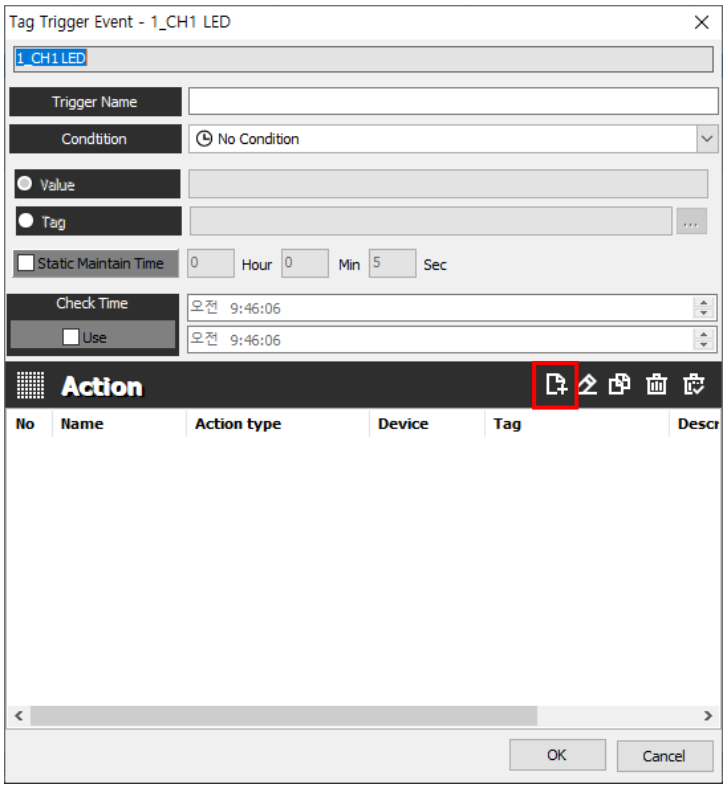
2nd Drag I/O tag from “DAQ List” control panel to one of the trigger types (AND, OR, General) on “TriggerEvent” window.



3rd Select I/O tag on “TriggerEvent” window and click [Add] button to open “Tag Trigger Event” window.



4th Input the items in “Tag Trigger Event” by refering to below descriptions.



- **Trigger name**

  Set the name of trigger.

- **Trigger conditions**

Condition	Description
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 to 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.

- **Static Maintain Time**

  Execute an action after set time.

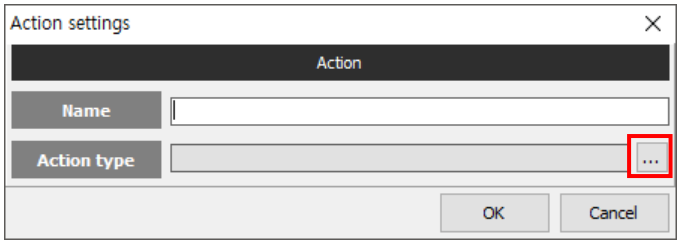
- **Check Time**

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

- **Action management**

Management	Description
Add an action	Adds an action. You can set an action name and type.
Modify an action	Modify an action on the list.
Copy an action	Copy an action on the list.
Delete an action	Delete a trigger on the trigger list.
Delete all an actions	Delete all triggers on the trigger list.

5th Click [...] button to open “Action type” in “Action settings” window.



※ Action type: Refet to the “6.11 Action“ for the details.

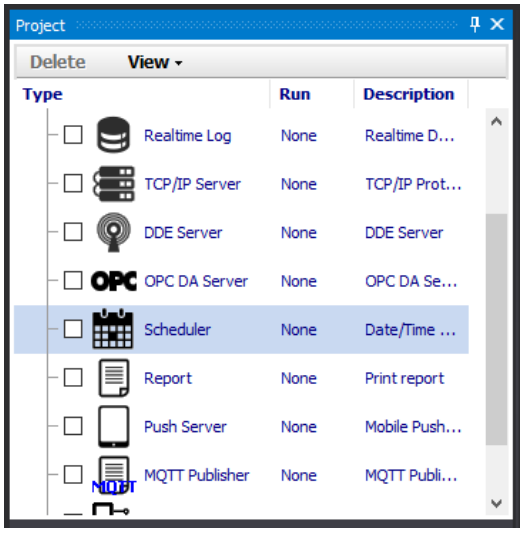
6.4 Scheduler

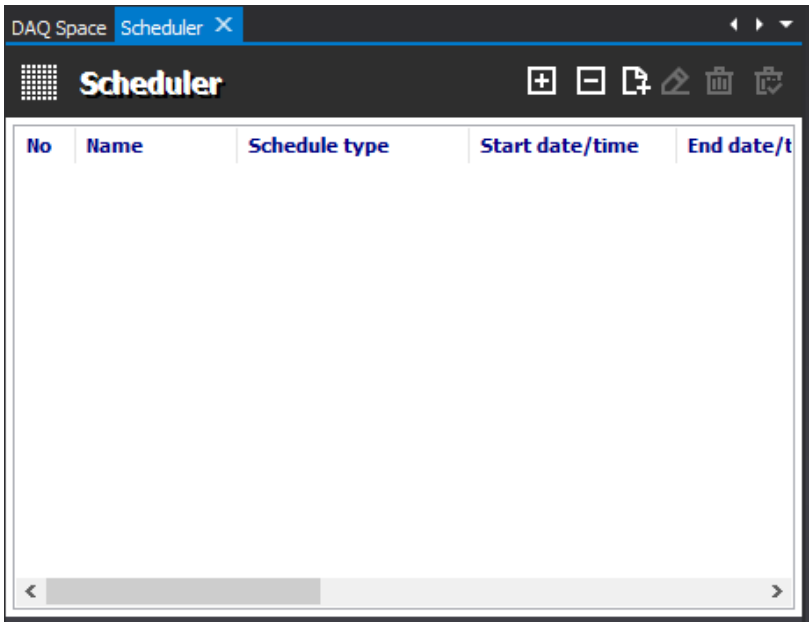
Conducts preset action by user set time (Schedule) automatically.

6.4.1 Setting

▪ Schedule the event

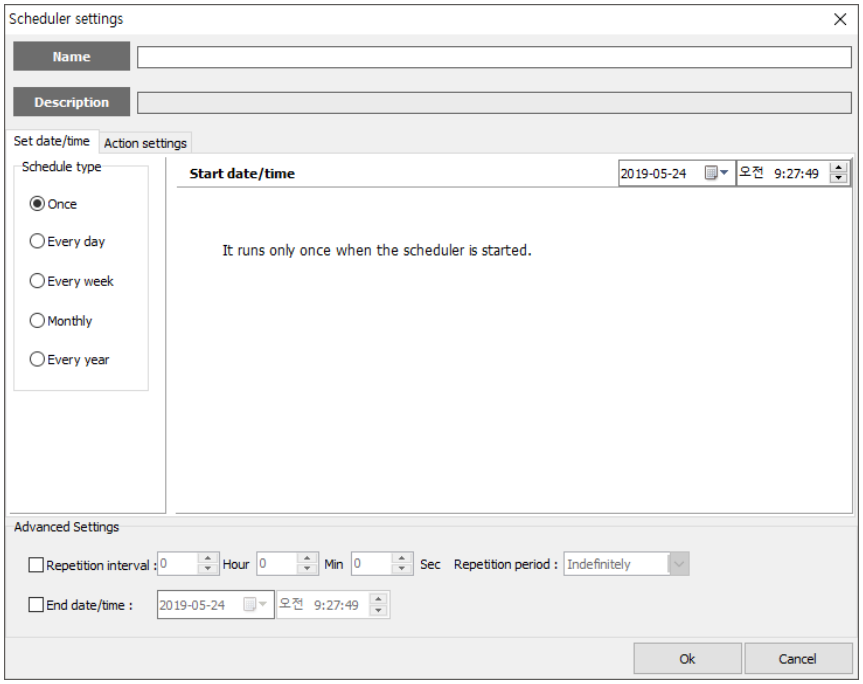
1st Double-click [Scheduler] in the “Project” control panel, then “Scheduler” window appears in the DAQ Sapce.





2nd To add a schedule, click  icon and open the “Scheduler settings” window.

3rd Select the date and time to execute an event in the date/time tab.



- Schedule type: Sets the time delay of the execution after the scheduler starts.

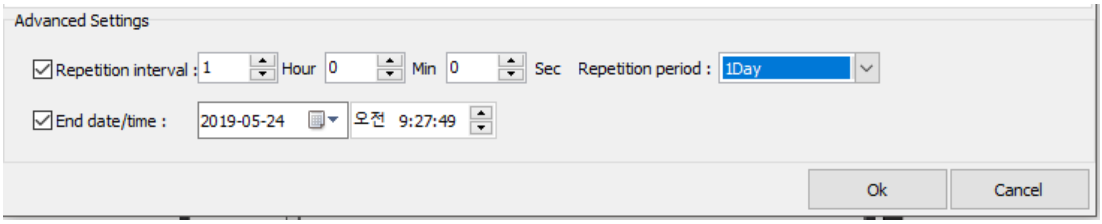
Item	Description
Once	Run once when the scheduler starts.
Every day	Run every day
Every week	Run for every week on certain day
Monthly	Run for every month on certain day or week.
Every year	Run for every certain year.

- **Advanced Settings: Set repetition interval, repetition period and end date/time.**

Item	Description
Repetition interval	Sets the repetition interval of the schedule.
Repetition period	Sets the repetition period of the schedule to be executed.
End date/time	Sets the date/time to end repetition interval of the schedule.

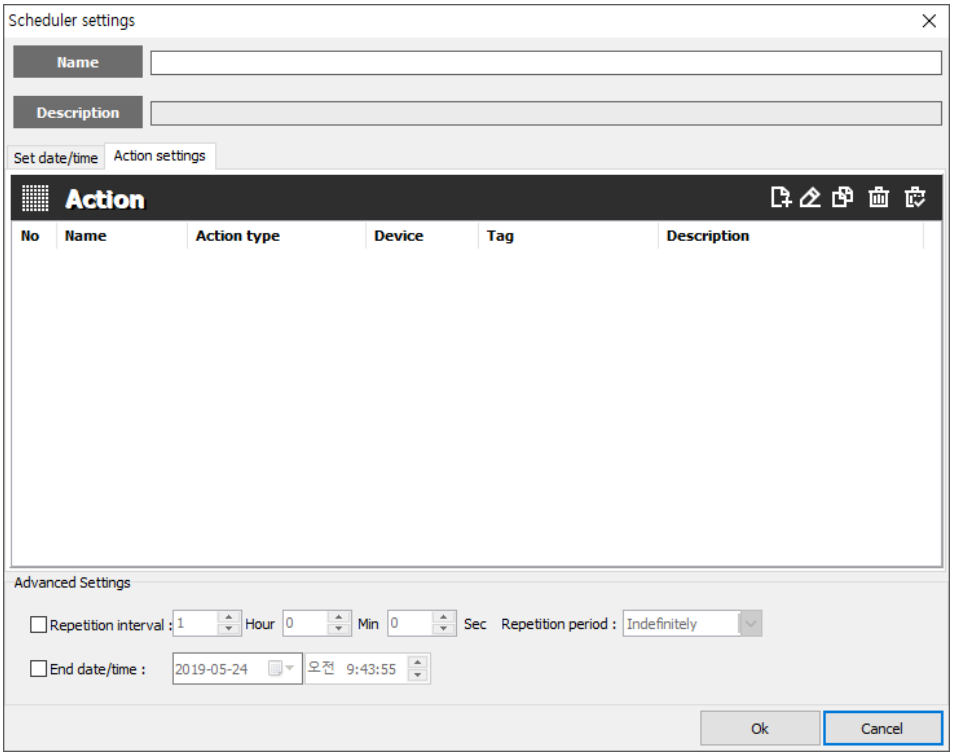
Ex.

This is an example of advanced settings. Repetition interval and period is 1 hour and 1 days.



4th Click “Action settings” tab to set the detailed event of schedule. To add an action, click [Add] button and then “Action settings” window appears.

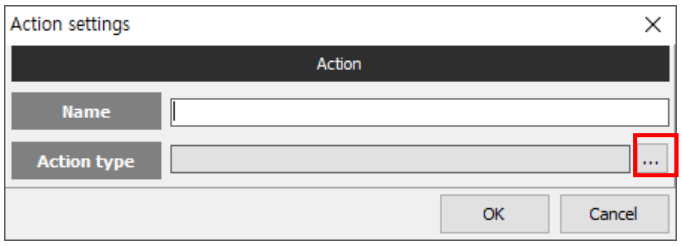
※ Setting an action related to the tag is only available to the I/O items that is added to the DAQ List. For the method of Adding I/O items to the DAQ List, refer to “5.6 I/O List“.



- Action management

Management	Description
Add an action	Adds an action. You can set an action name and type.
Modify an action	Modify an action on the list.
Copy an action	Copy an action on the list.
Delete an action	Delete a trigger on the trigger list.
Delete all an actions	Delete all triggers on the trigger list.

5th Click [...] button to open “Action type” in “Action settings” window.



※ Action type: Refet to the “6.11 Action“ for the details.

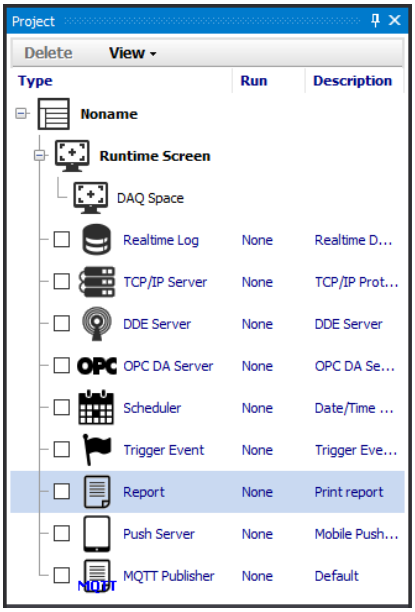
6.5 Report

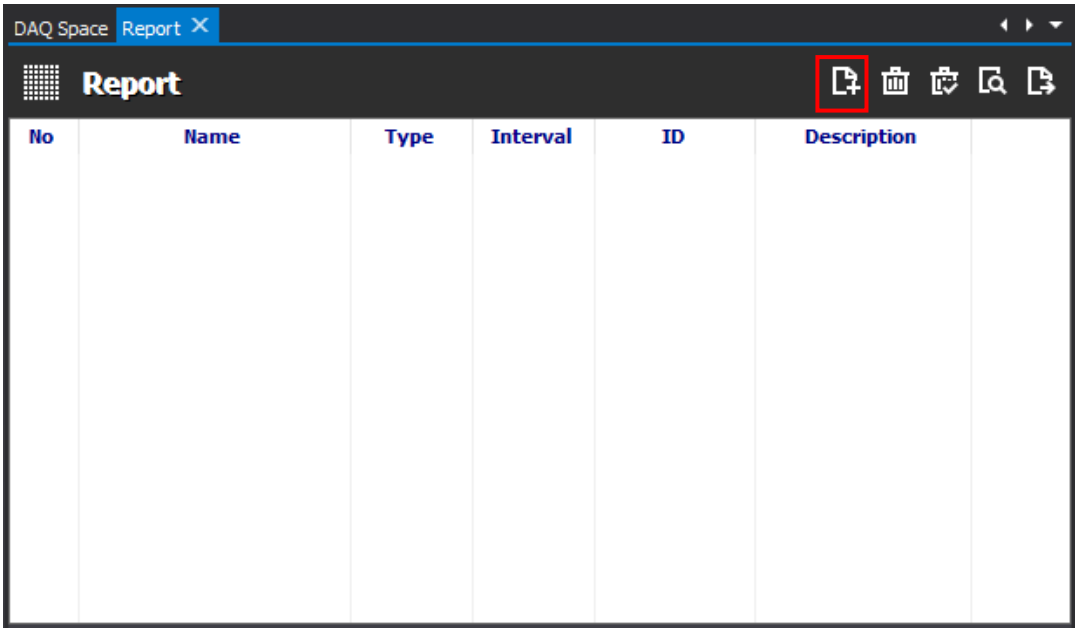
Prints the data that DAQMaster collects based on the template, type and interval through the designated path.

6.5.1 Setting

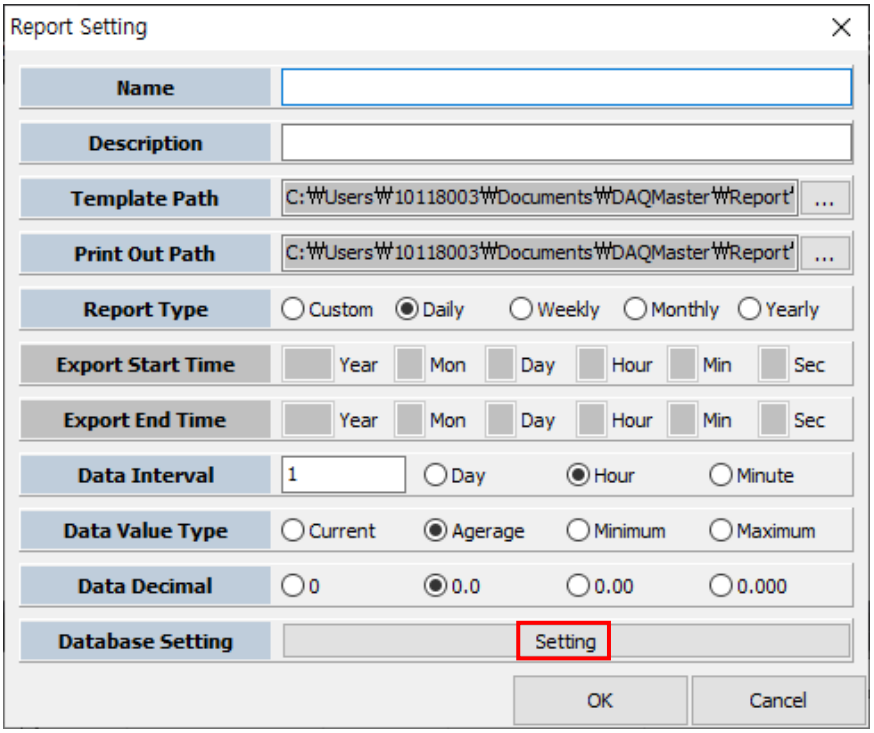
1st Double-click “Report” in the “Project” window to open “Report” window and click the [Add] button to open “Report setting” window.

※ To use “Report export” action, It is needed to set the “Report” function first.

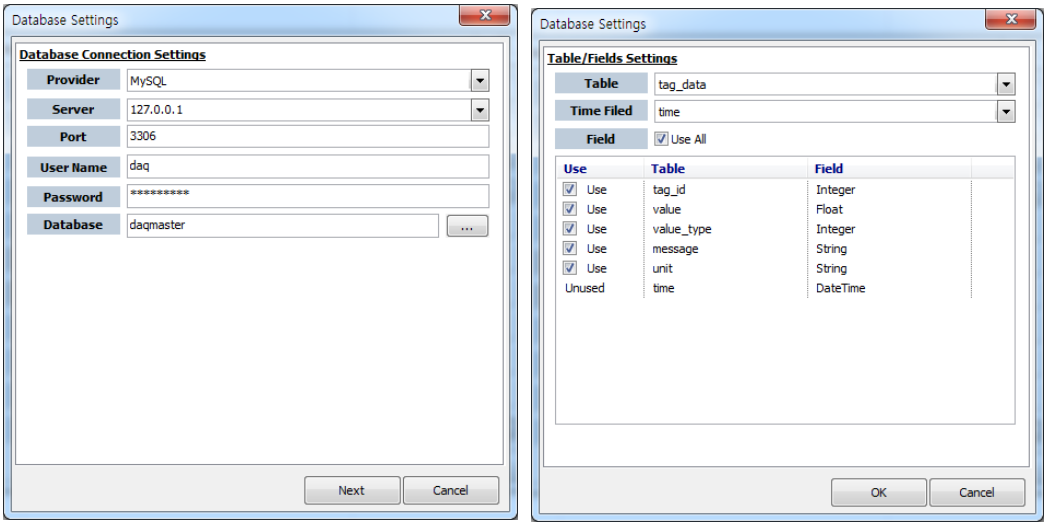




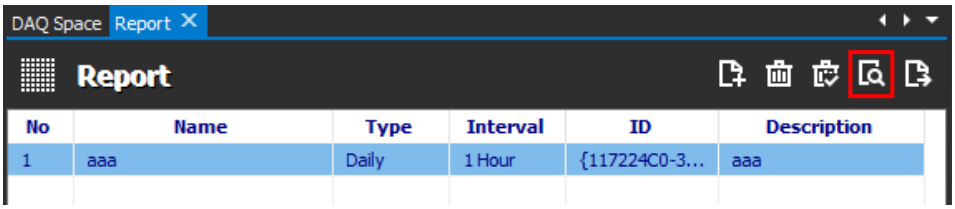
2nd Editing template, print out path, type, start and end time, print interval and etc is available. Set the items and click the [Setting] button to open “Database Settings” window.



3rd Enter the details of Database server and click [Next] button. If the connection is successful, Table/field settings appears and downloads table and value of timefield. Select the desired field item and click [OK], then DB setting is completed.



4th After the report setting is complete, list is added to the report window as below.



Report

Custom Report

	data1	data2	data3
2018/08/29 10:19:34	48.4	51.5	49.9
2018/08/29 10:20:00	43	56.1	46.6
2018/08/29 10:21:00	55.3	53.3	38.6
2018/08/29 10:22:00	58.6	53.5	52
2018/08/29 10:23:00	57.2	50	44
2018/08/29 10:24:00	57.7	49.5	51.7
2018/08/29 10:25:00	50.5	48.4	49.7
2018/08/29 10:26:00	53.5	50.5	46.1
2018/08/29 10:27:00	47	56.3	50.7
2018/08/29 10:28:00	46	47.4	53.3
2018/08/29 10:29:00	47	49.5	49.4
2018/08/29 10:30:00	47.4	49	47.4
2018/08/29 10:31:00	57.1	51.6	44.6
2018/08/29 10:32:00	46.8	49.5	52
2018/08/29 10:33:00	46.4	54	52
2018/08/29 10:34:00	51.6	45.8	52
2018/08/29 10:35:00	53.8	49	50.2
2018/08/29 10:36:00	54.8	53.1	54
2018/08/29 10:37:00	48.9	48	52.8
2018/08/29 10:38:00	54.5	49	54.6
2018/08/29 10:39:00	53.5	49	53.3
2018/08/29 10:40:00	52.6	50.3	49.7
2018/08/29 10:41:00	44.3	55.7	48.8
2018/08/29 10:42:00	50.2	53.3	52.2
2018/08/29 10:43:00	54.1	51.4	51.4
2018/08/29 10:44:00	54.6	52.5	51.1
2018/08/29 10:45:00	50.3	60.4	50.7
2018/08/29 10:46:00	53.8	52.8	55.7
2018/08/29 10:47:00	48.5	50.5	53.3
2018/08/29 10:48:00	54.6	55	46.2
2018/08/29 10:49:00	52.6	47.2	46
2018/08/29 10:50:00	59.7	54.8	48

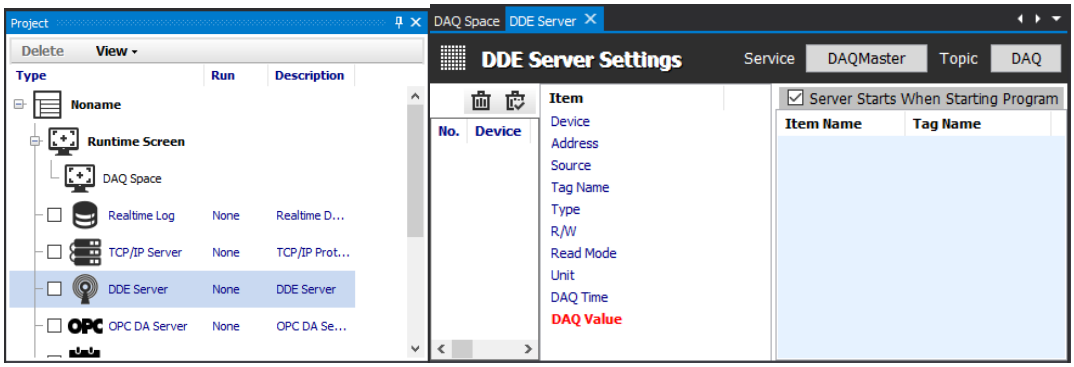
6.6 DDE Server

Performs as a DDE(Dynamic Data Exchange) Server, allowing communication among programs in Microsoft Windows system and provides protocol or format of instructions and message to applications.

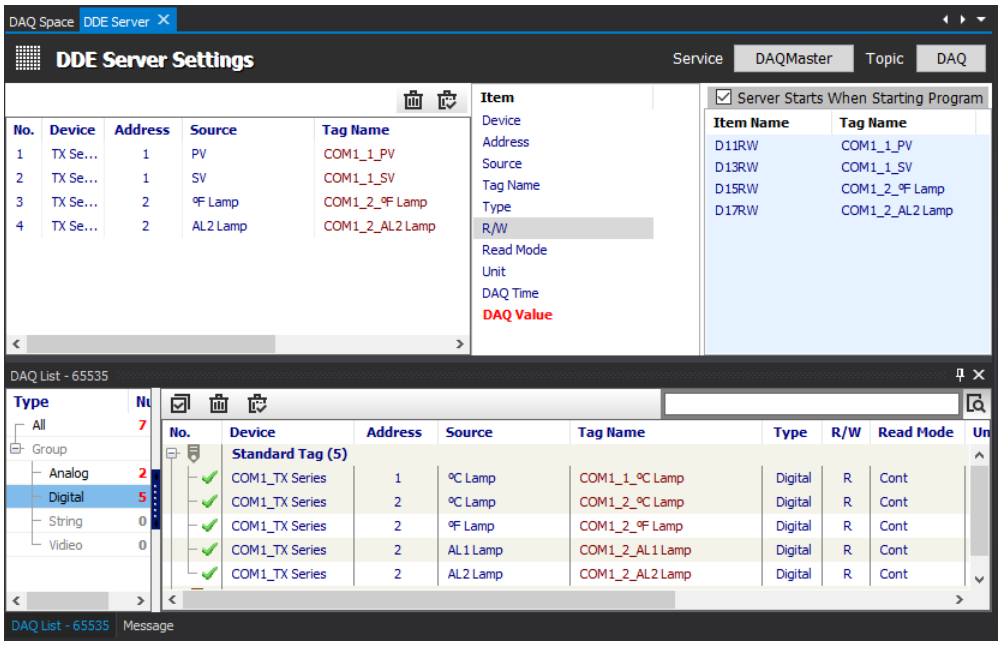
External programs can exchange data of DAQMaster with each other through DDE Server.

6.6.1 Setting

1st To open “DDE Server Settings” window appears in the DAQ Space window, double-click [DDE Server] in the “Project” control panel.



2nd Enter a each name of “Service” and “Topic” (e.g. Service: DAQMaster, Topic: DAQ) and select and drag tags to provide to DDE Client from “DAQ List” control panel.



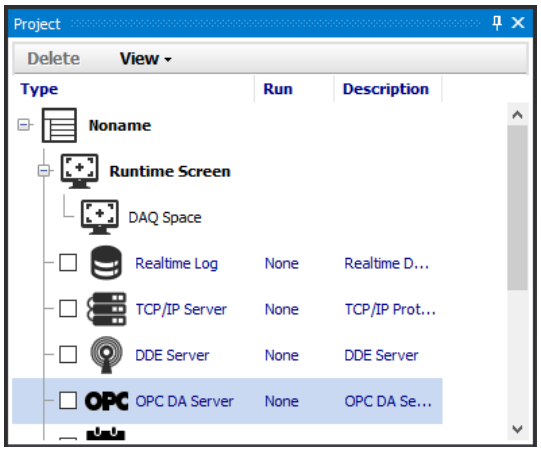
6.7 OPC DA Server

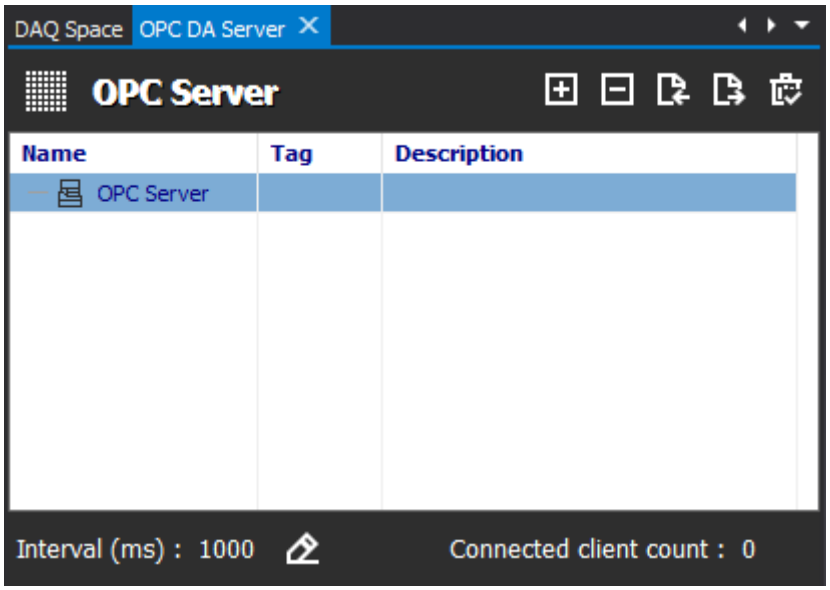
It is Interface method for better compatibility among application programs based on OLE/COM and DCOM technology of Microsoft. It provides industry standard mechanism for communication and data conversion between client and server..

※ For more information about the OPC Client, refer to “7.7 OPC DA Client“.

6.7.1 Setting

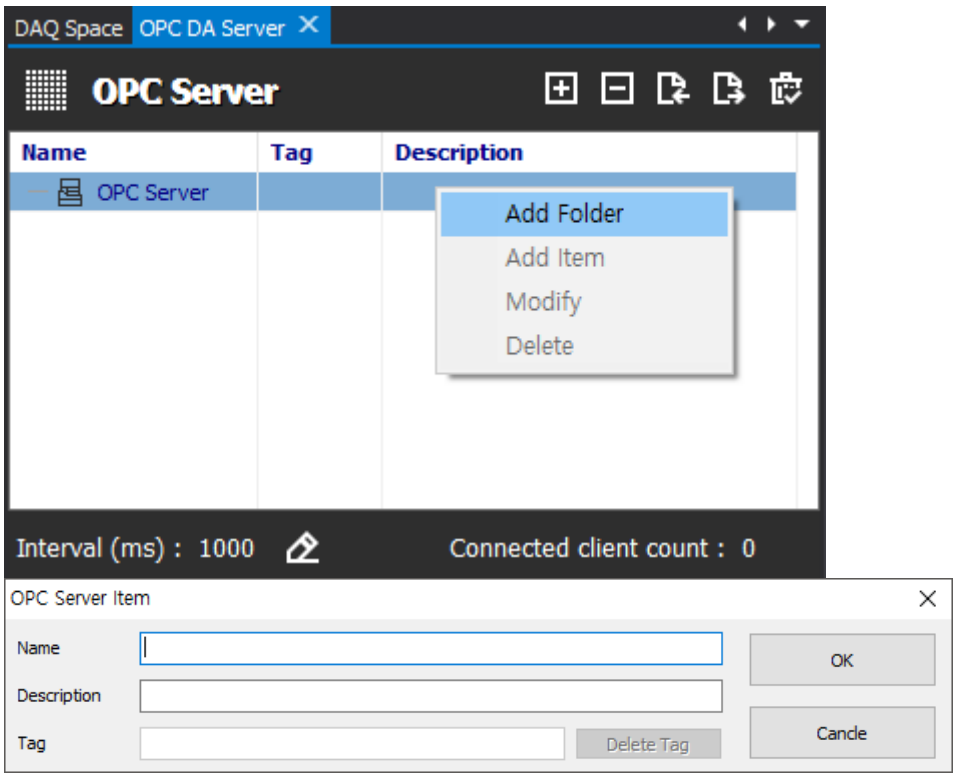
1st Double-click [OPC DA Server] in the “Project” window to open “OPC DA Server” window in the DAQSpace window.



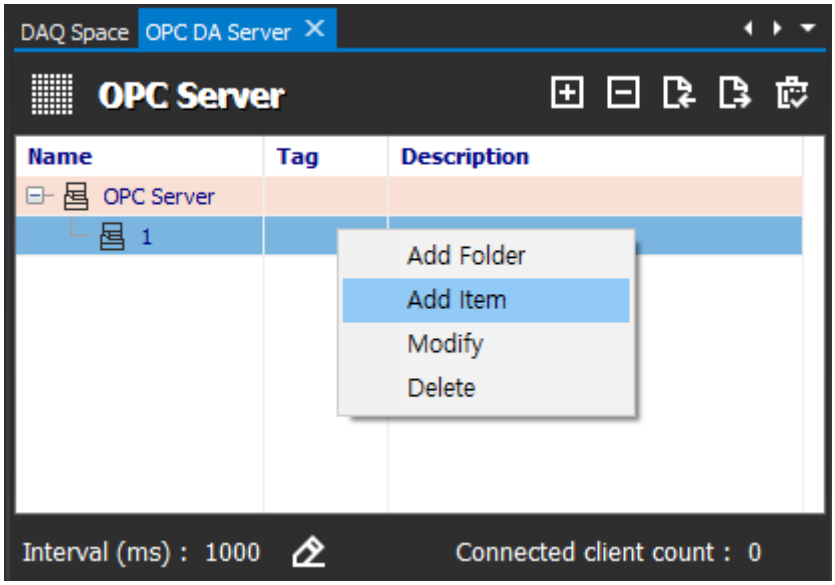


※ Top-level folder is only available to add folders.

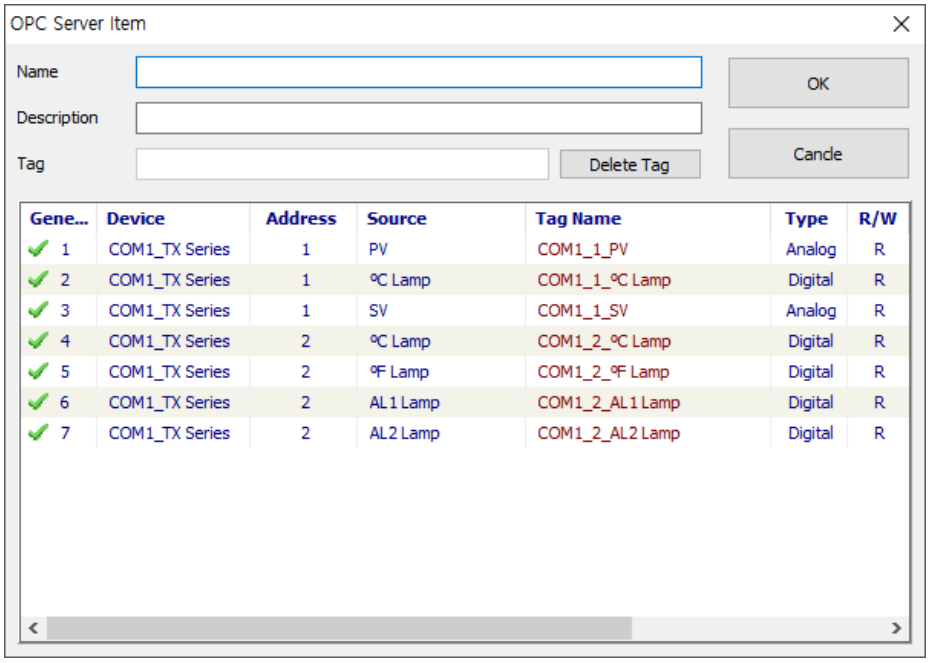
2nd Right-click “OPC Server” and select [Add Folder], then “OPC Server Item” window appears. You can enter name, description and tag.



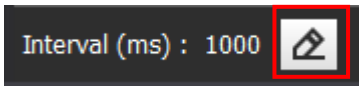
3rd To add item (sub folder, I/O tag), right-click the added folder and click [Add item].

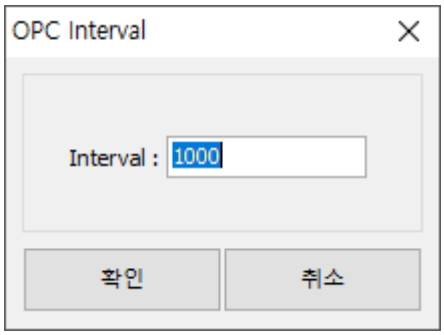


4th "OPC Server Item" window appears showing I/O list that is registered to the DAQ List. Double-click the name of I/O list item to register the name.
You can load the desired I/O item by dragging it from the DAQ List. But, two or more I/O items with same name are not registered in an one folder.
※ Register the I/O items with same name is available on the folders with different locations.

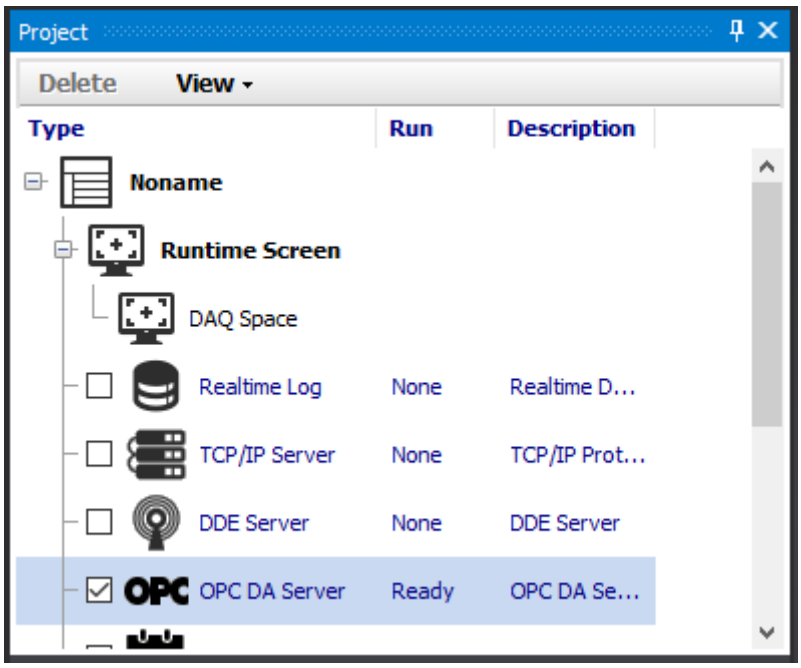


5th To change "OPC Server" running interval, click [Change Interval] button. When "OPC Interval" window pops up, enter a value of interval.

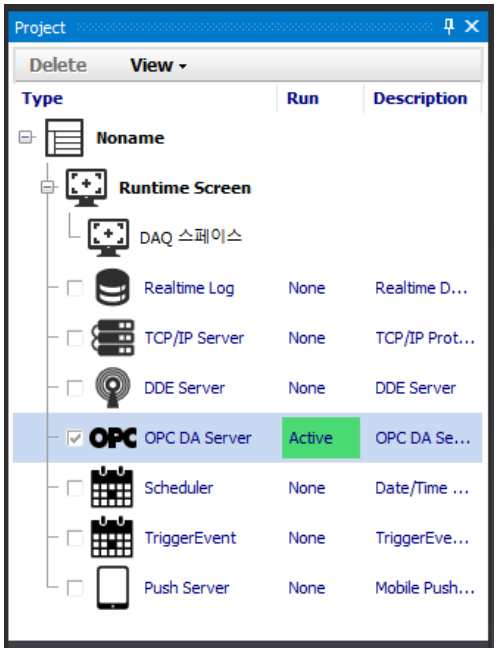


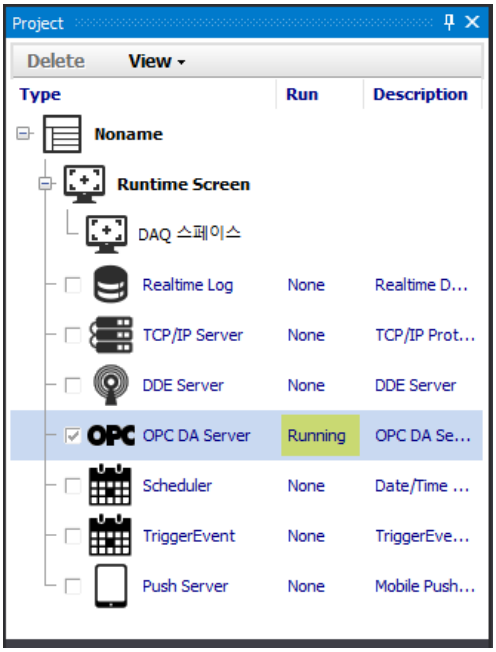


6th Above all, click the checkbox next to the OPC DA Server in the “Project” control panel. And check the phrase of “Run” row is changed to “Ready” to operate OPC Server.



7th Click [Connect] button on the “Project - Run” menu, then “Ready” is changed to “Active” on “Project” control panel. Click [Run] button in the “Project - Run” menu, then “Active” is changed to “Running” on “Project” control panel and OPC Server is activated.





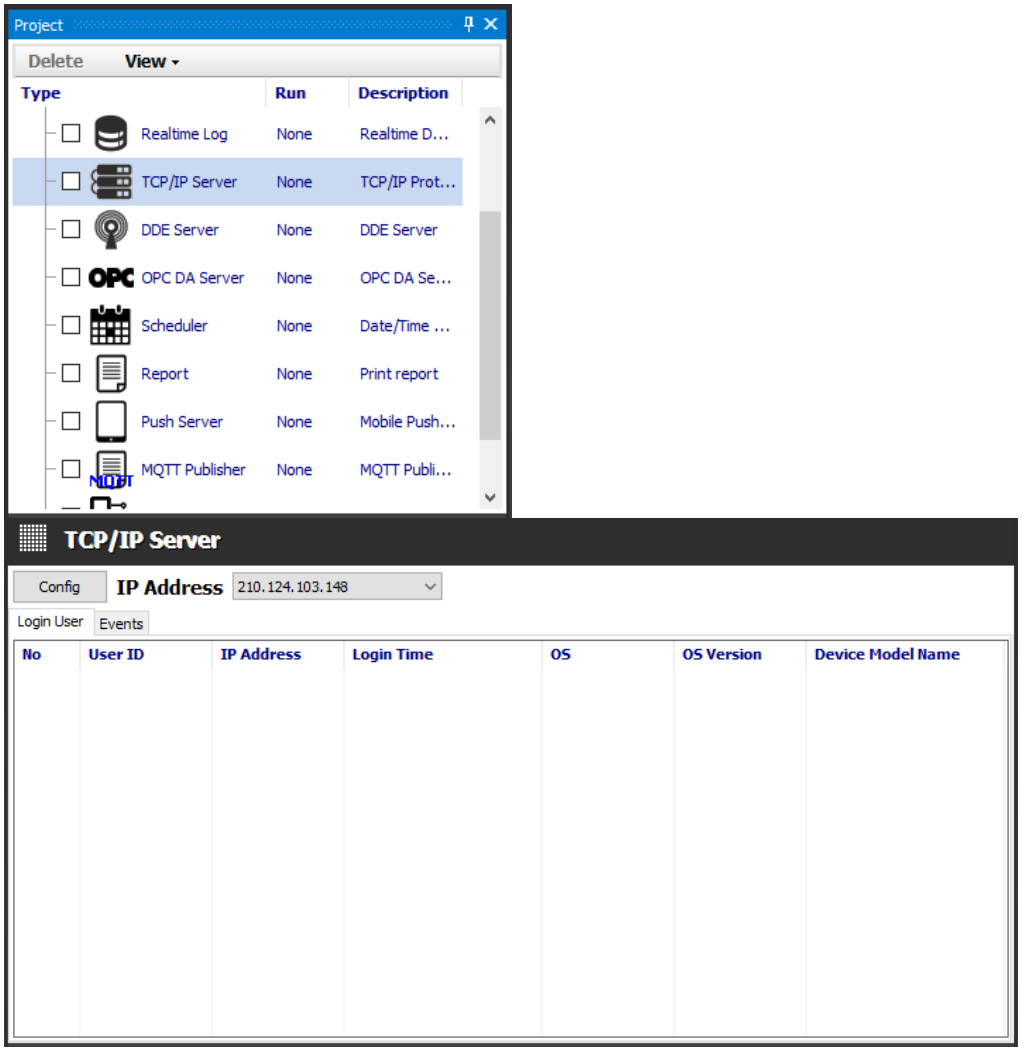
6.8 TCP/IP Server

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 monitoring.

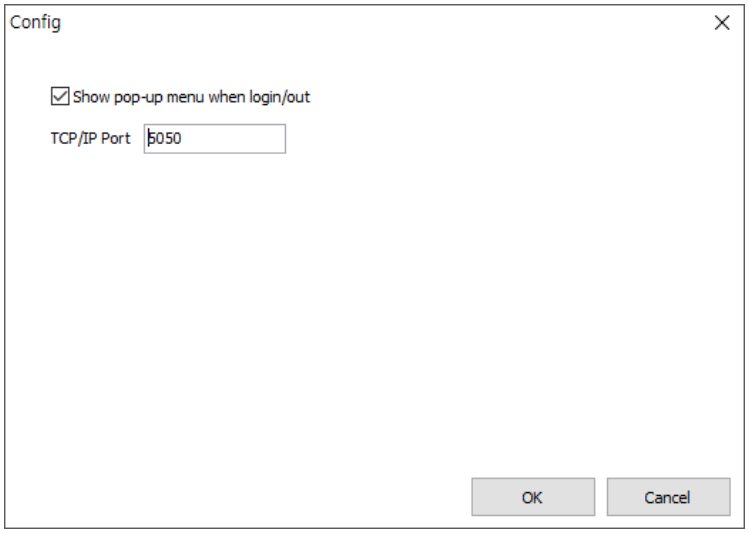
Below is the setting guide for DAQMaster application.

6.8.1 Setting

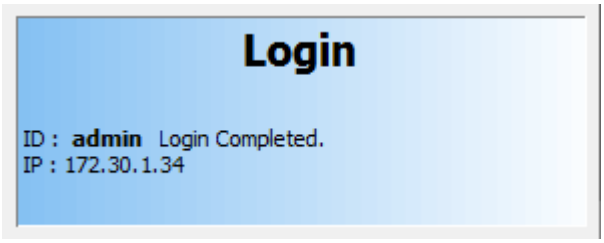
1st Double-click [TCP/IP Server] in the “Project” control panel to operate TCP/IP server.



2nd Select IP Address item as the currently connected wifi address and click [Config] button to connect the port. (Default: 5050).
Click [Connect] button to operate TCP/IP Server.

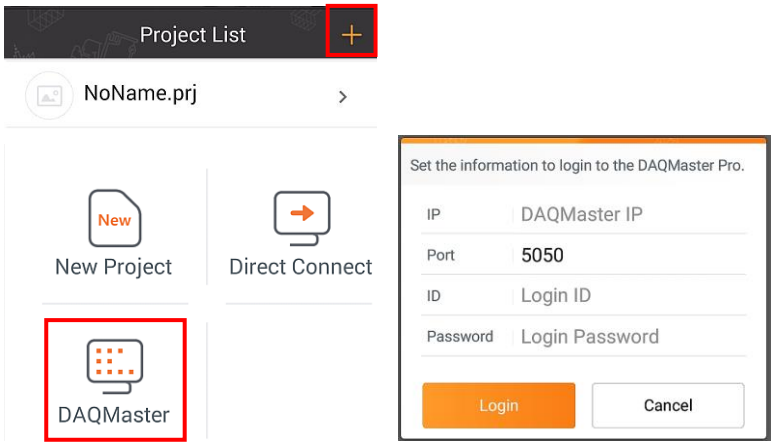


3rd The ID and password set in the “User Manager” function allow access to the server.



※ For more information about the “User Manager”, refer to the “8.4 User Manager“.

4th To open the setup window, click [+] button in the Project list of DAQMaster Mobile and select [DAQMaster].
Enter the IP address, ID and Password that were registered at the 3rd and 4th steps.



