

Make Life Easy :

Software Manual

Comprehensive Motion Device Management Program

atMotion

MWC-atMotionU1-V1.4-2001US

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 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 atMotion 1.0 version.

User Manual Symbols





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

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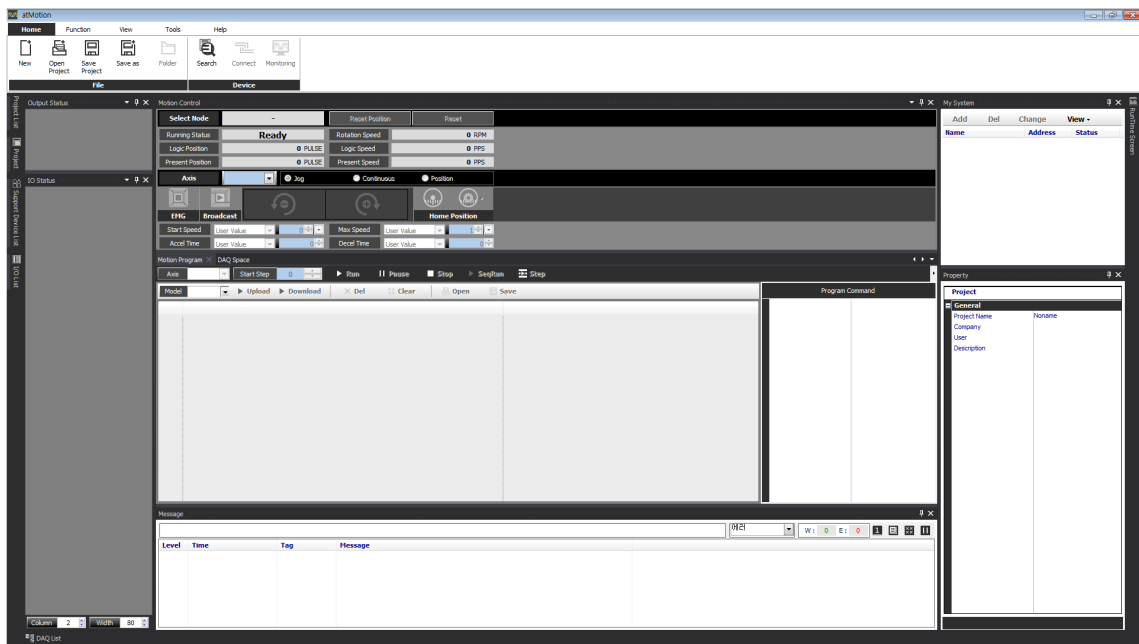
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1 atMotion Overview

1.1 Overview

atMotion is a comprehensive motion device management program that can be used with Autonics motion controller.

atMotion provides GUI control for easy and convenient parameter setting and monitoring data management of multiple devices.



1.2 Features

Features of atMotion are following.

(1) Multiple Device Support

- Simultaneously monitor multiple devices and set parameters.
- Simultaneously connect units of a single device with different addresses.
- When using ModBus RTU for communication, multiple RS-232 ports are accessible.

(2) Device Scan

When multiple units are connected with different addresses, the unit scan function automatically searches for units.

(3) Convenient User Interface

User can freely arrange windows such as data monitoring, properties, and projects. Saving a project saves the screen layout also.

(4) Project Management

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

(5) 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.

(6) Multilingual Support

Default supporting language is Korean and English.

User can add a different language, by modifying, renaming and saving the files in the 'Lang' folder.

(7) Script Support

Using Lua Script language allows applying different I/O processes for each device.

2 Installation

2.1 System Requirements

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

2.2 Preparations

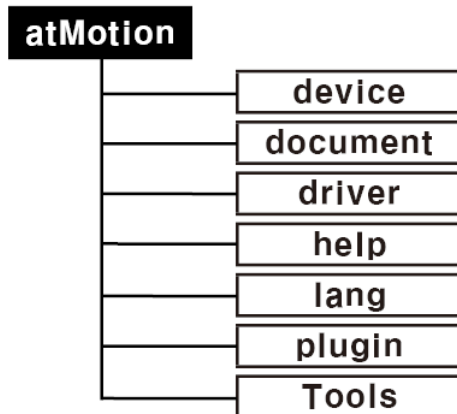
- 1st Download atMotion program at Autonics website(www.autonics.com).
- 2nd Close all programs before installing atMotion. Double-click atMotion setup.exe to start installation.
- 3rd When Installer Language window appears,select the language and click [OK] button.
- 4th After click [OK] button, the 'Setup Wizard' window appears in the selected language. Click [Next] to proceed or click [Cancel] to stop installation.
- 5th After 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 changing the installation path is needed, 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 atMotion. It is possible not to run the program by unchecking the box of [Run DAQMaster (R)] and click [Finish] button.

2.2.1 Installation Folder Structure

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

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

The atMotion folder is created in [C:\Program Files\Autonics] as a subfolder unless you select a new destination to change location of atMotion folder.



(1) Device folder

Device folder contains a device information files (*.dev) which can be monitored and set with atMotion. When the program is executed, atMotion figures out the connected devices and automatically add related files from device folder 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 to update the list of available devices.

Since contents of the [plug-in] folder are also changed when a communication related function is added or modified, however, changes may or may not be applied depending on the level of upgrade

(2) Document Folder

Document folder contains user manual (kor, eng).

(3) Driver Folder

Driver folder contains device drivers of PMC-2HSP/2HSN, PMC-1HS/2HS, PMC-4B-PCI.

(4) Lang Folder

Lang folder contains language information files (*.lang). When the program is executed, atMotion reads all files in the folder and adds automatically to the program.

The language information files are written in a text file format, so you can modify and add text using XML Notepad. Korean and English language files are in this folder by default.

(5) Plugin Folder

Plugin folder contains core library files (*.dll) for ModBus communications as well as runtime screen files (*.rpu).

(6) Tolls Folder

Tools folder contains basecore library files (*.dll) of atMotion program.