5th Click [Connect] button to contact the server.

Note

In “Login User” tab, you can check log-in/log-out time and detailed connection information of the client users. In “Events” tab, you can see every events related to logged communication.

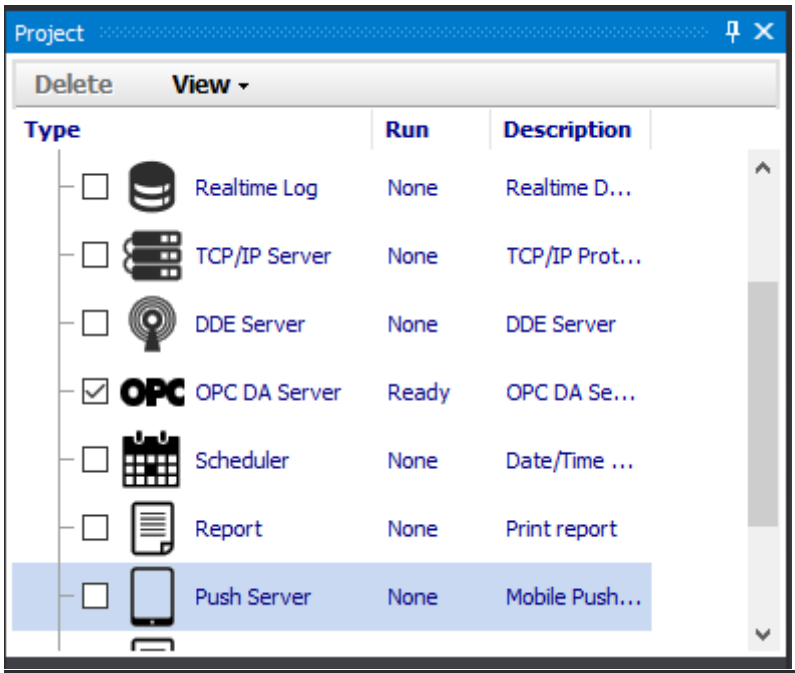
6.9 Push Server

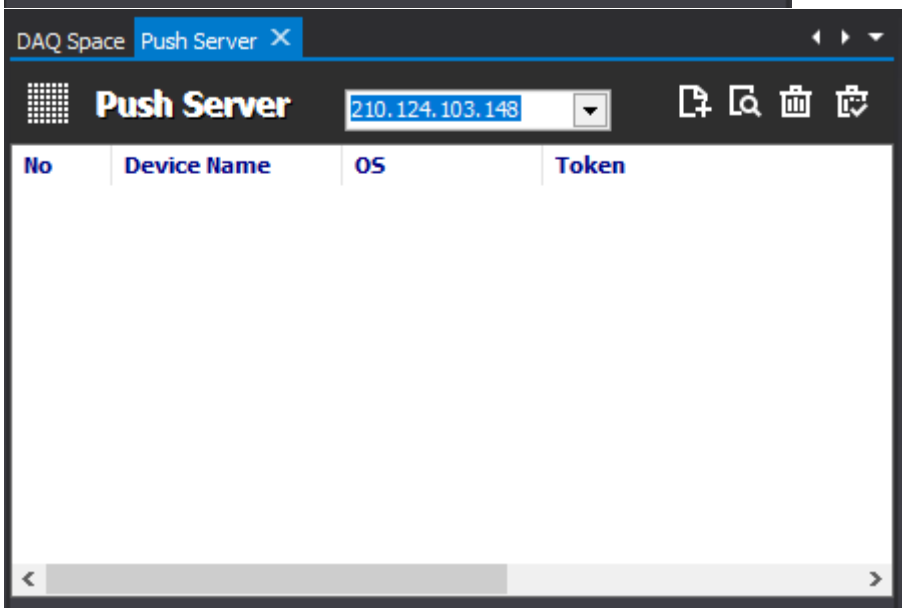
It transmits push message to the client device and is possible to use with Trigger Event, Scheduler.

Below is the setting guide for DAQMaster application.

6.9.1 Setting

1st Double-click [Push Server] in the “Project” control panel to open “Push Server” window in the DAQ Space.



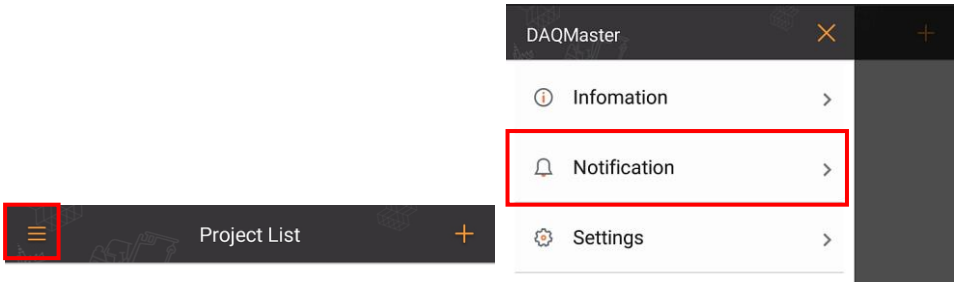


2nd Select the same IP address with the Client. The same wifi network should be used to send push messages.

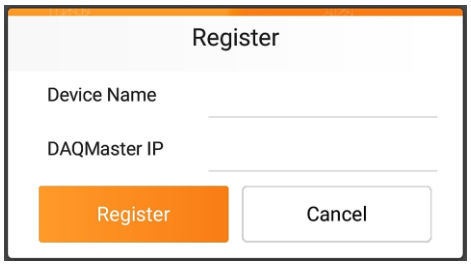
3rd To register a push device, click [Add] button or right-click in the “Push Server” window and click [Add].

4th When “Register Push Device” window pops up, check the circle indicator (Waiting register) on the bottom left corner of the window. When the indicator blinks in gray, you can register an alarm in the DAQMaster Mobile.

5th Select “Project List Menu – DAQMaster Alarm” in the DAQMaster Mobile.

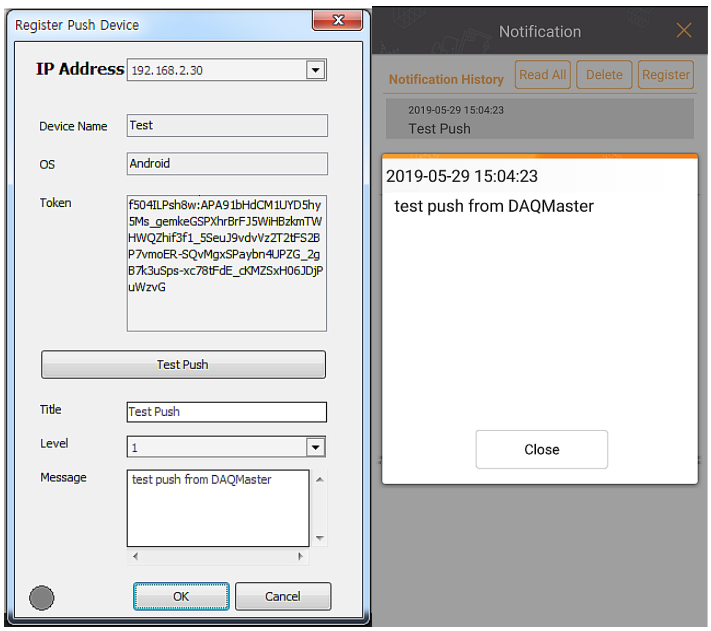


6th When “Alarm” window pops up in the DAQMaster Mobile, push [Register] button, enter the device name and the IP address already used at 2nd step, and push [Register] button.



7th When connection is complete, the circle indicator which was referred to at 4th step blinks in green and receives the device name, OS and token data.

8th In connected status, enter a message and click [Test Push] to check DAQMobile receives the push alarm.



9th In the “Push Server” window, double-click the client item or click [Modify] button to edit setting information.

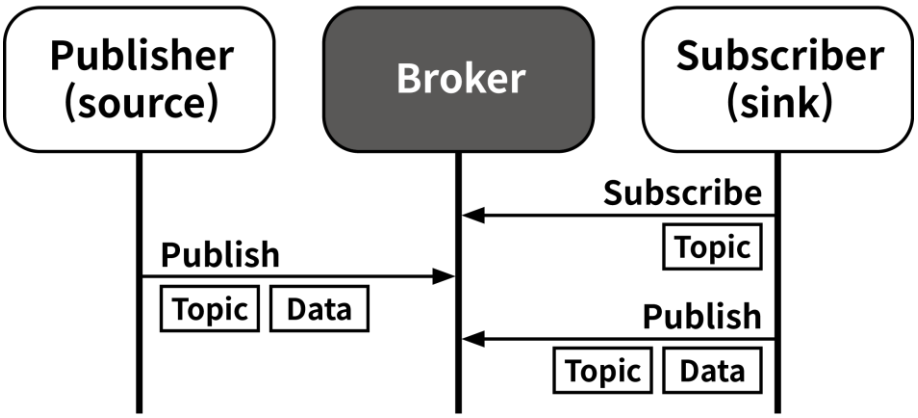
10th Select the client item in the “Push Server” window and click [Delete] button to remove/delete separately, or click [Delete All] button to delete all.

6.10 MQTT (Message Queuing Telemetry Transport)

6.10.1 Overview

MQTT is a protocol designed to enable communication with minimal power and packet in consideration of limited communication environments, optimized for M2M (Machine To Machine) and Internet of Things (IoT).

MQTT consists of a “Broker, Publisher, Subscriber” structure, not a “client - server” structure such as HTTP, TCP, etc.



“Publisher” publishes, “Subscribers” subscribe to “Topic”, and “Broker” relay them. This is useful for 1:N communication because multiple subscribers can subscribe to a single Topic.

6.10.2 Mosquitto (MQTT Server/Broker)

Mosquito is an MQTT open-source message broker program that is light and supports most essential functions.

- **Install and test**

1st Download and install the installation file from the Mosquito manufacturer’s website (http://mosquitto.org).

2nd Check the executable files below in the installation folder.

File name	Description
mosquitto.exe	Mosquitto Server/Broker
mosquitto_sub.exe	Mosquitto client for subscribe
mosquitto_put.exe	Mosquitto client for publish

3rd Run the “Command Prompt” and navigate to the path where the program is installed, enter the command below and check the Topic output.

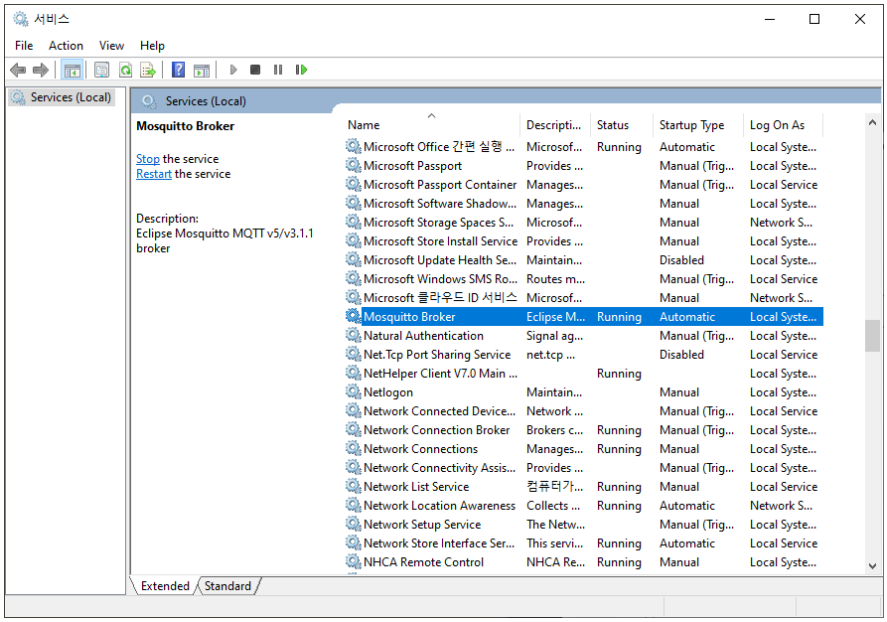
- Command: mosquitto_sub -h test.mosquitto.org -t "#" -v
- Topic print

```
C:¥Program Files¥mosquitto>mosquitto_sub -h test.mosquitto.org -t "#" -v
fr1/2130 0.95
energy/generation/realtime/ccgt/percent 26.8
energy/generation/realtime/ccgt/value 12330
energy/generation/realtime/ccgt/cappct 43.9
energy/generation/realtime/coal/percent 36.8
energy/generation/realtime/coal/value 16923
energy/generation/realtime/coal/cappct 93.01
energy/generation/realtime/intfr/percent 3.5
energy/generation/realtime/intfr/value 1622
energy/generation/realtime/intfr/cappct 81.1
energy/generation/realtime/intirl/percent 0.0
energy/generation/realtime/intirl/value 0
energy/generation/realtime/intirl/cappct 0.0
energy/generation/realtime/intned/percent 1.7
energy/generation/realtime/intned/value 782
energy/generation/realtime/intned/cappct 78.2
energy/generation/realtime/npshyd/percent 2.2
energy/generation/realtime/npshyd/value 1007
energy/generation/realtime/npshyd/cappct 96.36
energy/generation/realtime/nuclear/percent 16.7
energy/generation/realtime/nuclear/value 7668
energy/generation/realtime/nuclear/cappct 97.58
energy/generation/realtime/ocgt/percent 0.0
energy/generation/realtime/ocgt/value 0
```

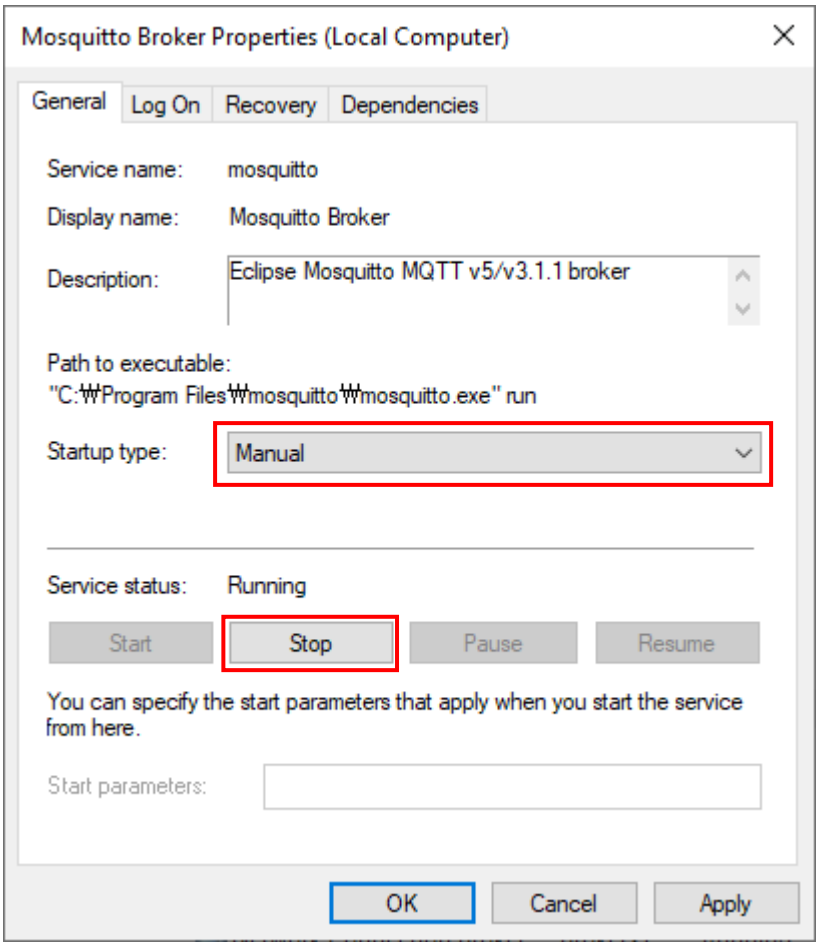
▪ Setting

When installing the Windows version, the Mosquito service runs automatically at boot time. If the service is in operation, manual server will not work.

1st Double-click “Mosquito Broker” in “Control Panel - Administrative Tools - Services” to open “Mosquitto Broker Property” window.



2nd In general tap, change the value of start item “Manual” and “Service status” to “Stop”.



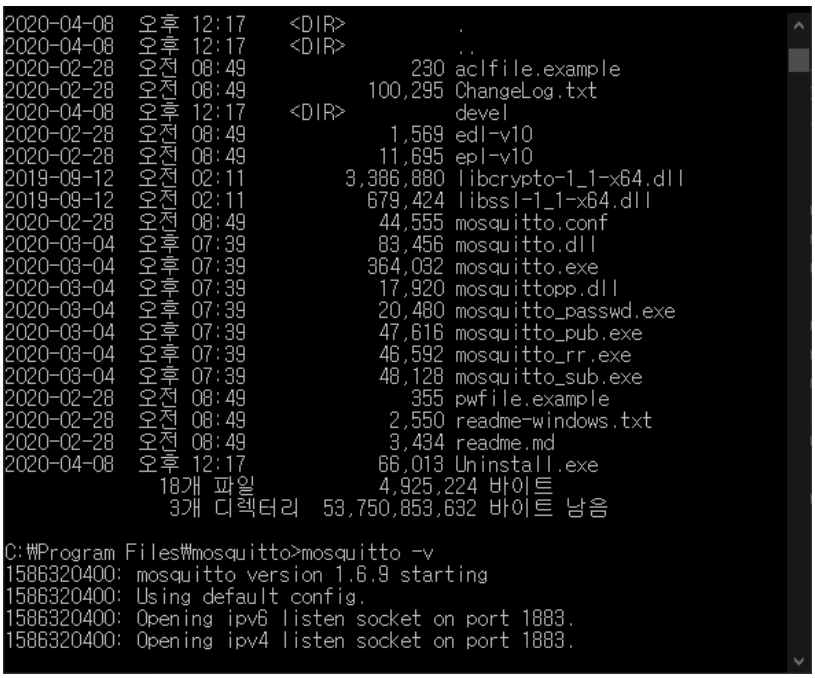
- **Run**

  Run the “command prompt” in administrator mode and move to the installation folder to input the commands below.

  - **Server (mosquitto)**

    · Command: mosquitto -v

    · Running screen



  - **Publish (mosquitto_pub)**

    · Command: mosquitto_pub -h localhost -i testPub -t debug -m "TESTNG"

Command	Description
-h	Specify sever
-i	Specify Client ID (omitable)
-t	Specify subscription topic
-m	Specify publishing message

  - **Subscribe (mosquitto_sub)**

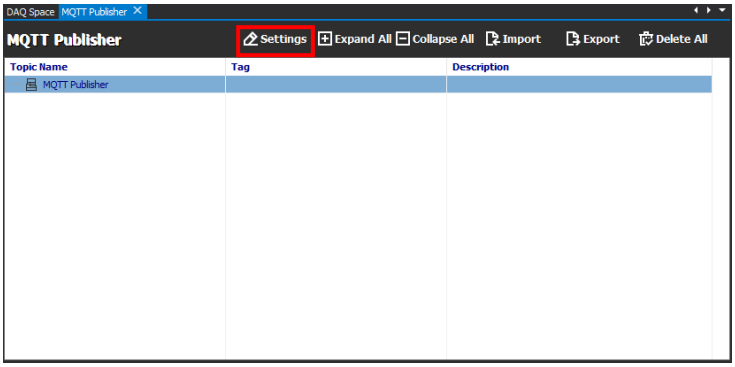
    · Command: mosquitto_sub -h localhost -i testSub -t /DAQMaster

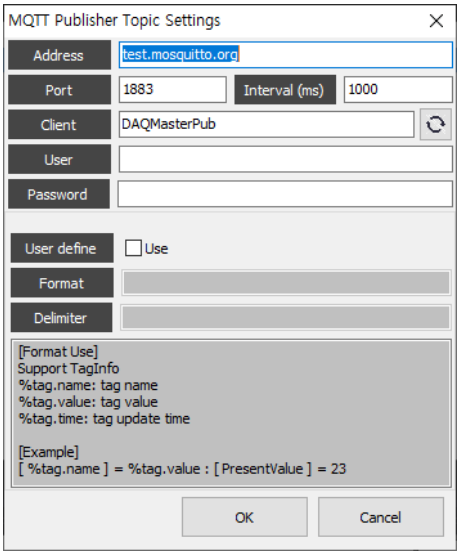
※ For more detailed instructions and instructions, refer to the manufacturer’s website (http://mosquitto.org).

6.10.3 MQTT Publisher

▪ Setting

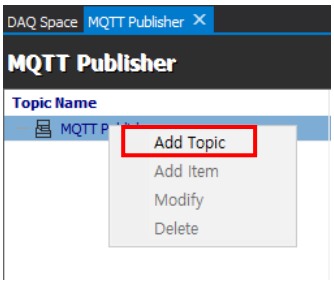
1st Check the MQTT Publisher entry in the “Project” control panel and double-click to launch the “MQTT Publisher” and click the [Settings] button at the top to open the “MQTT Publisher Topic Settings” window.

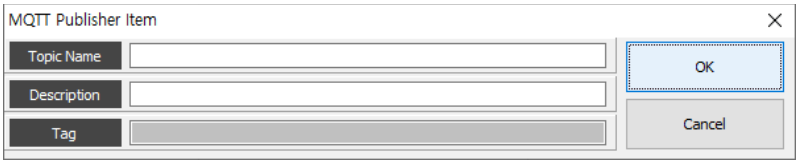


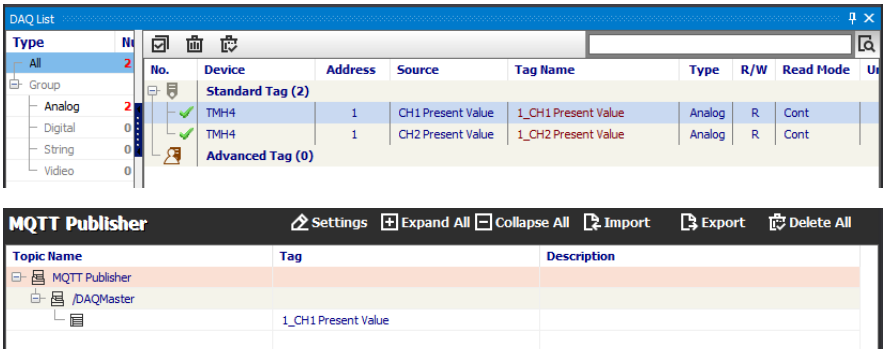


Item	Description
Address	Address of broker server
Port	Port of broker server
Interval	Communication interval
User	Input the user ID that set on the broker server
Password	Input the user password that set on the broker server
User define	Uses user-specified data formats and separator. Default tag name = tag.name tag value = tag.value tag time = tag.time separator = %

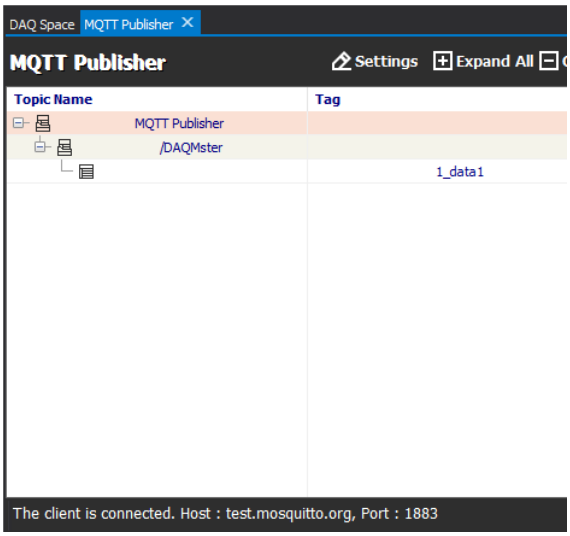
2nd Right-click the topic item in the “MQTT Publisher” settings window, select [Add Topic] to open the “MQTT Publisher Item” settings window, create each item, and click the [OK] button.





Item	Description
Topic name	Name of Topic to publish
Description	Description of Topic to publish
Tag	Select a tag to register with Topic. An added tag can be registered to the “DAQ List” by dragging to the topic time in the “MQTT Publisher” window. 

3rd Click the [Connect] button on the Project - Run menu to try to connect to the broker server and display the results at the bottom. After connecting, clicking the [Run] button initiates monitoring and sends the value of the registered tag to the server.



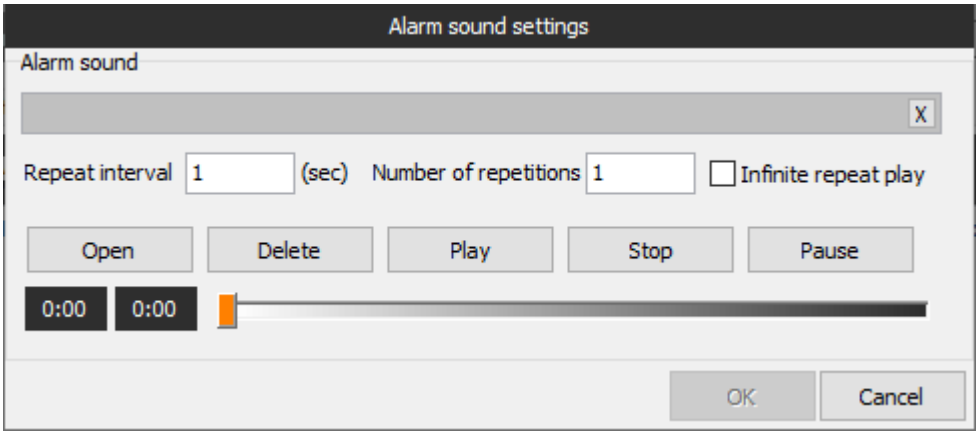
※ Refer to “7.11 MQTT Subscribe“ for the details about MQTT Subscribe.

6.11 Action

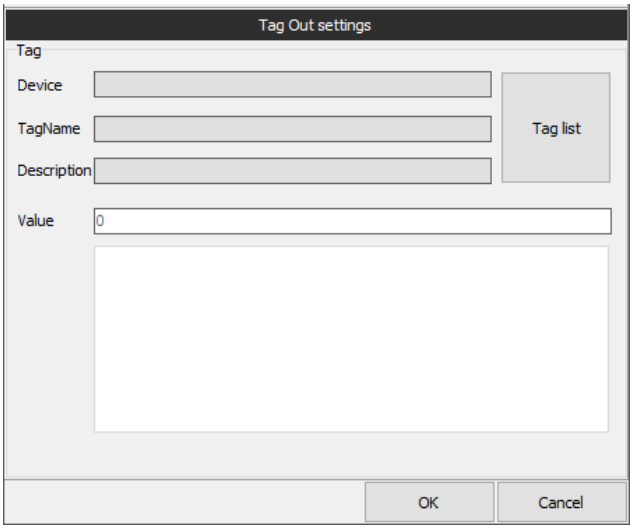
This function is executed when the conditions set in “Trigger Event” or “Scheduler” is met.

6.11.1 Type and setting

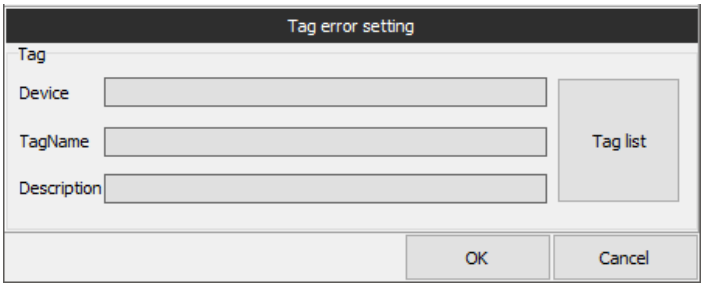
- Start log: starts the log function.
- End log: stops the log function.
- Send a telegram message: sends a telegram message.
  ※ For more information about the telegram settings, refer to “6.11.2 Telegram message setting“.
- Play alarm sound: plays the selected sound file.
  Select [Open] button to choose desired sound file and click [OK] to apply it.



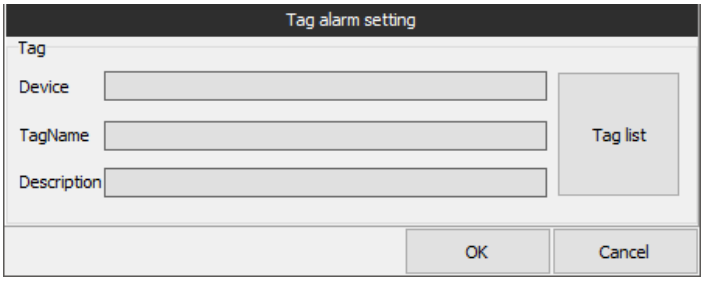
- Tag Out: Outputs user-defined value to the specified tag in the “Tag Out” Settings.
  Click [Tag list] and select the desired tag. And enter the value to the “Value” and click [OK] to apply it.



- Tag error: Outputs the user-defined tag error to the specified tag.
  Click [Tag list] and select the desired tag. And click [OK] to apply it.



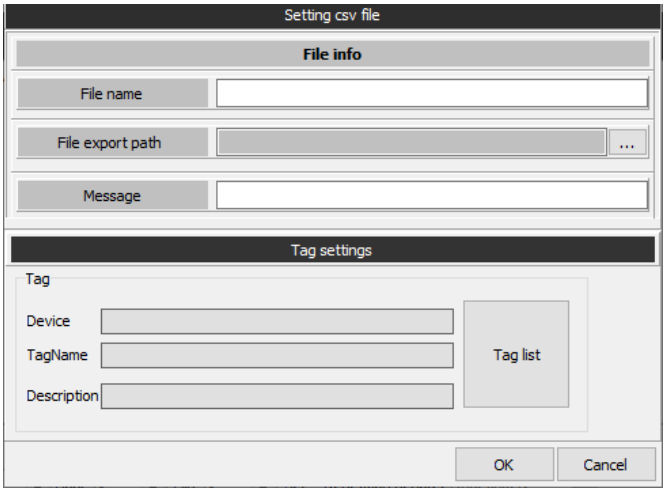
- Tag alarm: prints the user-defined tag alarm to the specified tag.
  Click [Tag list] and select the desired tag. And click [OK] to apply it.



- Send SMS text message: Sends a telegram message.
  ※ For more information about the telegram settings, refer to “6.11.3 SMS text message setting“.

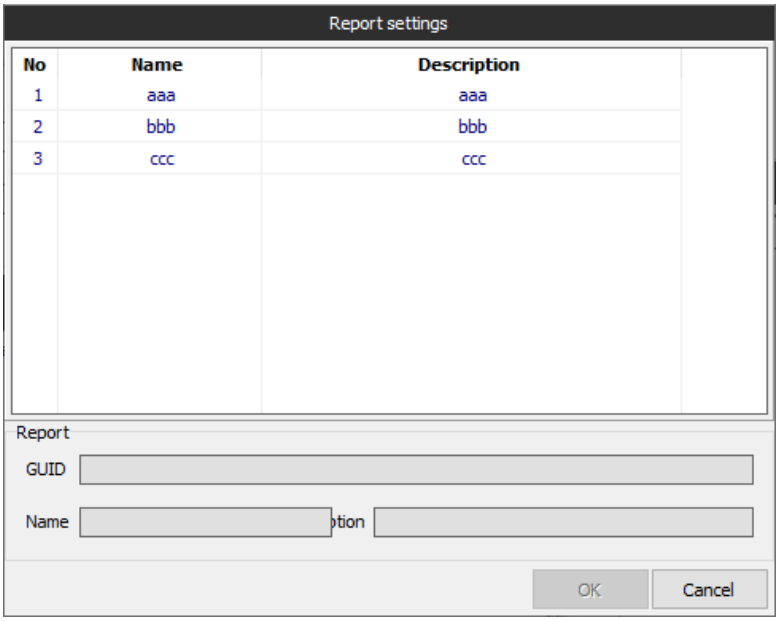
- Send email message: Sends a telegram message.
  ※ For more information about the telegram settings, refer to “6.11.4 Email message setting“.

- Export csv file: Saves tag information to csv file in the selected path.



- Report export: Export the one of selected report file which is set by “Report” function.

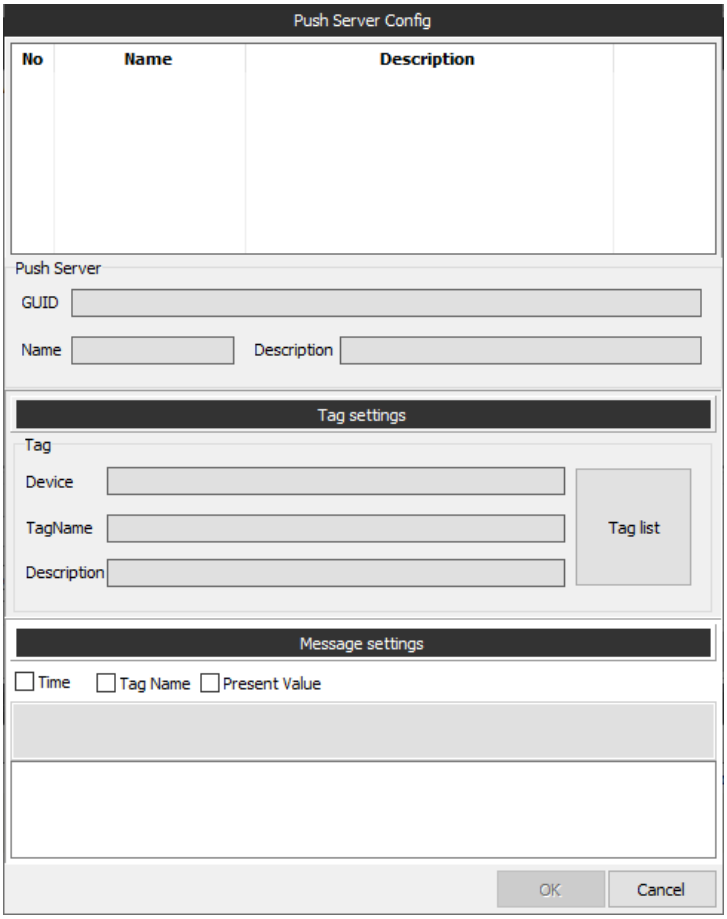
  ※ For more information about the “Report”, refer to “6.5 Report“.



- Send push alarm: Transfers the tag information to the added device.

  Select the desired push server, select tag value to transfer (Time, Tag Name, Present Value) and click [OK] button.

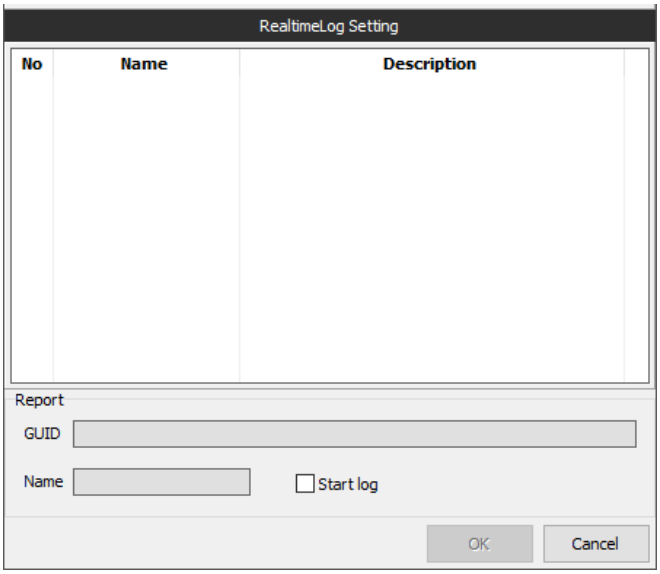
  ※ For more information about the “Push Server”, refer to “6.9 Push Server“.



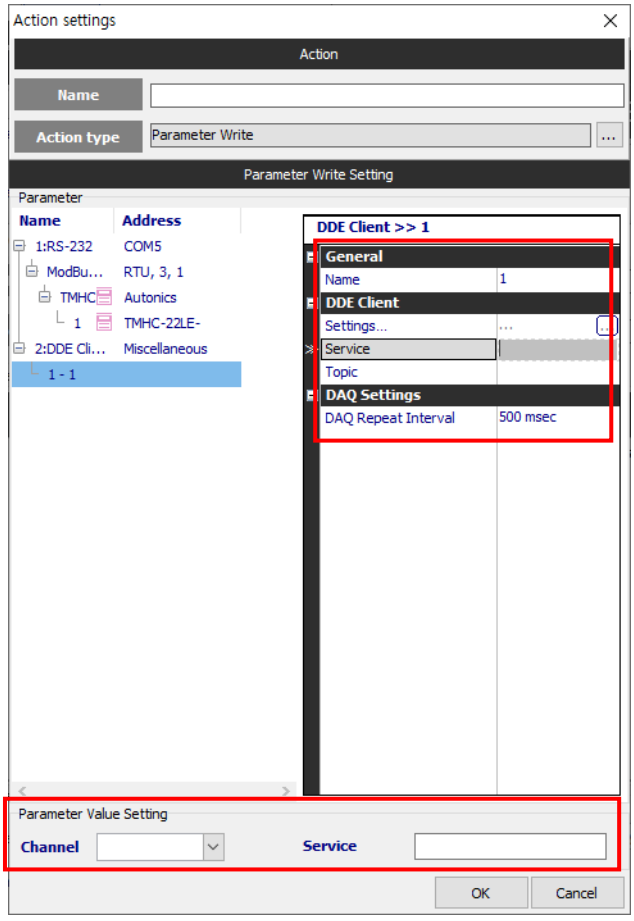
- Realtime log: Runs the real time log which have already set.

  ※ For the information about realtime log, refer to “6.2 Realtime log“.

  Select realtime log name on the list and click [OK] button.

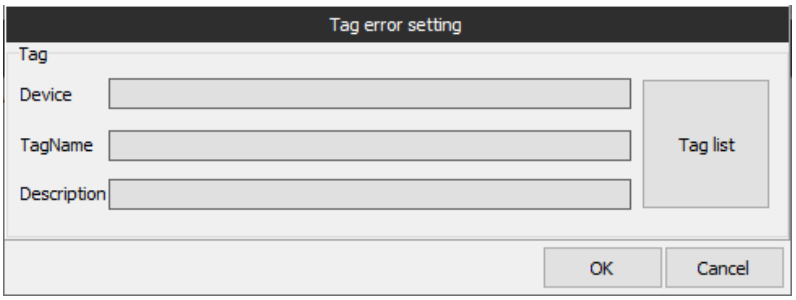


- Parameter write: Writes a preset value for the specified parameter.



In the “Parameter” window, select the desired parameter, enter the channel and the desired value to the “Parameter Value Setting” window, and click the [OK] button.

- Reset value: Initializes the selected tag value.



Click the [Tag list] button to select a tag and click the [OK] button.

6.11.2 Telegram message setting

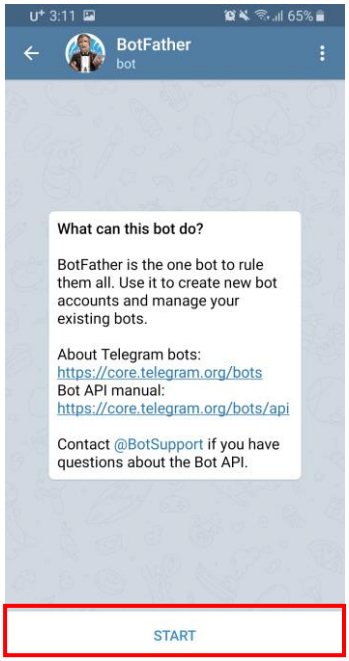
Telegram is a nonprofit open source internet messenger, available in diverse operating system such as Android, iOS, Window, MAC and Linux. It provides users with source code, encouraging them to develop desired functions with the messenger.

By the Bot, virtual conversation contact, when tag value matches 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 an identical setting process. This manual explains with Android)

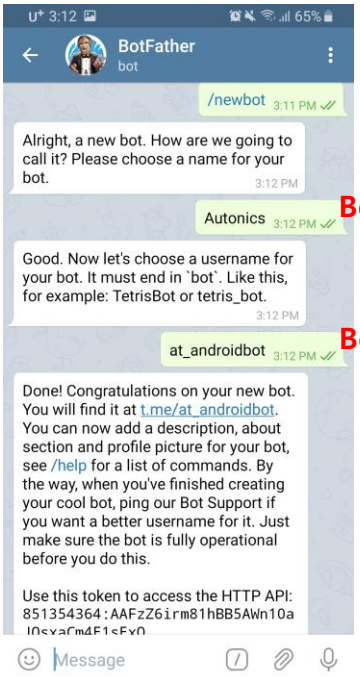
1st Search “Telegram” at the Android Play store and download the application.

2nd You have to create and register a virtual robot called Bot to receive messages from DAQMaster. In the telegram (at the upper the magnifying glass icon), search and select @Botfather.

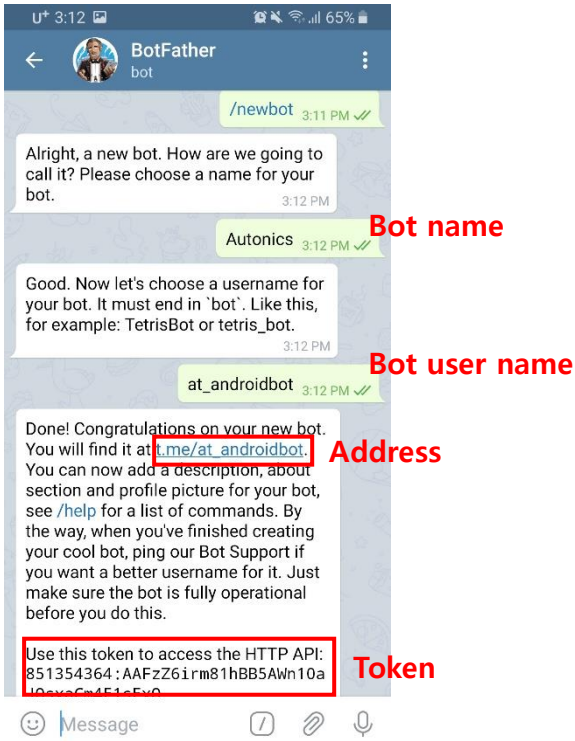
3rd Click [Start] button of the display as below.



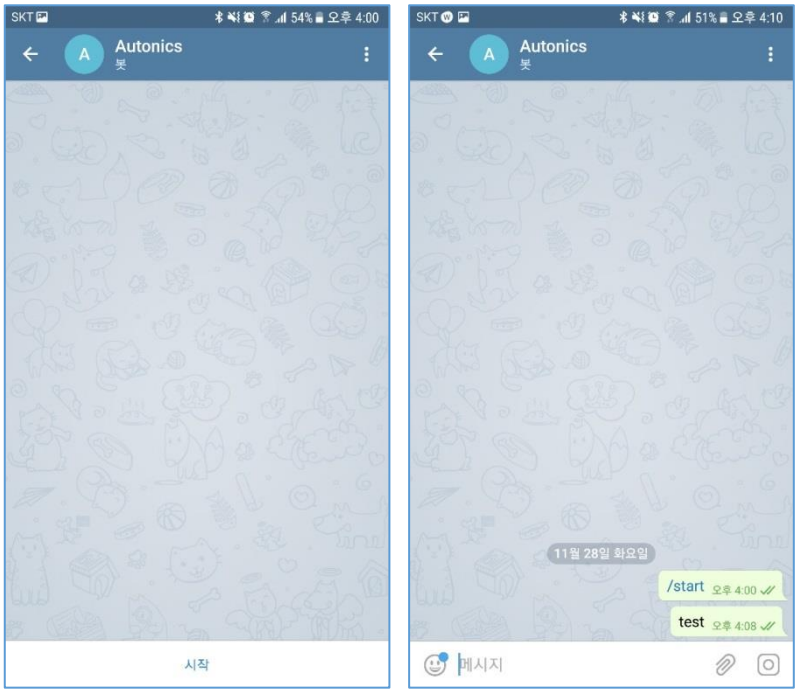
4th According to the BotFather message, name a Bot name, Bot user name (must end with “bot” or “Bot”).
identifying name at the telegram. If the other named the designated name already, it is not used in duplicate.
(E.g. Bot name: Autonics, user name:at_androidbot)



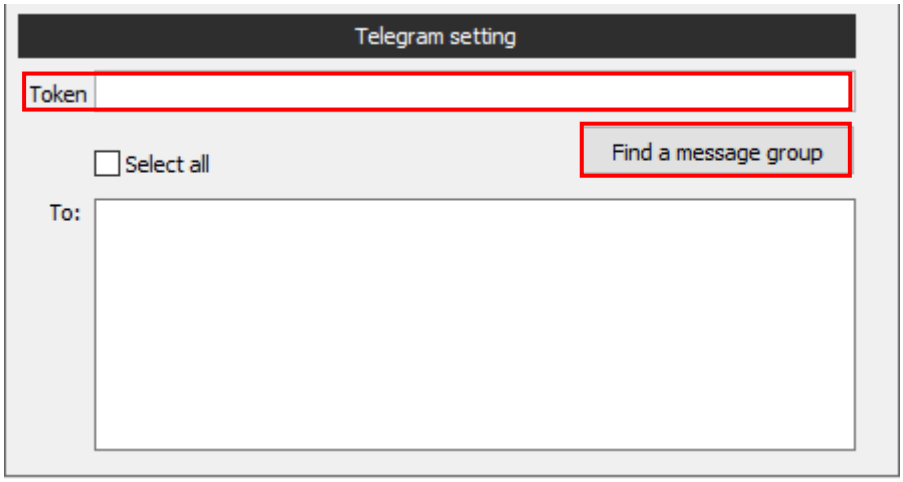
5th Then you are provided with address to chat with the created Bot and token. Token is as same function as the serial number or register code, so it is essential to find chat groups and send messages. Click the given address to join chat with the Bot.



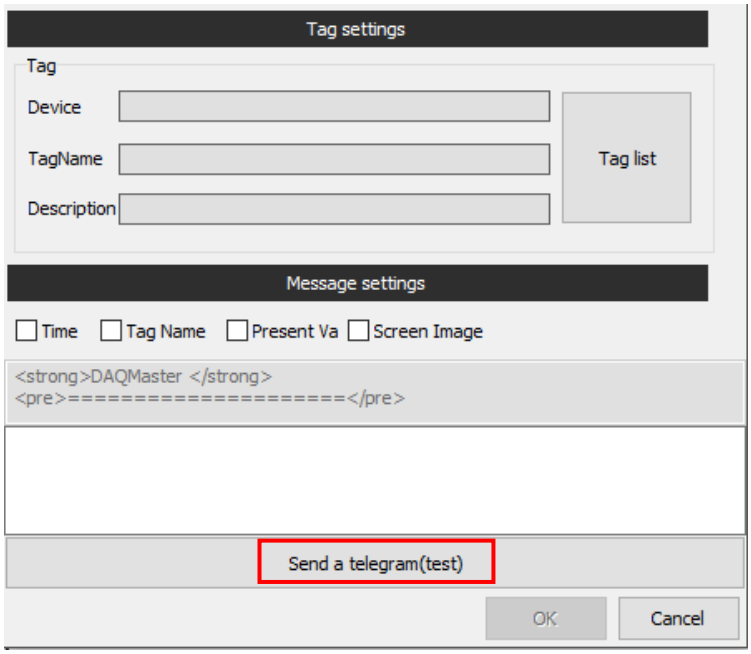
6th Click [Start] at the button of the display. One or two times of message are necessary prior to receiving message from your Bot. If you do not send the messages, the group may not be searched.



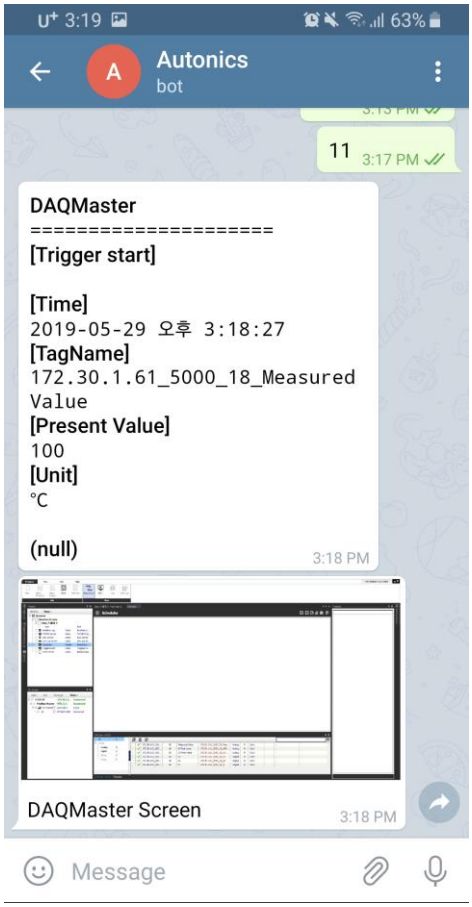
7th In the DAQMaster, double-click “Send a telegram message” in action type to open “Telegram setting” window. Enter the token issued in 5th step to the “Token” item and click [Find a message groups] button.



8th Check the desired receiver, select chat to use and choose alam message format among “Time”, “Tag Name”, “Present Value” and “Screem Image”.
After entering test message in the bottom blank, click [Test] button.

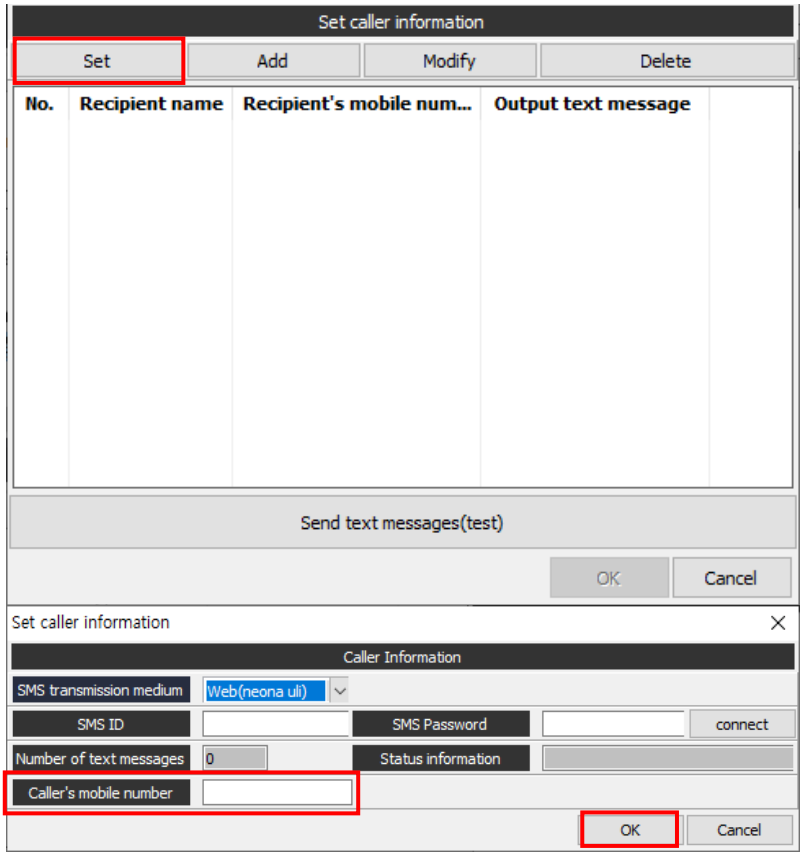


9th Message is delivered to Telegram.

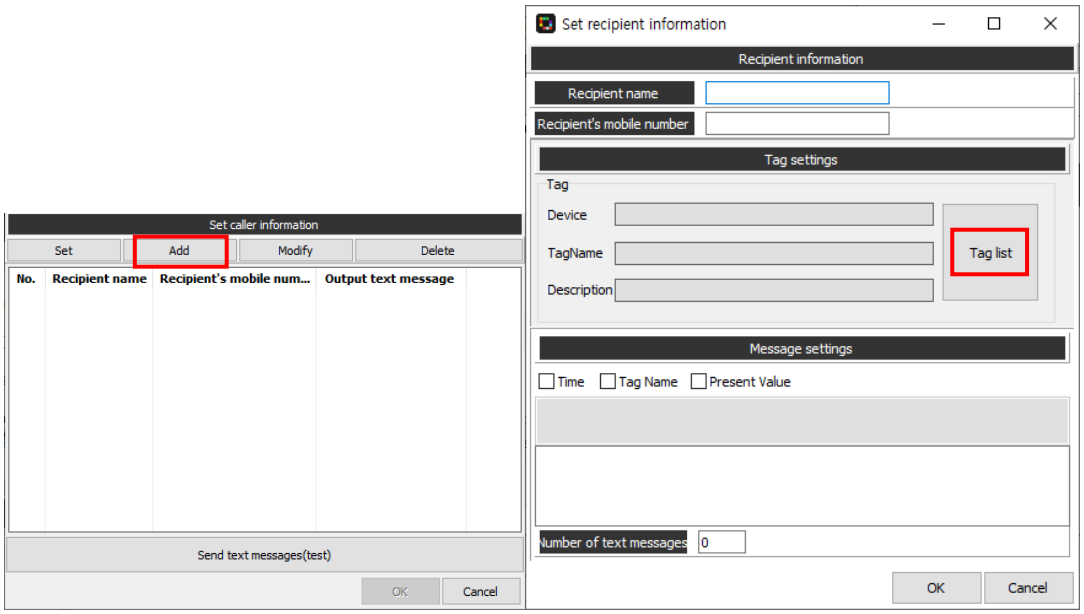


6.11.3 SMS text message setting

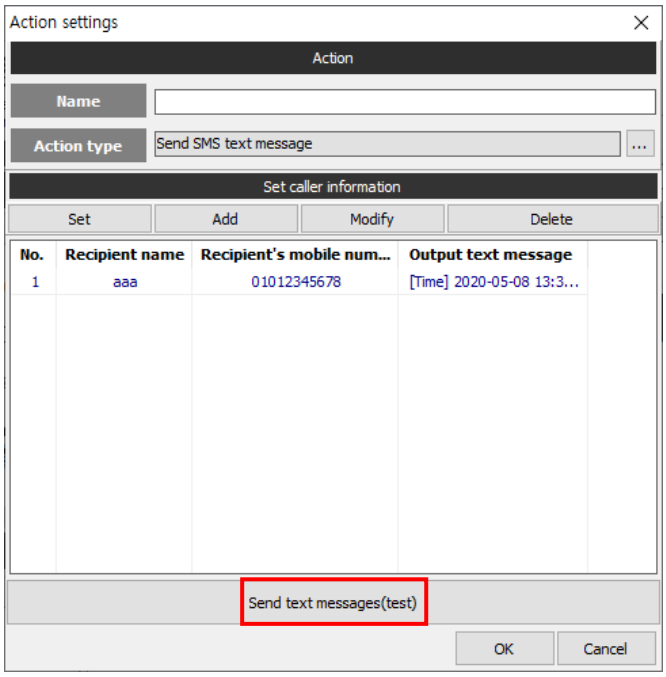
1st Click [Set] button in the “Set caller information” item and edit SMS transmission medium, SMS ID and SMS Password and then click [connect] button. Edit caller’s phone number at the “Caller’s mobile number” and click [OK] to save it.



2nd Click [Add] button in the “Set caller information” item and open “Set recipient information” window. Click [Tag list] button to select the desired tag. And select message type to send. (Time, Tag Name, Present Value)



3rd Click [Send text messages (test)] to check whether the message is properly sent or not.



Note

The cost is at the caller's expense.

Only short messages can be sent and only one destination can be set.

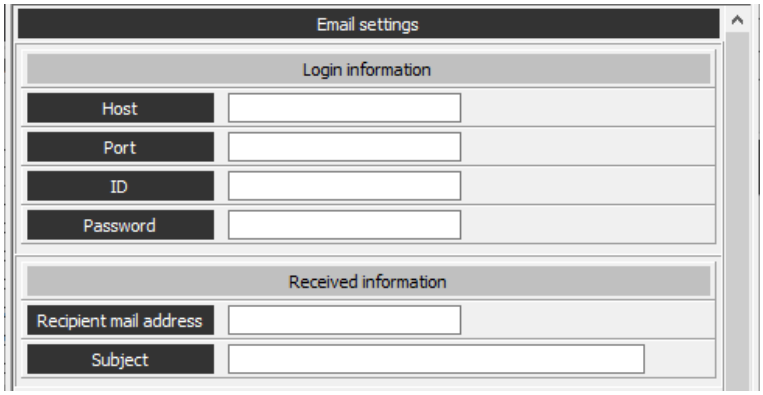
Depending on the text message service provider, overseas receiving may be restricted.

For more information, contact the SMS text service provider.

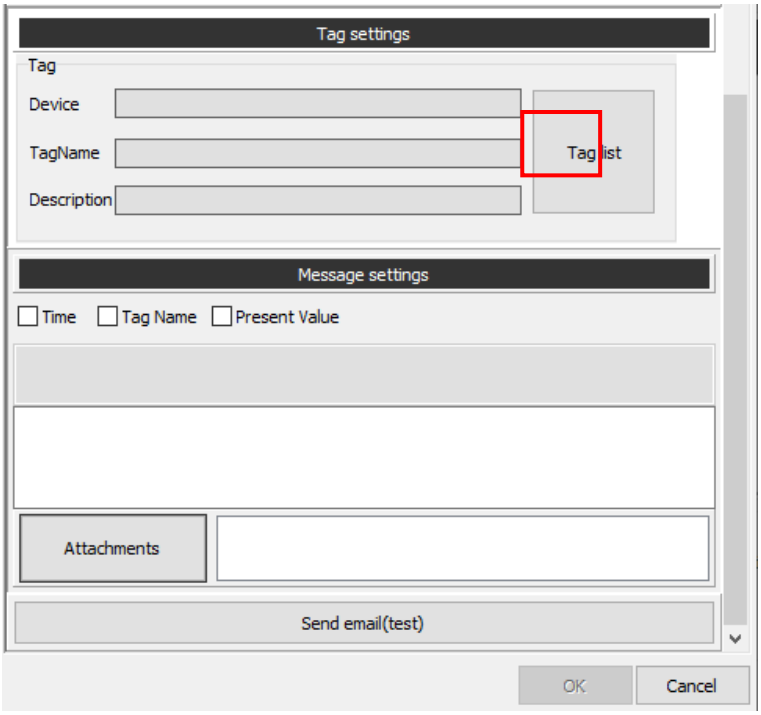
6.11.4 Email message setting

Send email message: send an email to the designated address with tag information.

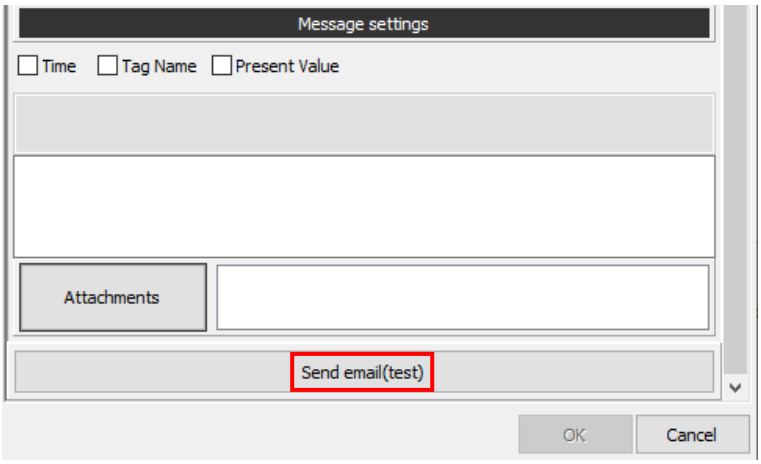
1st Enter the “Login information” and “Received information” in the “Email settings” item.



2nd Click [Tag list] to select the desired tag and select Message type (Time, Tag Name, Present Value) and Attachments.



3rd Click [Send email (test)] to check whether the message is properly sent or not.

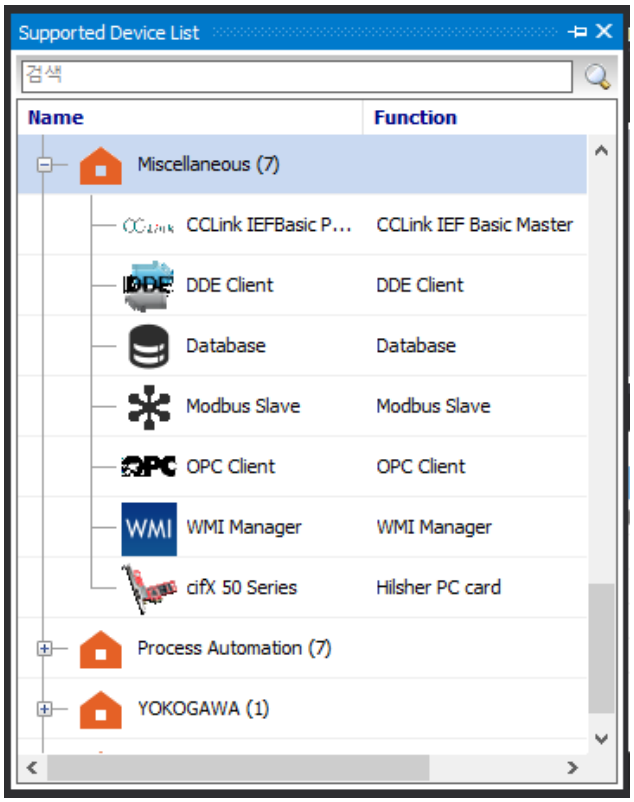


7 Miscellaneous (User-defined device)

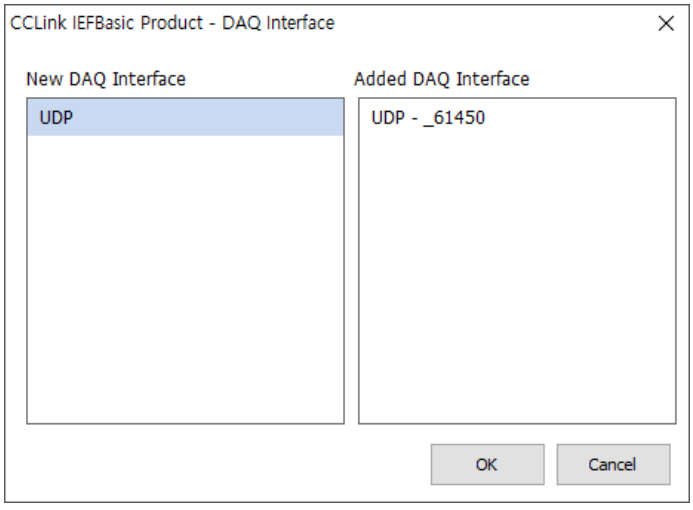
You can add or edit the miscellaneous devices which are not supported at DAQMaster.

7.1 Add User-defined device

1st Double-click the device type of “Miscellaneous” in “Support Device List” control panel and add it to “My System”.



2nd When “DAQ Interface” window pops up, select the currently used interface and click [OK]. (If there is no selectable option, this step is skipped)



3rd When selecting the device name in “My System” control panel, [Add] button is enabled. To add a unit (address), click the [Add] button in upper menu.

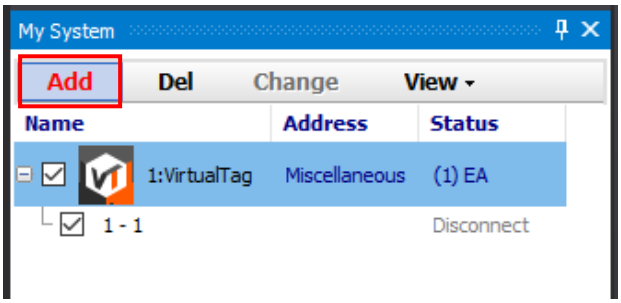
4th Select each item in “My System” control panel to check and edit the detailed information in “Property” control panel.

7.2 Virtual Tag

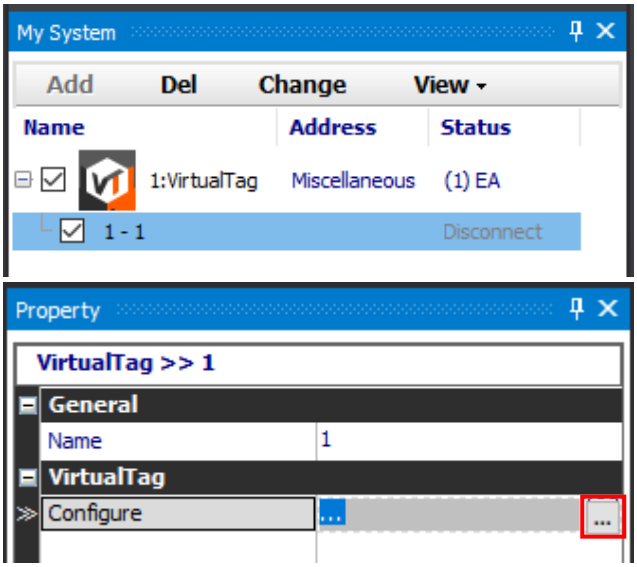
Connects multiple READ type tag values and apply formulas to a virtual tag to obtain the desired form of data, or enter data into a virtual tag to transfer that data to multiple WRITE type tags.

7.2.1 Setting

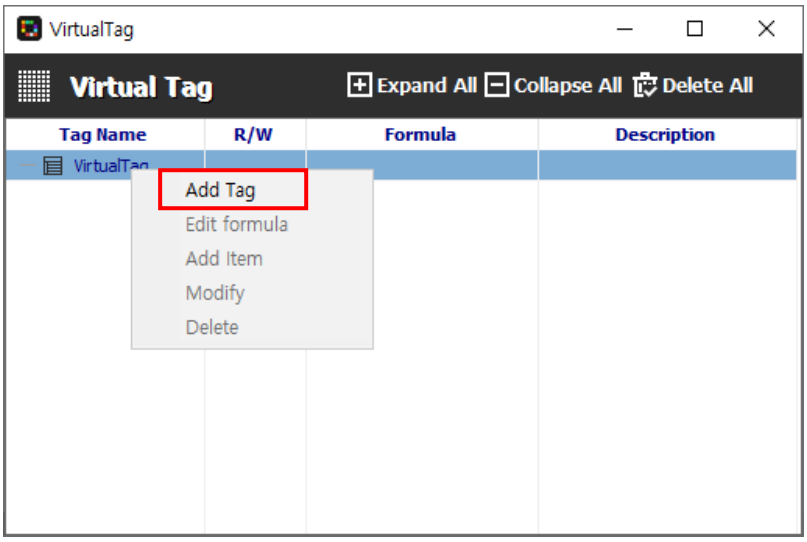
1st Add the “VirtualTag” to “My System” control panel and select it. To add the unit, click [Add] button.



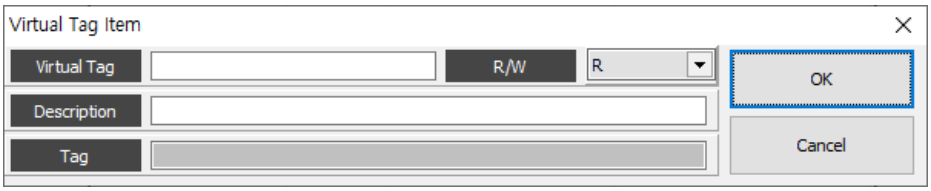
2nd Select the added unit, and click the […] button next to the “Configure” in the “Property” control panel to open “VirtualTag” window.



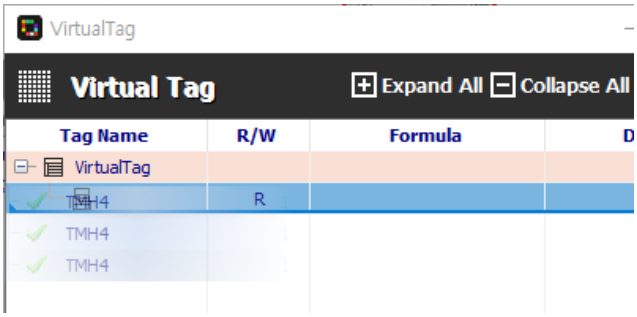
3rd Right click “VirtualTag” item and click [Add Tag] button.



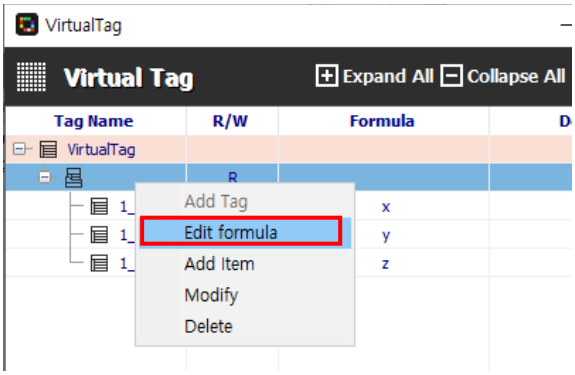
4th Enter name of virtual tag, type of R/W, description of tag in “Virtual Tag Item” and click [OK] button.



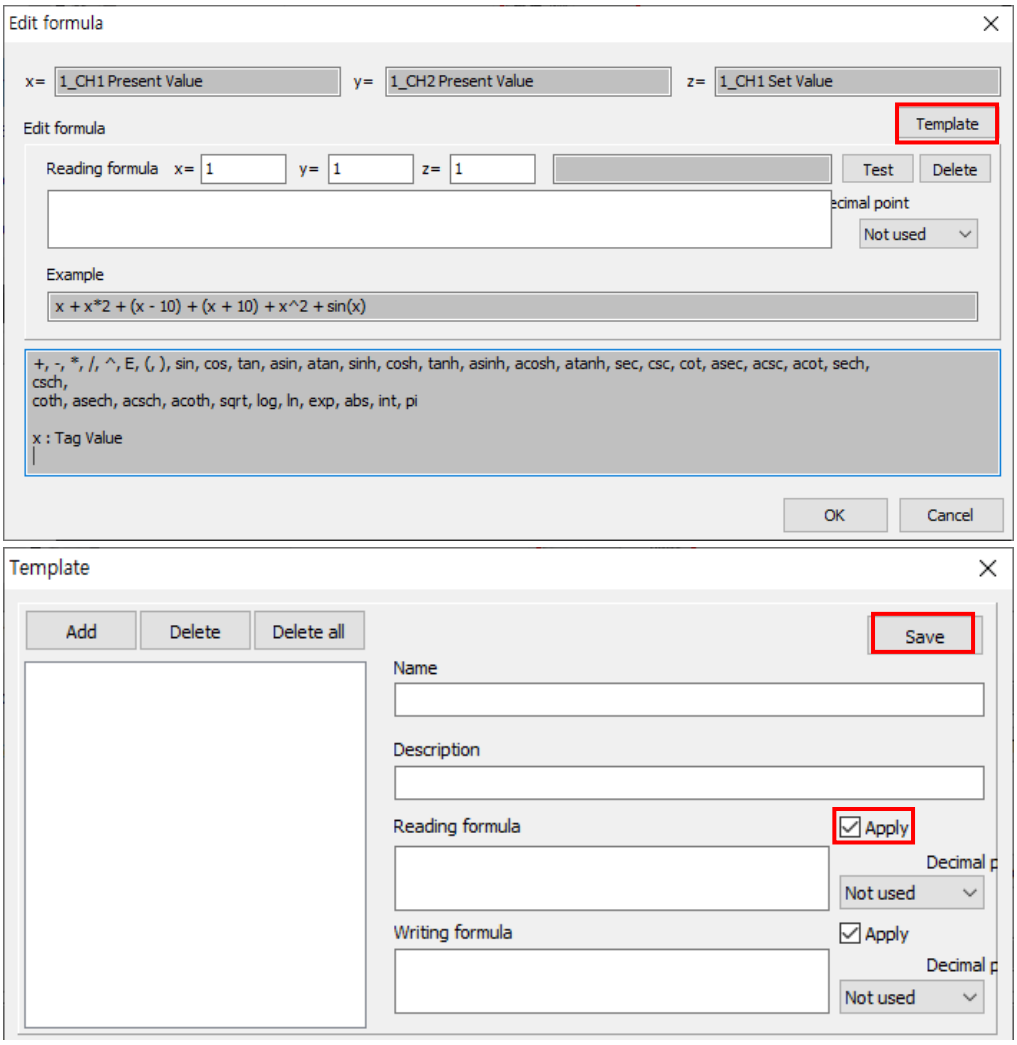
5th Drag the device tag from “DAQ List” control panel.



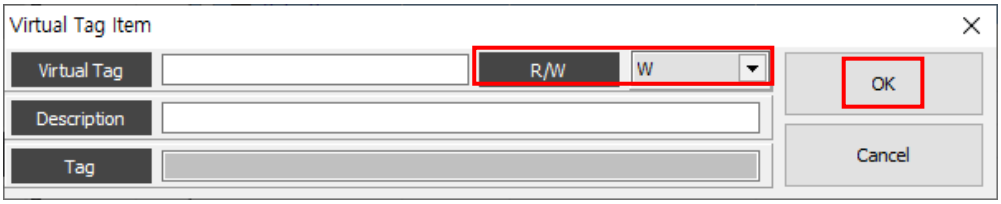
6th To apply the formula, right click the added virtual tag item and click the [Edit Formula] button.



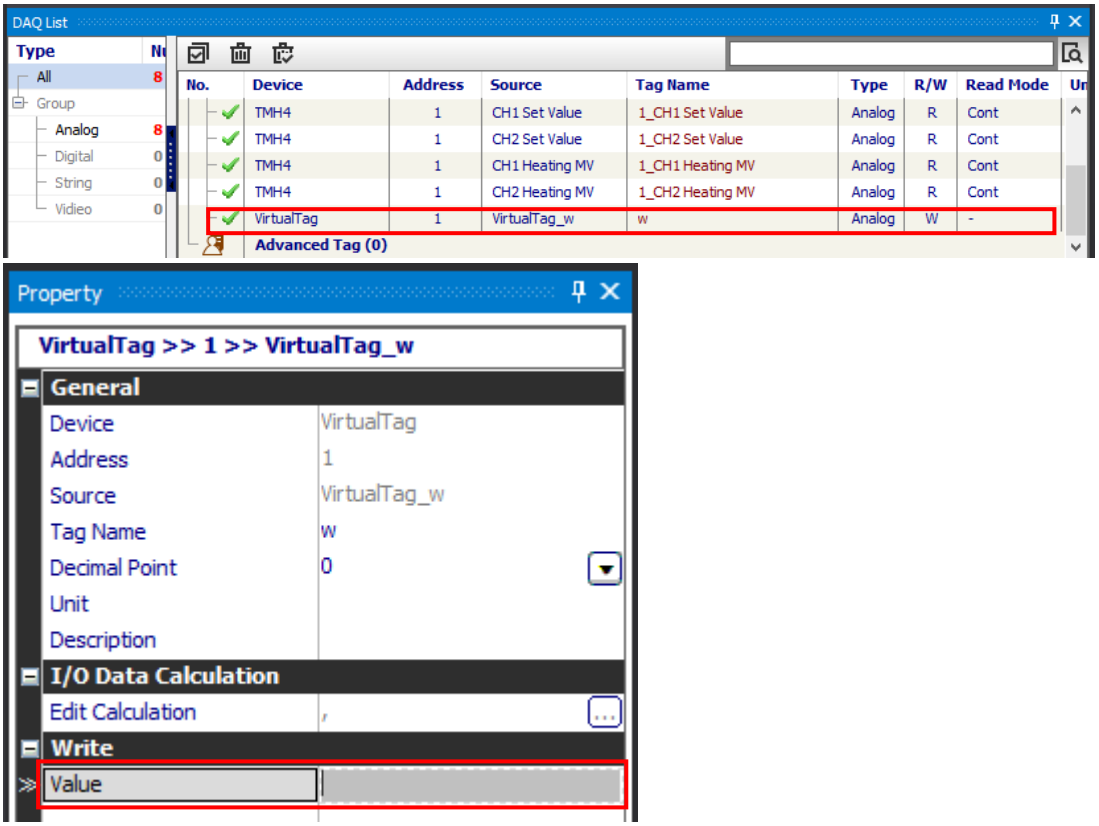
7th In the “Edit Formula window”, click the [Template] button to edit the formula. Check the check box next to “Apply” to apply the formula immediately and click the [Save] button to save the formula.



8th To transfer data of virtual tag to other tag, create a virtual tag of a write property. In the “Virtual Tag Item” window, select “W” as the setting value of “R/W” item and click [OK] button.



9th Select the generated virtual tag name of a write property, enter the value in the “Write - Value” item in the “Property” control panel.

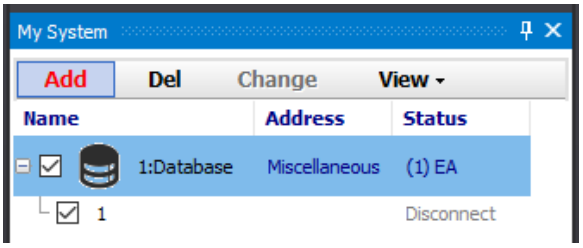


7.3 Database

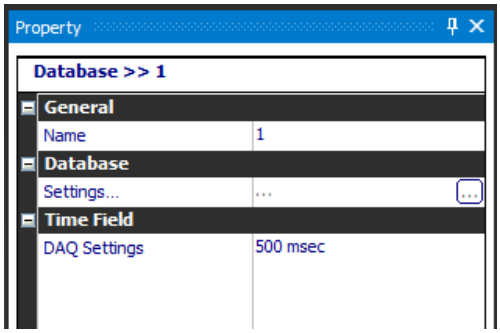
Database managing system turns information into database in real-time, making creation and management easier.

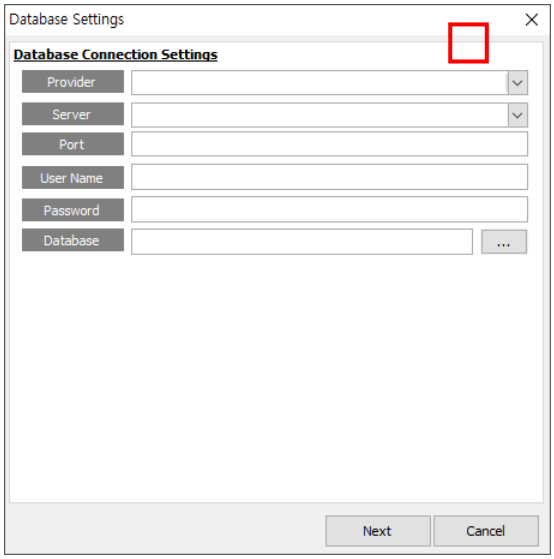
7.3.1 Setting

1st Add the “Database” to “My System” control panel and select it. To add the unit, click the [Add] button.

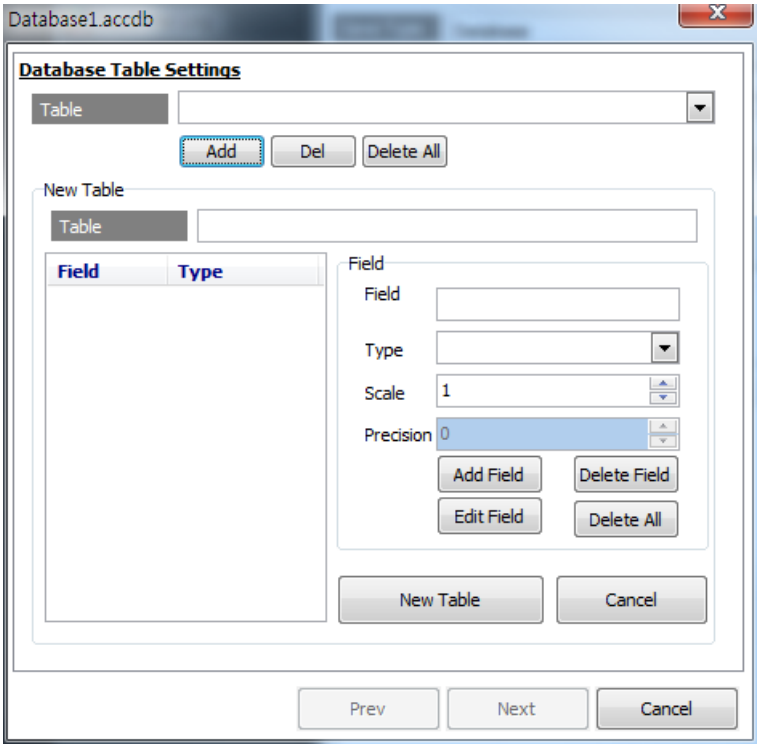


2nd Select the added unit, and click the […] button next to the “Settings” in the “Property” control panel to open “Database Settings window.
Set the Provider, Server, Port, User Name, Password and Database type, and click [Next] to connect the server.

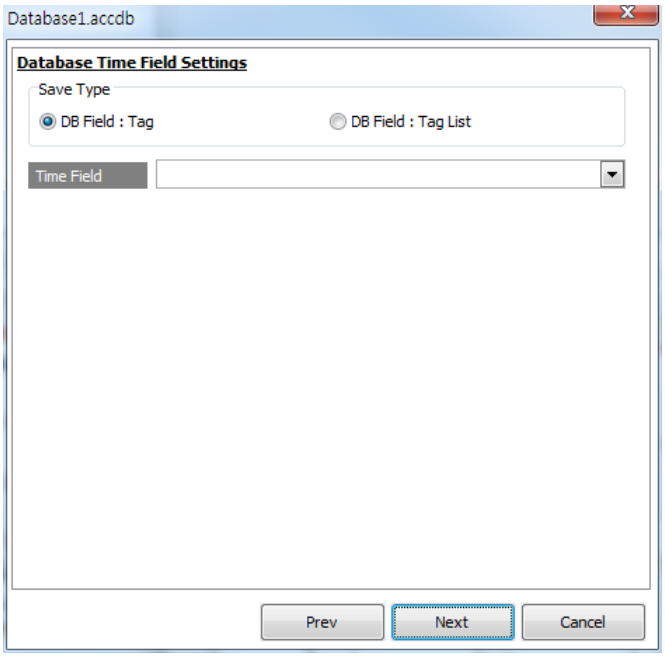




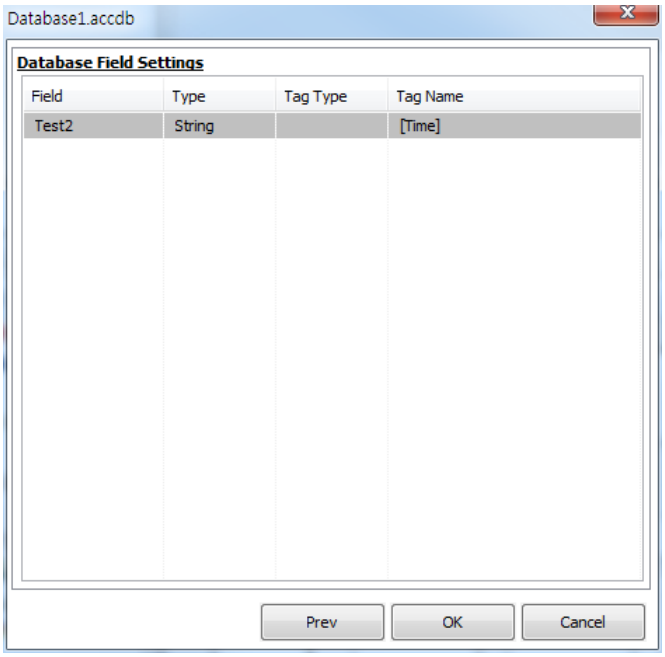
3rd If the connection with the server is successful, “Database Table Settings” window appears. You can select a table to be added and click [Add] button to edit the database. When the settings is complete, click [Next].



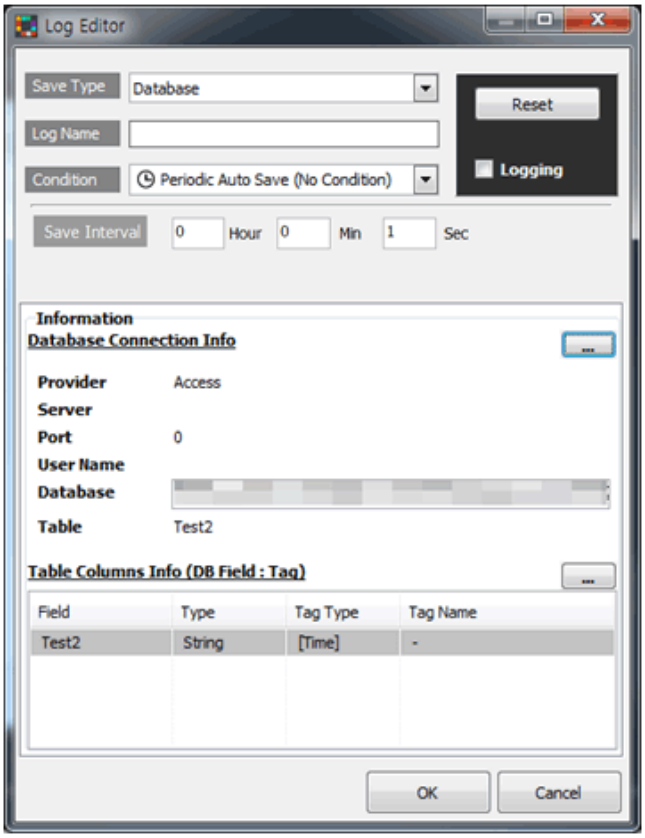
4th Select “Save Type” and “Time Field” in “Database Time Field Settings” window.



5th Set the database field and click [OK].



6th After the settings is complete, executes “Realtime Log”, then the information about database connection is displayed and […] button of “Table Columns Info” is activated.

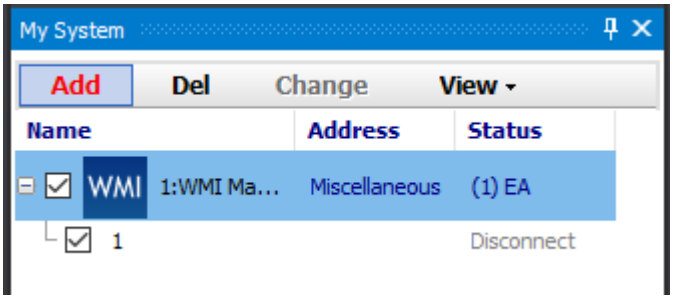


7.4 WMI Manager

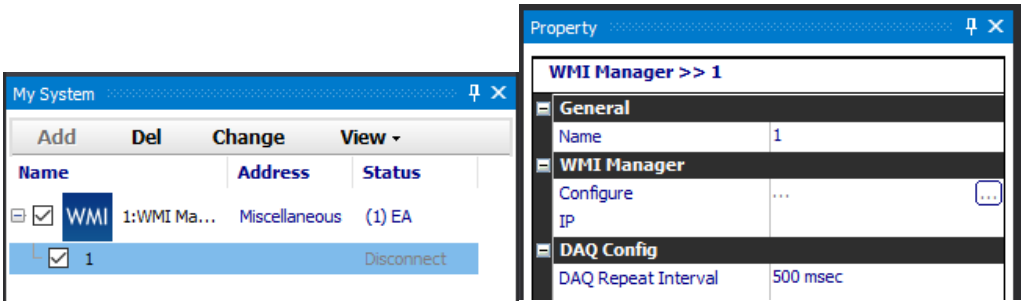
This function features that DAQMaster accesses and shares the managament information in the network using the Window Standards. It is able to collect and show the system configuration.

7.4.1 Setting

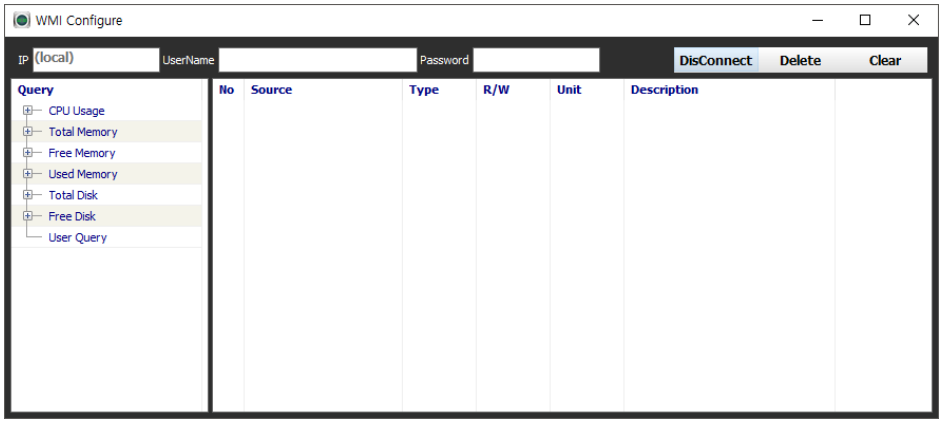
1st Add the “WMI Manager” to “My System” control panel and select it. To add the unit, click the [Add] button.



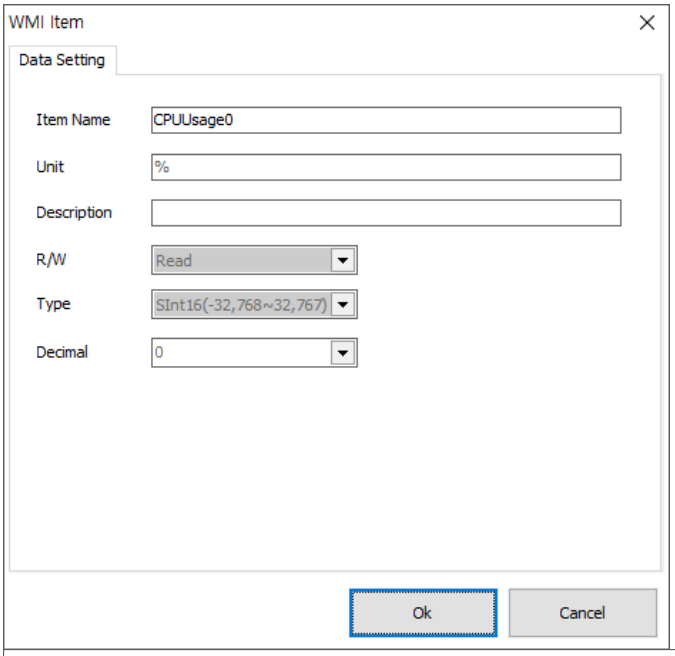
2nd Select the added unit, and click the […] button next to the “Configure” in the “Property” control panel to open “WMI Configure” window.

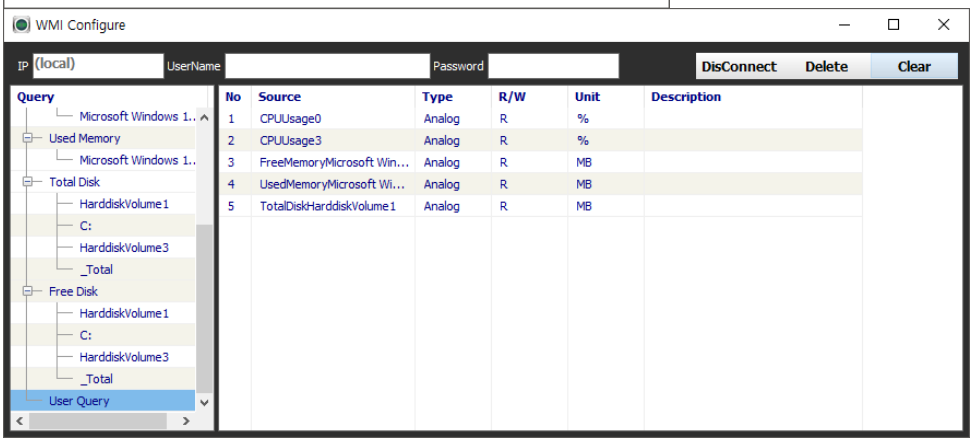


3rd Click [Connect] button to monitor local CPU load. When connecting is completed, items such as CPU Usage, Total Memory, Free Memory appears in the Query list.

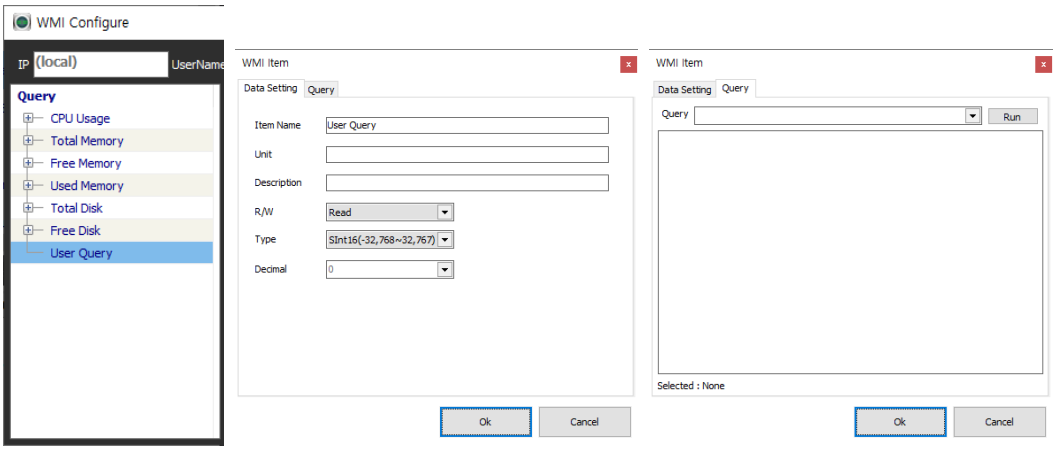


4th Double-click item to open setting window to monitor and click [OK] to add it to the tag item. It is possible to delete “WMI item” by using [Delete] and [Clear] buttons.

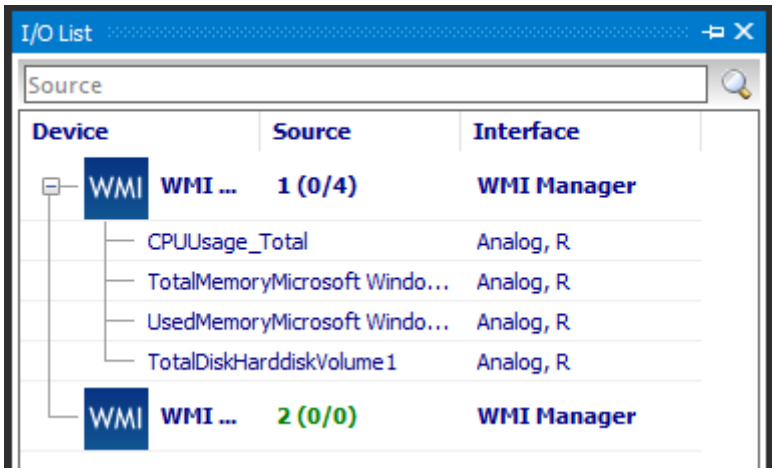




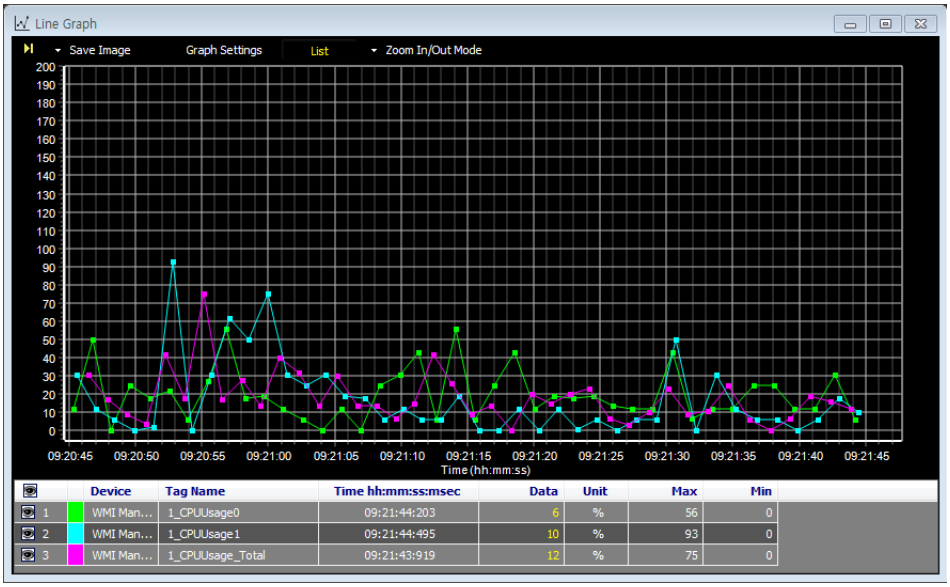
5th Double click the “User Query” to preview customized WMI query format.