2.2.2 Uninstalling the Program

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

When a confirmation window appears after selecting Remove, click [Yes] button to remove atMotion from the computer.

2.3 Start and Exit

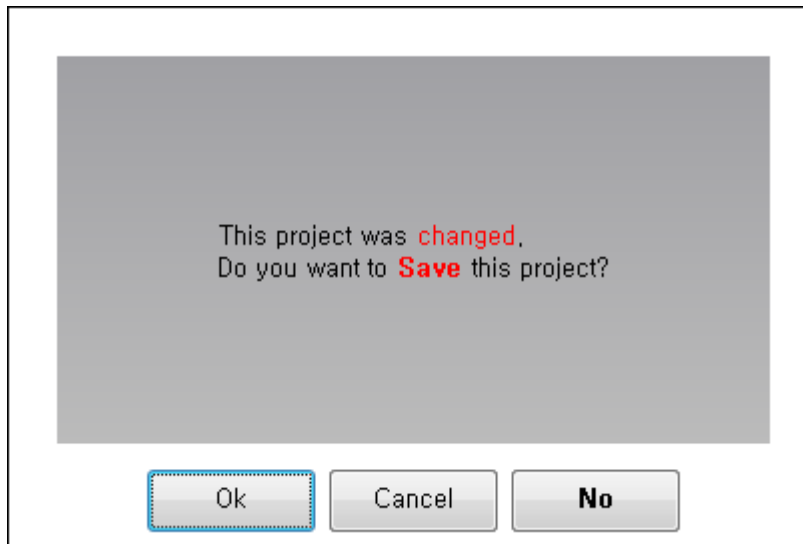
2.3.1 Start

Double-click atMotion icon in the desktop or select Start > Program > atMotion to start the program.

2.3.2 Exit

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

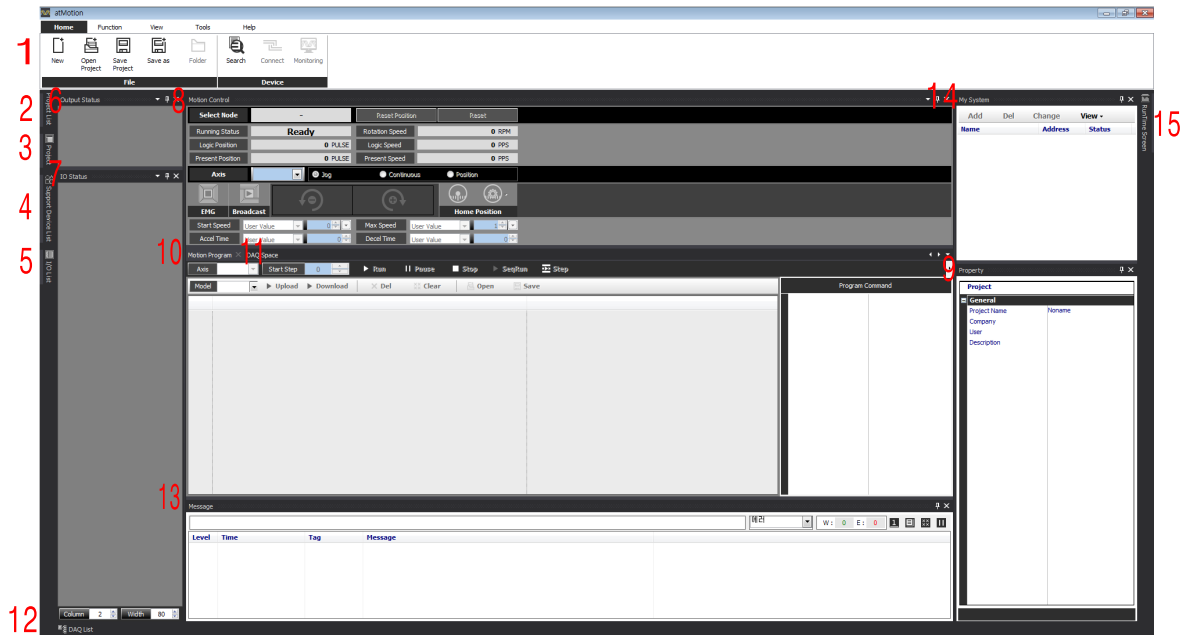
Since projects are not saved automatically, please make sure that you have saved the project before you exit.



Note

- The name of the atMotion process in Windows Task Manager is displayed as atMotion or DAQMaster.
- The program name of atMotion in the warning window is displayed as atMotion or DAQMaster.

2.4 atMotion Screen Layout

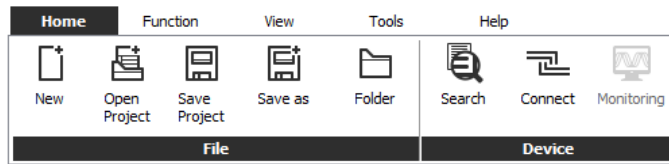


The program screen is divided into sections as shown in the preceding screenshot and each section is composed of the following items.

No.	Item	Description
1	Menu	Displays atMotion menus by category. If you select a menu, submenus appear.
2	Project list	Displays recent projects or usually used project list to manage the files.
3	Project	Displays basic information of currently running project.
4	Support device list	Displays a list of devices supported by atMotion.
5	I/O List	Displays parameter items of devices which are added to My System.
6	Output status	Displays operation state, X, Y axis logic location and logic speed of the selected nod.
7	I/O status	Displays activate/inactivate state of all PC connected nod I/O reasons of state error alarm.
8	Motion control	Helps controlling motor in manual mode with jog, continuous and position running mode.
9	Property	Allows setting and modifying information of items in project, My System and DAQ list and parameters of connected units.
10	Motion program	Runs commands saved at each steps in order of step, after user enter commands.
11	DAQ space	Displays added UI items in runtime screen
12	DAQ list	Displays added parameter items in I/O List.
13	Message	Records events occurred while operating program. Displays connection and disconnection of communication and a list of errors.
14	My system	Displays list and connection status of devices connected to atMotion.
15	Run time screen	Displays screen library for data monitoring.

2.4.1 Menu

(1) Home



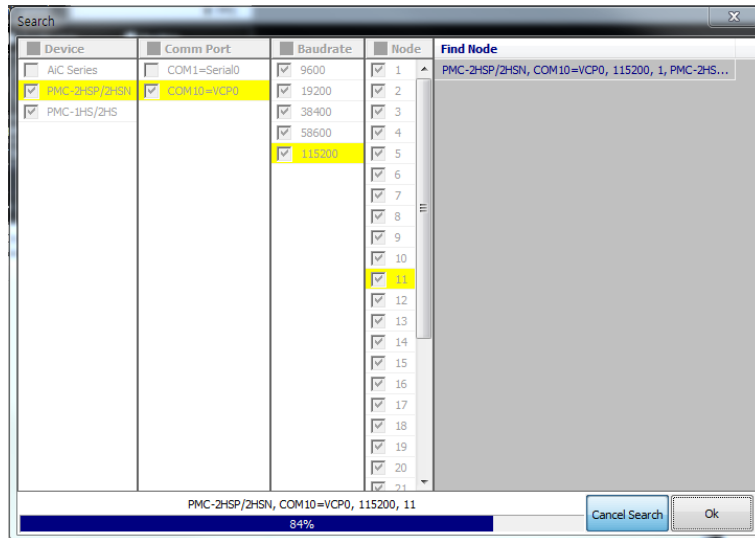
1) File

- ◆ New: Creates a new project.
Initializes currently opened project.
- ◆ Open project: Opens a saved project.
- ◆ Save project: Saves the project you are working on.
- ◆ Save As: Saves the project as a file name.
- ◆ Project Folder: Opens the folder current project has saved in.
When project is not saved, this icon is inactivated.

2) Device

- ♦ Search: Select items you want to search for from device, comm port, baudrate, node and click [Search] button.

Select model name from Find Node and click [Ok] button to add the device to My system.

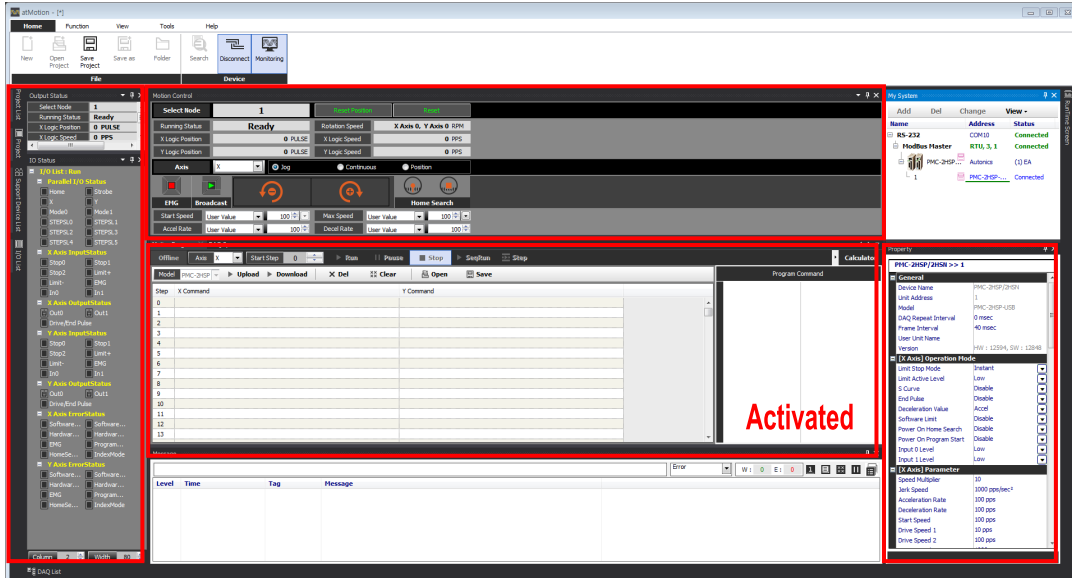
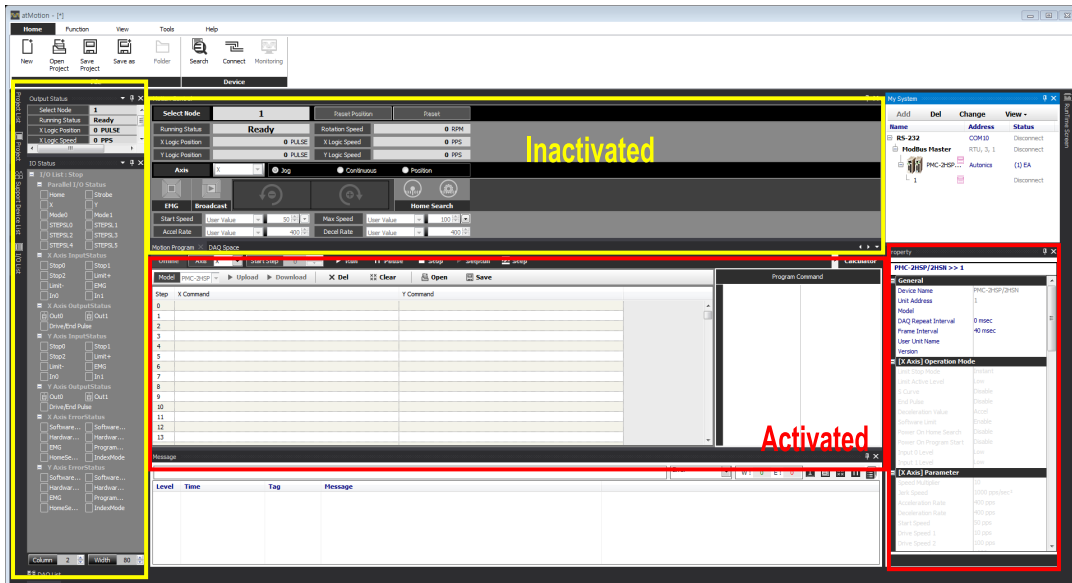


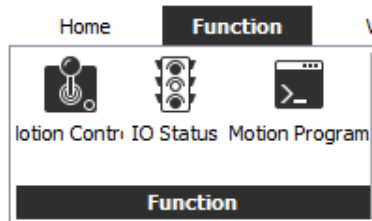
- ♦ Connect/Disconnect: Connects driver to the selected node or disconnects the driver
- ♦ Monitoring: Right after the driver is connected, the program is activated to monitoring mode.