6th 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.



7th You can monitor selected query items at the runtime screen in various kinds of graph style.

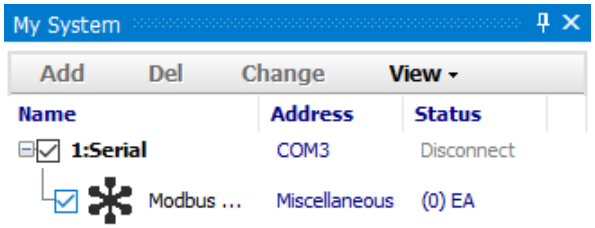


7.5 Modbus Slave

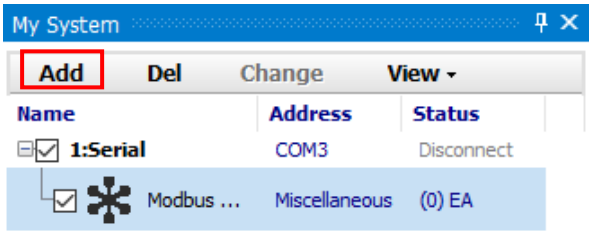
DAQMaster performs as a Modbus Slave responding to the reading and writing requirements. It supports Serial, Ethernet interface and RTU, ASCII, ModbusTCP Protocol.

7.5.1 Setting

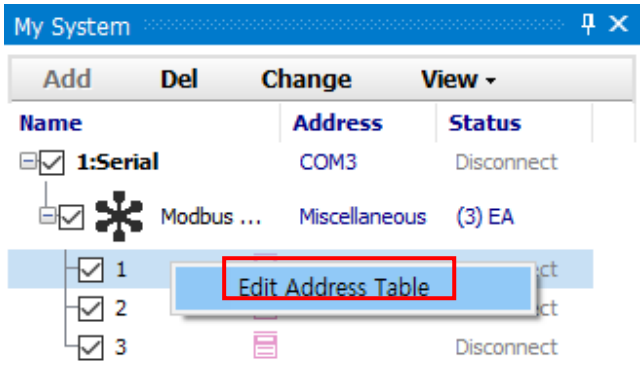
1st Add the “Modbus Slave” to “My System” control panel and select it. Set “Mode” and “Start Address” in “Property” control panel.

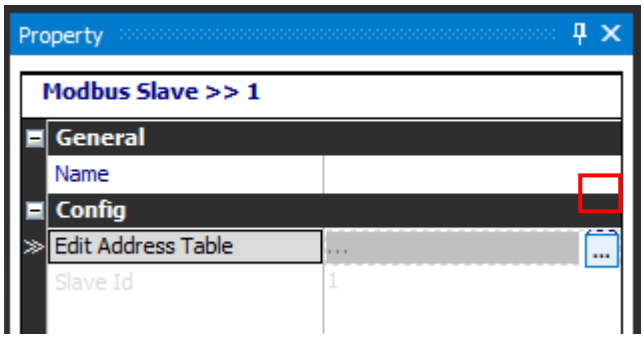


2nd Select added “Modbus Slave” in “My System” control panel and click the [Add] button to add the unit.

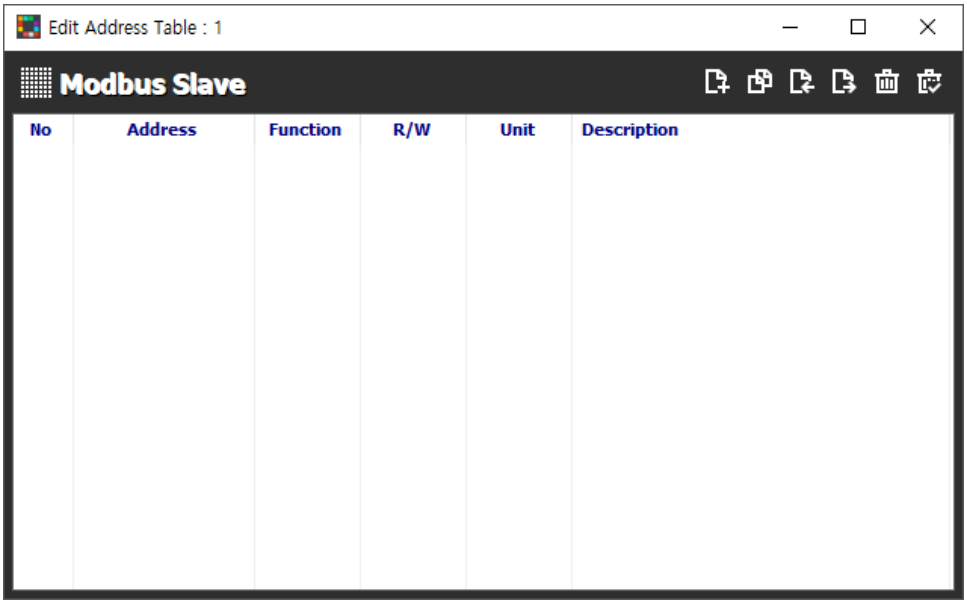


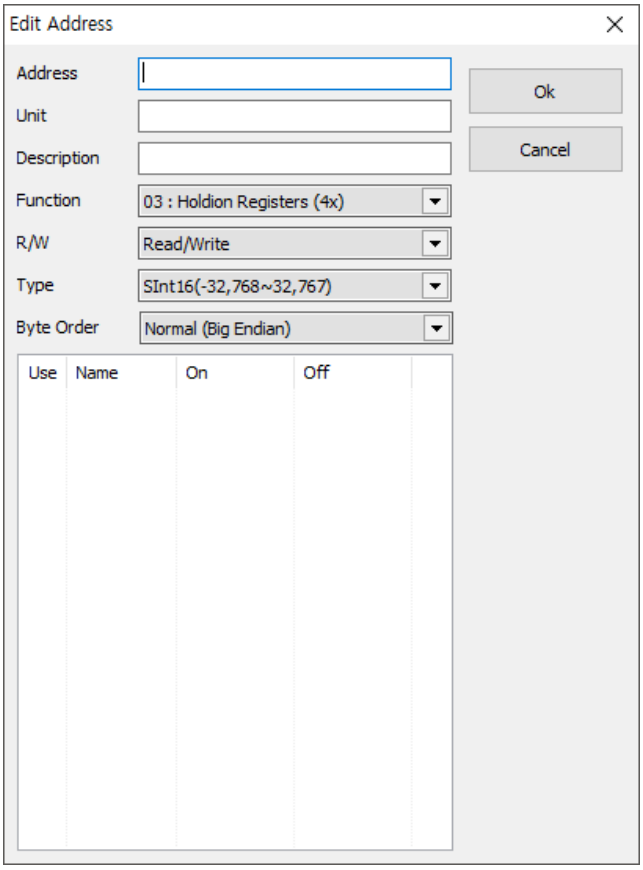
3rd Right-click the added slave unit address in “My System” control panel and click “Edit Address Table”. Or click […] of “Edit Address Table” of “Property” control panel and open “Edit Address Table” window.





4th Click [Add] button on the top of the “Edit Address Table” window, then “Edit Address” window pops up. In “Edit Address” window, setting the detailed information on the slave device is available. Edit the value of these items and click [OK] to set up.





※ The added I/O tags from “Edit Address” are added automatically to the I/O List.

5th Click [Copy] button of “Edit Address Table” window to copy the added item. Click [Import] / [Export] button to import and export the csv file.

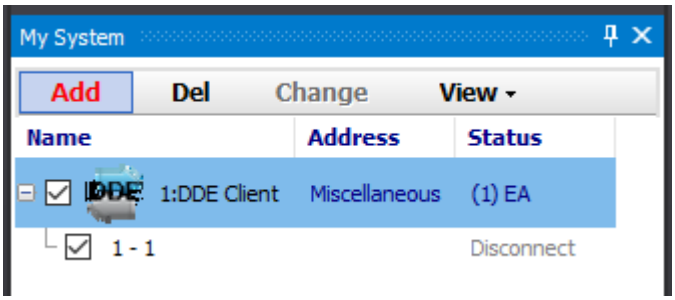
7.6 DDE Client

DAQMaster performs as a DDE Client, connecting to DDE Server and data communication.

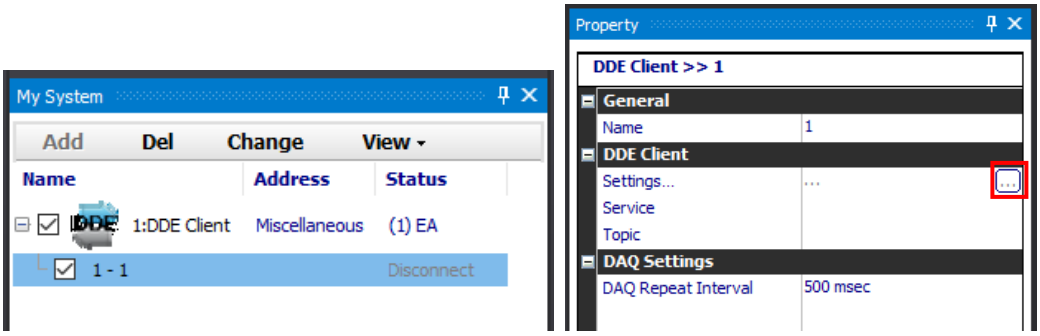
※ Refer to the “6.6 DDE Server“ for the details about DDE server.

7.6.1 Setting

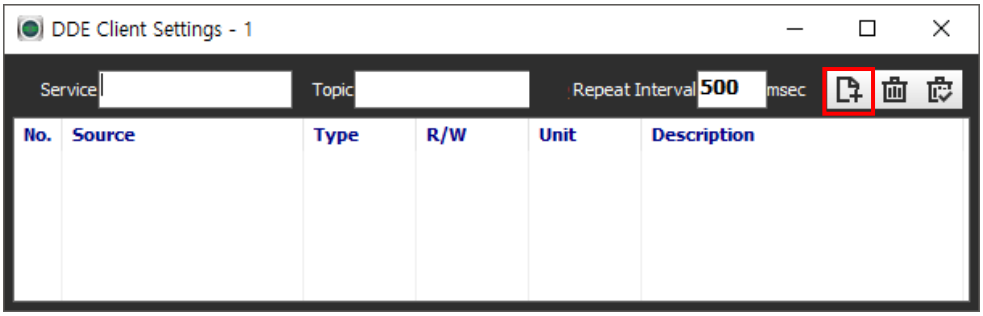
1st Add the “DDE Client” to “My System” control panel and select it. To add the unit, click [Add] button.



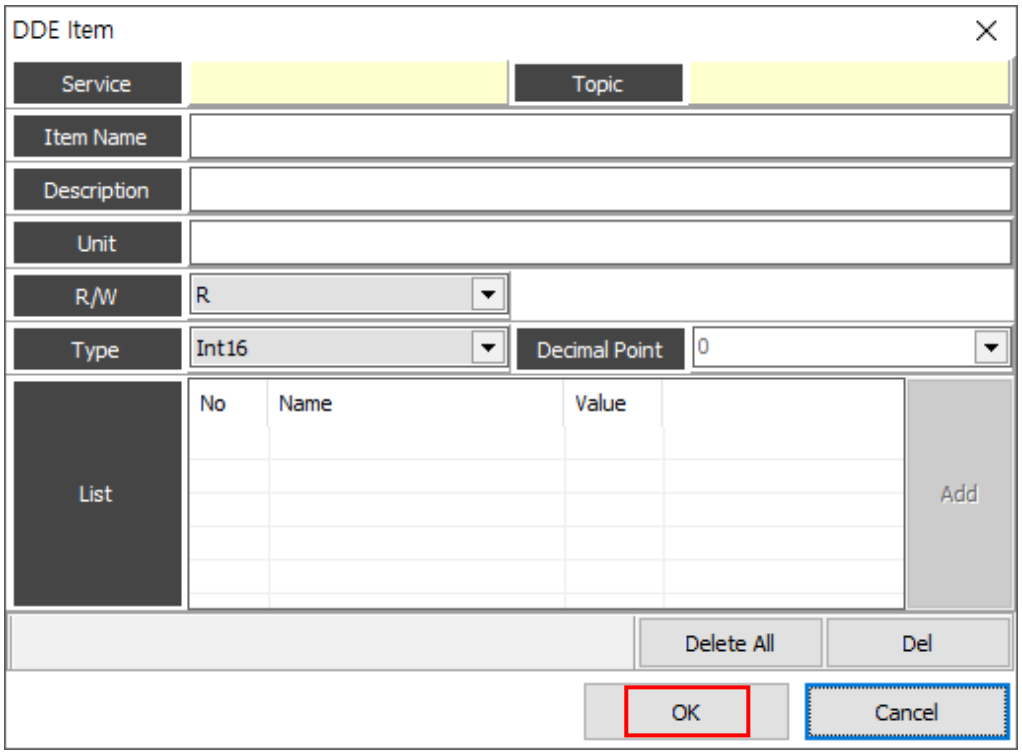
2nd Select the added unit, and click the […] button next to the “Setting” in the “Property” control panel to open “DDE Client Configuration-1” window.



3rd For connecting DDE Server, enter the “Service” and “Topic” values of DDE Server to “DDE Client Configuration-1” window. Click the [Add] item to open “DDE Item” window.

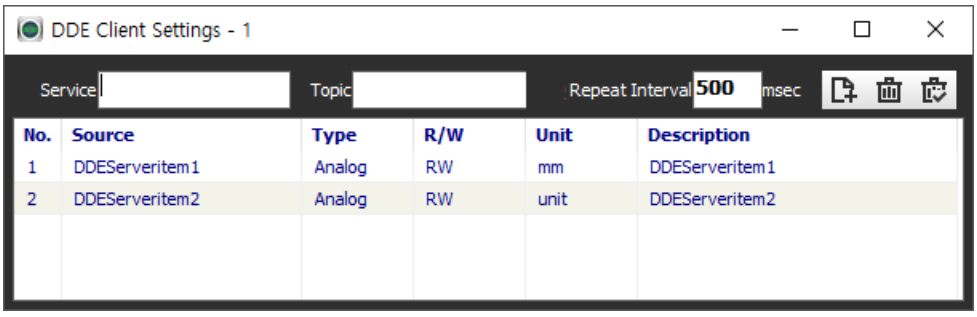


4th Enter a value for each item and click the [OK] button.

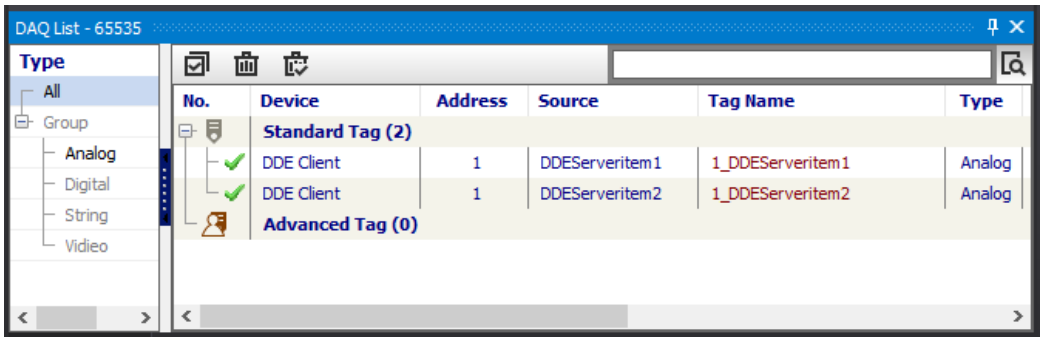


Item	Description	
Item Name	Enters the name of DDE Server item.	
Unit	Sets data unit.	
Description	Enters description of the item.	
R/W	R	Reading is only available.
	W	Writing is only available.
	R/W	Reading and Writing are available.
Type	Set method of data display.	
Decimal Point	Set decimal point.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

5th Below is when two items are added.



6th Check the added item at I/O List and it is available to be added to DAQ List.



7th At runtime screen, monitoring is available by various graph types.

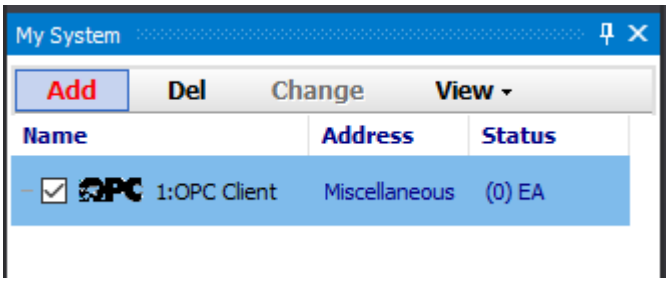
7.7 OPC DA Client

DAQMaster performs as a OPC Client, transmitting collected data to the connected OPC Server.

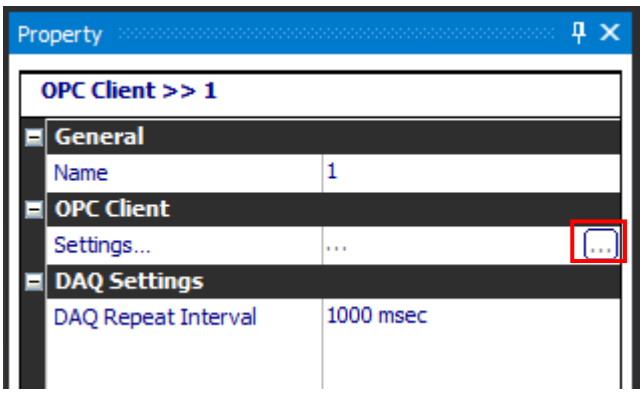
※ For more information about OPC Server, refer to “6.7 OPC DA Server“.

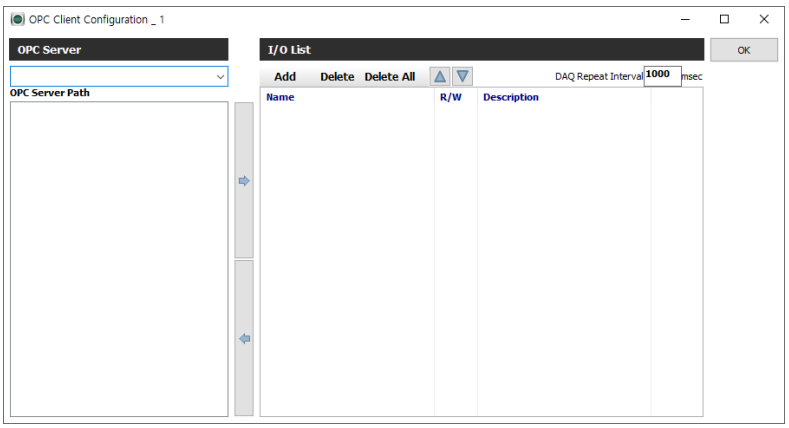
7.7.1 Setting

1st Add the “OPC Client” to “My System” control panel and select it. To add the unit, click [Add] button.

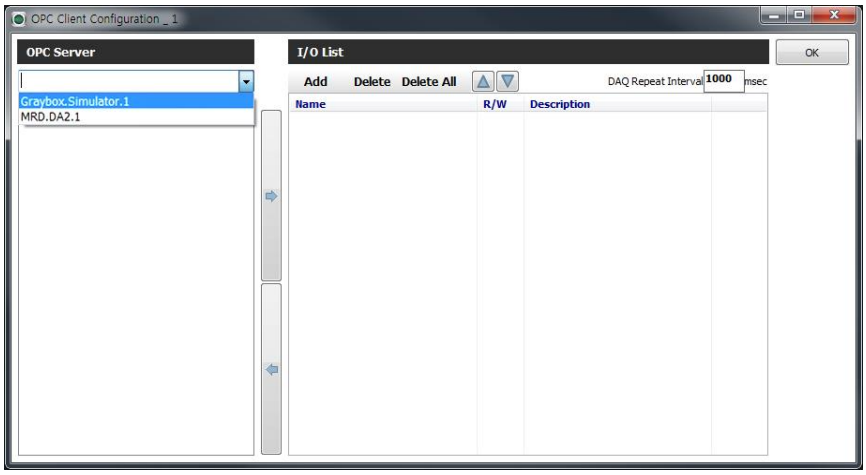


2nd Select the added unit, and click the […] button next to the “Setting” in the “Property” control panel to open “OPC client Configuration” window.

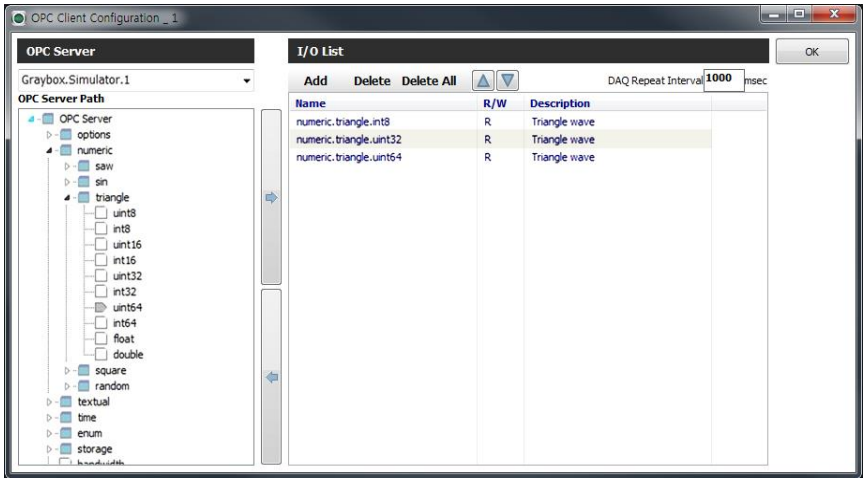




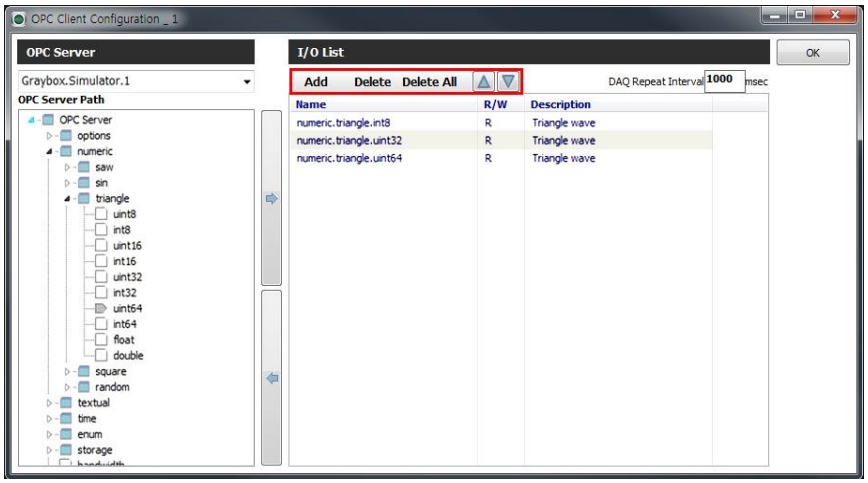
3rd Click [▼] button at OPC Server to select the desired OPC server.



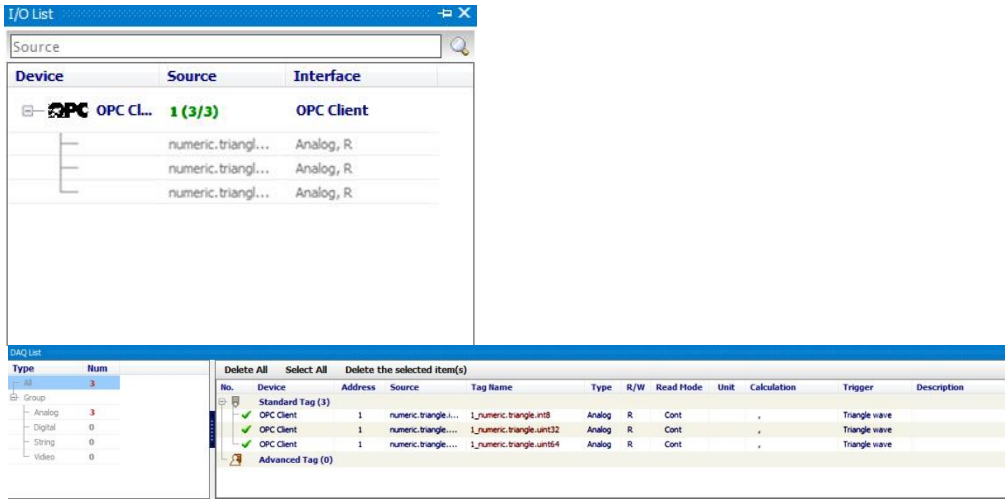
4th When selecting OPC Server, OPC server path is displayed as list. Double-click OPC server path or click "→" button, the path is added at I/O List.



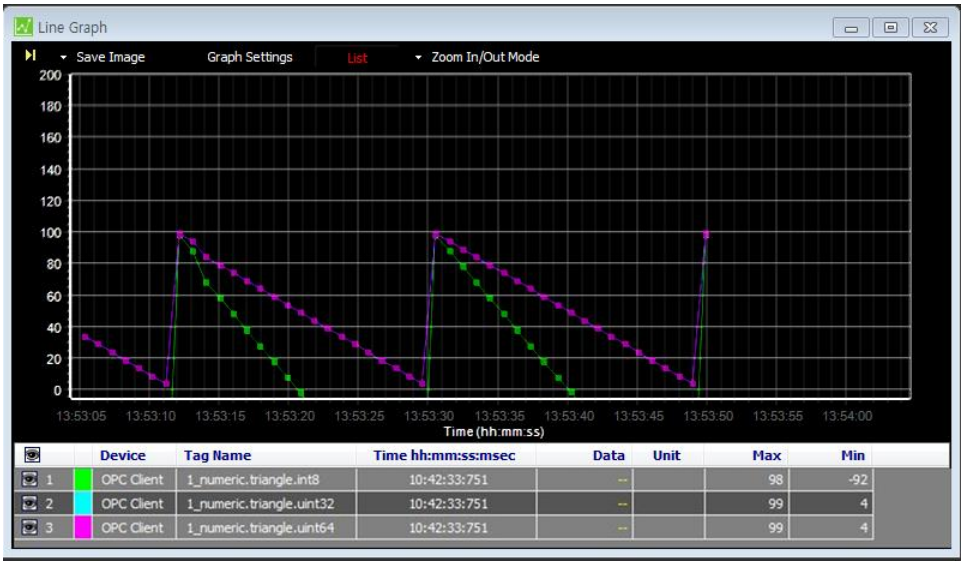
5th It is possible to add or delete OPC server path by "Add, Delete, Delete All" of upper menu of I/O List.



6th Check the added path at I/O List and and it is available to be added at DAQ List.



7th At runtime screen, monitoring is available by various graph types.

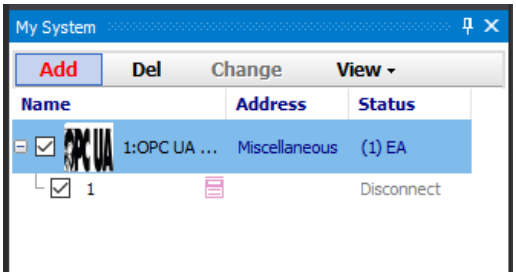


7.8 OPC UA Client

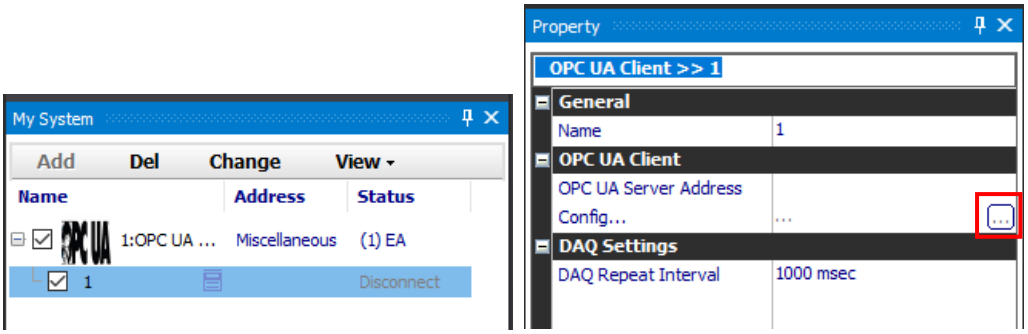
DAQMaster becomes the OPC UA Client and sends the collected data to the accessed OPC UA Sever.

7.8.1 Setting

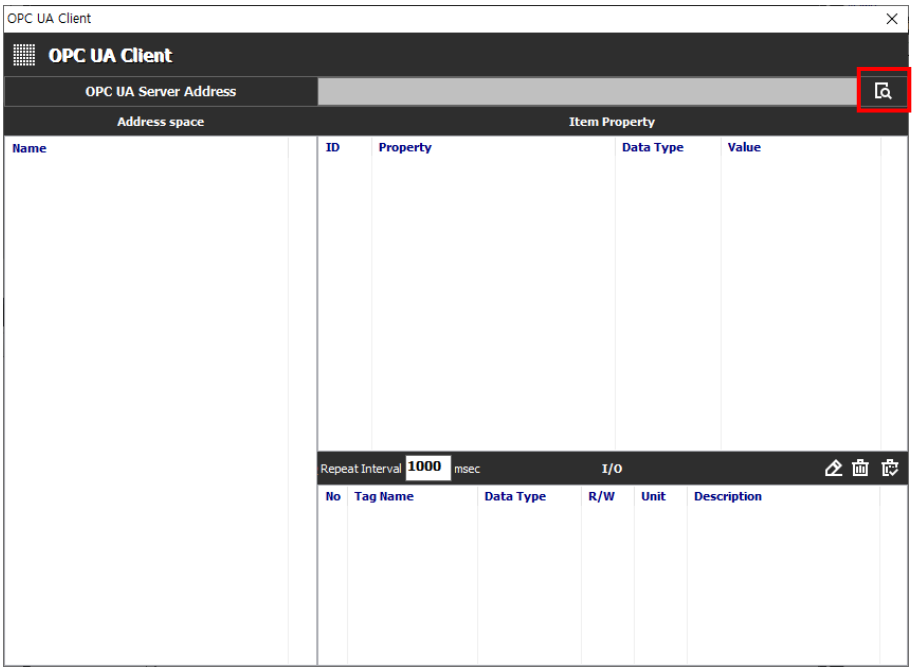
1st Add the “OPC UA Client” to “My System” control panel and select it. To add the unit, click [Add] button.

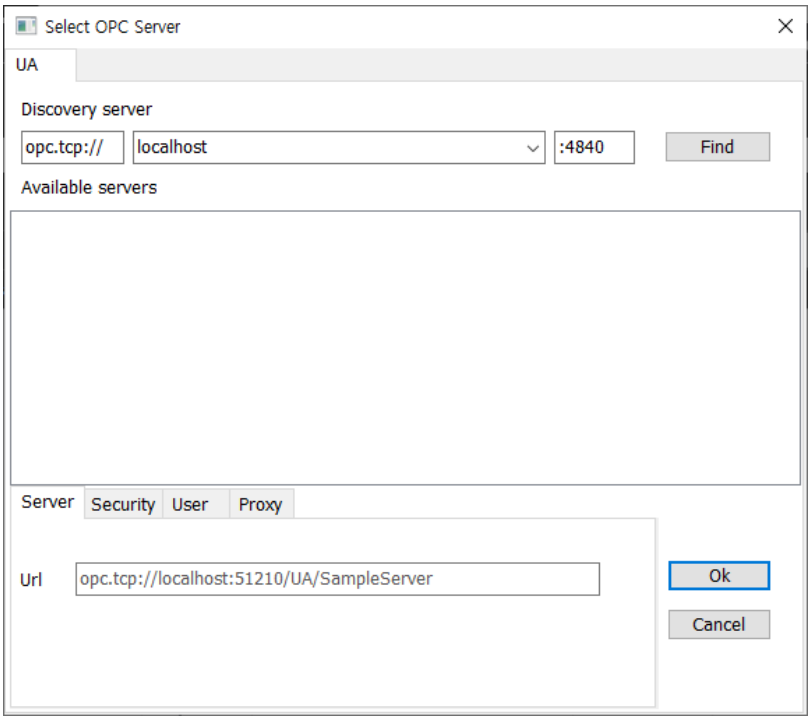


2nd Select the added unit, and click the […] button next to the “Config” in the “Property” control panel to open “OPC UA Client” window.

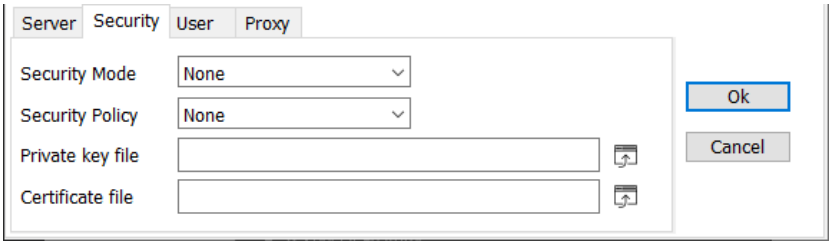


3rd Click the [Select Server] button to open the “Select OPC Server” window. To search for a server that matches certain criteria, enter the address and port number in the “Discovery server” and click the [Find] button. It is possible to enter the full address of the server in the “Url” on the “Server” tab when knowing it.

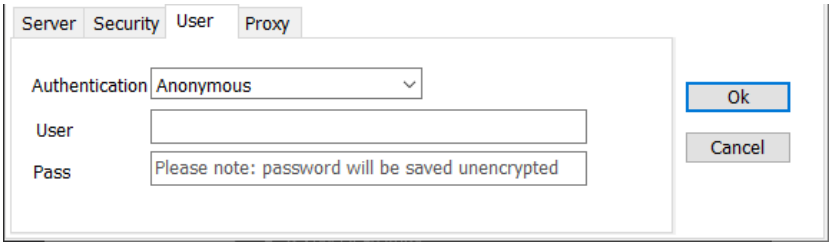




4th Security mode related settings are available on “Security” tab of the “Select OPC Server” window.

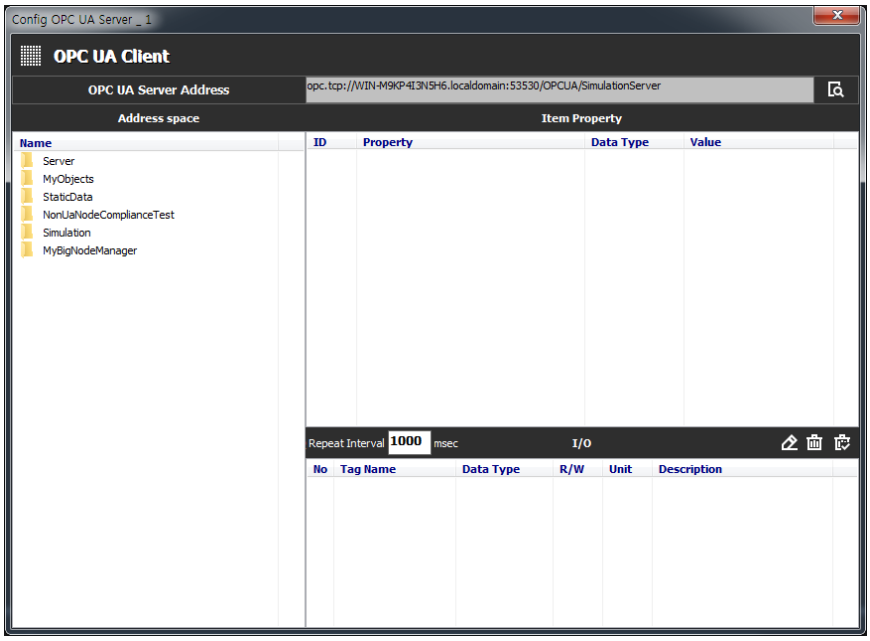


The “User” tab allows settings related to user authentication.

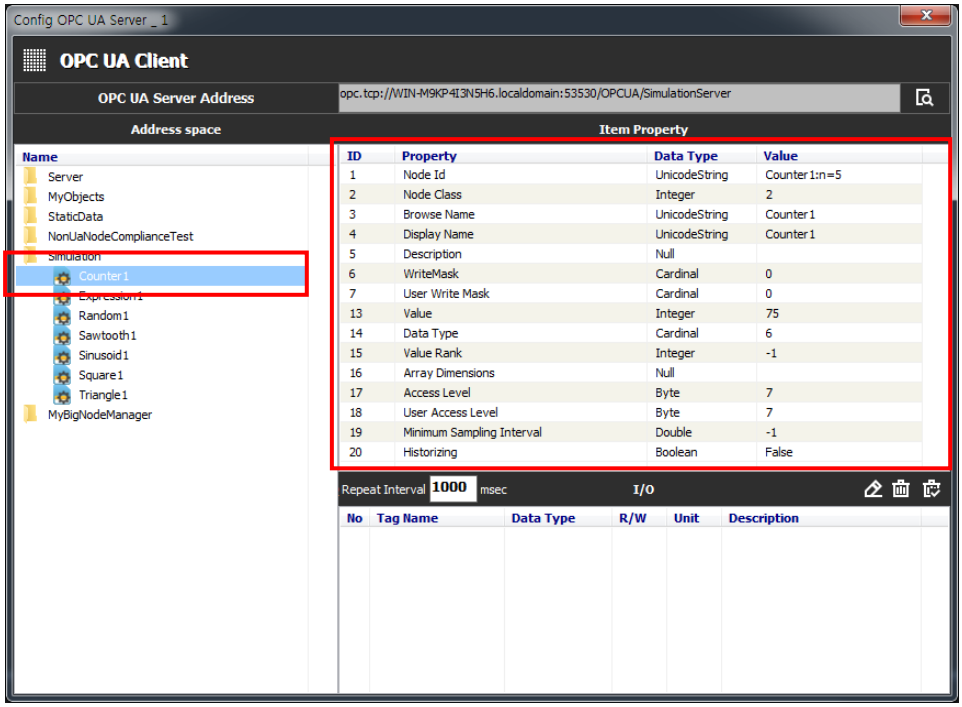


The “Proxy” tab allows entering the Proxy server path and information.

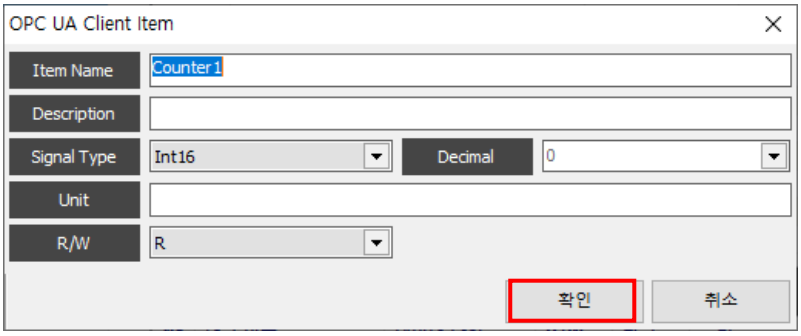
5th If the connection is successful by searching for a server or entering a full address, the server’s folders and files appear in the “Address space” entry in the “OPC UA Server Settings” window.

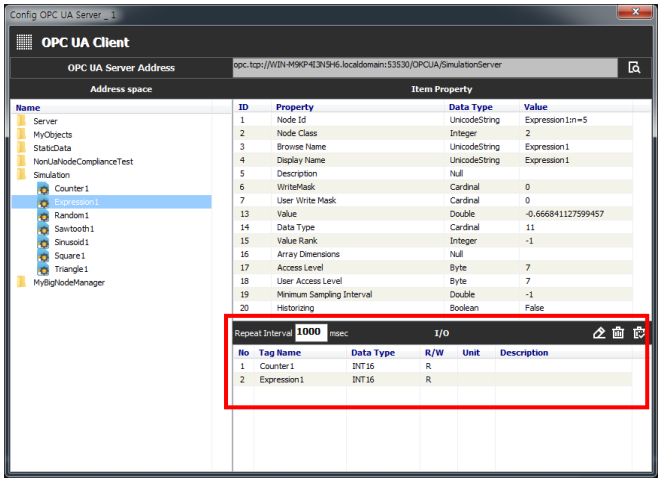


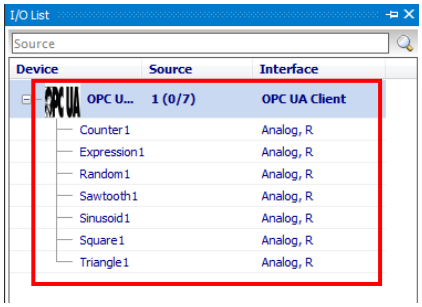
6th When selecting the item in “Address space”, the properties appear in “Item Property” window.



7th Double-click the item in the “Address space” to open the “OPC UA Client Item” window. Enter the contents of each item and click the [OK] button to add it to the I/O.







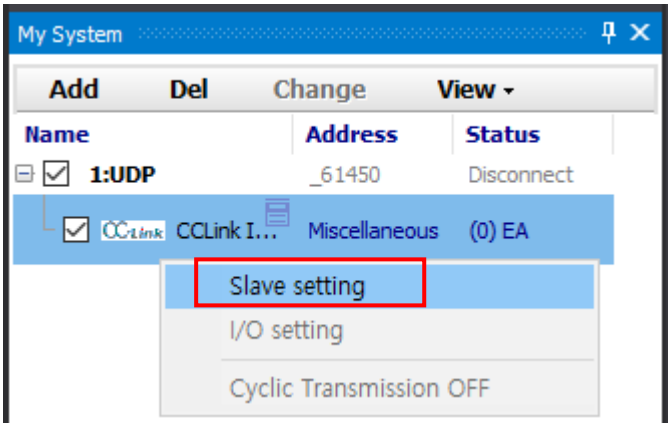
7.9 CCLink IEF Basic Product

DAQMaster performs as a master of CC-Link Field Basic device, supporting I/O monitoring and the function outputs the tag.

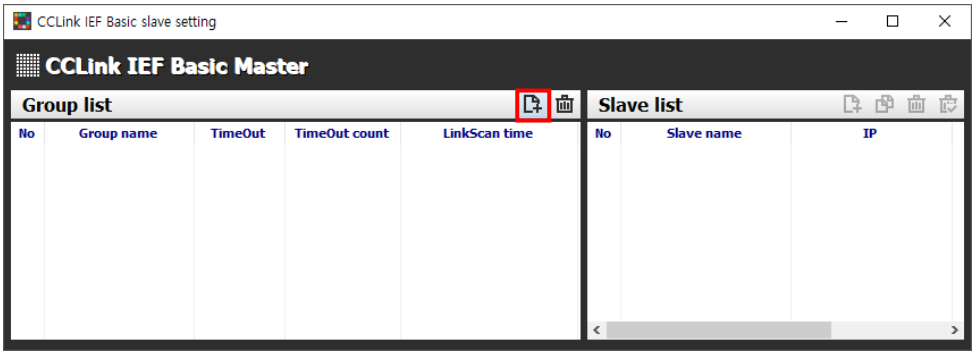
※ CC-Link IE Field Basic Device: HMI, I/O Unit, Inverter of Mitsubishi Electric.

7.9.1 Add Slave Device

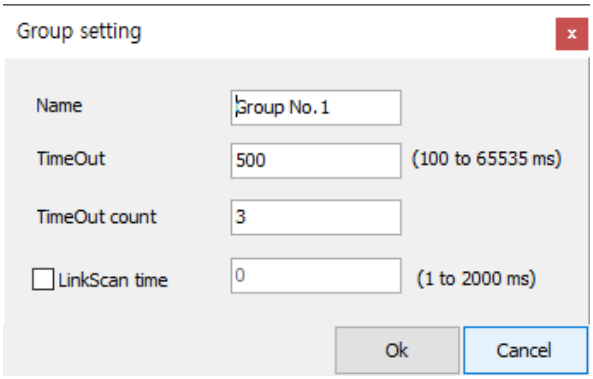
1st Add the “CCLink IEF Basic Product” to “My System” control panel and right-click it. Click the [Slave setting] button to open “CCLink IEF Basic slave setting” window.



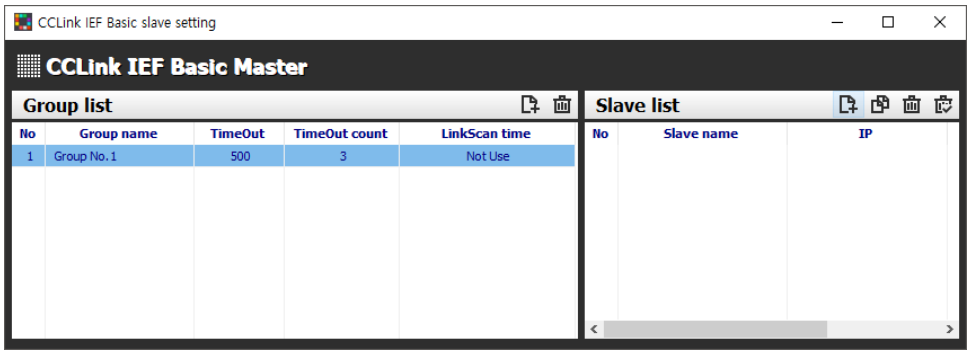
2nd When “CCLink IEF Basic slave setting” window pops up, click [Add] of “Group list” to add a group.



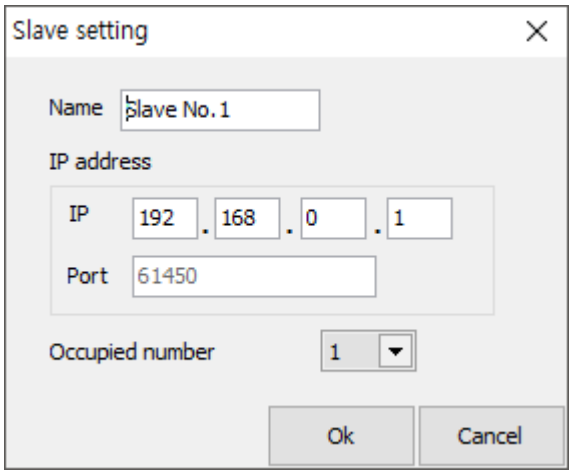
3rd In “Group setting” window, enter “Name”, “TimeOut”, “TimeOut count” and “LinkScan Time” (check a checkbox to use) to add a group.



4th In “Slave list” window, click [Add] to add a slave device.

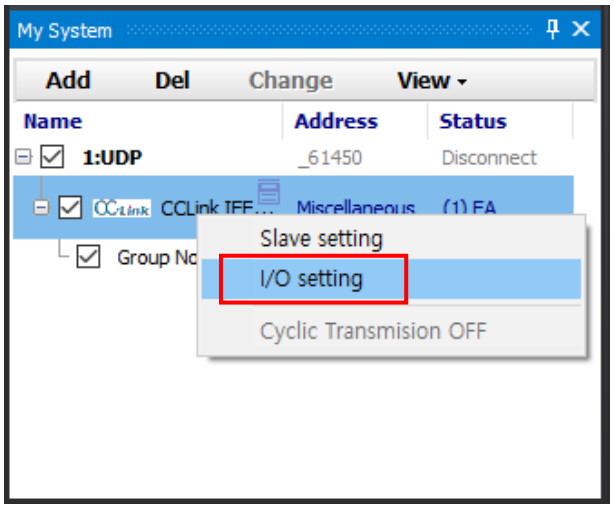


5th When “Slave setting” window pops up, enter “Name”, “IP address” and “Occupied number” and click [OK] to add a slave device.