Out of monitoring mode, Output status, I/O status and Motion control are inactivated while Motion program and necessary properties for motion operation are activated.

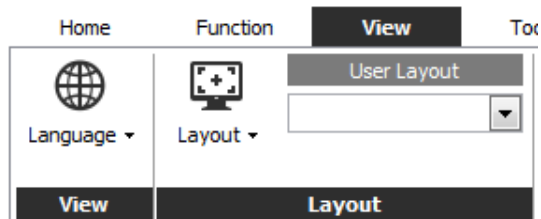
Only out of monitoring mode, adding and deleting DAQ list items in DAQ space are possible. In monitoring mode, Program mode window and Property window are activated.

Monitoring mode	Inactivated	Activated
Menu	•	•
Project list	•	•
Project	•	•
Support device list	•	•
I/O list	•	•
Output status	x	•
I/O status	x	•
Motion control	x	•
Property	•	•
Motion program	•	•
DAQ space	x	•
DAQ list	•	•
Message	•	•
My system	•	•
Run time screen	•	•



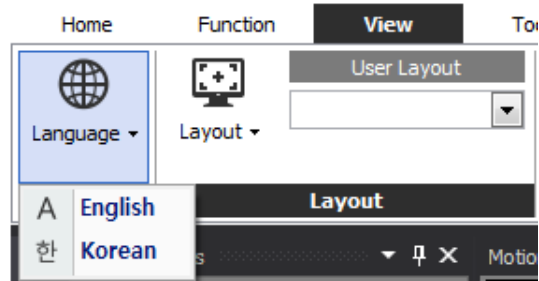
(1) Function**1) Function**

- ◆ Motion Control
- ◆ I/O Status
- ◆ Motion Program

(2) View**1) View**

- ◆ Language: Changes the program language.

Default language is the selected language during installation.

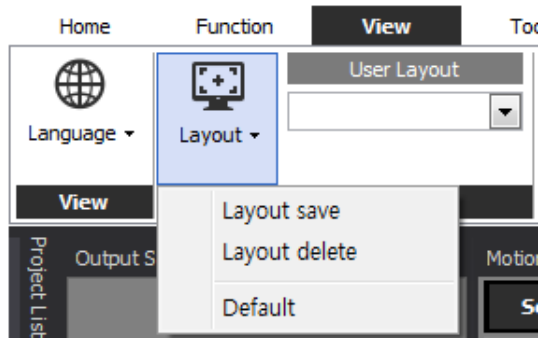


Select 'View > Language' to apply selected language.

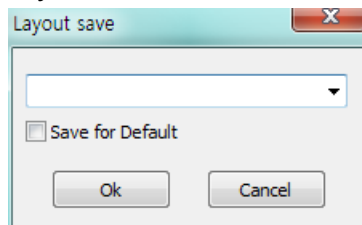
2) Layout

Saves or deletes layouts.

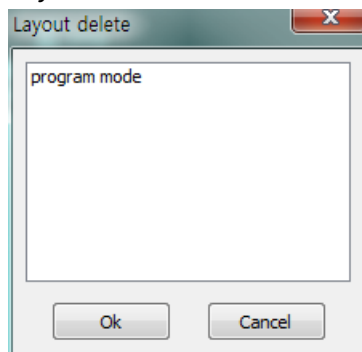
You can select the saved layout in user layout.



- ◆ Layout save: Saves the current layout and adds it at user layout.

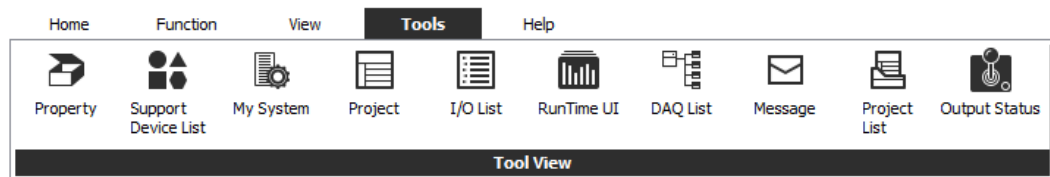


- ◆ Layout delete: Select the saved layout and delete it



- ◆ Default: Changes docking screen layout to default layout.

(3) Tools



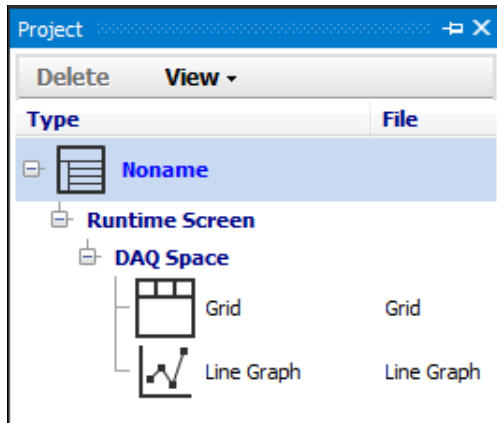
1) Tool View

- ◆ Property
- ◆ Support Device List
- ◆ My system
- ◆ Project
- ◆ I/O List
- ◆ RunTime UI
- ◆ DAQ List
- ◆ Message
- ◆ Project List
- ◆ Output Status

2.4.2 Project

Project saves current settings such as runtime screen information and I/O source, allowing to work in previously used environments later again.

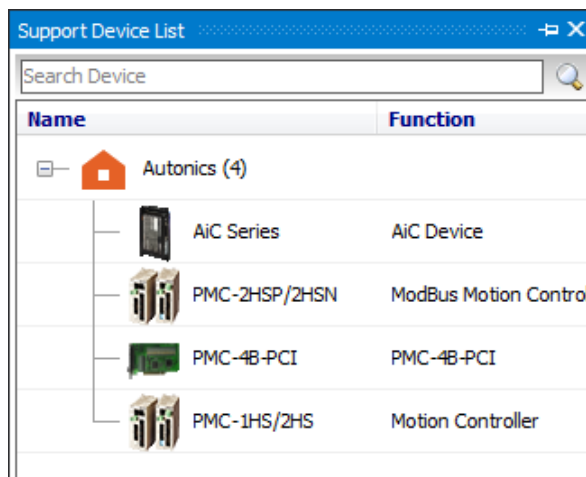
In 'Property' at the right side of the screen, you can change 'general information, data file, log data schedule, and project opening option'. For more information, refer to '2.4.7 Property (Parameter)'



2.4.3 Supporting Device List (Docking Screen)

Support Device List displays list of devices supported by atMotion.

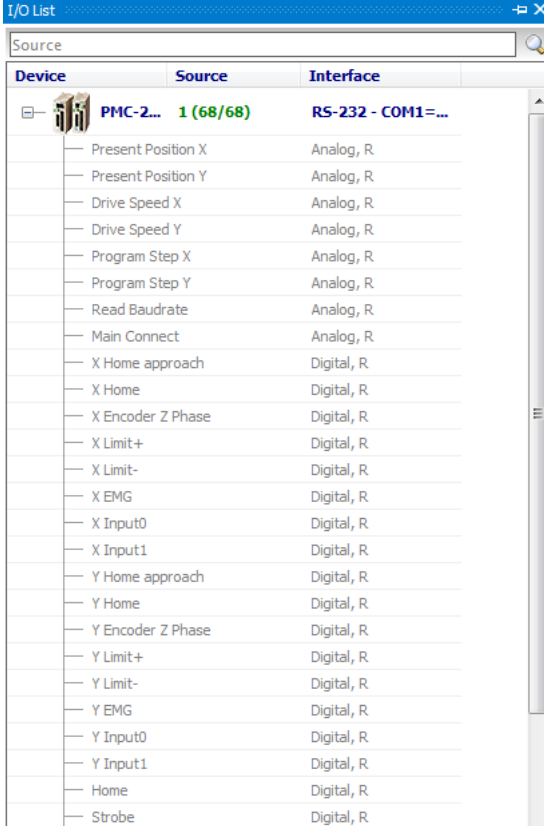
The support device list will be updated continuously.



2.4.4 I/O List (Docking Screen)

I/O List displays parameters items you can monitor for devices added to My System.

I/O List appears after a device is connected.



The screenshot shows a window titled "I/O List" with a search bar labeled "Source". Below the search bar is a table with three columns: "Device", "Source", and "Interface". The table lists various parameters for a device named "PMC-2..." (Source: "1 (68/68)", Interface: "RS-232 - COM1=...").

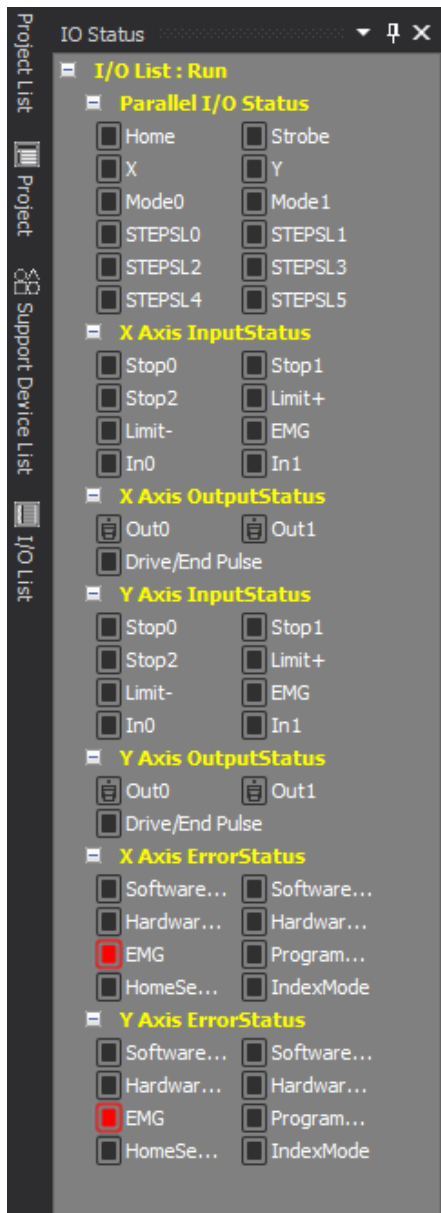
Device	Source	Interface
PMC-2...	1 (68/68)	RS-232 - COM1=...
Present Position X		Analog, R
Present Position Y		Analog, R
Drive Speed X		Analog, R
Drive Speed Y		Analog, R
Program Step X		Analog, R
Program Step Y		Analog, R
Read Baudrate		Analog, R
Main Connect		Analog, R
X Home approach		Digital, R
X Home		Digital, R
X Encoder Z Phase		Digital, R
X Limit+		Digital, R
X Limit-		Digital, R
X EMG		Digital, R
X Input0		Digital, R
X Input1		Digital, R
Y Home approach		Digital, R
Y Home		Digital, R
Y Encoder Z Phase		Digital, R
Y Limit+		Digital, R
Y Limit-		Digital, R
Y EMG		Digital, R
Y Input0		Digital, R
Y Input1		Digital, R
Home		Digital, R
Strobe		Digital, R

When a device is connected, all items of I/O list is automatically added to DAQ list for monitoring units of the connected device.

You can search a certain item.



2.4.5 I/O Status

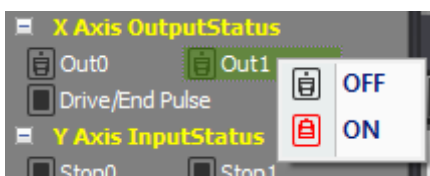
I/O Status displays input/output status and alarm.




※Items in I/O status can be different depending on the connected device. Please refer to the user manual of the device.