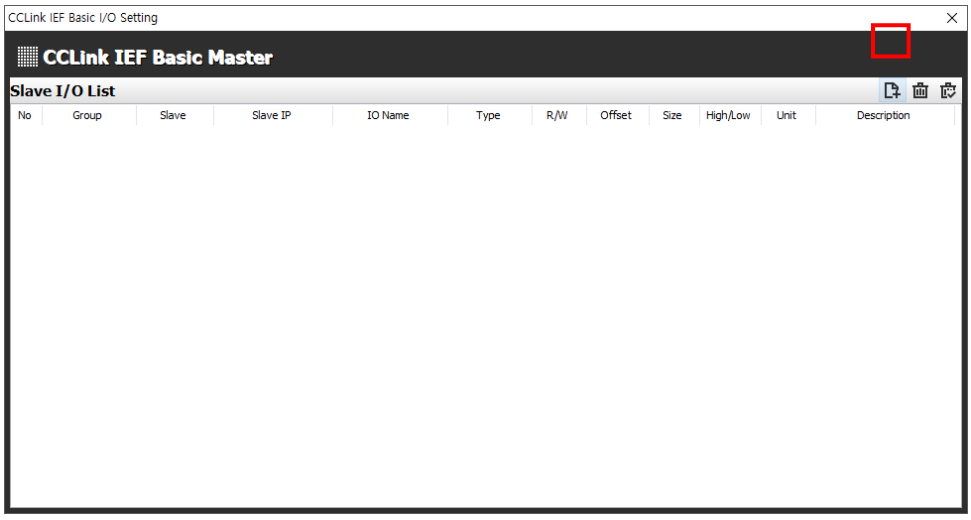


7.9.2 Add Slave I/O

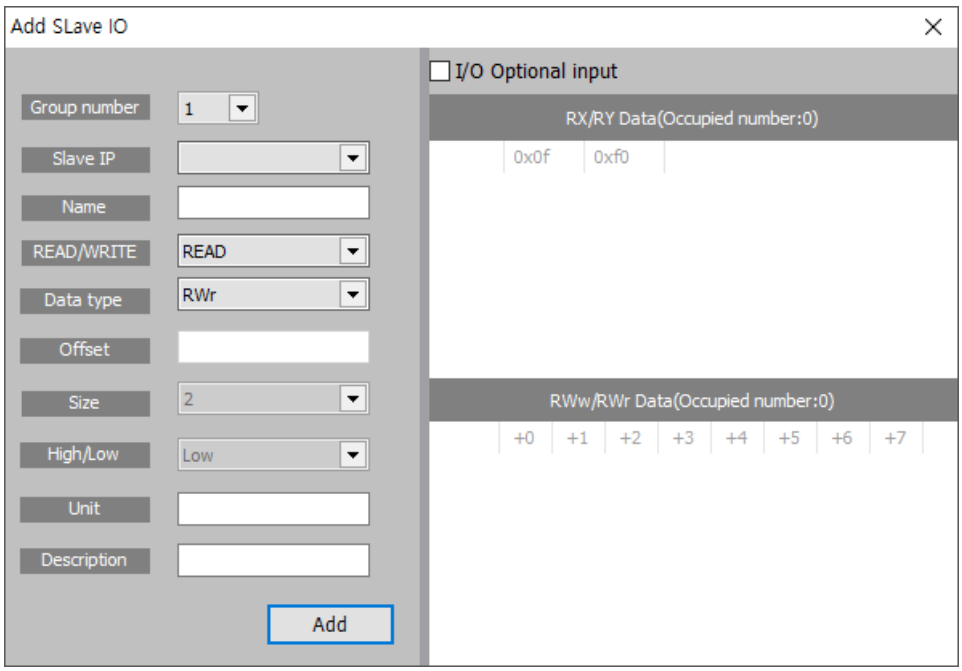
1st After adding “IEFBasic Product” to “My System” control panel and add “Slave device”, right-click the added “CCLink IEFBasic Product and select “I/O setting”. Then, “CCLink IEF Basic I/O Setting” window pops up.



2nd Select an item of “Slave I/O List” and click [Add] to add, then “Add Slave IO” window pops up.



3rd Check the descriptions of the items and fill out the items in this window. Click [Add] to add a slave I/O.



NO	Item	Description
1	Group number	Select group number.
2	Slave IP	Select the added slave IP address.
3	Name	Enter I/O tag name.
4	READ/WRITE	Select I/O type either READ or WRITE
5	Data type	RWr / RWw: Word type (memory allocation: 64Byte), RX/RY: Bit type (memory allocation: 8Byte)
6	Offset	I/O Offset
7	Size	Size × 1Byte
8	High/Low	Select Little-endian or Big-endian, when the size is 1.
9	Unit	Unit of I/O tag
10	Description	I/O description
11	I/O Optional input	Automatically set by clicking I/O offset.

7.9.3 IP Setting

It is needed to set Master IP address and Slave IP address on the same network router.

When a range of Master IP is from x.x.x.1 to x.x.x.255, a Slave IP should be set in the range from x.x.x.1 to x.x.x.255. (set a slave IP address excepts for the mater IP.)

- The example of IP setting

  In case the Master IP address is 192.168.3.250,

  Slave 1 IP is 192.168.3.1

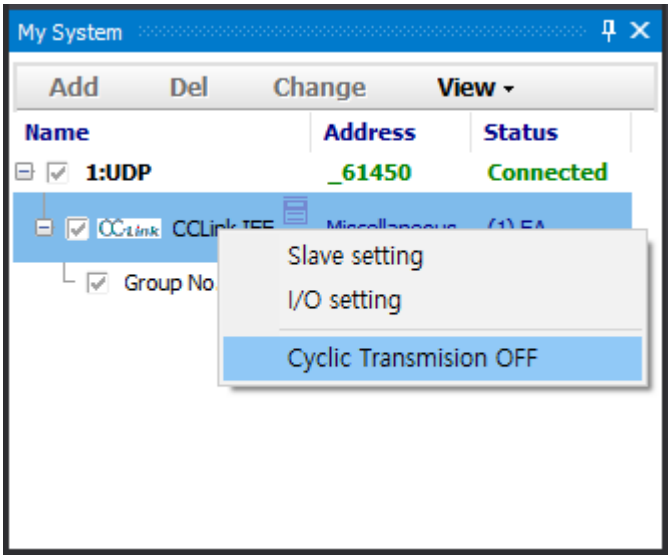
  Slave 2 IP is 192.168.3.2

  Slave 3 IP is 192.168.3.3

7.9.4 Cyclic Transmission ON/OFF

This function features the constant packet transmission among the connected devices on the same network

In the “My System” control panel, right-click the added “CCLink IEFBasic Product” and select [Cyclic Transmissions ON/OFF] to on/off this function.



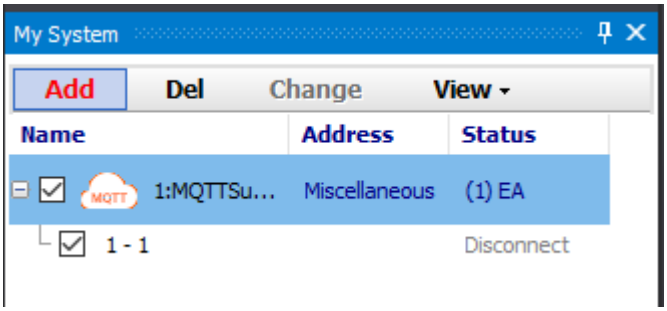
7.10 MQTT Subscribe

Explains instructions for adding subscribe of MQTT protocol communication.

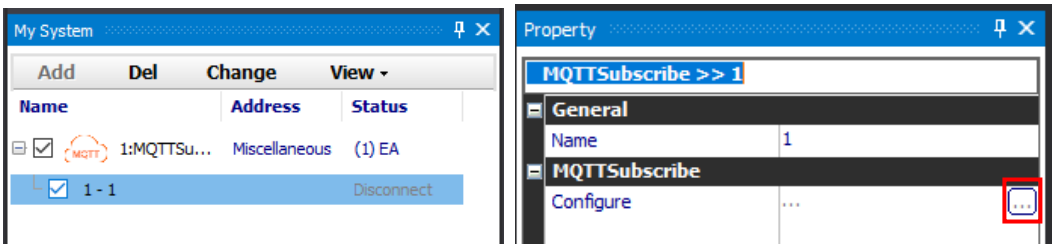
※ For information related to MQTT protocol and Publisher, refer to the “6.10 MQTT (Message Queuing Telemetry Transport)“.

7.10.1 Setting

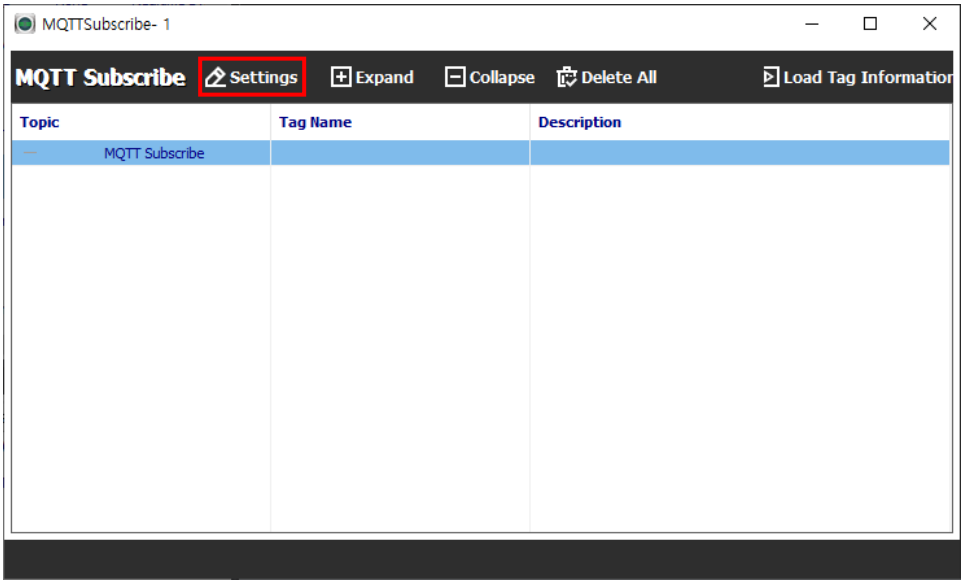
1st Add the “MQTTSubscribe” to “My System” control panel and select it. To add the unit, click the [Add] button.



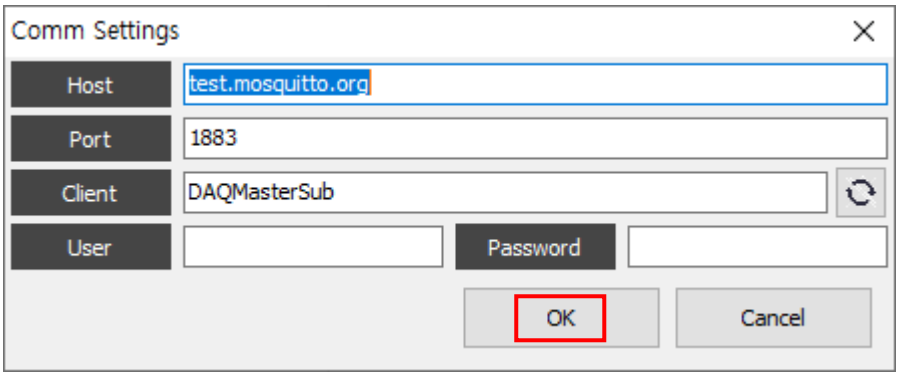
2nd Select the added unit, and click the […] button next to the “Configure” in the “Property” control panel to open “MQTTSubscribe” window.



3rd Click [Settings] button to open “Comm Settings” window.



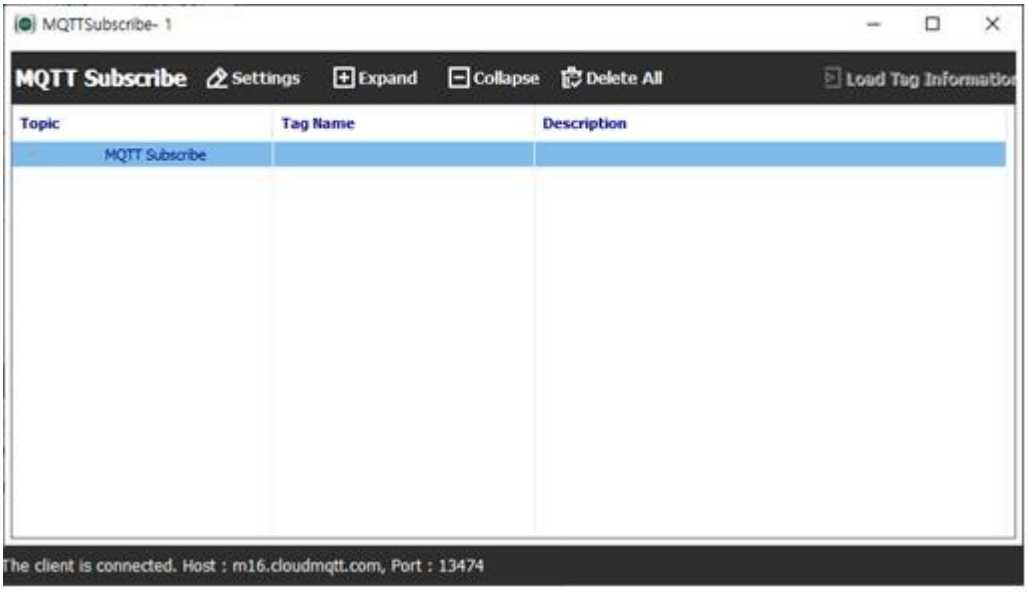
4th Enter the value by refering to the below description per each item, click [OK] button.



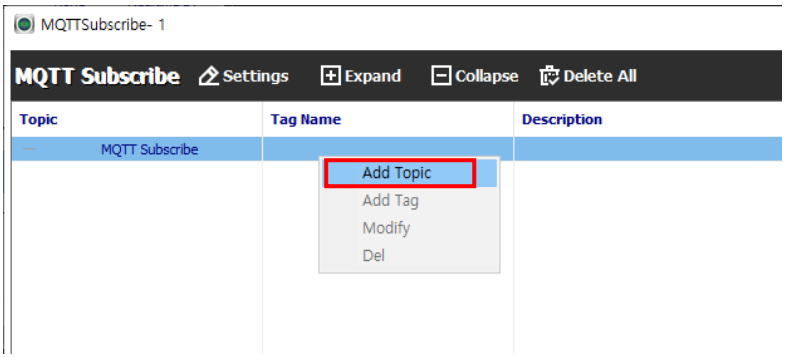
- Host: Address of broker server
- Port: Port of broker server
- Client: Name of a client which connect broker server
- User, Password: User ID and password set by broker server

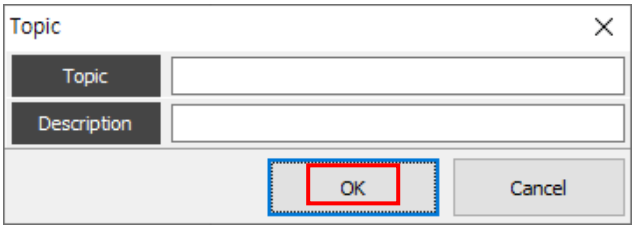
※ Address and port are required. Enter the user ID and password as the value set by the broker server, and leave blank if it is not set.

5th Click the [Connect] button on the “Project - Run” menu to try to connect to the broker server and display the results at the bottom.

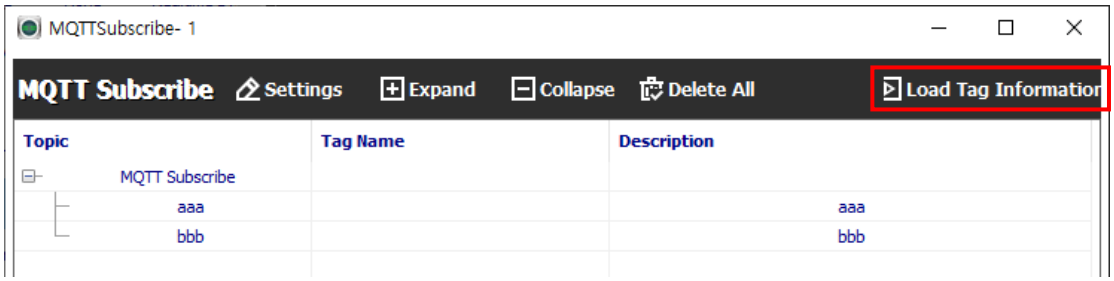


6th When connecting successfully, right click the topic item and click [Add Topic] button to open “Topic” window. Enter topic name to receive from MQTT broker and description in the “Topic” window, and click [OK] button.





7th When clicking [Load Tag Information] on connecting status, the list of tags is loaded.



※ The [Load Tag Information] button is disabled while data is being loaded after clicking. If there is no data to load, the button is reactivated after 5 seconds, and “No tag information received” message is printed.

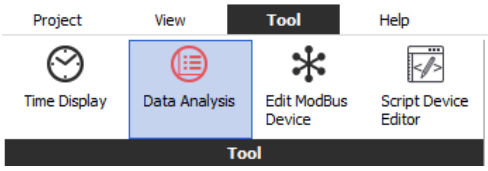
8th The added tag can be found in the “I/O List” control window and can be added to “DAQ List” or monitored by the runtime screen.

8 Tool

8.1 Data Analysis

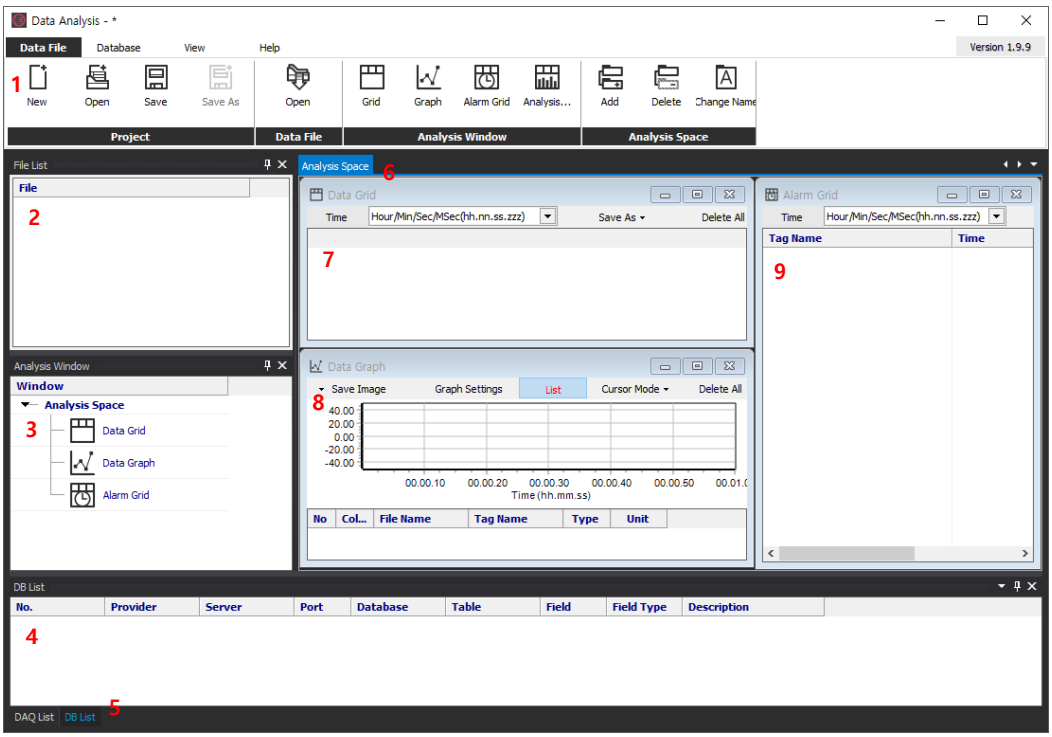
With this program, it is possible to analyze monitored data files (*.ddf) through Grid, Graph, Alarm Grid and Analysis Spread.

Click [Data Analysis] of “Tool” menu to run this function.



8.1.1 Screen Layout

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

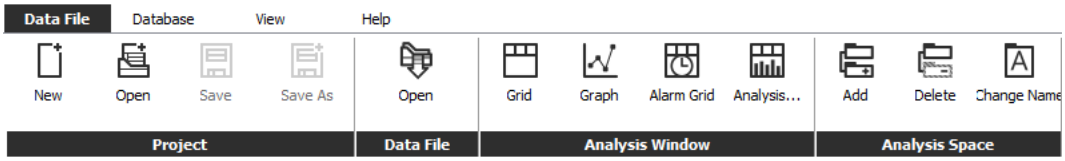


No	Item	Description
1	Menu	Menus are displayed by category. Select a menu to display sub-menus.
2	File List	Shows a list of project files to analyze.
3	Analysis Window	Shows items at the Analysis Space.
4	DAQ List	Shows I/O source list is saved in the data file.
5	DB List	Shows DB list.

No	Item	Description
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.

▪ Menu

(1) Data File



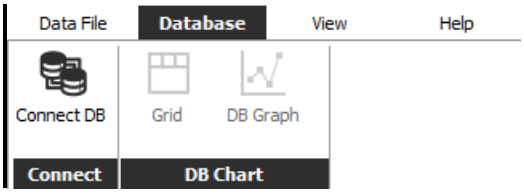
- **Project**
  - New: Initializes the opened Data file and the analysis screen.
  - Open: Opens the saved data file (*.dap).
  - Save: Saves the opened data file or analysis windows.
  - Save As: Saves the opened data file or analysis windows as other file name.
- **File**
  - Open: Opens DAQMaster log file (*.ddf, *.krd, *.t5d).
- **Analysis Window**

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

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

(2) Database

This menu is available only for DAQMaster Pro version.

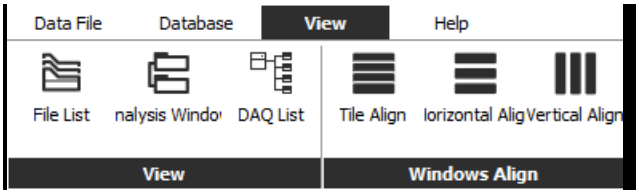


- **Connect**

  You can check the data of connected database.
- **DB Chart**

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

(3) View



- **View**

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

- **Align Windows**

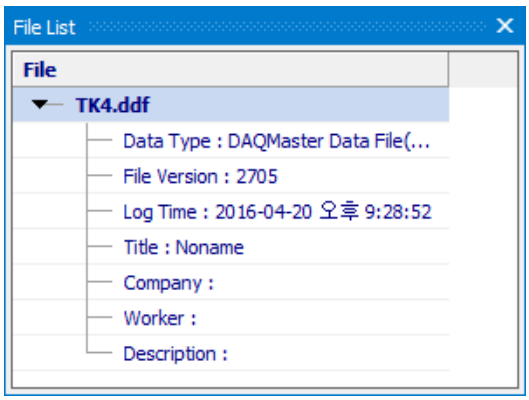
  Aligns analysis windows. Select Tile Align, Horizontal Align, or Vertical Align according to the environment.

- **Help**

  Information for DAQMaster data analysis program.

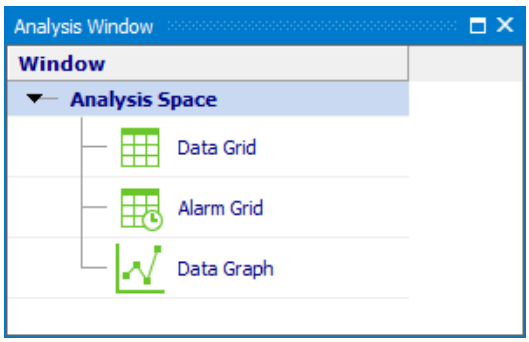
▪ **File List**

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



- **Analysis Window**

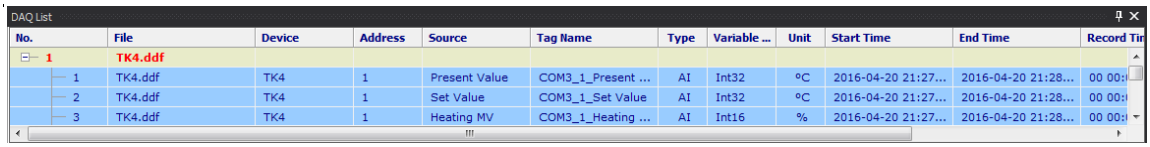
  Shows items at the Analysis Space.



- **DAQ List**

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

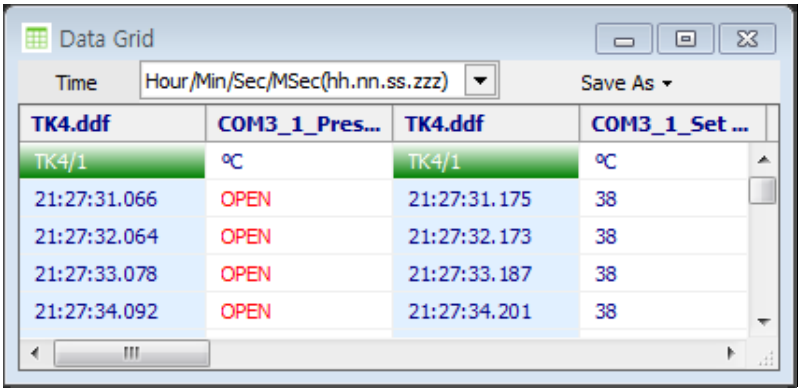
  I/O sources can be analyzed through the analysis screen.



- **Analysis Space**

  - **Grid**

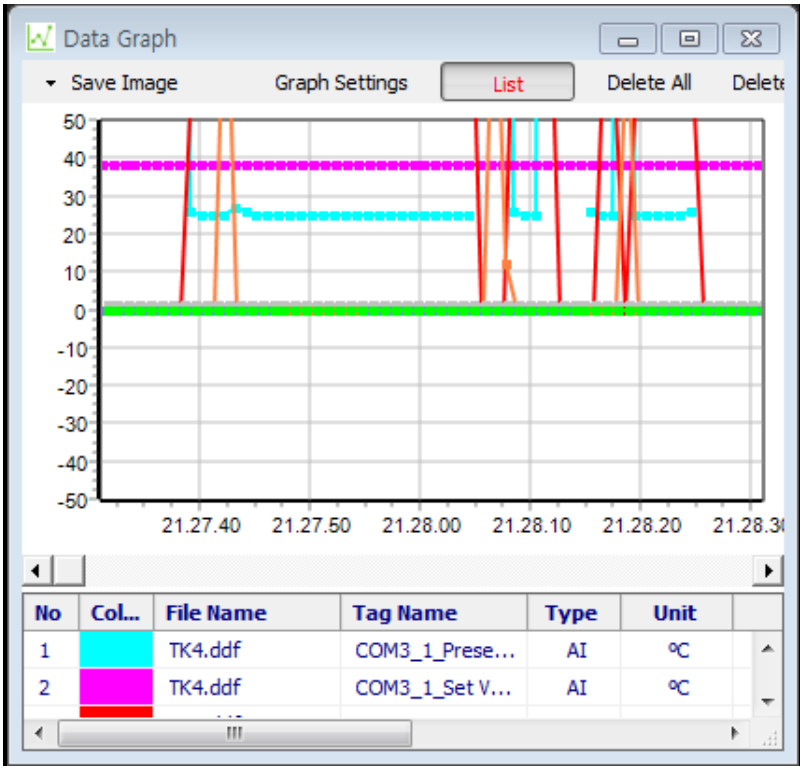
    Analyzes I/O data in grid. Drag the I/O source from the DAQ List and drop onto the data graph screen to analyze it.



- **Graph**

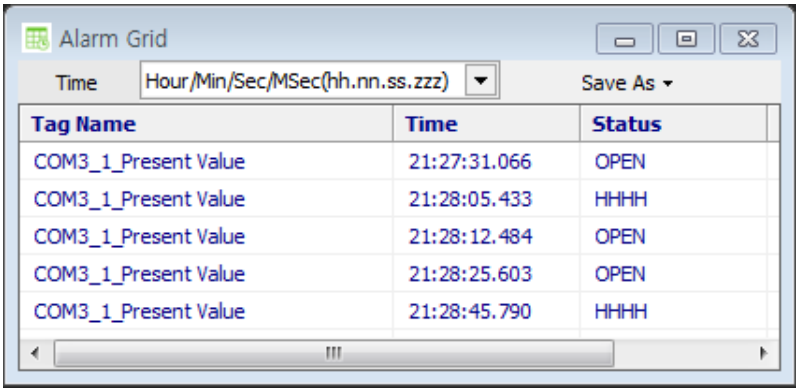
  Analyzes I/O data in graph. Drag the I/O source from the DAQ List and drop onto the data graph screen to analyze it.

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



- **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.



- **Analysis Spread**

  This function is for KRN100, KRN1000.

  Analyzes tag values in spread. Displays data with in designated range, which is set by users.

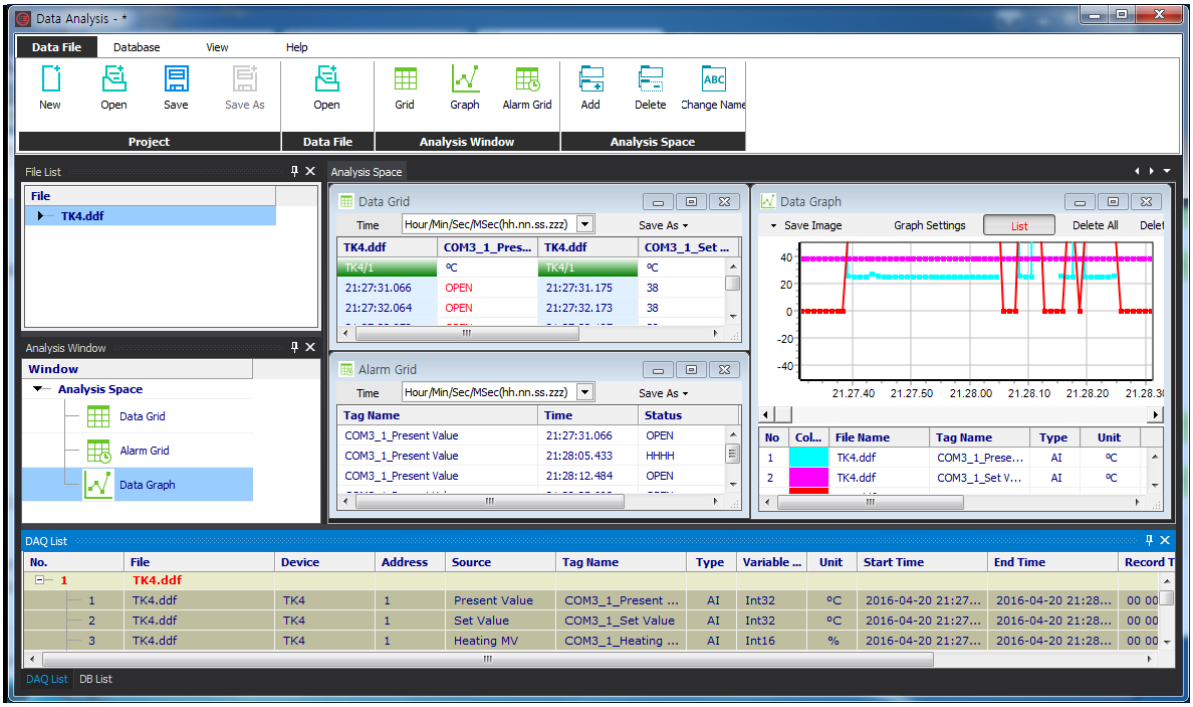
8.1.2 Opening Data Files

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

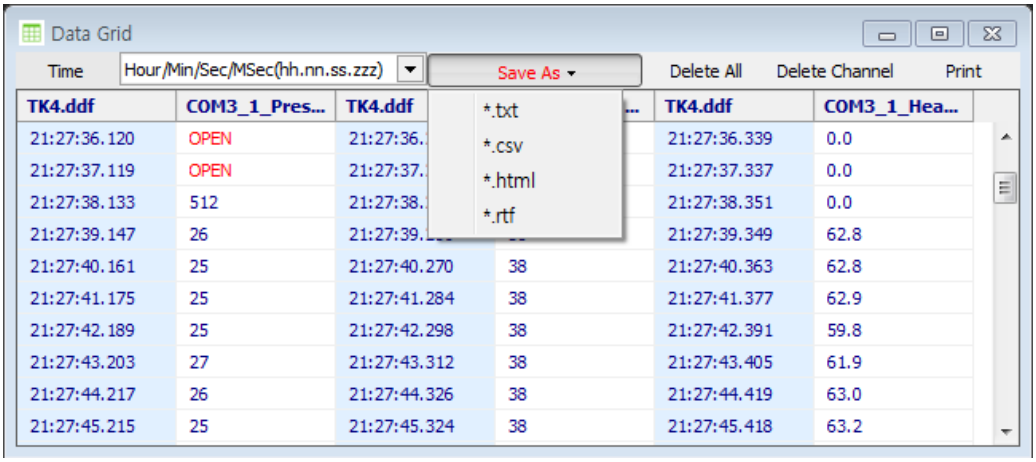
8.1.3 Add Analysis Screen

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.

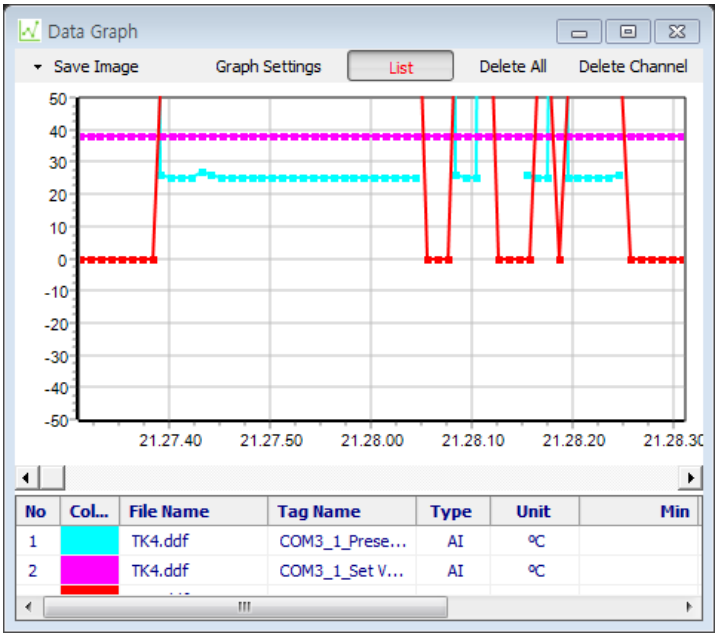


The file displayed on the Data Grid screen and the Alarm Grid can be saved as a different file name in *.txt, *csv, *.html or *rtf formats.

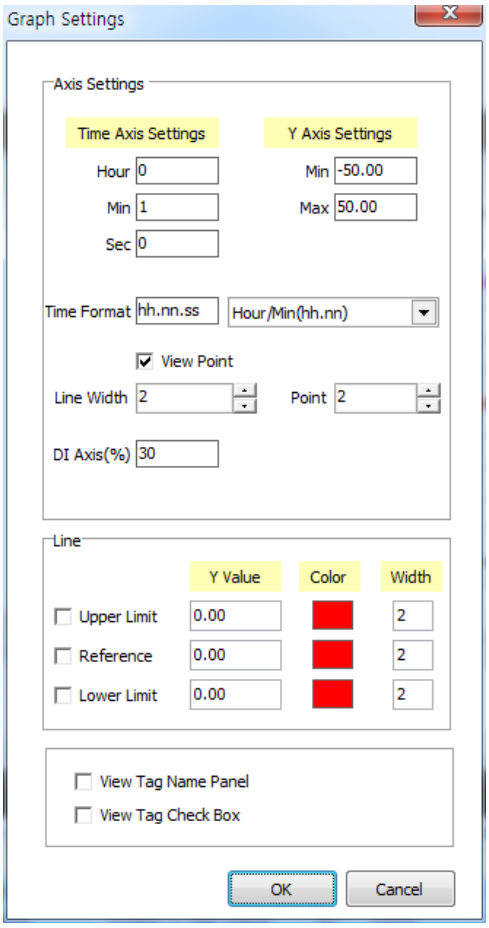


You can use zoom with the mouse wheel feature on the data graph screen for analysis.

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

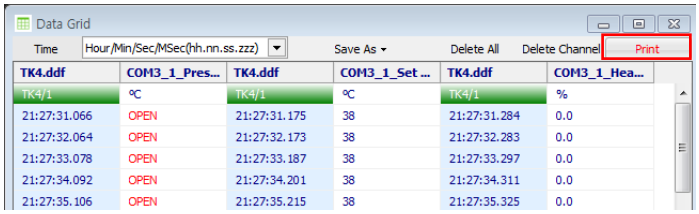


You can set time axis, time format, graph line width, etc of the graph in Graph Settings.

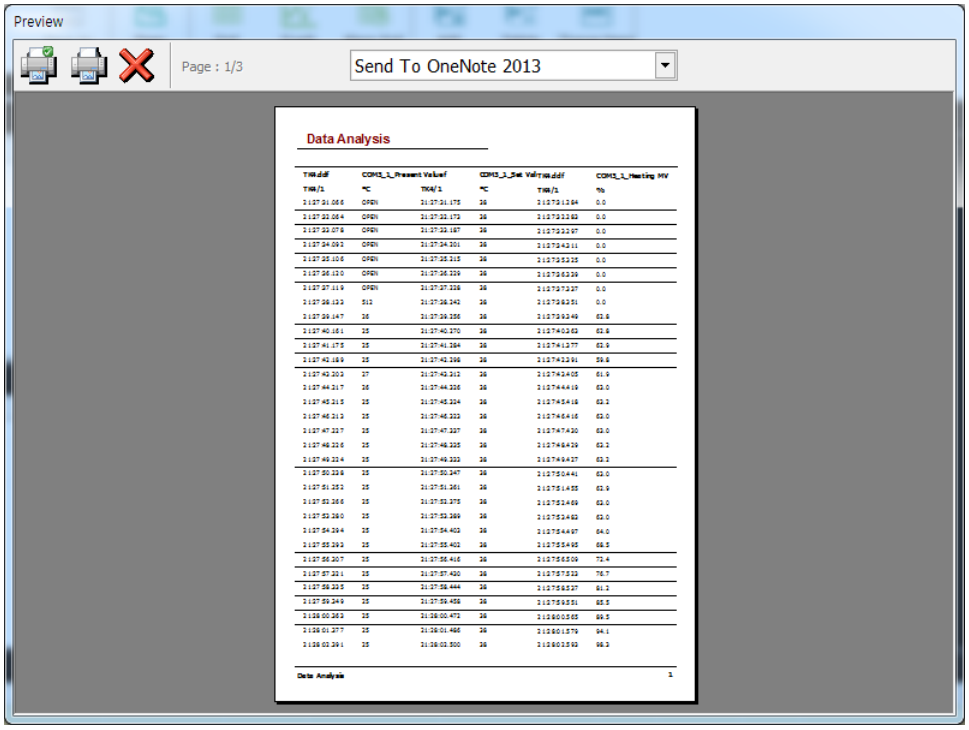


8.1.4 Print

Data Analysis program supports printing graph, grid, etc.



Click the “Print” and the “Preview” dialog box appears.

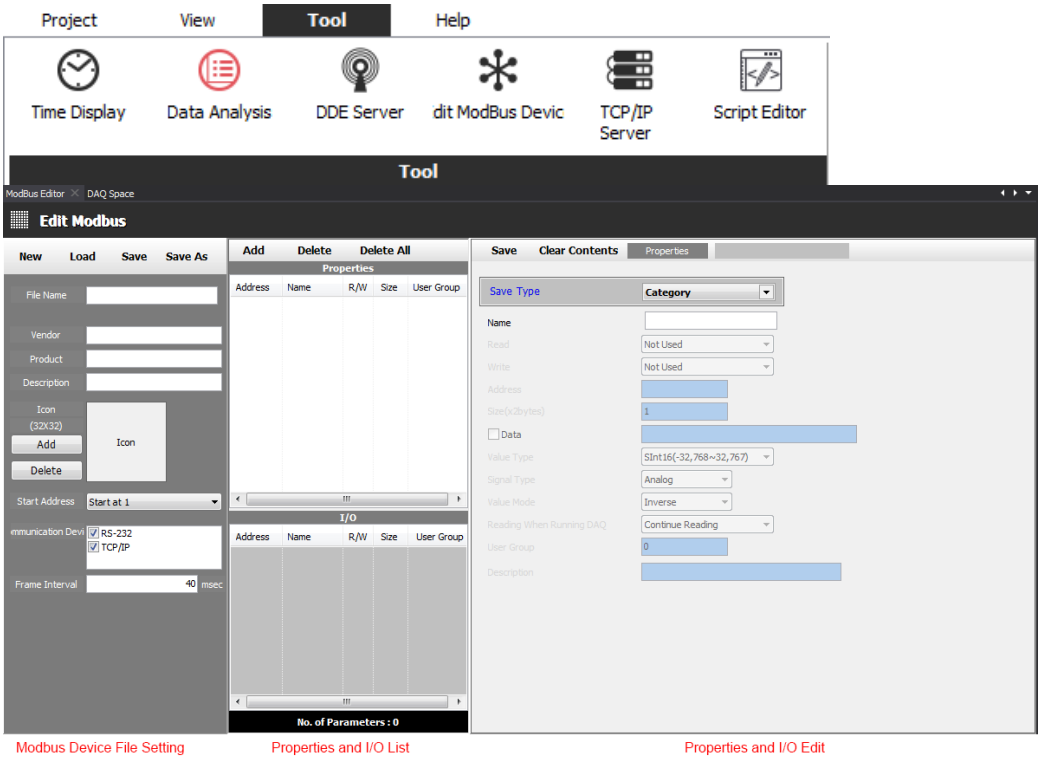


8.2 Edit ModBus Device

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

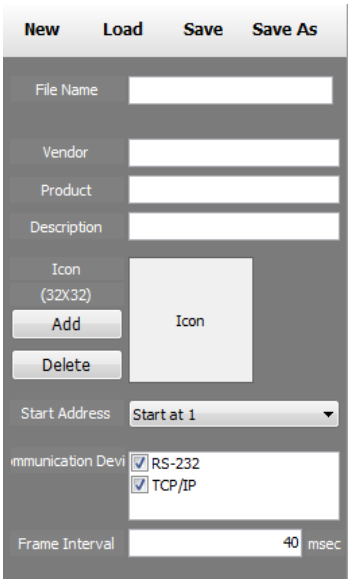
▪ Creating Device File

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



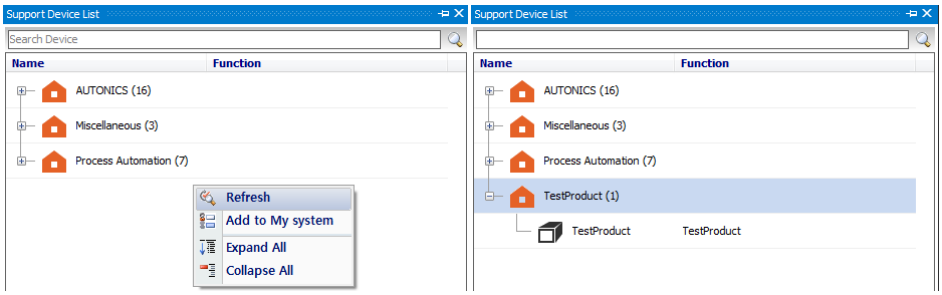
2nd At Modbus Device File Settings, you can create new device file (*.udv) or load the saved user device file (*.udv).

Enter vendor 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.

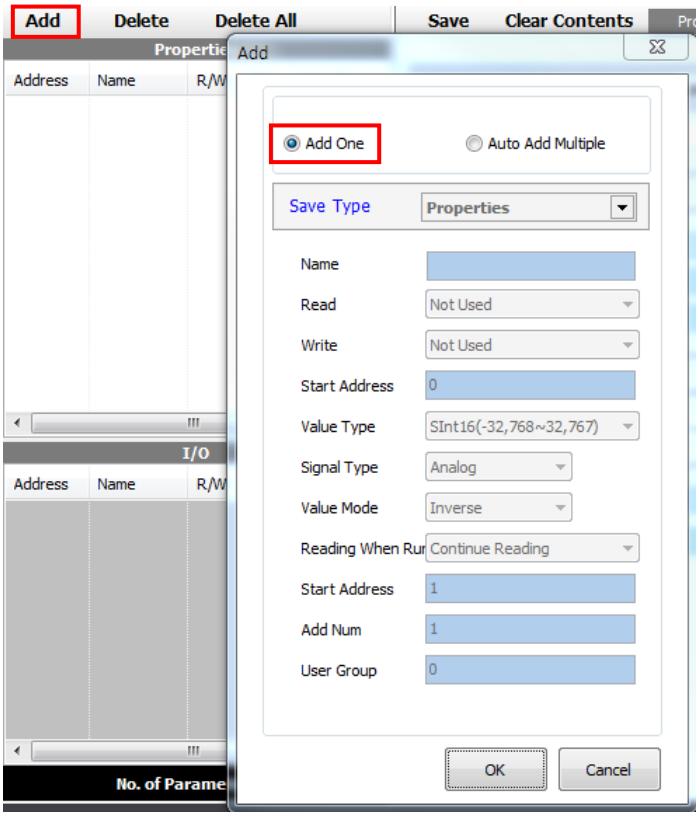


※ Refreshing "Support Device List" is only possible when any device is not added to "My System".

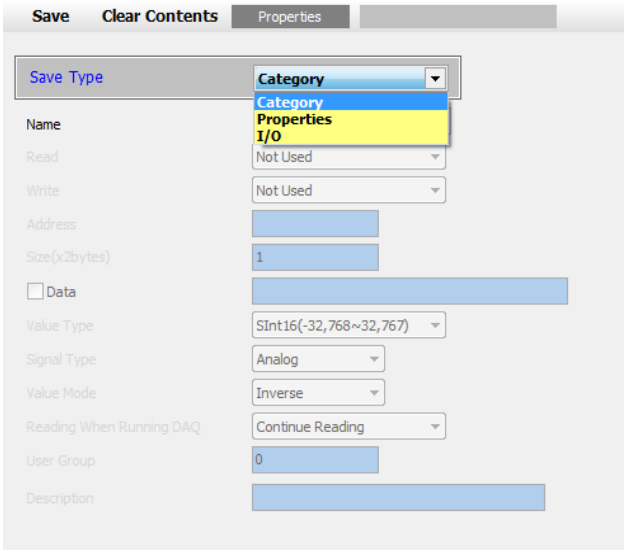
▪ Adding device properties and I/O

(1) Add One

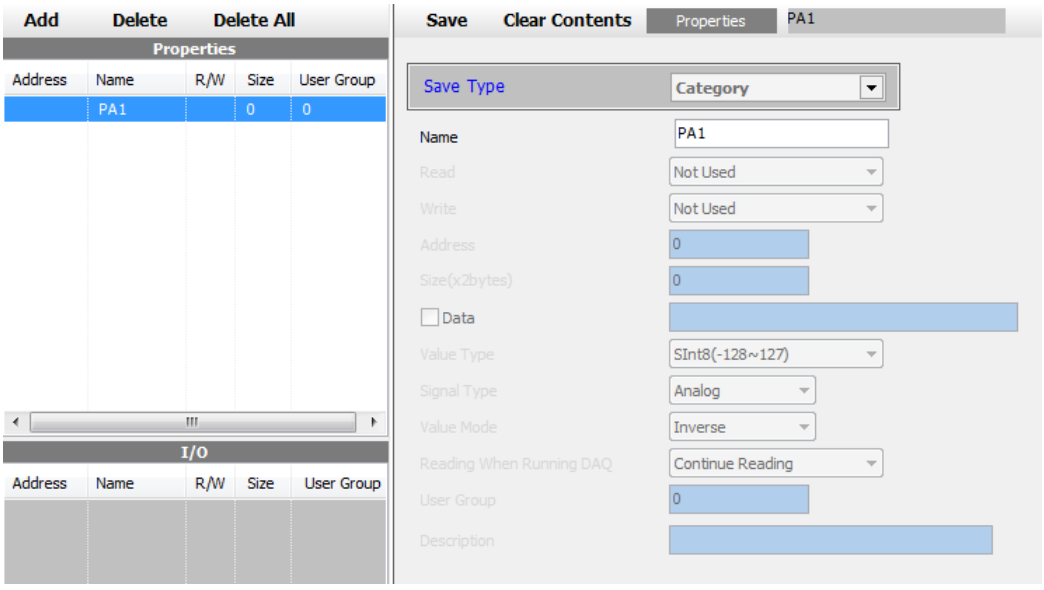
1st Click "Add" at Properties and I/O List" of Edit Modbus and "Add" dialog box appears. Select "Add One" and click "OK".