EMG(emergency) of the CN3 I/O connector of the node is now in activated status. Among I/O status lamps, some only indicates current status and others have OFF/ON button to test output.

Items only for indication receive and display input/output status or error status of the driver.
(OFF:  , ON: )

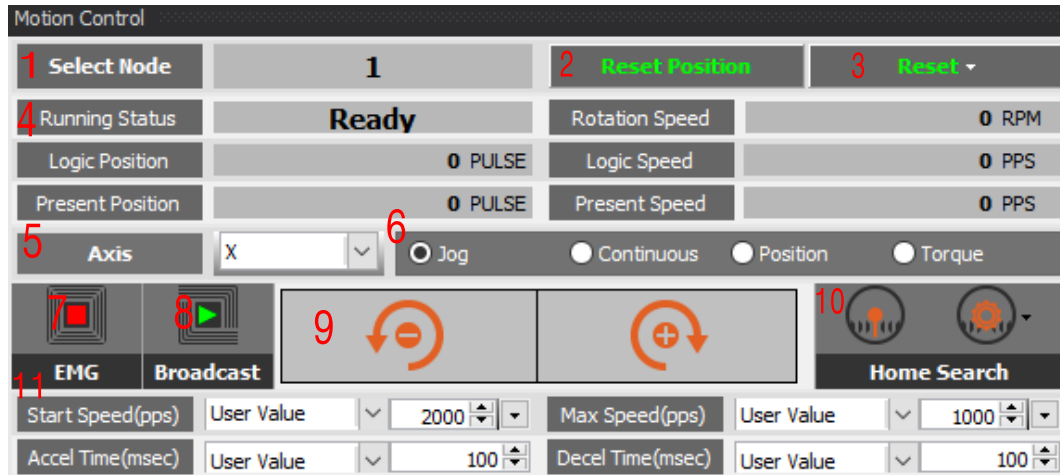


Status items with  lamp is possible to test output with OFF/ON button.

After selecting status items with  lamp, double-click the item or right-click to activate OFF/ON dialog in order to shift to desired status between OFF and ON.

2.4.6 Motion Control

Motion Control supports motor control with a various kind of modes, Jog, Continuous, and Position.



(1) Select Node

Select Node displays selected node.

(2) Reset Position

Reset Position resets current position (X Logic Position, Y Logic Position) to 0(Home).

(3) Reset

Reset resets current position value and setting value to its default.

OUT, DRIVE and ERROR which are in ON status are turned OFF.

When motor is running, reset function can be used as an emergency stop signal because it stops motor right after the button is clicked.

(4) Running Status

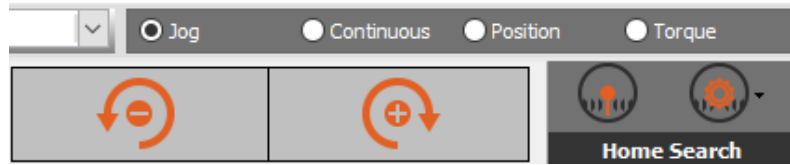
Running Status displays the running status information of each axis, such as current running status of the motor, position and speed.

(5) Axis

Select an axis among X, Y, XY to run.

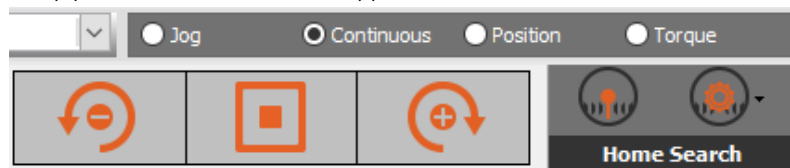
(6) Motion Control Mode**1) Jog**

Jog mode runs a motor when direction button is being clicked. CW(+) is clockwise and CCW(-) is counter clockwise.

**2) Continuous**

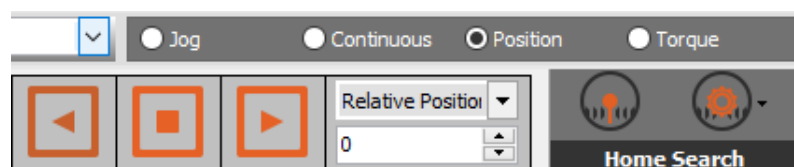
Continuous mode runs a motor when direction button is clicked and stops a motor when stop button is clicked.

CW(+) is clockwise and CCW(-) is counter clockwise.

**3) Position**

Position mode has relative position and absolute position.

- Relative position: Runs motor from the current position as much as set relative position value.
- Absolute position: Runs motor from 0 (Home) as much as set absolute position value. After setting position value in the relative/absolute position setting box, click [Start] button to run a motor as much as set pulse value.

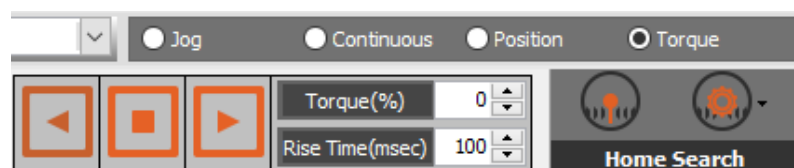


※Output value range appears with mouse point over the box.

4) Torque

Torque mode has relative position and absolute position.

- Torque(%): Assign the value of motor torque.
- Rise Time(msec): Sets the reaching time to assigned value of Torque(%).



(7) Emergency Stop

Emergency Stop stops motor driver urgently. In case of emergency, it is used to stop motor driver in a hurry. After emergency stop is operated, all commands will be blocked. In order to return to normal operation, reset or reboot the motor driver.





※Operating function of emergency stop item is different depending on the connected device. Please refer to the user manual of the device.

(8) Broadcast

Broadcast sets or operates currently connected multiple nodes simultaneously.

※Operating function of broadcast item is different depending on the connected device. Please refer to the user manual of the device.

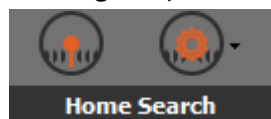
(9) Operating Direction

	
[Jog, continuous running]	CW(+) click:
	Operates motor to the clockwise direction.
[Position, Torque running]	
	
[Jog, continuous running]	CCW(-) click:
	Operates motor to the counter clockwise direction.
[Position, Torque running]	

(10) Home Search

Home Search operates home search command.

Clicking [Stop] button operates home search stop command.



(11) Running Speed and Acceleration/Deceleration Speed

Running Speed and Acceleration/Deceleration Speed sets running speed and acceleration/deceleration speed of jog, continuous, position (preset) mode.

One out of drive speed (1~n) can be selected.

After putting user value in the box, press 'Enter' key to apply the value.

※Operating function of emergency stop item is different depending on the connected device. Please refer to the user manual of the device.

1) Start Speed

Start Speed sets starting speed when running the driver.

After selecting a value among drive speed (1~n) or putting user value in the box, press 'Enter' key to apply the driver speed value which was set in Property (parameter).

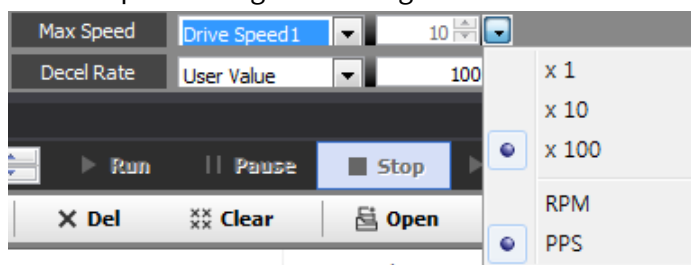
2) Max Speed

Max Speed sets driver speed.

After selecting a value among drive speed (1~n) or putting user value in the box, press 'Enter' key to apply the value which was set in Property (parameter).

As followings, speed acceleration/deceleration rate items ($\times 1/\times 10/\times 100$), unit (RPM/PPS) can be selected.

Speed acceleration/deceleration rate activates speed overlight function which enables speed change in running status.



3) Accel Rate

Accel Rate sets acceleration rate when running the driver.

After selecting a value among drive speed (1~n) or putting user value in the box, press 'Enter' key to apply the acceleration rate which was set in Property (parameter).

4) Decel Rate

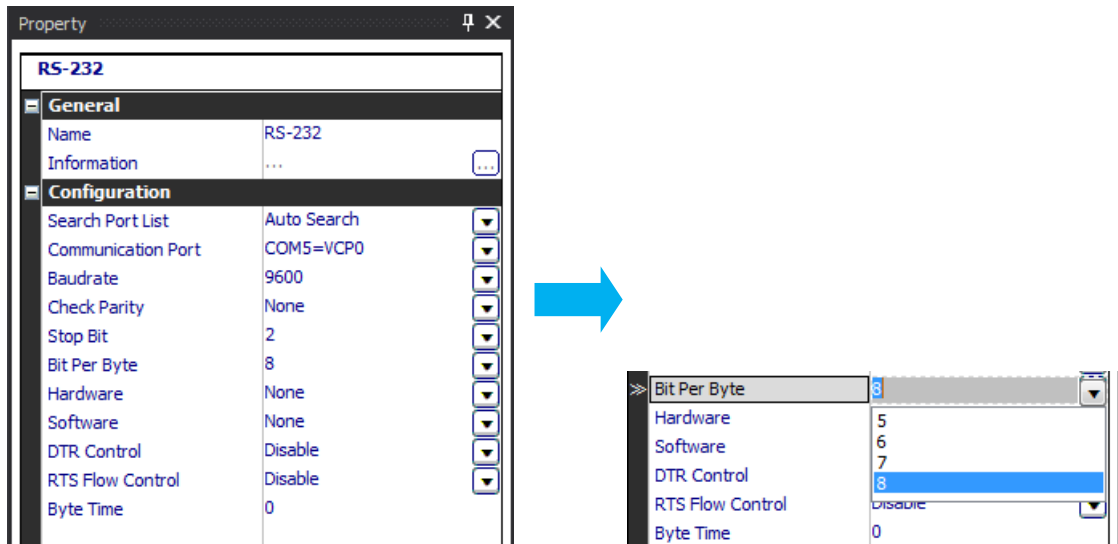
Decel Rate sets deceleration rate when running the driver.

After selecting a value among drive speed (1~n) or putting user value in the box, press 'Enter' key to apply the deceleration rate which was set in Property (parameter).

2.4.7 Property (Parameter)

Property window allows to check and modify necessary items in running driver, such as project, My System and DAQ List.

In order to run motor driver properly, setting properties to fit to system to use is required prior to operation.

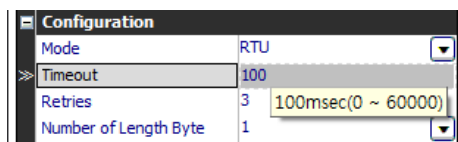


Property window consists of name and value setting box of each Property items.

In value setting boxes, some only displays value and others can be modified.

Modifiable items are displayed in edit type, combo box type, or run type.

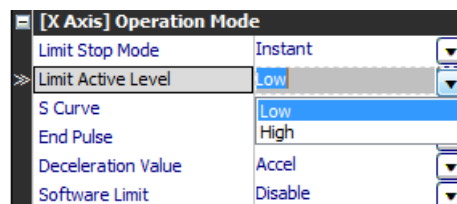
(1) Edit type



Enter number of text in the box.

Input range appears with mouse point over the box.