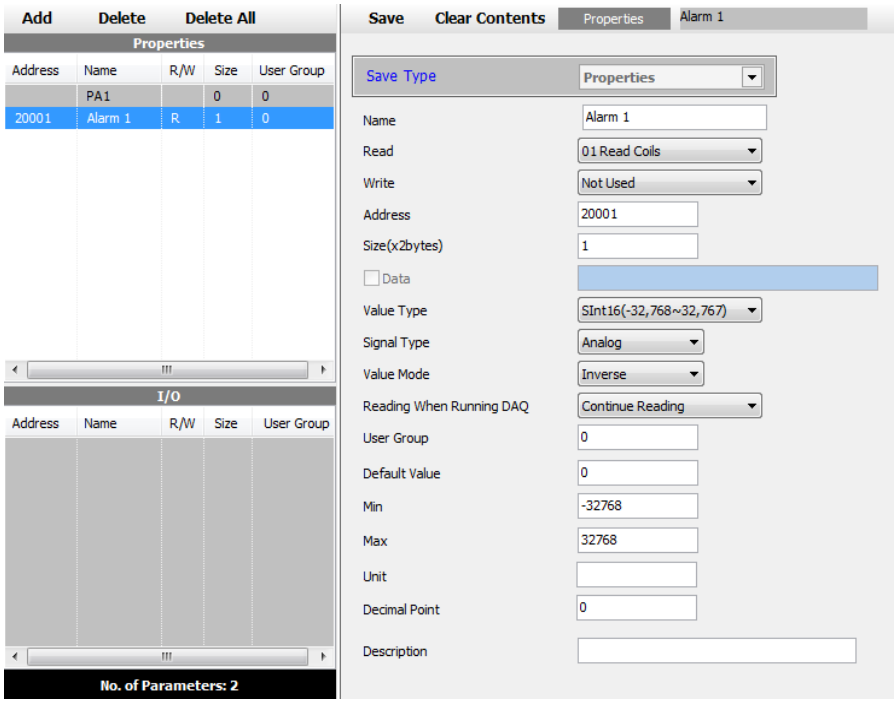
2nd Set save type and the desired contents at Properties and I/O Edit of Edit Modbus.
In case of add one, set the one save type among category, properties, or I/O.



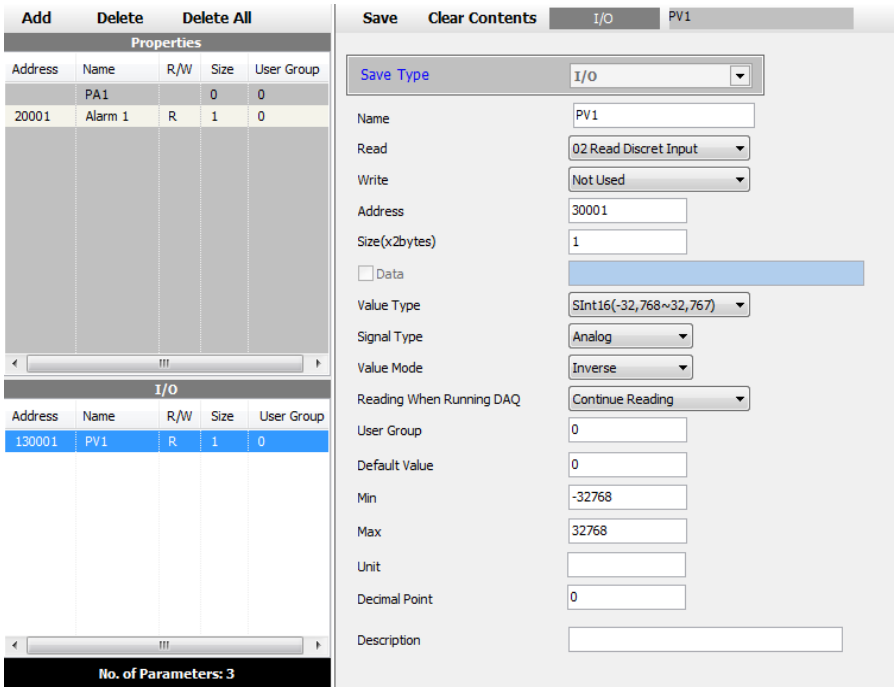
3rd When save type is “category”, set the category name. Click “Save” and the category is added at the properties list.



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.



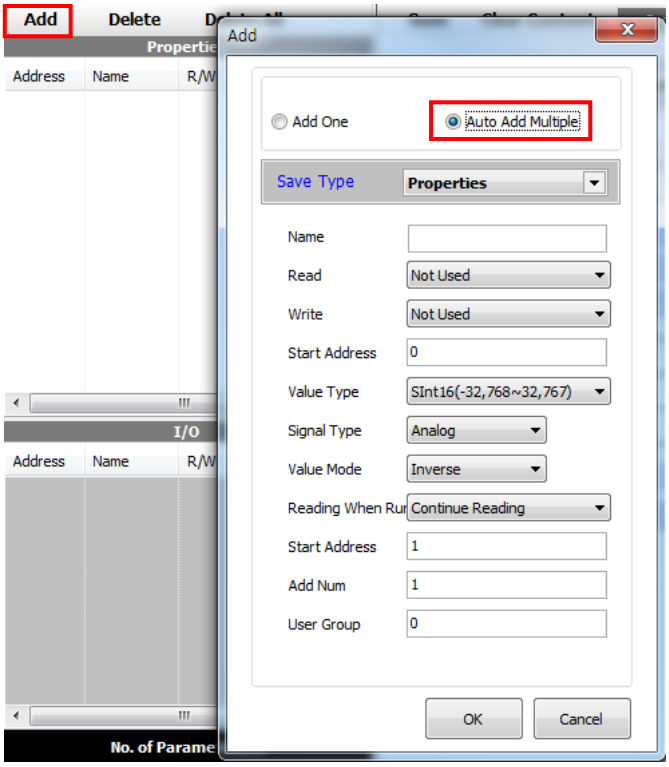
5th When save type is “I/O”, set name, read/write type, address, size, value type, etc of I/O. Click “Save” and the properties is added at the I/O list.



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”.

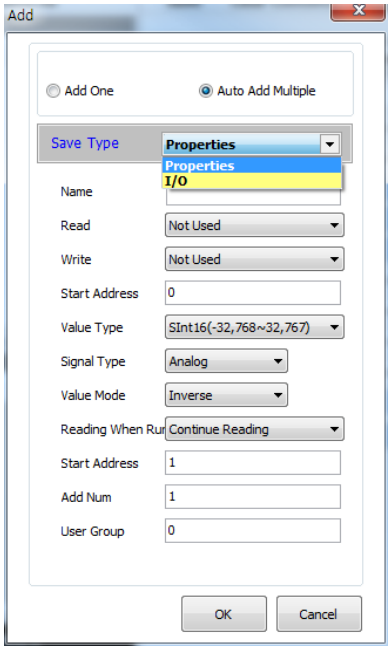
(2) Auto Add Multiple,

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.

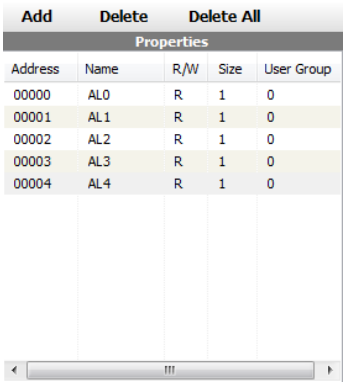


2nd Select save type at “Add” dialog box.

In case of auto add multiple, set the 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.



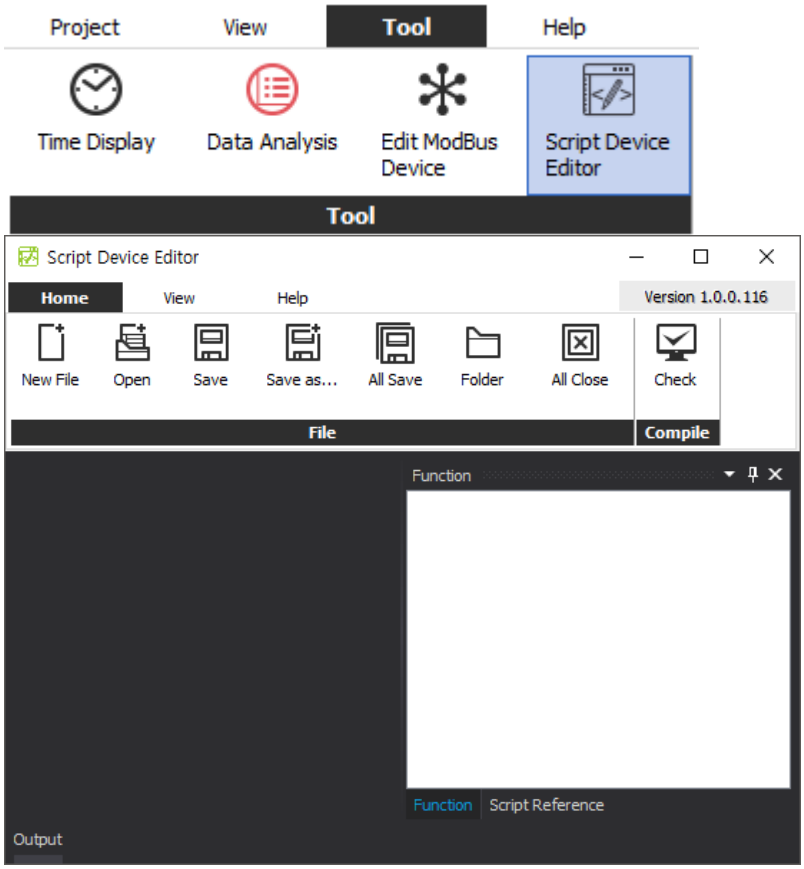
Set user group which helps to reduce time for reading/writing data for the same group.

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”.

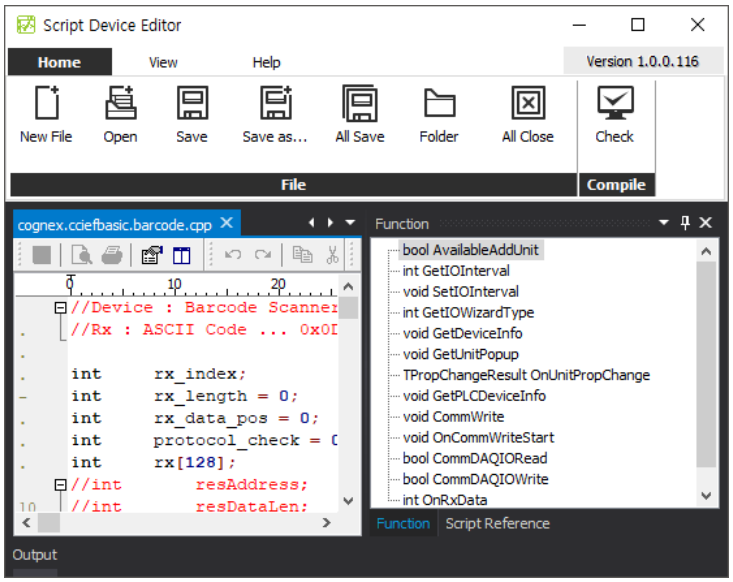
8.3 Script Editor

With Script Editor, it is possible to use and add the any device which is not supported by DAQMaster, and analyze inpout/output data.

1st Click [Script Editor] in “Tool” menu to execute “Script Device Editor”.

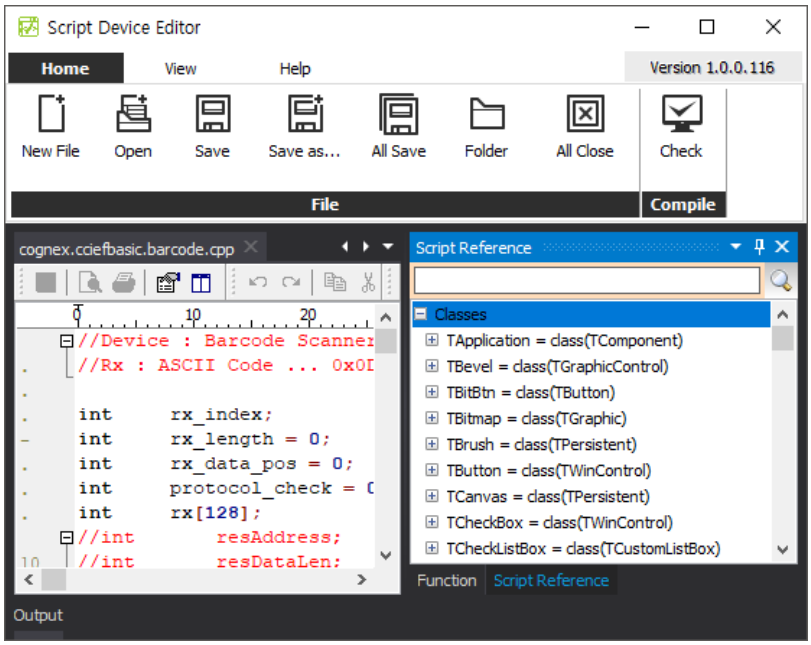


2nd On the top of “File” menu,. click [Open] to open the file to edit or click [New File] to create a Script.

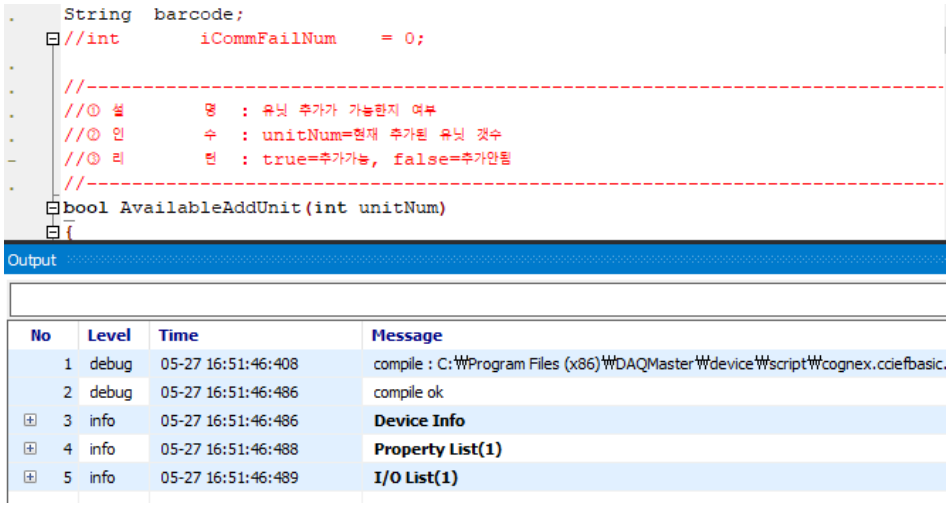


3rd The “Function” window at the right side of screen shows the list of functions that are being used. Double-click the function name to move that location.

4th Click “Script Reference” tab on the bottom of the screen, “Script Reference” window is activated and provides list of script reference supported by the script editor. (The supported scripting language is C, JS, Basic, and PAS.)



5th Click [Check] on the top of “Compile” menu whether scripting language has error or not. When errors are detected in the scripting language, output window shows the details about error and leads you to the error location.

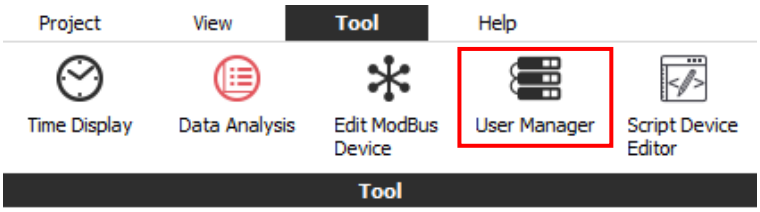


If checking is over without error, modified script language is loaded automatically and is ready to use when running DAQMaster.

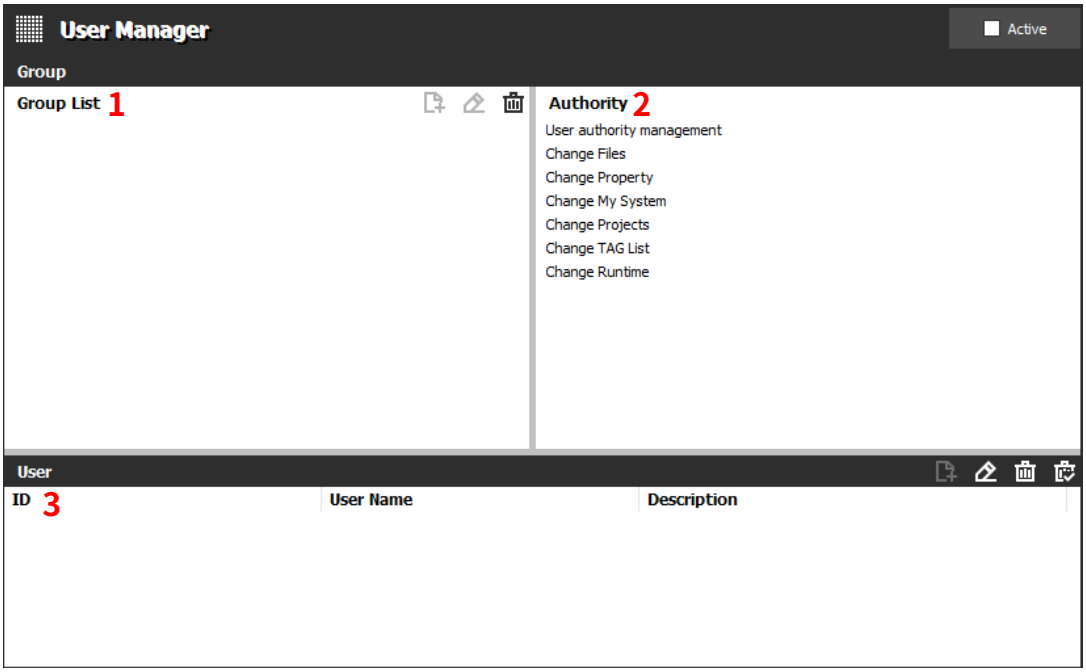
8.4 User Manager

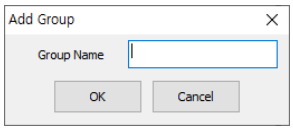
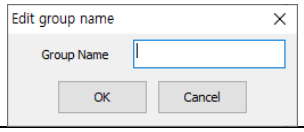
Set and manage program feature permissions for each group by adding a login account to DAQMaster and creating user groups.

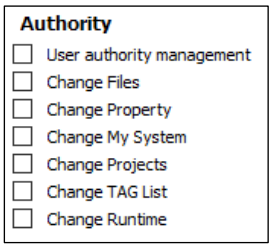
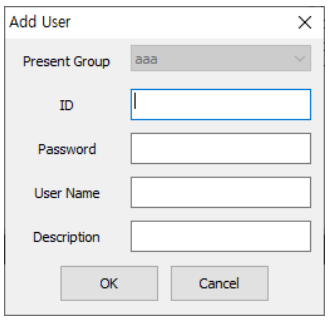
Click the Manage Users button on the Tools menu to run it.

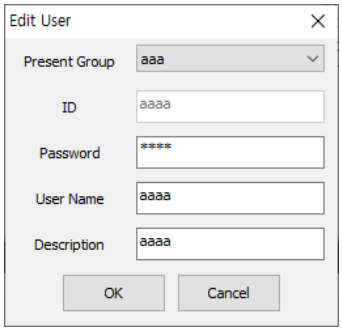


8.4.1 Screen Configuration



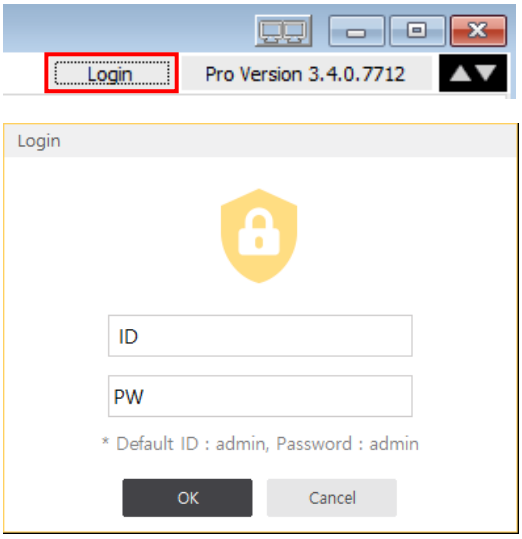
No	Item	Description
1	Group List	Manages the list of groups The highest administrator group, admin group, cannot be modified or deleted, and authorites for each group are managed individually. • Add group:  Enter the name of the group to add to the “Group Name” and click the [OK] button. • Edit group name: 

No	Item	Description
		In the “Group List” window, select the group to change and click the [Edit group name] button. Enter the name of the group to change in the “Group Name” item and click the [OK] button. • Delete Group:  Deletes the selected group from the “Group List”.
2	Authority	Each group can have authority independently. Select the list of groups to modify in the “Group List” window, and click the check box to set.  • User authority management: Authority of each user group and account modification • Change Files: Authority to use the “New”, “Open Project”, “Save” functions in the “Project - File” menu (The “Open from List” and “Save As” functions are available regardless of this authority.) • Change Property: Authority to write parameters on the device • Change My System: Authority to use “My System” control panel (add and change device) • Change Projects: Authority to use “Project” control panel • Change TAG List: Authority to add and delete tags in the “DAQ list” control panel • Change Runtime: Authority to add and delete “Runtime screen”
3	User	Manages user accounts. • Add User:   Enter the information for the user account to add and click the [OK] button.

No	Item	Description
		• Edit User:   In the “User” window, select the user account name to change, and click the [Edit User] button. Enter the changes and click the [OK] button. • Delete User:  Deletes selected user account in the “User” window.

8.4.2 Log in

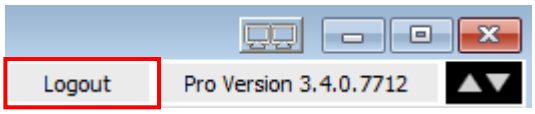
To log in, click the [Login] button in the upper right corner of “DAQMaster” window to open the Login window, enter ID and password, and click the [OK] button.



- Default ID and password of the administrator account are “admin”.
- The following message pops up when performing an action without authority. Please log in again.

8.4.3 Log out

To log out, click the [Logout] button in the upper right corner of the “DAQMaster” window.



9 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.

9.1 TK Series (High accuracy standard PID control temperature controller) TF3 Series (Refrigeration temperature controller) KPN Series (High performance and high accuracy process controller) TN Series (Two-Degree-of-Freedom PID Temperature Controllers)

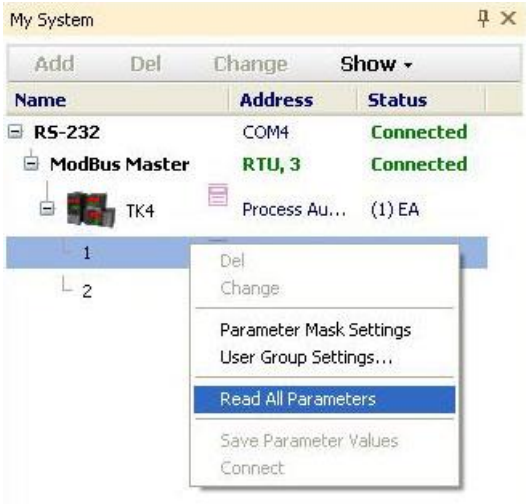
Save parameter values, copy parameters, parameter mask and user parameter group is available by DAQMaster. (Following explanation is based on TK)

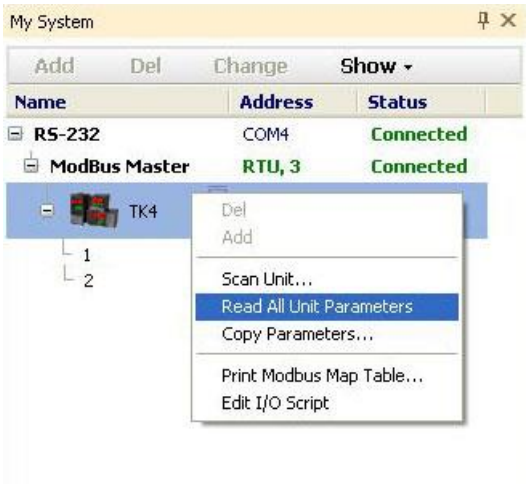
- **Save parameter values**

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

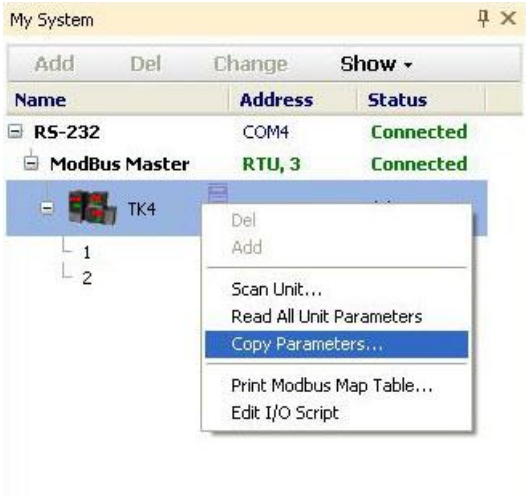
1st Connect the TK device which parameters are saved.

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

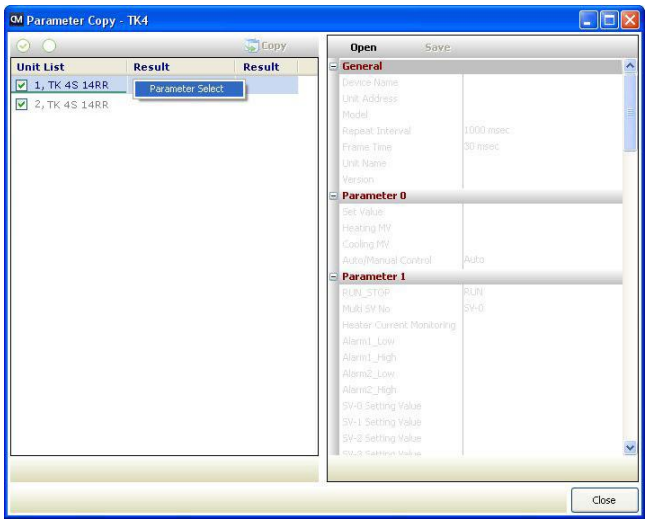




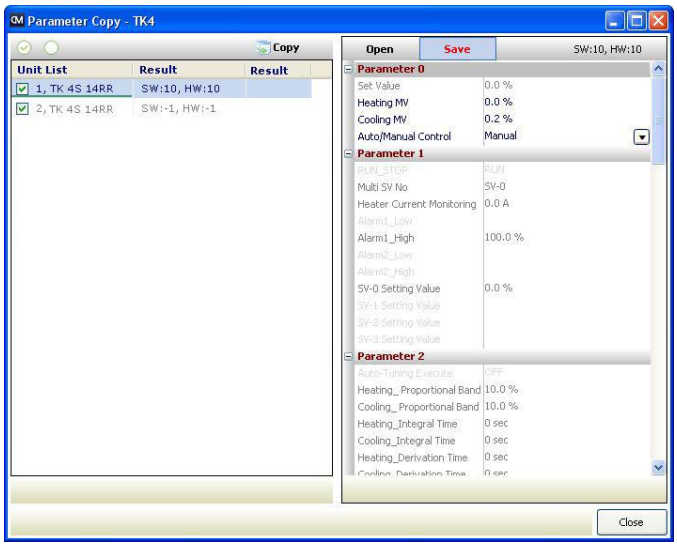
3rd Select TK at My System and right-click to select “Copy Parameters” and Parameter Copy dialog appears.



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.



- **Copy parameters**

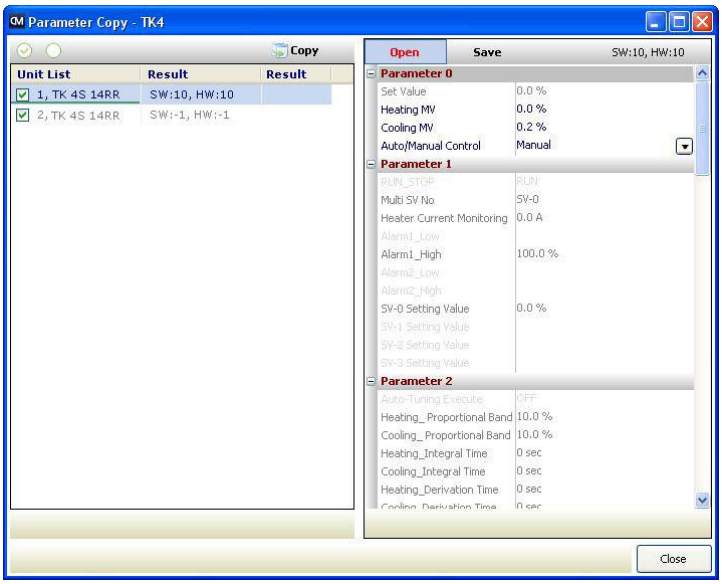
To connect the several same model units at once, you can copy the parameters. You can copy the saved parameter file or the parameter settings of the dedicated device (standard unit) to the other devices(target units).

(1) To copy the saved parameter file,

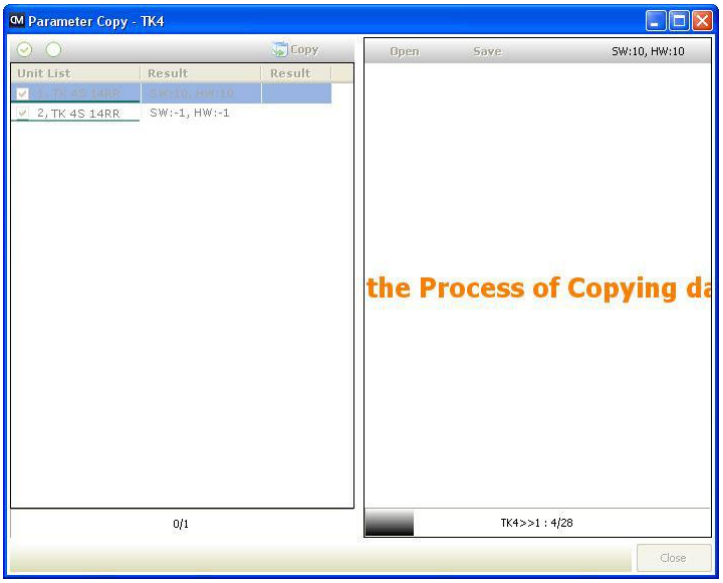
1st Same orders 1st to 3rd of the Save parameter values.

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.



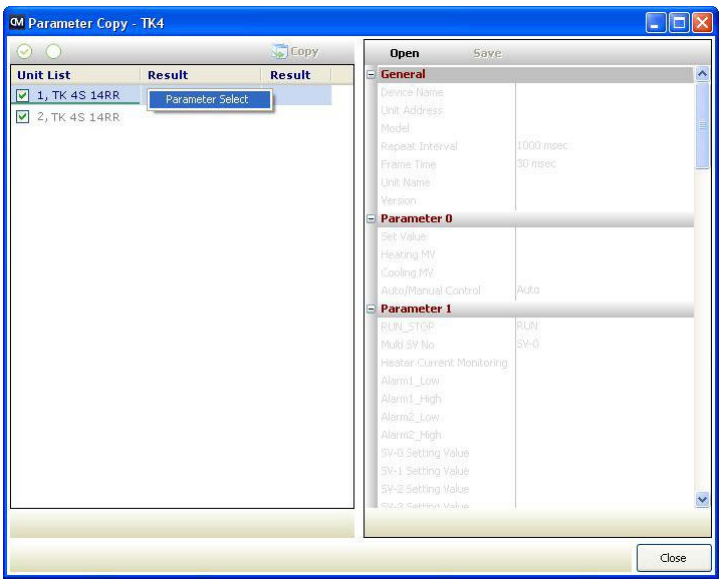
5th After completing copy, “Copy Complete!” dialog box appears. Click “OK” and copy is finish.

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

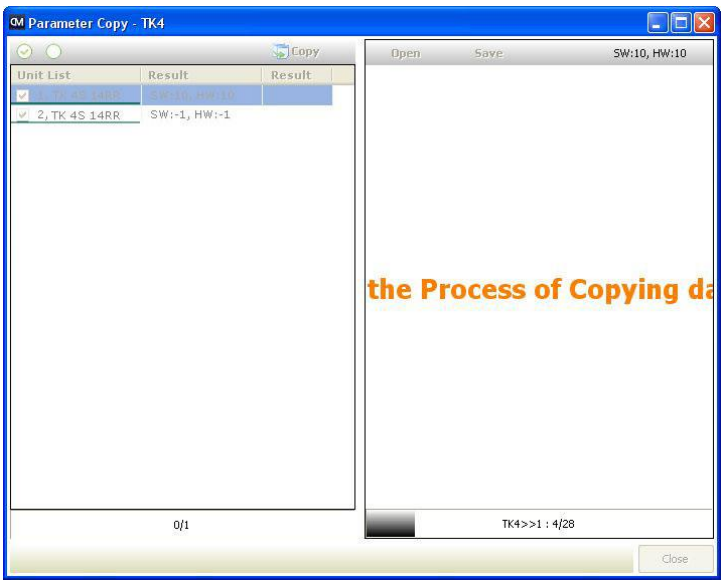
1st Same orders 1st to 3rd of the Save parameter values.

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.

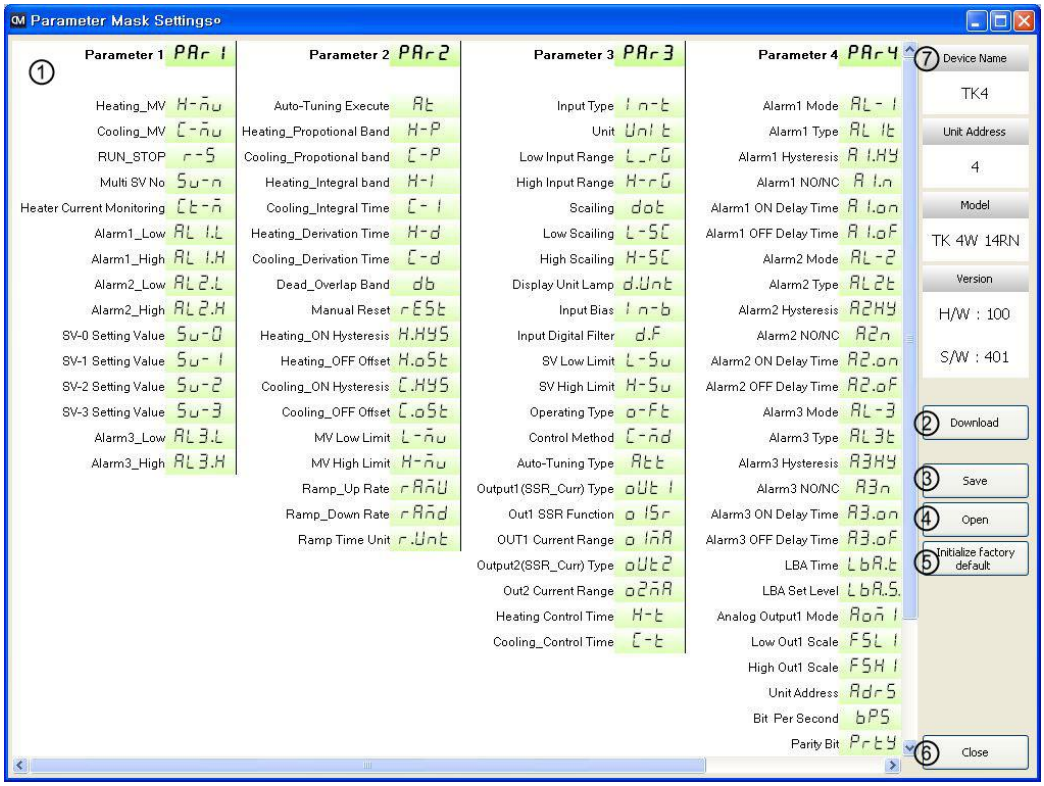


5th After completing copy, “Copy Complete!” dialog box appears. Click “OK” and copy is finish.

- **Parameter mask**

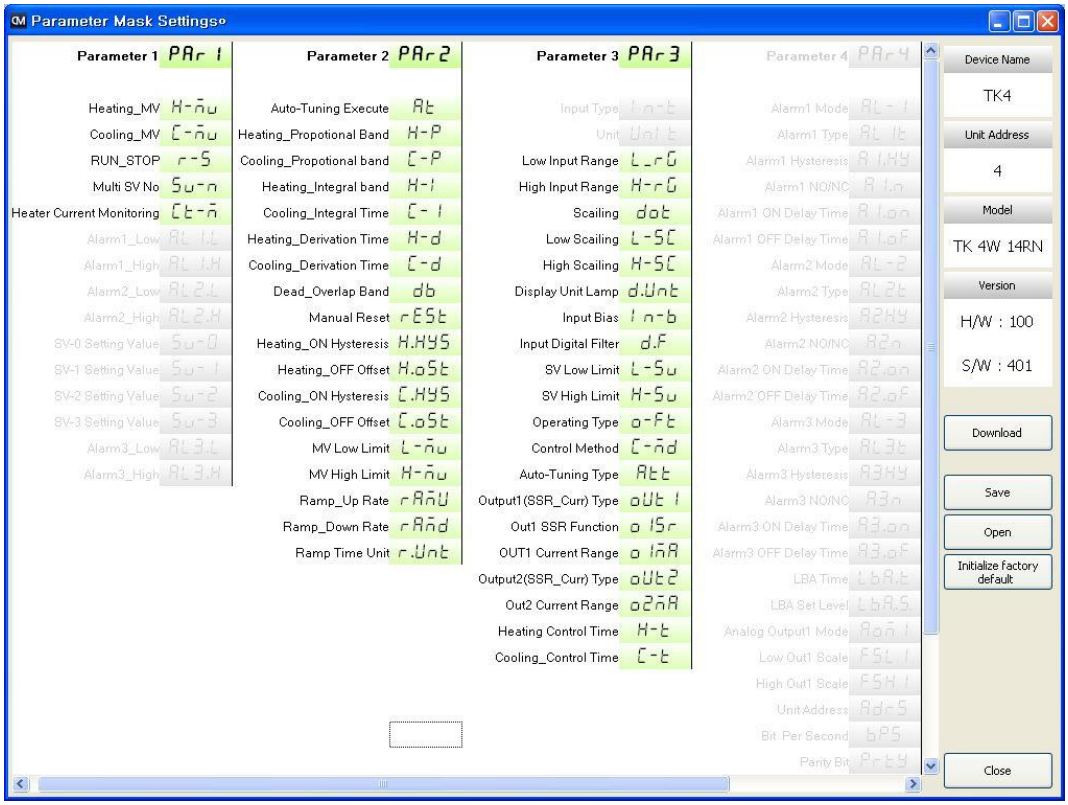
This feature is able to hide unnecessary parameters to user environment or less frequently used parameters in parameter group.

Masked parameters are not only displayed. The set 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.

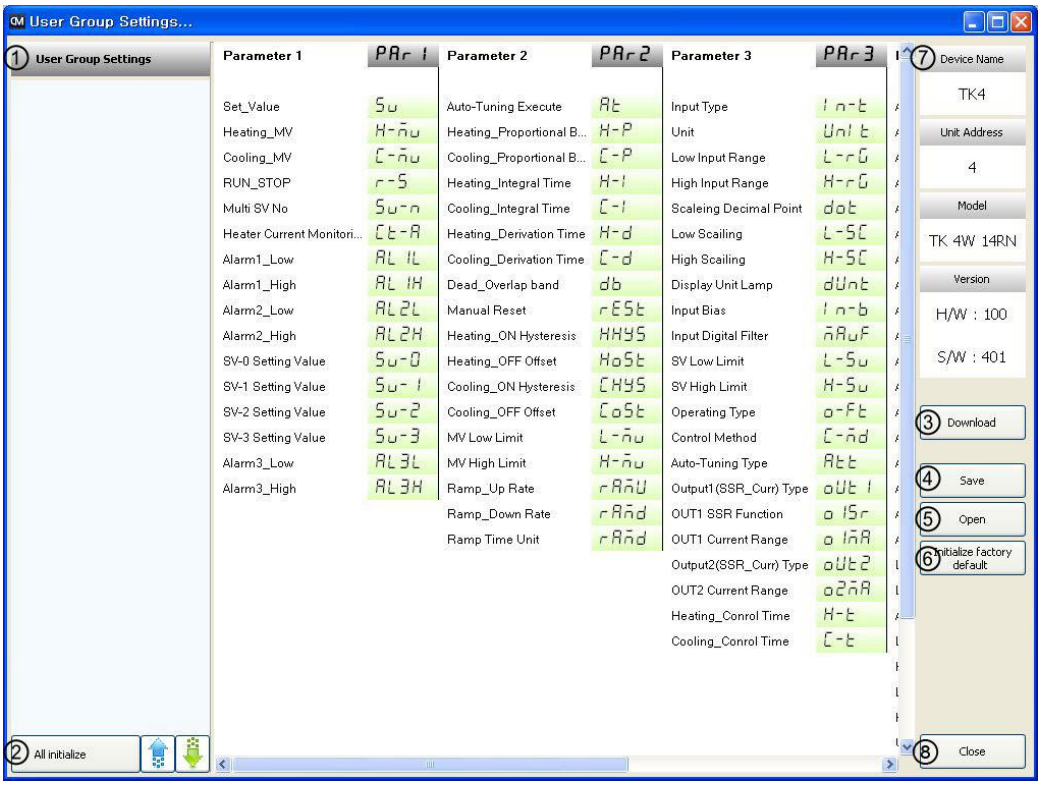


Example of masking alarm, SV setting parameters of parameter 1 group, input type, unit of parameter 3 group, and all of parameter 4 group.

- **User parameter group [PArU]**

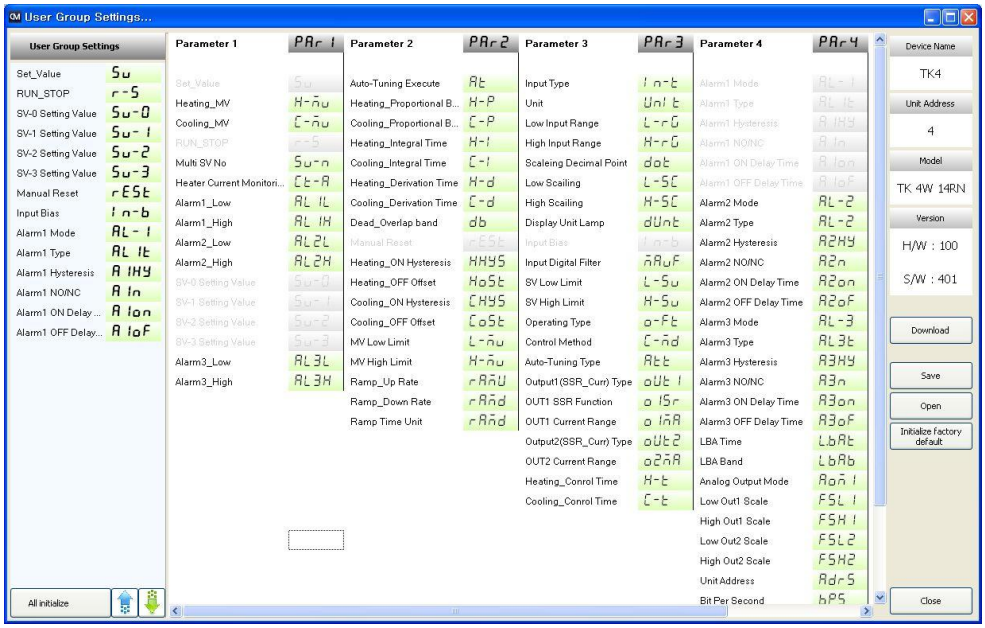
This feature is able to set the frequently used parameters to the user parameter group. You can quickly and easily set parameter settings.

User parameter group can have up to 30 parameters.



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

Ex.



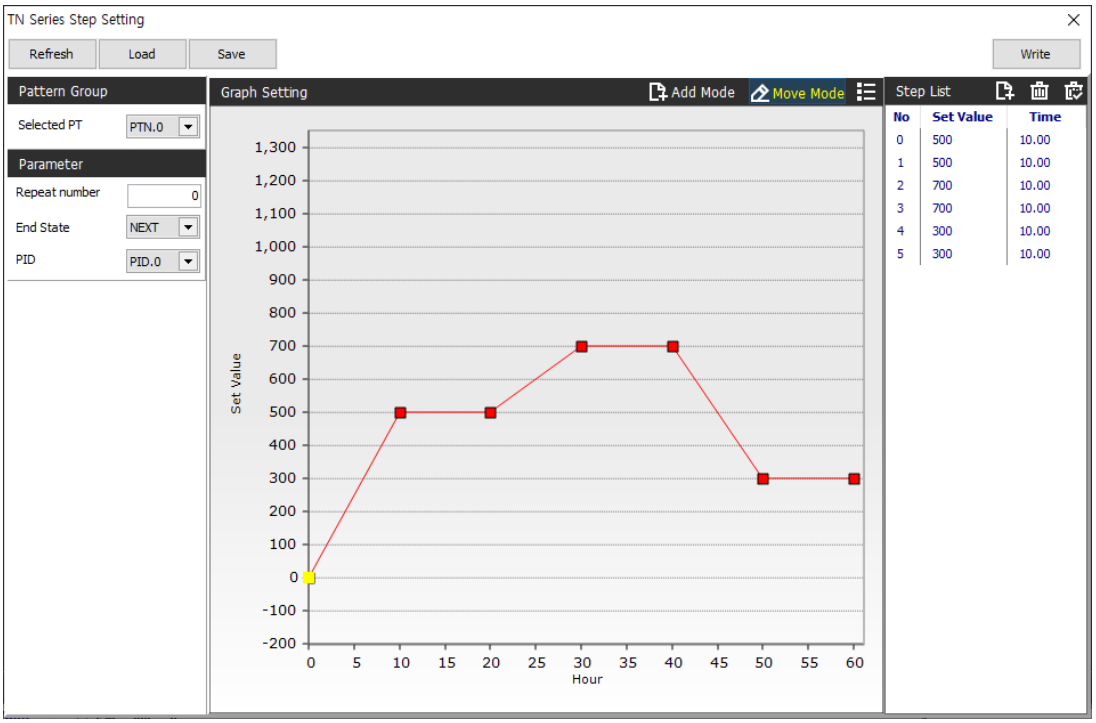
Example of the set user group with SV setting, control output RUN/STOP, alarm output 1 low/high-limit, SV-0/1/2/3 set value, manual reset, input correction, alarm output 1 mode/option/hysteresis/contact type/ON delay time/OFF delay time parameters.

9.2 TN Series (Two-Degree-of-Freedom PID Temperature Controllers)

▪ Step setting for pattern

In case of program control mode, set steps for each pattern. It is available to set the SV (set value) and time for each step by clicking the desired coordinates in the graph or directly from the step list.

It can be set in STEP in the parameter Pattern Config group. Click the right '⋯ ' and the TN Series Step Setting dialog box appears.



(1) Top menu

- Refresh: Returns to the changed data.
- Load: Loads saved Step group information file (*.pau) data.
- Save: Saves the current data as a Step group information file (*.pau).
- Write: Writes the current data to the connected device.

(2) Pattern group and parameters

You can set parameters (repeat number, End state, PID) for each pattern group.

If the current device is in RUN mode or if step setting is made without reading all parameters, pattern group cannot be set.

(3) Graph setting

Click the coordinates for each step, and it is available to check/add/edit (shortcut key F2)/delete in the step list.

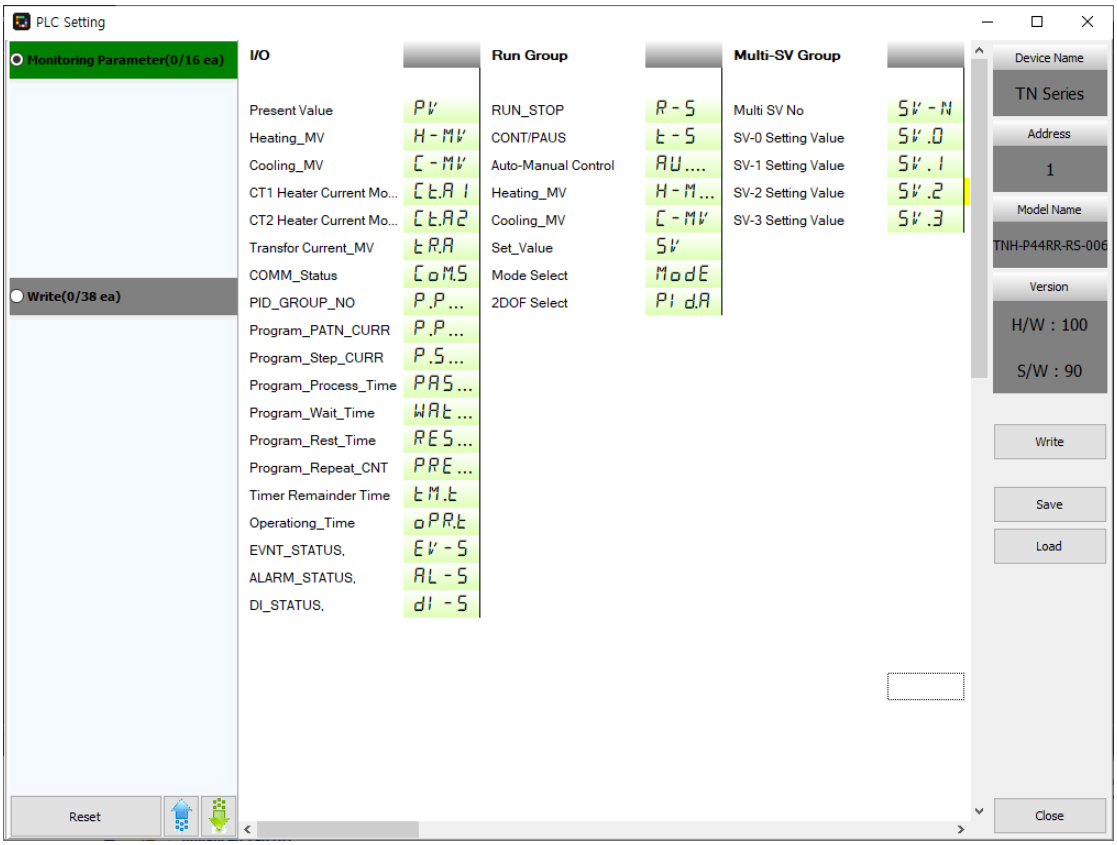
- Add mode: Click the X-axis: Time (minutes), Y-axis: SV (Setpoint) coordinates in the graph to set the step.
- Move mode: Click-drag the coordinates of the set step to edit the coordinates.

▪ PLC settings

In case of PLC ladderless communication, you can set PLC monitoring/writing parameters.

It can be set in PLC Group within the parameter PLC group. Click the right '⋯' and the PLC setting dialog box appears.

Click each parameter to add it in PLC monitoring/writing parameters.



PLC monitoring: A total of 16 parameters to be monitored in PLC can be set.

PLC write parameters: A total of 38 parameters to be written in PLC can be set. Non-writable parameters are displayed in grayscale.

Reset/↑/↓: Resets by deleting all set parameters or changes the order.

Write: Writes the current data to the connected device.

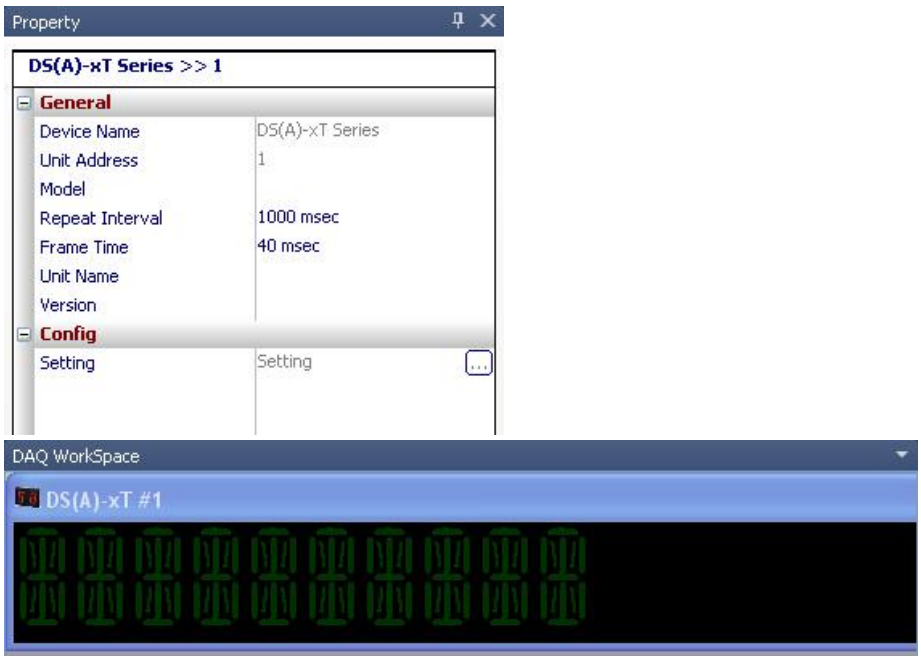
Save: Saves the current data as PLC group information file (*.pap).

Open: Loads saved PLC group information file (*.pap) data.

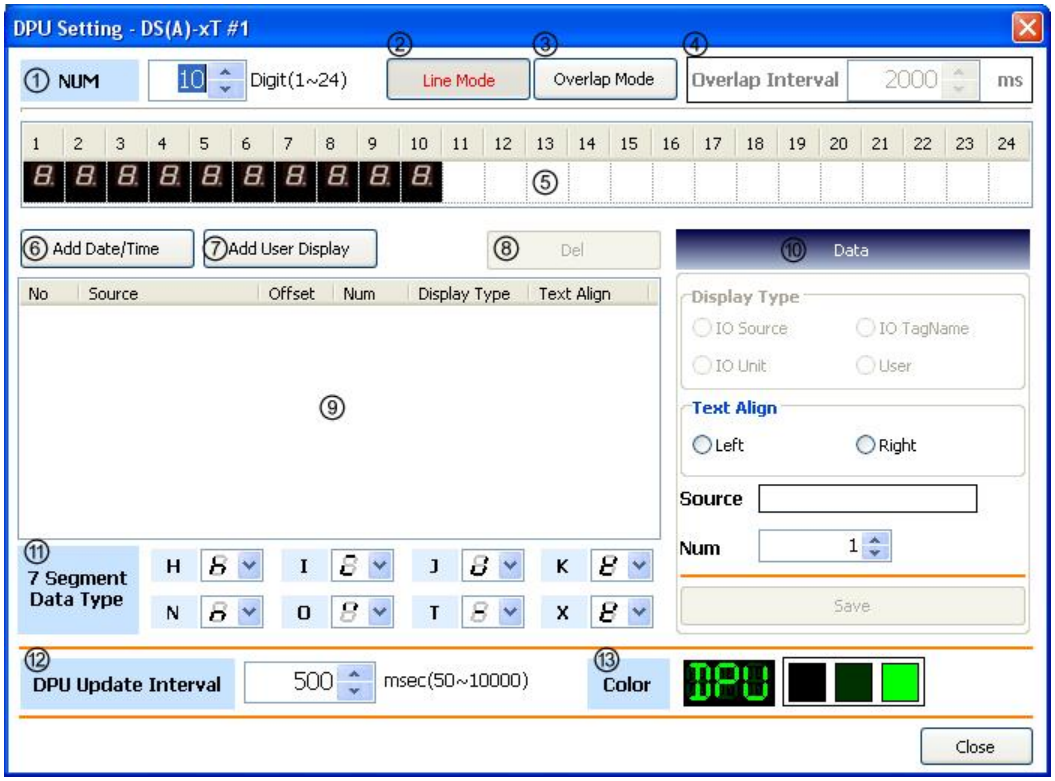
9.3 DS/DA-T(Display Unit: RS485 comm. model)

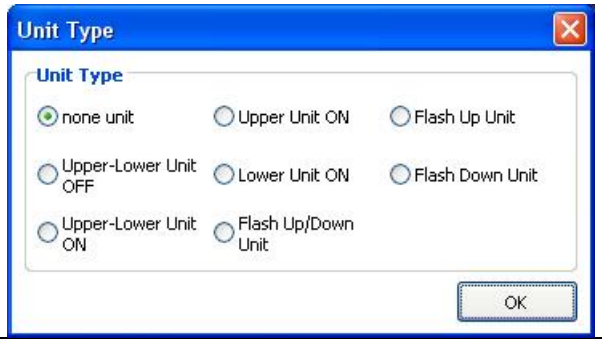
DS/DA displays I/O source value, unit, and user set value by DAQMaster.

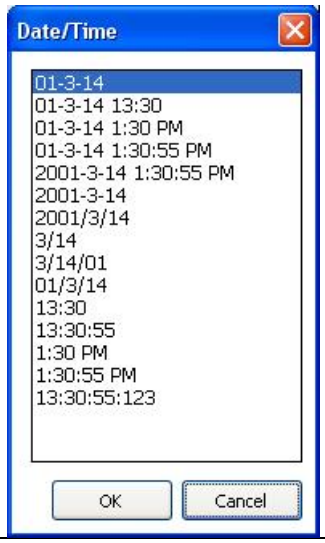
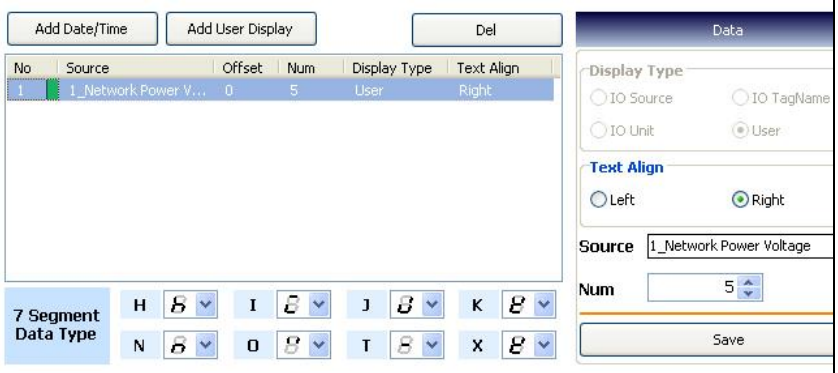
Connect DAQMaster and DS, DA(RS485 input type) and click "⋯" button located on the right of Setting at Config in the "Property" control panel. A display unit screen is open at DAQ Workspace.



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



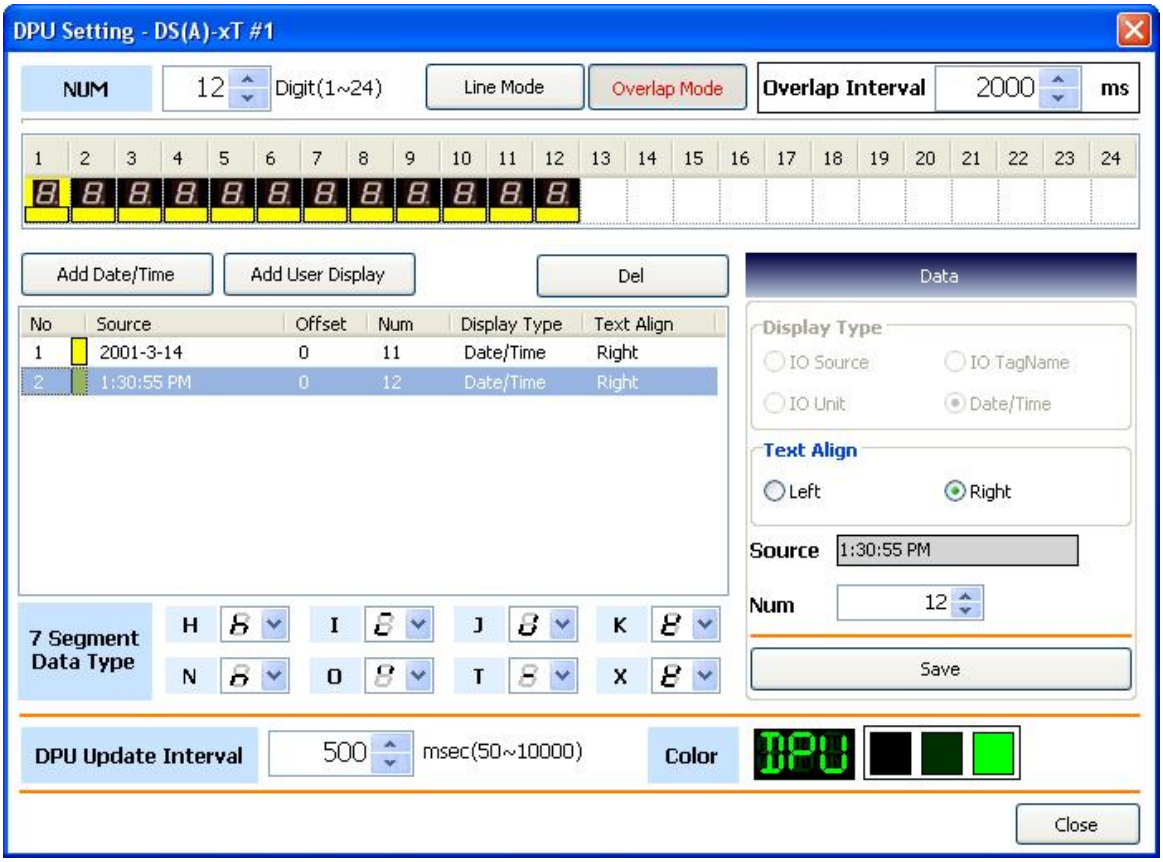
No.	Item	Description
①	NUM	Set the number of display units. Set range is 1 to 24.
②	Line Mode	Displays the added sources of list at the connected display units in a line.
③	Overlap Mode	Displays the added sources of list at the connected display units by overlapping at the set interval time.
④	Overlap Interval	Activated for overlap mode. Set the interval time for overlap display.
⑤	Display parts	Displays the connected display units and 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. 

No.	Item	Description
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.

No.	Item	Description
⑫	DPU Update Interval	Sets the update interval for data value.
⑬	Color	Sets the displayed color at run time screen. 

Ex.

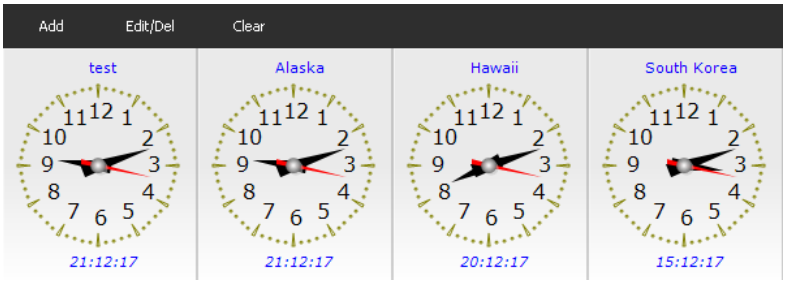
Example of adding two date/time sources, overlap mode and 2000ms of overlap interval.



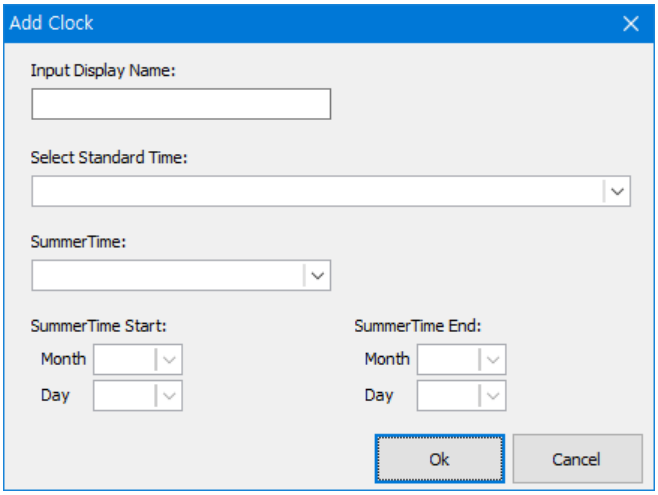
It displays 2012-04-13 for 2 sec.(2000ms) at first then displays 03:20:06 PM for 2 sec. alternately.

9.4 DS/DA-C(Display Unit: RS485 comm. synchronous time display model)

DS, DA-C model synchronizes time, checks world times and sets the summer time via DAQMaster.



- **Add**

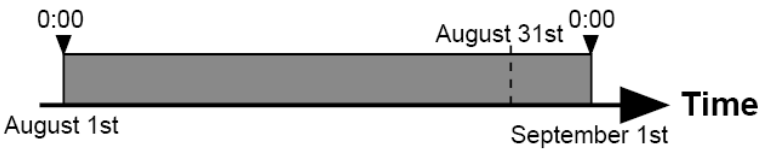


- Input Display Name: Set the clock name to display.
- Select Standard Time: Select the time zone based on the coordinated universal time (UTC). Select the set time zone of display unit (DS-C Series).
- Summer Time: Select the summer time (+0:30, +1:00, -1:00, -0:30) to apply. If not applying summer time, select 'Not Apply'.
- Summer Time Start(End) Month/Day: Set the summer time period. Summer time starts from the set start month/day to the set end month/day.

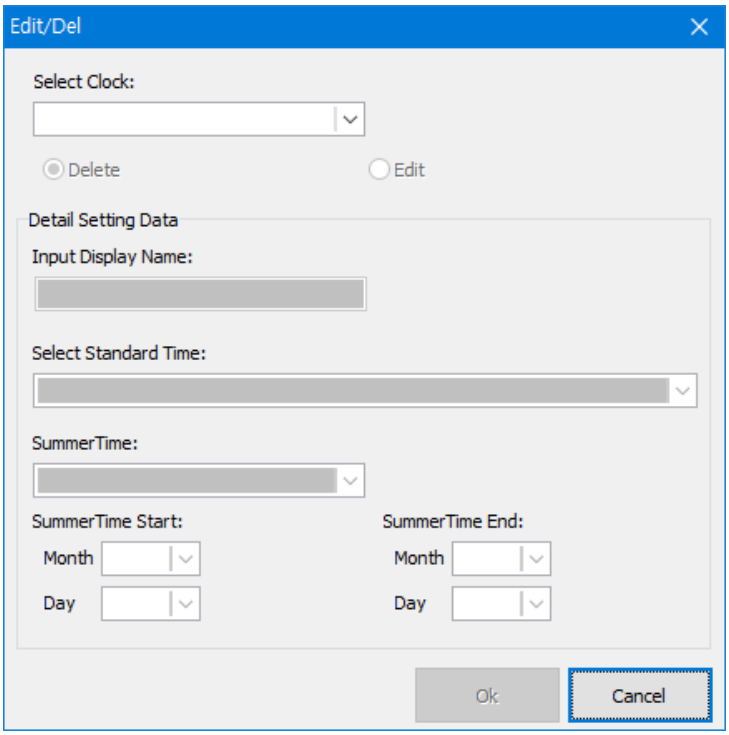
Ex.

Summer time starts August 1st and ends August 31st,

Summer time applied from 00 hour 00 min, August 1st to 24 hour 00 min, August 31st. Next day, 00 hour 00 min, September 1st, summer time is not applied automatically.



- **Edit/Delete**



  - Select Clock: Select the added clock to edit or delete.
  - Detail Setting Data: Edit the clock as same method with adding clock.

- **Clear**

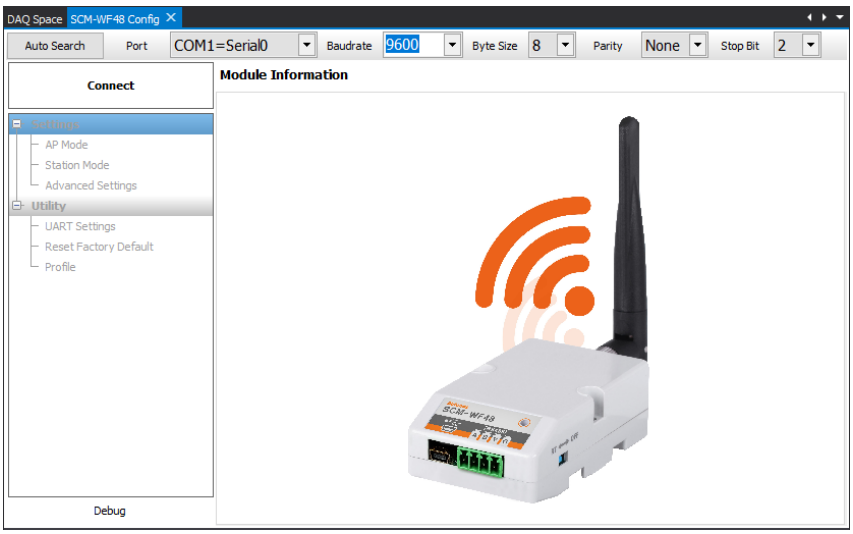
  - Clear (delete) all added clocks of the Clock space.

9.5 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 tab in DAQ Space.

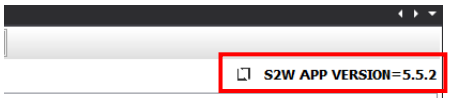


- **Differences and method of distinction between new and old models**
  - **Difference between new and old models**

    Based on the manufacturing date, the products produced after September 2019 are new model and the products produced before are old model. Firmware upgrade is only available for old model.
  - **Method of distinction**

    After connecting the device, it is possible to check the text at the top right of the “SCM-WF48 Config” window. This is the old model if the firmware version statement appears, as like “S2W APP VERSION=X.X.X.” and a new model if only the product version appears, as like “V X.X.XX”. Refer to the image below.

    · Old model

    · New model

    ※ For more information about connecting devices, refer to the “Connecting device” chapter below.

    ※ For more information on the differences between old and new products, refer to the contents at Autonics website (www.autonics.com) .

▪ Connecting device

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

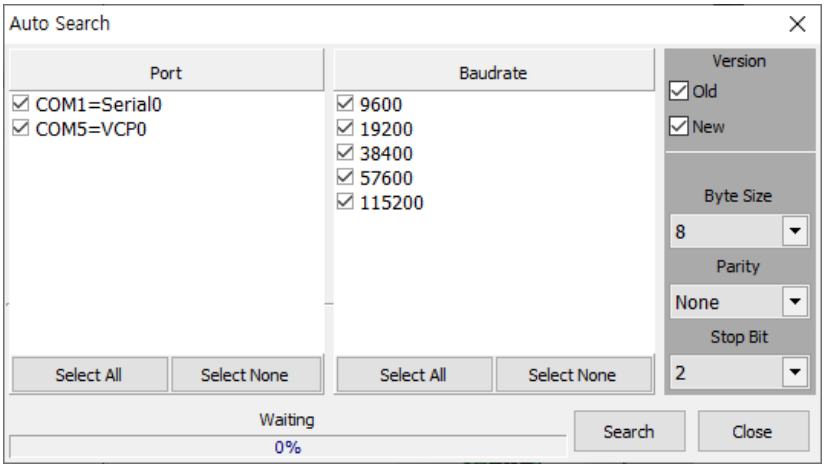
(1) Manual connection

Enter the port, baudrate, byte size, parity, stop bit values in the upper side of the SCM-WF48 Config tab 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.

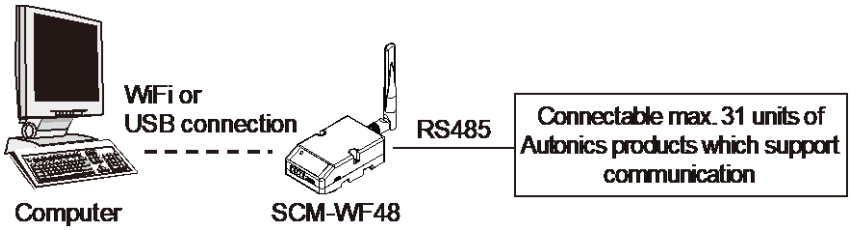
When PC is connected with over 2 SCM-WF48 devices, DAQMaster is automatically connected with first SCM-WF48 in numerical order of port number.

In “Version” window, it is possible to select what version to search for. Check the desired version of “Old” (old model) or “New” (new model) and click the [Search] button.

▪ Setting communication mode

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

• AP mode

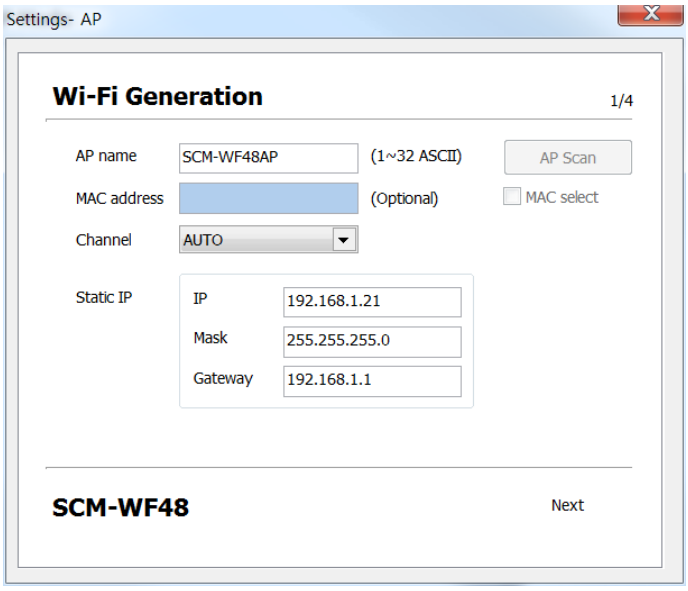


SCM-WF48 performs as AP (access point).

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.



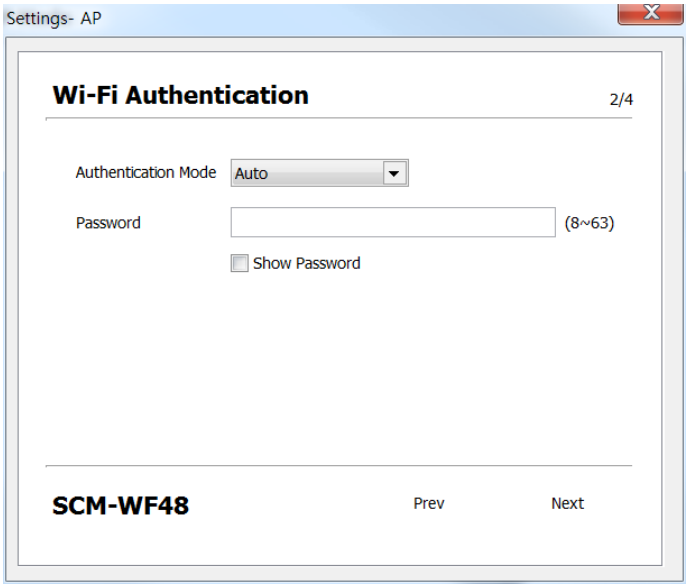
- AP name: Sets displaying name.
  Default is SCM-WF48AP.
- Channel: Sets Wi-Fi frequency. (setting range: Auto, 1~14)
  If the number of channel is same or next to each other with another wirelessly

connected 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

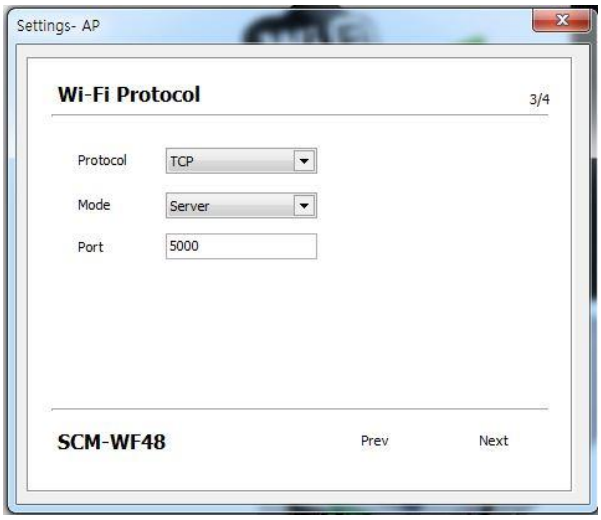
3rd Set Wi-Fi authentication.



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.

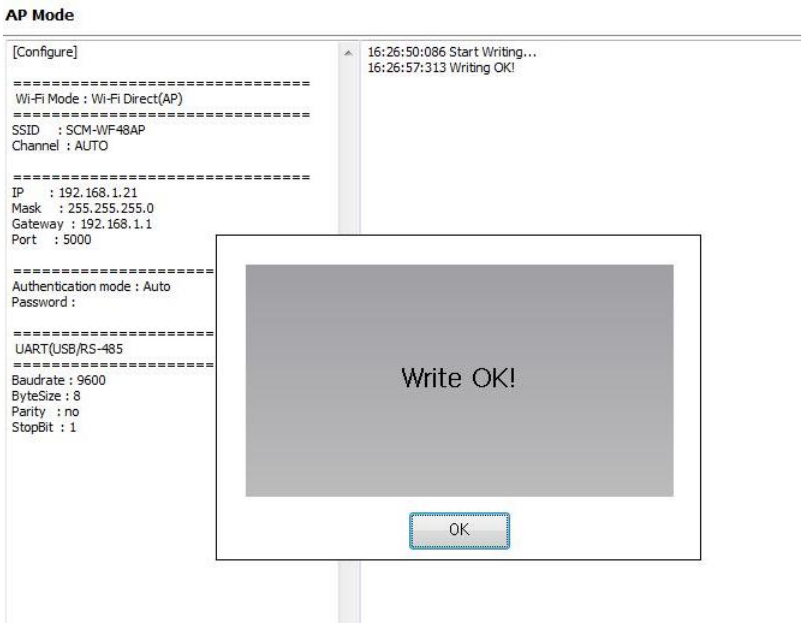


- Protocol: Select Wi-Fi protocol from TCP, UDP.
- Mode: “AP mode” only supports Server mode.
- Port: A set of server and client has set in same port value.
  (In Modbus communication, 502 port is used in general)

5th Set UART.

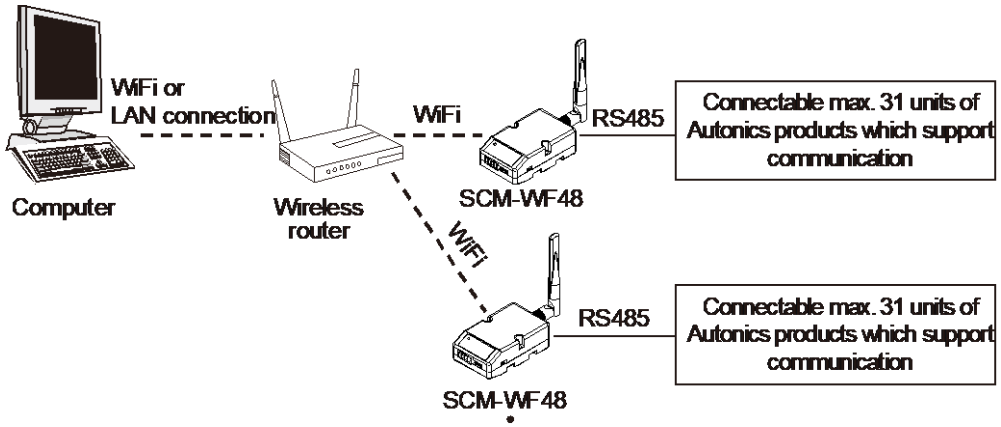
Enter the Baudrate, Byte Size, Parity, Stop Bit values equal to the device which is connected to SCM-WF48 device with RS485 or USB and click “Write”.

6th On the SCM-WF48 Config tab, 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.

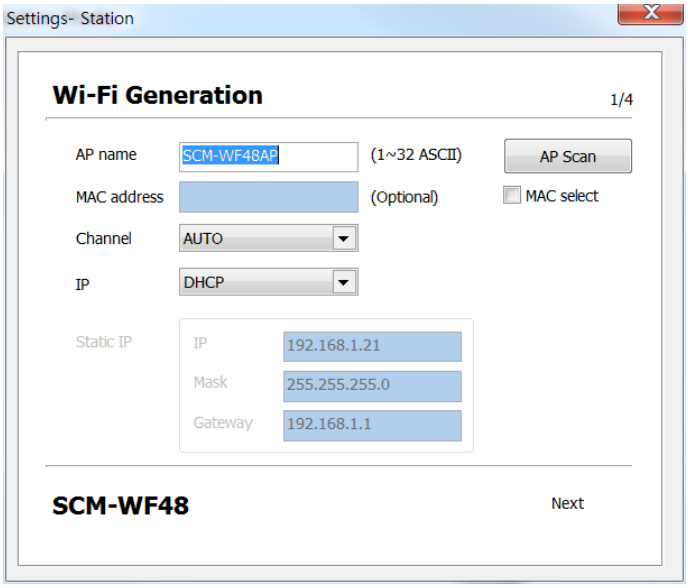
- **Station mode**



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.

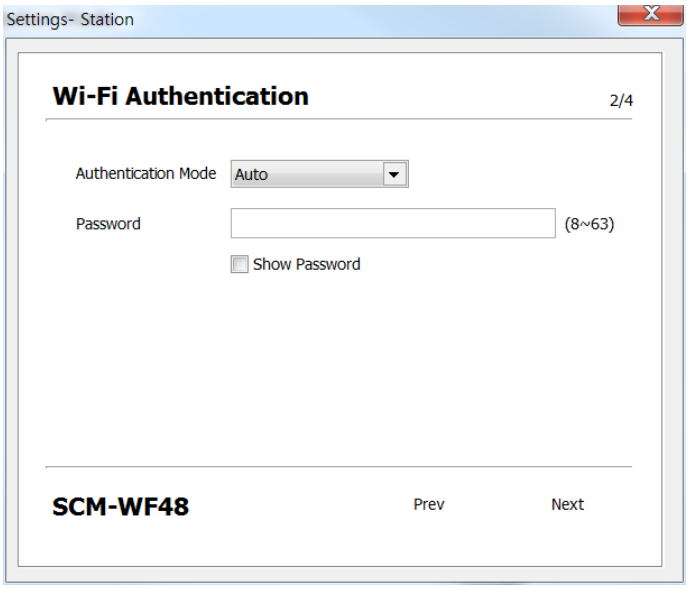


- AP name: Sets displaying name.
  Default is SCM-WF48AP.
- AP Scan: Scans AP.
  When scanning AP, it may be necessary to repeat again.
- MAC select/address: Check the "MAC select" and you can enter MAC address.
  When the same SSIDs exist, enter the MAC address and connect the desired SSID.
- Channel: 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 connected 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

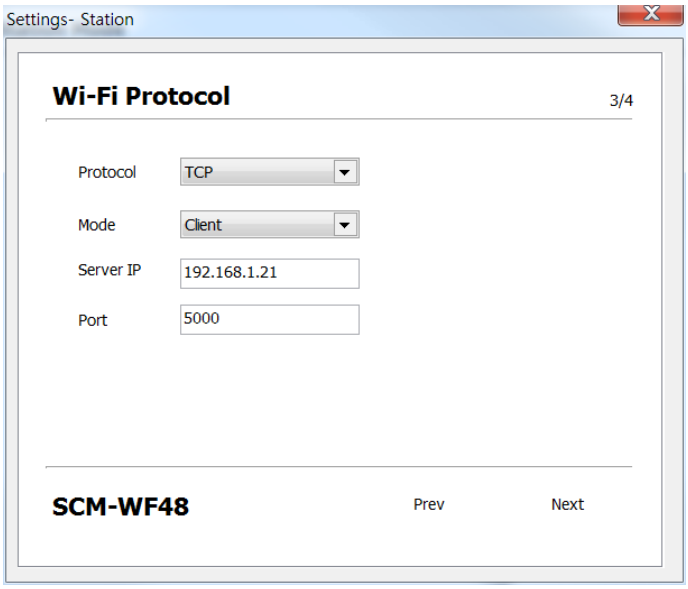
3rd Set Wi-Fi authentication.



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.



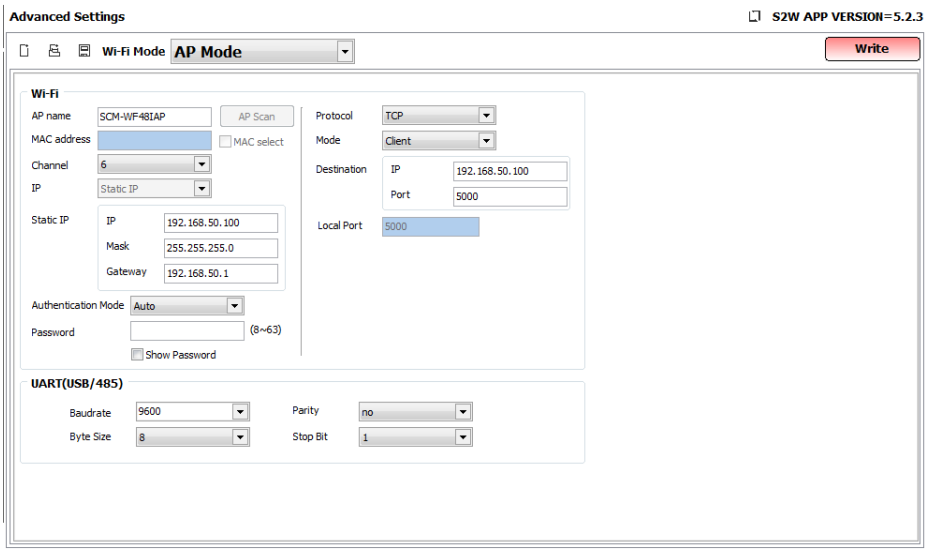
- Protocol: Select Wi-Fi protocol from TCP, UDP.
- Mode: Select Mode from Server and Client.
  Server: SCM-WF48 operates as server.
  Client: SCM-WF48 operates as client. Connecting information of server is required.
- Server IP: Enter server IP.
- Port: A set of server and client has set in same port 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”.

- **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

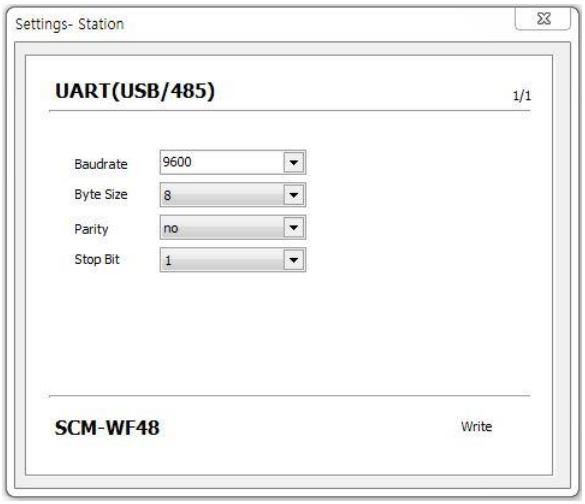
- Single Wi-Fi network needs at least one AP.
- Single network consisting of wire and wireless connection needs at least one DHCP server.
- At least one set of server and client is necessary.

(3) Utility

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

- **UART Settings**

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

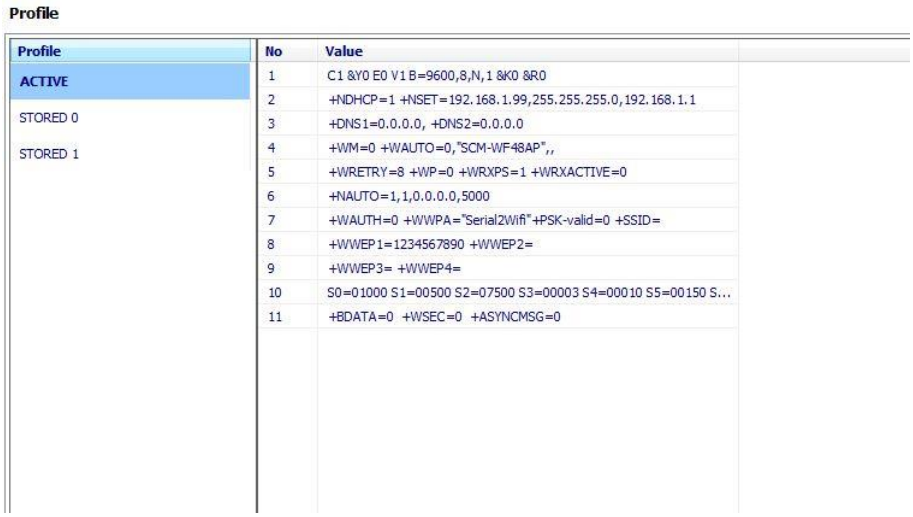


- **Reset Factory Default**

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

- **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

Note

Firmware version upgrade is only available on old versions of SCM-WF48.

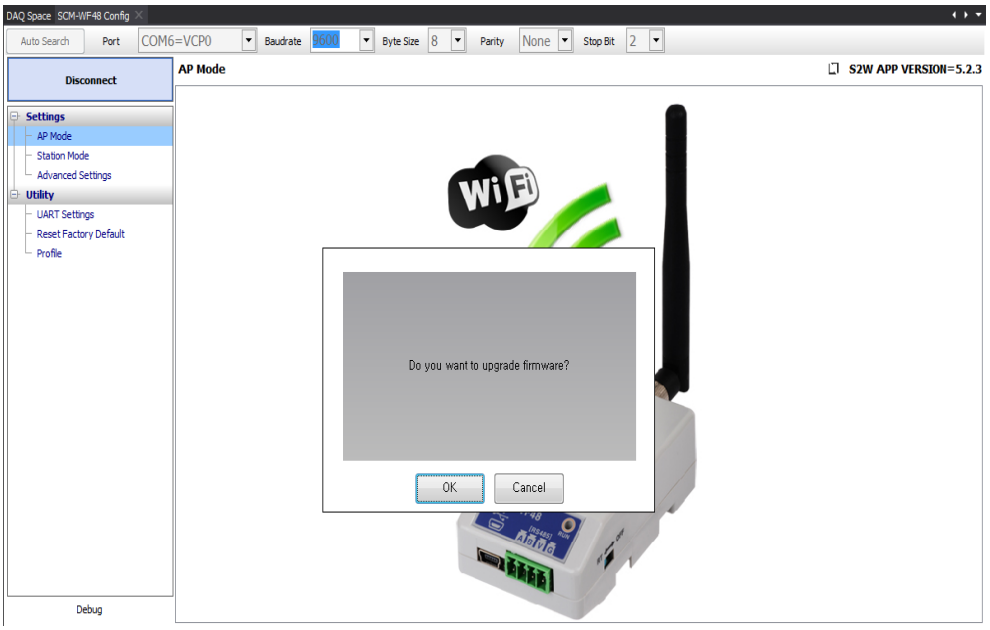
It is needed to be connected to the wireless LAN and the Internet.

S2W APP VERSION=5.2.3

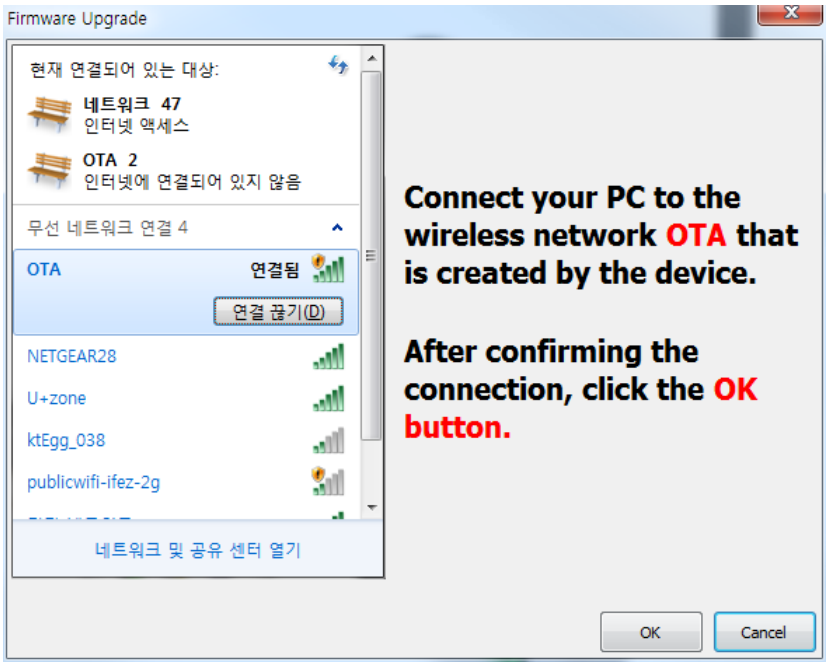
1st Click the icon.

2nd The dialog for firmware version upgrade appears.

Click the “OK” button.

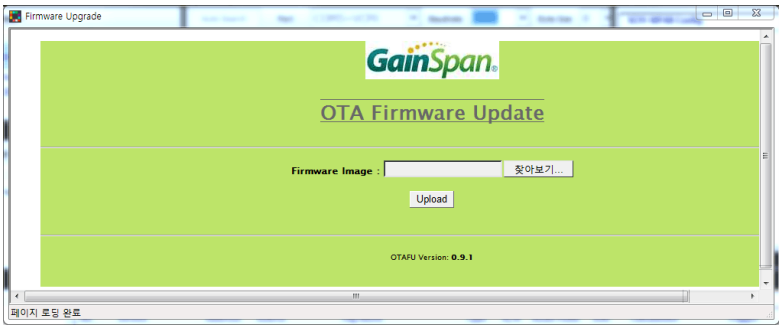


3rd The “Firmware Upgrade” dialog box appears.



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.

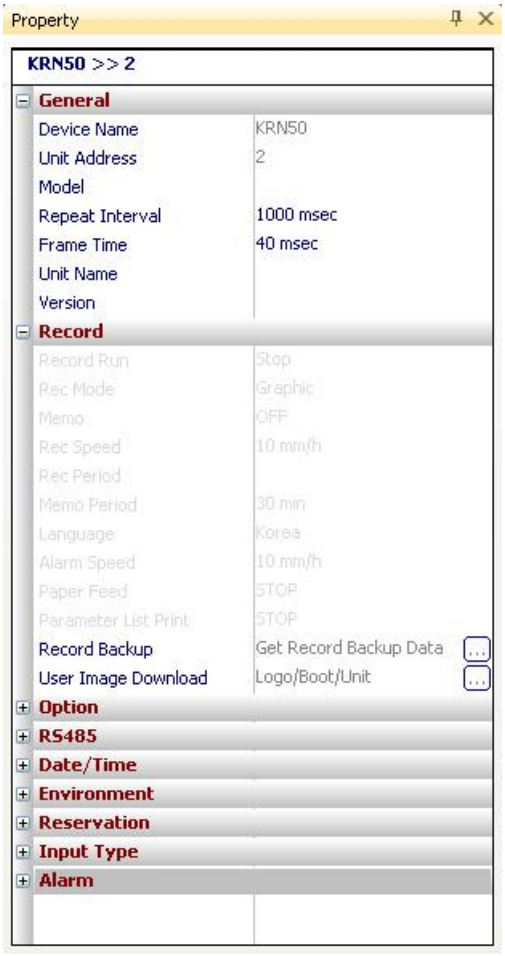
5th Firmware upgrade is completed.

9.6 KRN50 (50mm compact hybrid recorder)

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

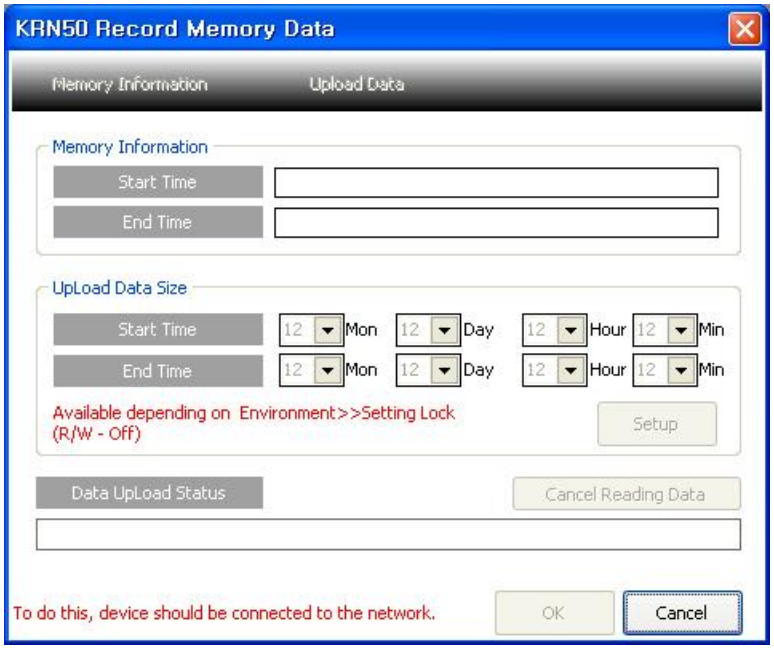
(1) Accessing Record Backup Data

To get the recorded data, click "..." button located on the right of Record Backup in the "Property" control panel.



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:

6th Run [Memory Information] in KRN50 Record Memory Data window. It gets the information from currently saved memory.

7th Set [Uploaded Data Size].

8th Run [Upload Data].

9th You can cancel the operation while data is being uploaded. When data reading is complete, OK button is enabled.

10th If you click OK, recorded data will be shown in two screens - the Grid and the Graph.

(2) Downloading User Images

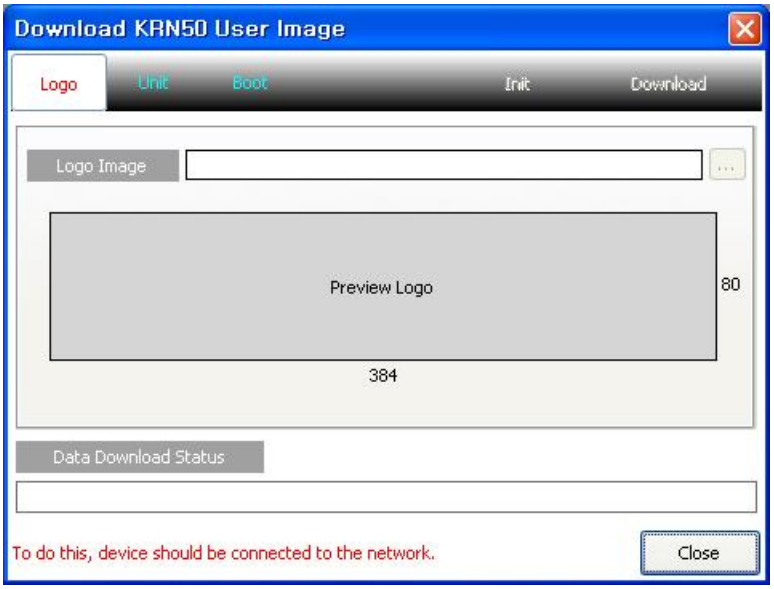
User Image allows you to download images to KRN50 and change logo, unit and boot images.

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

- **Download logo**

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

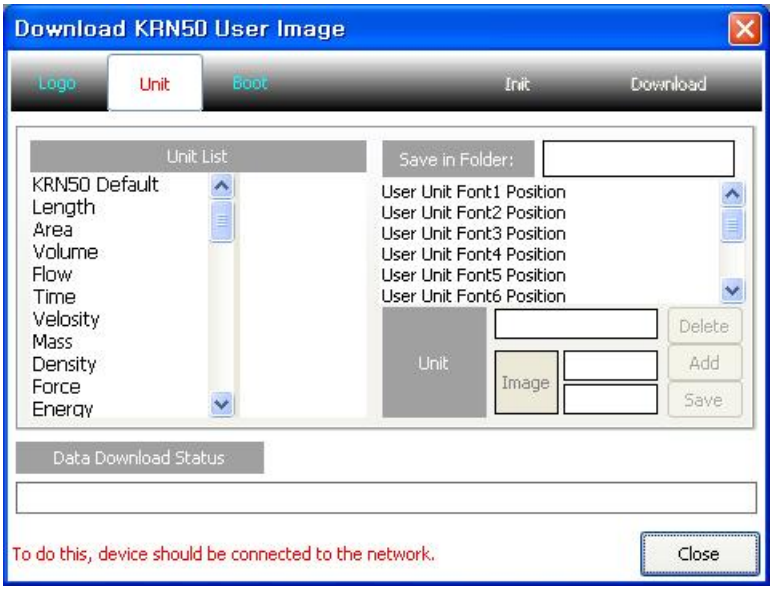
  Logo image should be 384 X 80 pixel of bitmap file.



- **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.

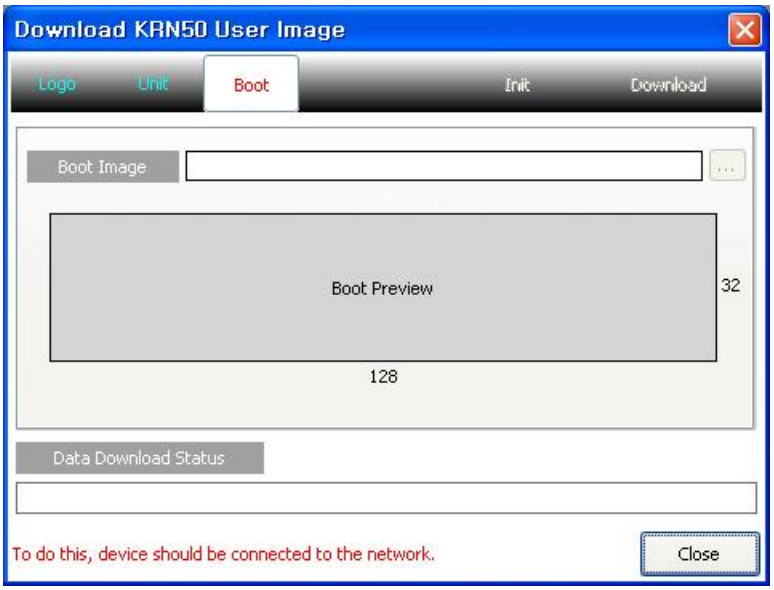


- **Download boot images**

  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.



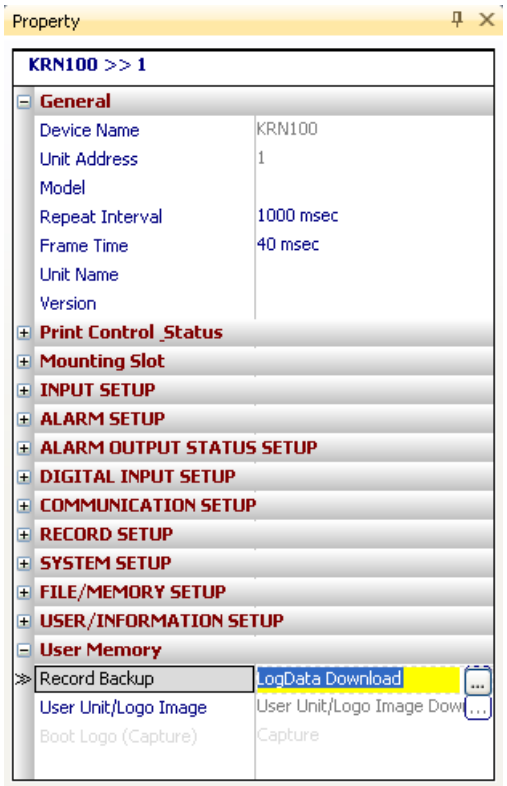
9.7 KRN100 (100mm hybrid recorder)

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

(1) Accessing Record Backup Data

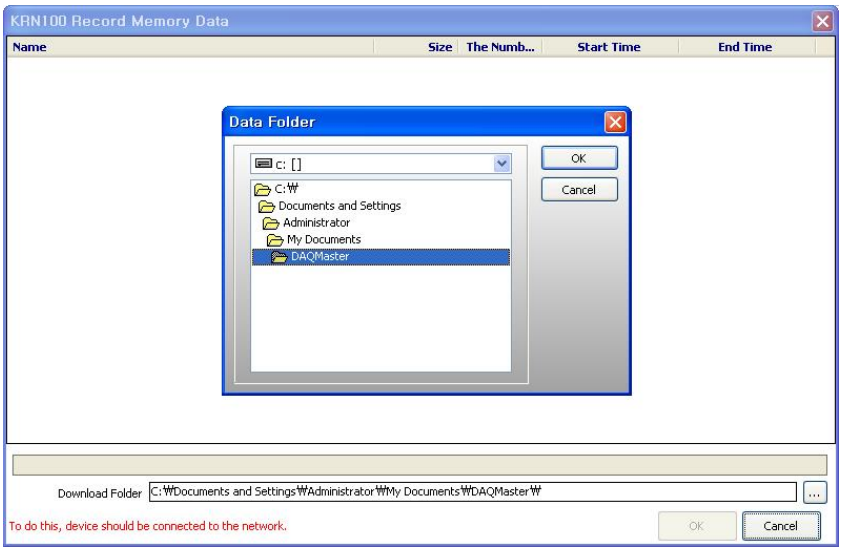
It is available to access saved backup data of KRN100 and to analyze backup data by data analysis feature.

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



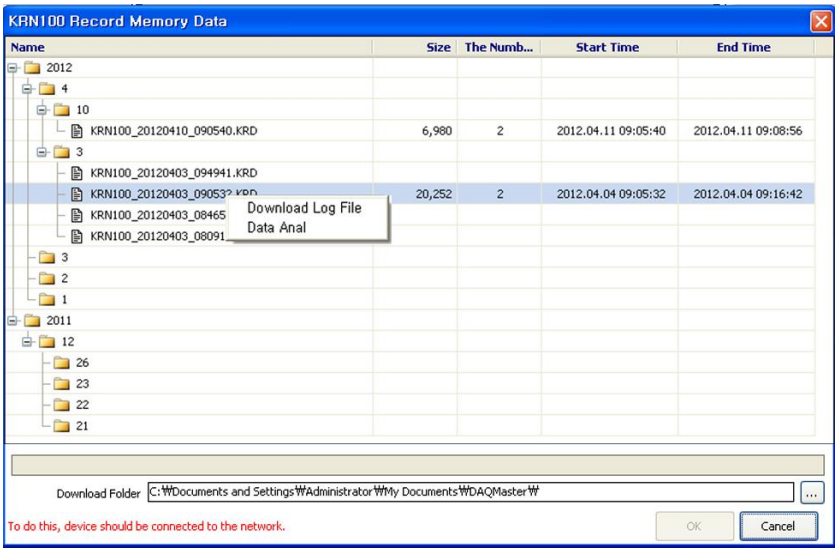
According to the USER INFORMATION SETUP of KRN100, it cannot read the memory. (Refer to the user manual for KRN100.)

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 designated folder, the below message appears.

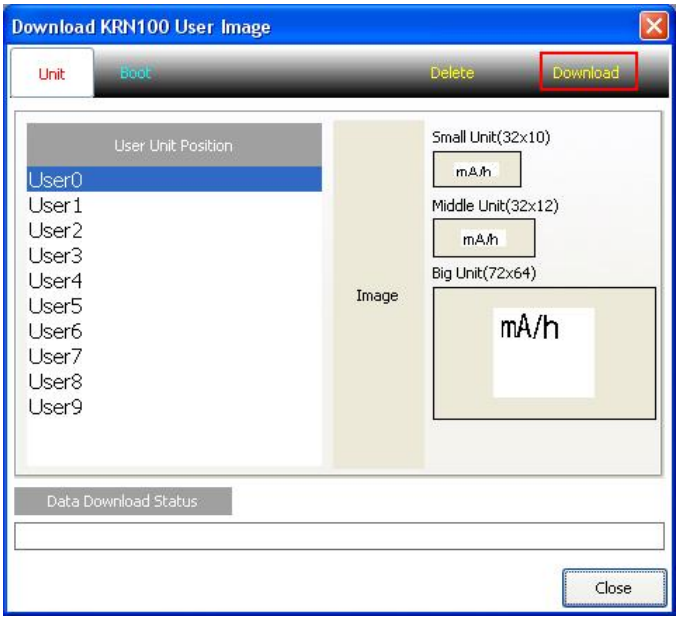
(2) Downloading User Images

You can add user unit and boot images of KRN100.

- **Download units**

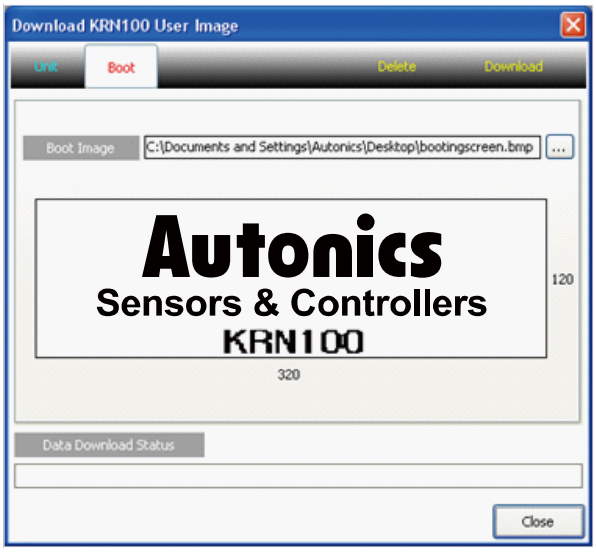
  There are 0-9 user units.

  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.



- **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.



9.8 KRN1000 (LCD touch screen paperless recorder)

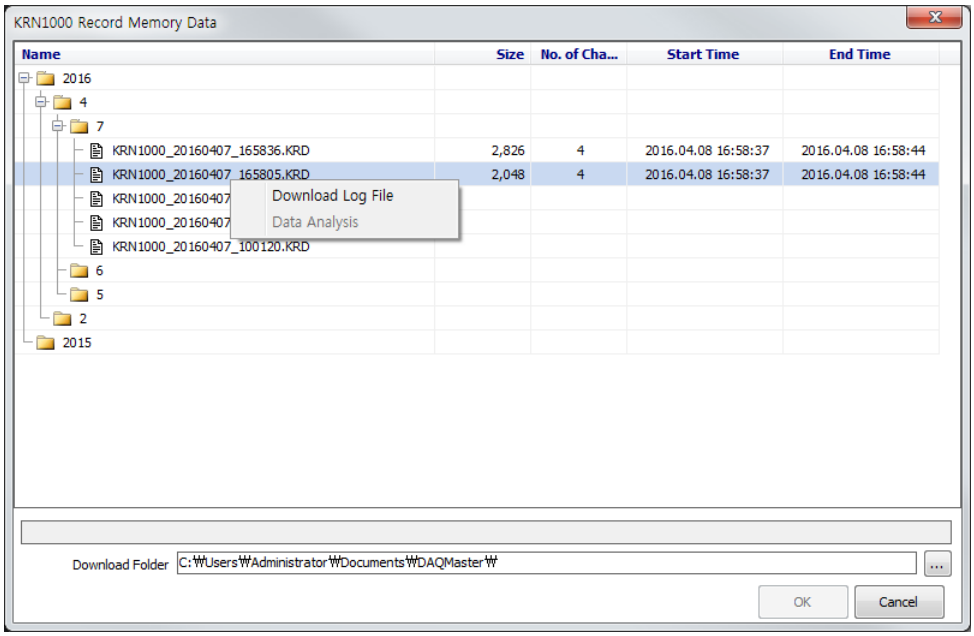
The following are special features for KRN1000 while in communication with DAQMaster.

(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 structured as tree type directory at KRN1000 internal memory. You can easily fine and download the desired file.

9.9 ARIO (Autonics Remote I/O)

Through the DAQMaster, it is possible to read or edit the Information about the coupler/module of Remote I/O, and also control input/output signals of each module. In addition, simulation function is provided to configure the virtual system.

9.9.1 Communication mode

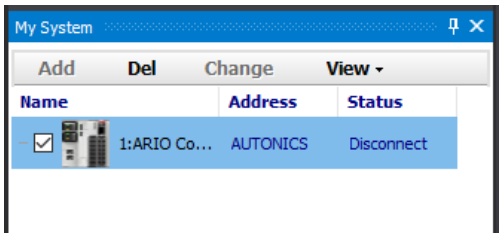
This chapter explains information about communication with ARIO and DAQMaster for practical use.

- **Connection**

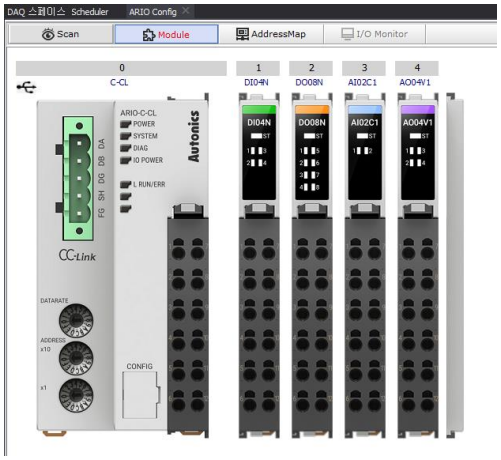
  Explains how to connect to the DAQMaster.

1st Connect the ARIO product to the device which DAQMaster is installed.

2nd Double-click the “ARIO Config” in the “Supported Device List” control panel of DAQMaster. Then the currently connected ARIO product is searched and the connected coupler information is displayed on the “My System” control panel.



3rd Through the “ARIO Config” in the DAQ Space, you can check the ARIO product list. If the USB HID information is changed, searching the connected ARIO product list automatically.



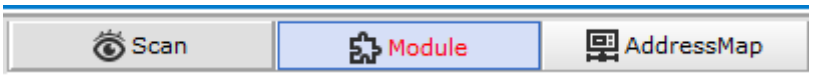
Note

If there is a problem in updating the ARIO product list although the product and the DAQMaster properly connected to each other, click the [Scan] button in the upper side of “ARIO Config” window to refresh the information on the connected ARIO product.

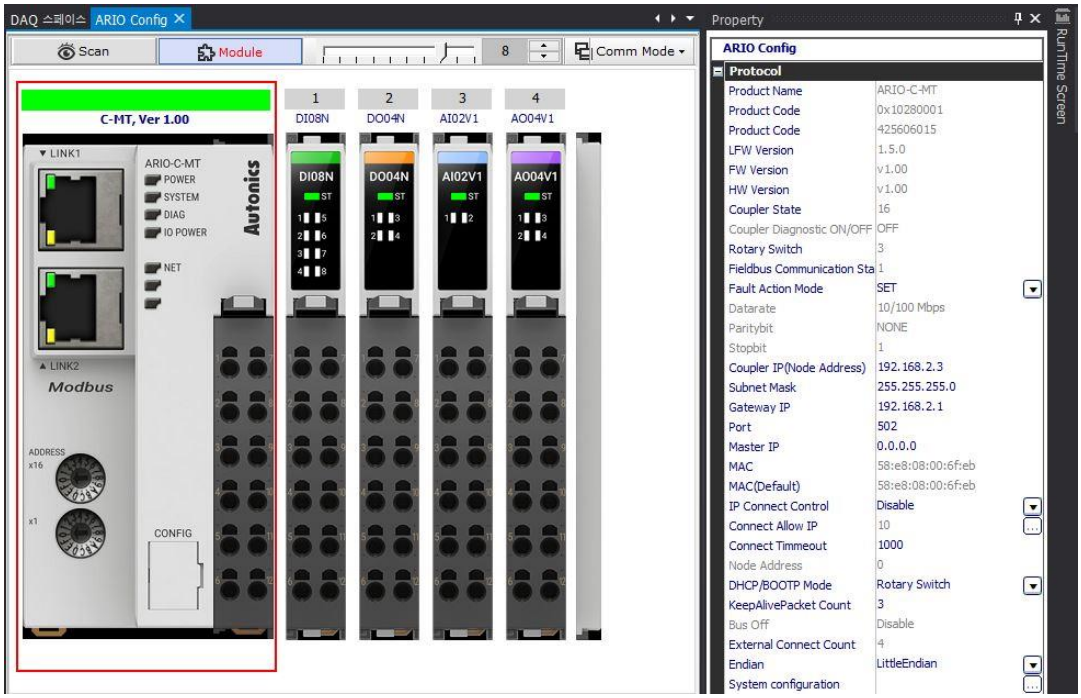
- **Coupler / Module configuration**

It is possible to read and set the property values of the connected coupler or module.

1st Click the [Module] button in the upper side of “ARIO Config” window to open the module tab.



2nd In the module tab, select the coupler or module that is set up and proceeds settings in the “Property” control panel.



Note

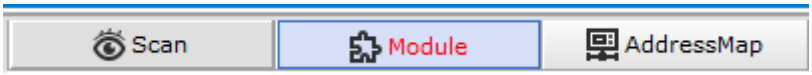
If the configuration items of the coupler are changed, you need to reboot the ARIO system. After changing the settings of the items, click the top of the coupler image of [Module] at the top of the ‘ARIO Config’ window, or click the [Connect] or [Disconnect] buttons on the top menu bar to automatically reboot the system. (The Monitoring tab is activated only when the device is in the ‘Run’ state.) For the details about property values of the coupler/module, refer to the product manual of the Autonics website.

- **Controlling I/O signals of module**

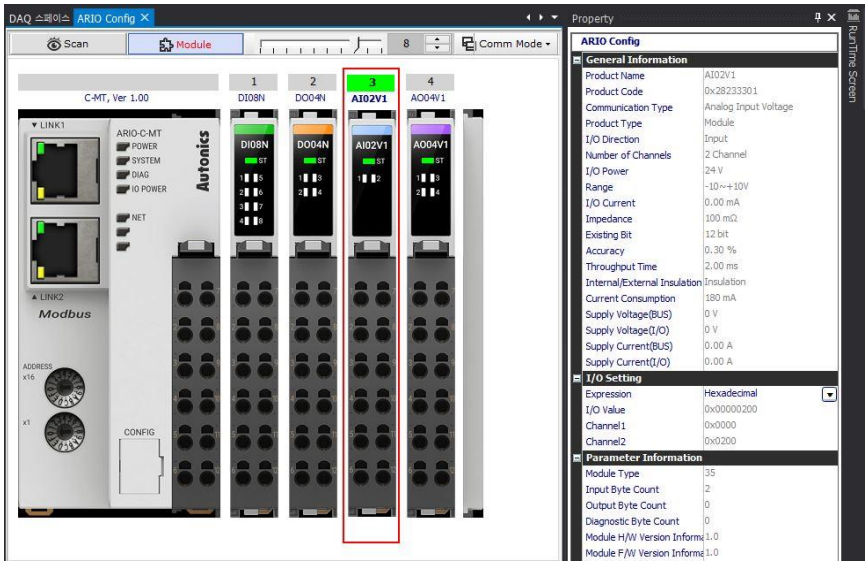
  It is possible to control I/O signals of connected module.

※ Check the connect status via upper menu bar. The settings may not be applied properly unless the connection is complete.

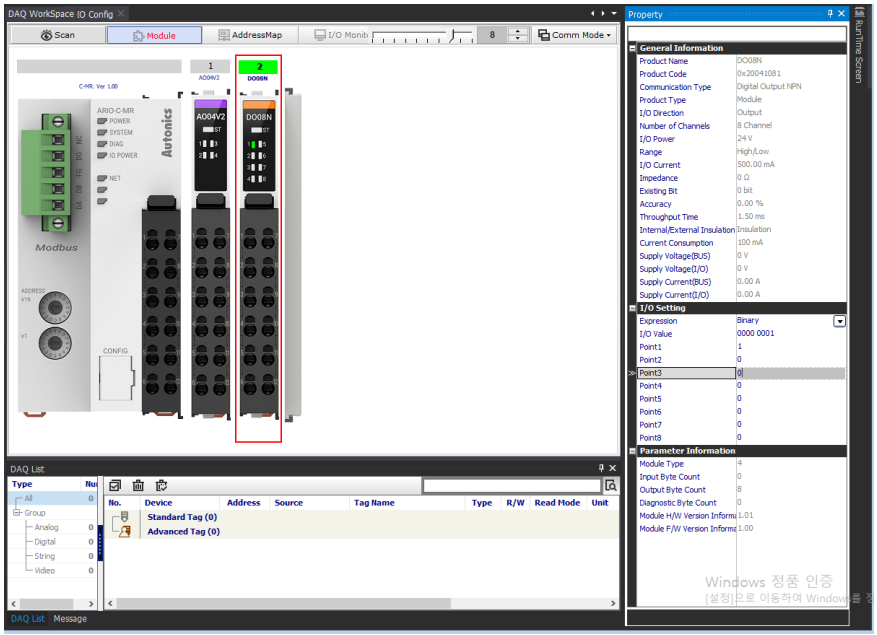
1st Click the [Module] button in the upper side of “ARIO Config” window to open the module tab.



2nd In the module tab, select the module to control I/O signals. It is possible to check the display of I/O values in setting items of the “Property” control panel.



3rd To control the output signal of the output module, click the module in the module tab and enter the desired signal value into the 'I/O setting' in the Property window. Enter a value, the set value is output.

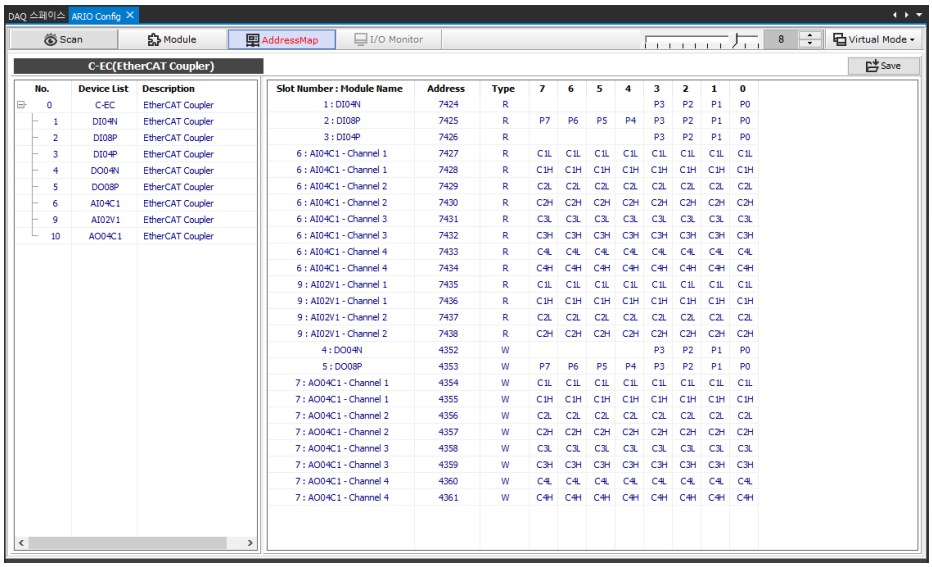


- **Address map**

  It is possible to check the communication address of the connected module and save to file.

1st Click the [Address map] button in the upper side of “ARIO Config” window and open the address map tab.

2nd There are lists of the connected devices in the left side of the window and the communication addresses of each device on the right side.



3rd Click the [Save] button in the upper side to save as CSV or UDV (Modbus communication coupler models only) file. The UDV file can be set I/O or monitored in “Edit Modbus Device” function.

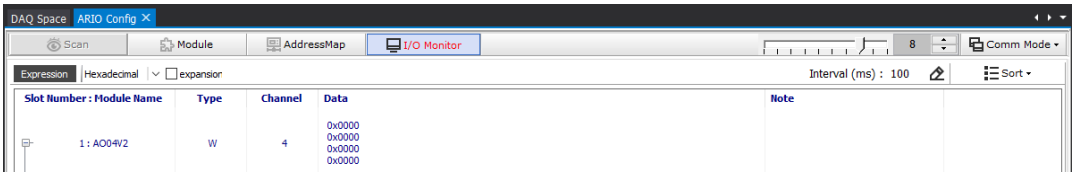
※ The function to save UDV file is only available on coupler models that support Modbus communication.

- **I/O monitor**

  Check or set the I/O signal from the connected module through the I/O Monitor.

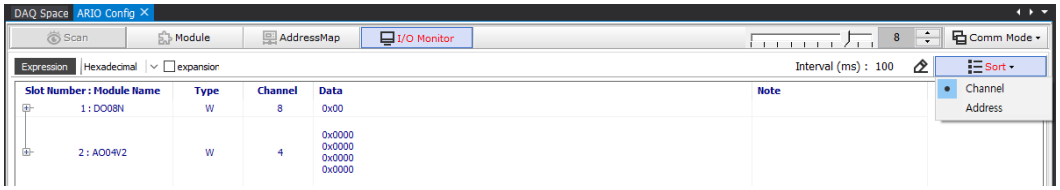
※ The settings may not be applied properly unless the connection is complete. Connect the ARIO product and click the [Connect] button in the “Project – File” menu.

1st Click the [Run] button in the “Project – Run” menu and activate “I/O monitor” tab in the “ARIO Config” window. Click the [I/O monitor] button and move to that tab.

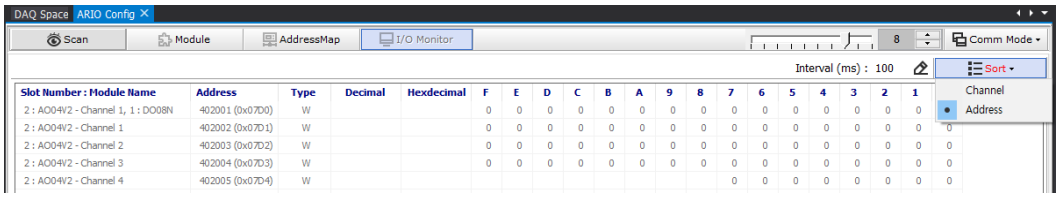


2nd The related I/O data can be arranged as either Channel or Address by clicking [Arrangement] button at the top.

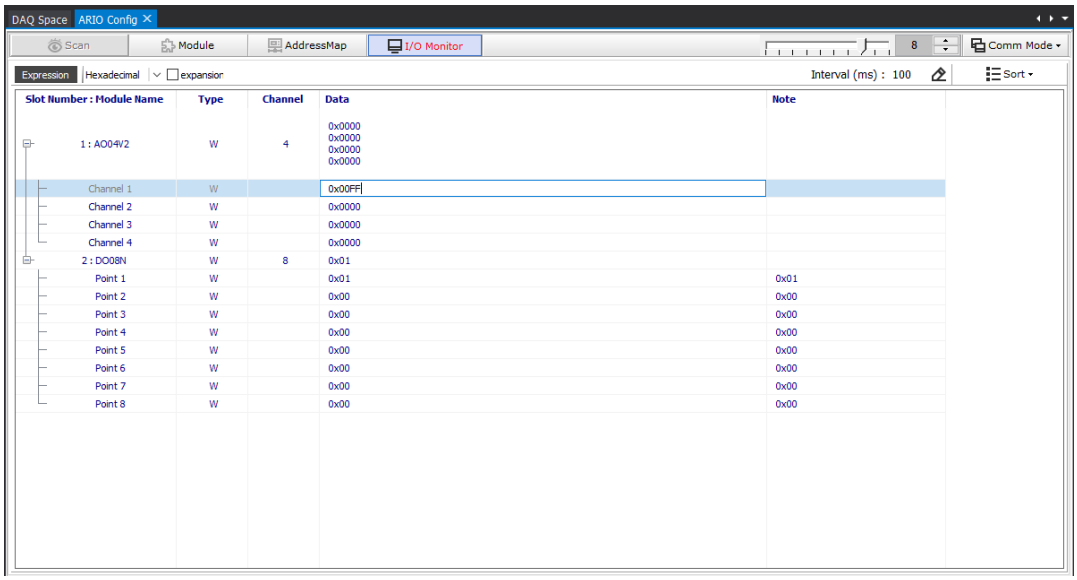
- **Channel**



- **Address**



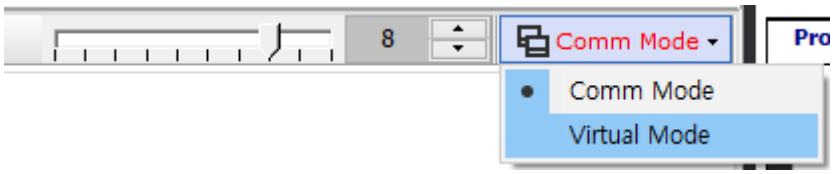
3rd To control the I/O signals, select the related module and click Data cell or press F2 to enter the desired signal value. Enter a value, the set value is output.



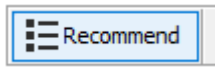
9.9.2 Virtual mode

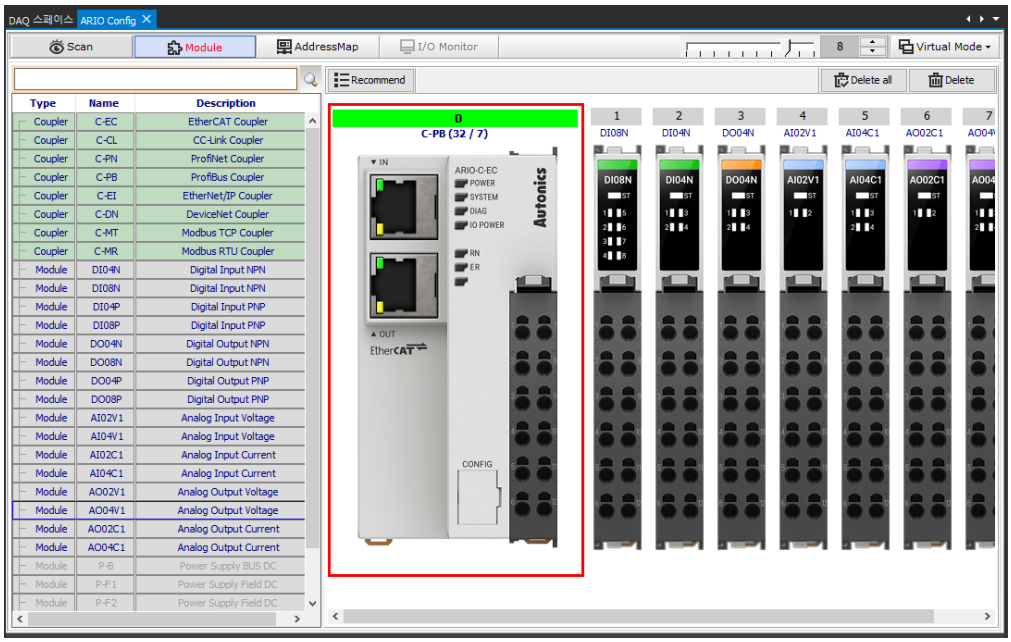
This chapter explains the simulation function that configures the virtual system without product connections.

1st Click the [Mode] button in the “ARIO Config” window and select “Virtual Mode”.



2nd In the module tab, it is possible to configure the coupler and module virtually. Double-click the module in the left side of the module list and add it to the module tab. To remove the added module, click [Delete all] or [Delete] button.

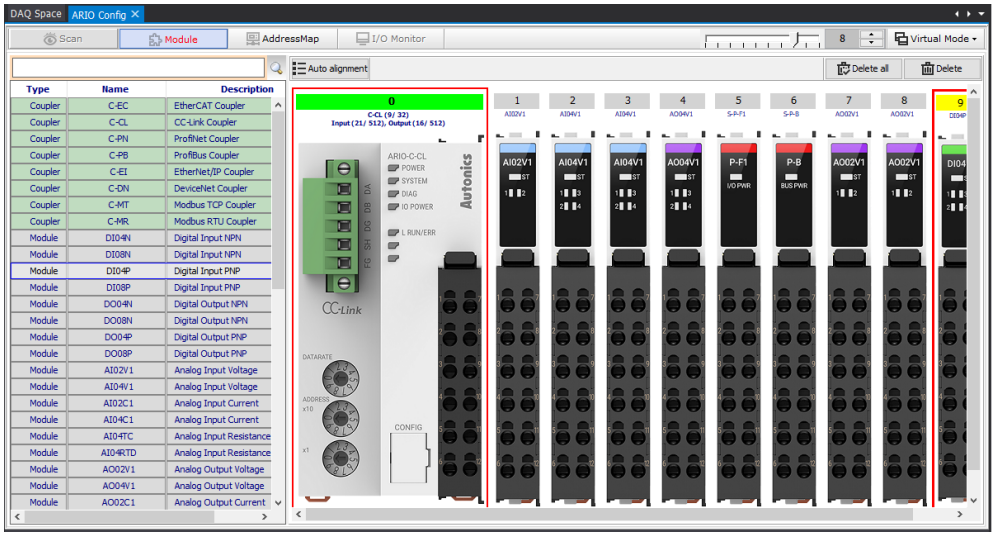




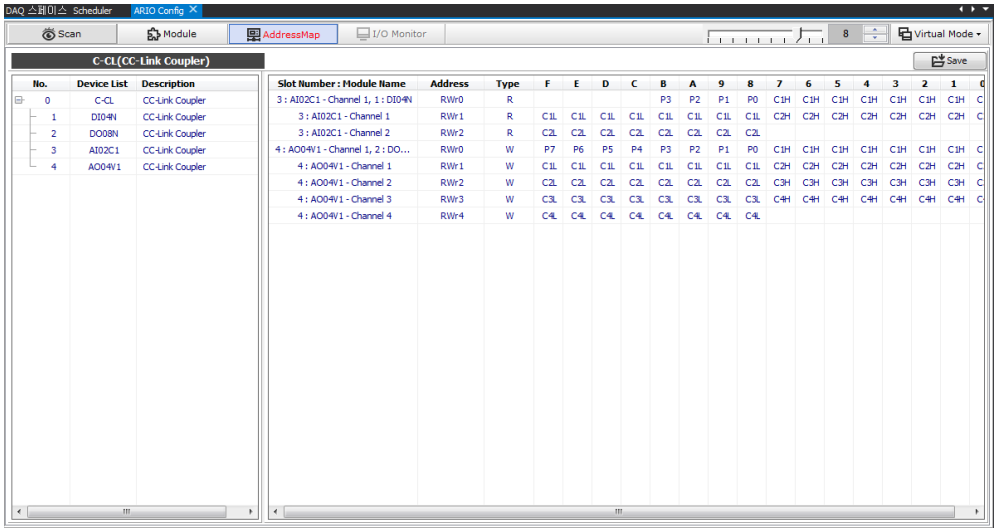
Note

The Coupler module can be removed only if there is not connected I/O module.

3rd If you click the [Recommend] button, rearranging the customized product family by Autonics" recommendation module order and adding the power module automatically. Enter the value of current consumption in the "Property" control panel and click the [Recommend] button. Then all modules are rearranged based on the input value of current consumption.



4th In the Address map tab, it is possible to check the communication address in each unit of virtually configured modules. Click the [Save] button to save it as CSV file (.csv).

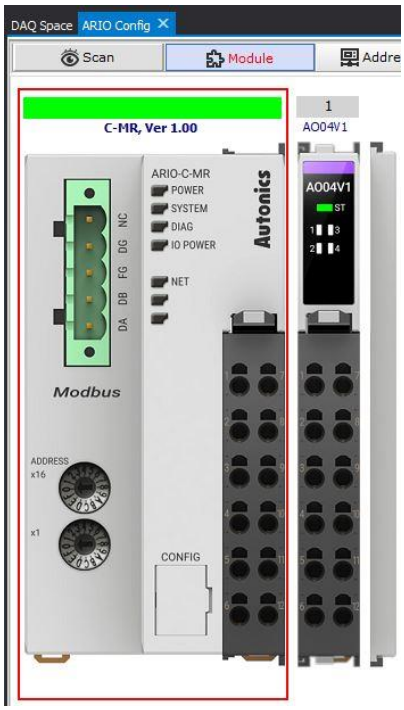


9.9.3 Firmware update

It is possible to update ARIO product by connecting to DAQMaster.

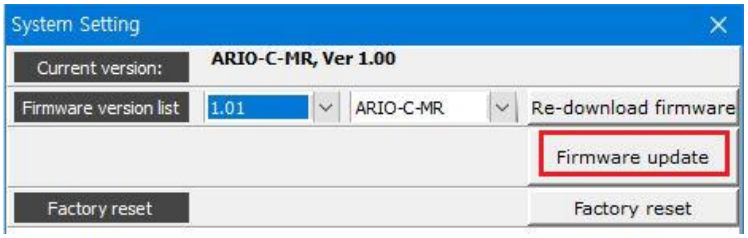
- **When connecting the internet is available**

1st After connecting the product to DAQMaster, select the coupler module in “ARIO Config” window.



2nd Click the […] button of “System Setting” in “Preference” control panel to open the “System Setting” window.

3rd Click the [Firmware update] button to update ARIO product.



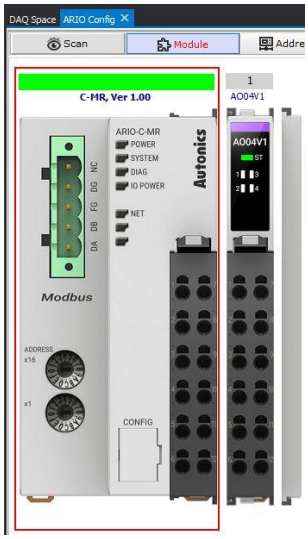
- **When connecting the internet is unavailable**

1st After downloading ARIO firmware update file by using internet available device at “Autonics website – downloads”, move it to the device which try update.

Note

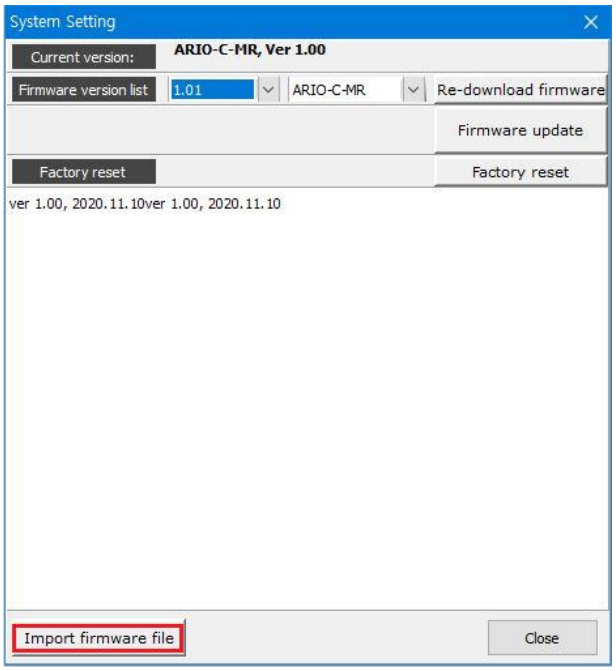
The ARIO firmware update file is '*.zip' format. When conducting 4th import the firmware update file, register the original ‘*.zip’ file.

2nd After connecting the product to DAQMaster, select coupler module in “ARIO Config” window.

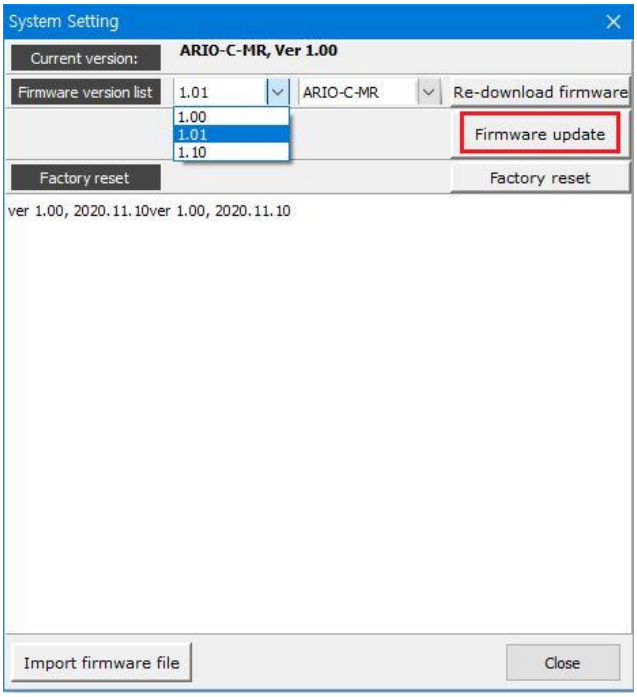


3rd Click the […] button of “System setting” in “Preference” control panel to open “System Setting” window.

4th Click [Import firmware file] button, and import ARIO update file.



5th Select the version which will be updated, and click [Firmware update] button to update.



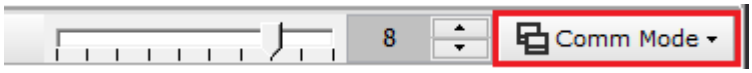
- **When bootloader is activated or firmware update is failed**

  If the product information cannot be loaded, or the system LED of the connected coupler is ON in orange, update the firmware by referring to the information below.

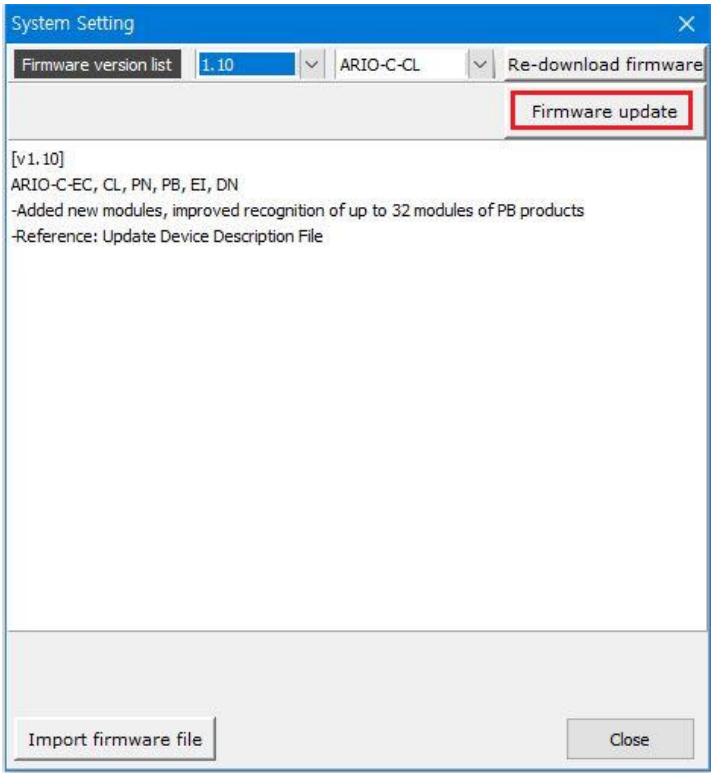
1st Check the “Project” ribbon menu to check if the product is disconnected. If the product is connected, click the [Disconnect] button to disconnect it.

※ Physical connection between DAQMaster device and ARIO product must be maintained.

2nd Click the [Mode] button in the “ARIO Config” window and select the “Firmware update” item to open the “System settings” window.



3rd Select the version and model to be updated in the “Firmware version list” and click the [Firmware update] button to update the firmware.



Caution

Before updating the firmware, be sure to check the model name of the actual product.

If the model at which the firmware update is attempted and the model name selected in the “Firmware Version List” are different, it may cause product damage.

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