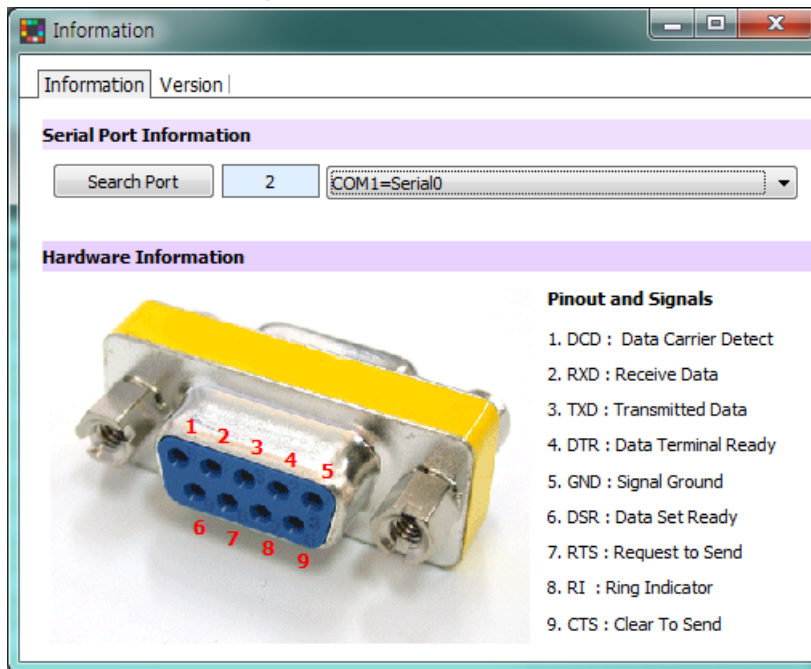
(2) Combo box type



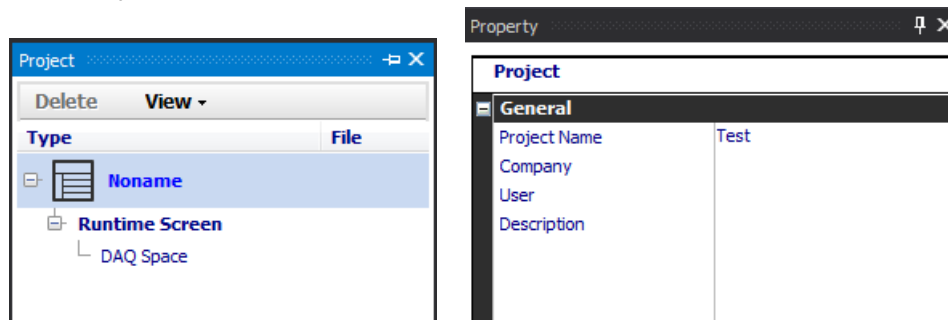
Click combo button or press 'Alt+direction' key to see a list of selectable items.

(3) Run type

Click [...] button to operate the relevant function.

**2.4.7.1 Project Properties**

Click project name (default: Noname) in the project window to set General (project name, company, user, description), Data file (data folder, data file creation rules, CVS time type), Log data schedule (log data schedule, active schedule) and When opening project (run mode, layout)

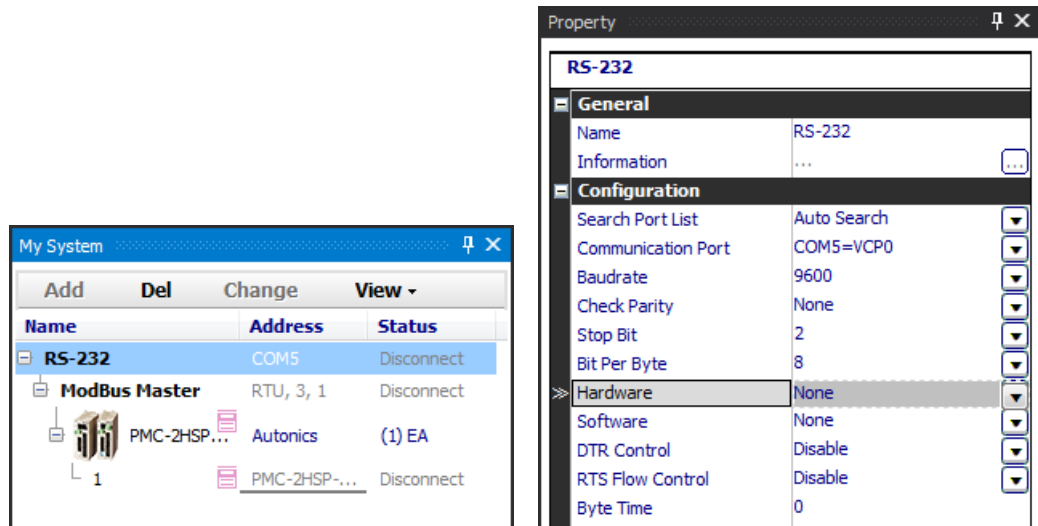
**(1) General**

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

2.4.7.2 My System Properties

(1) RS-232

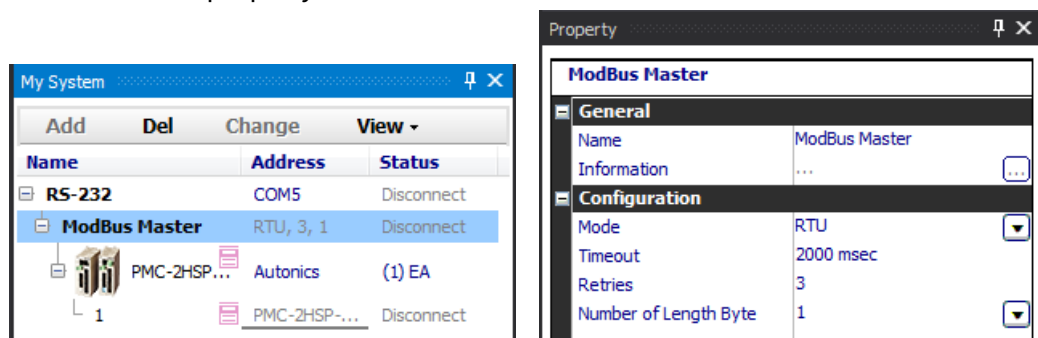
Click RS-232 in My System window to modify name in General of RS-232 properties.



You can also modify Search port list, Communication port, Baudrate, Check parity, Stop bit, Per byte, Hardware, Software, DTR control, RTS flow control, Byte time in the configuration of RS2232 Property.

(2) ModBus Master

Click ModBus Master in My System to modify name and check information in General of ModBus Master property.



You can also modify Mode, Timeout, Retries and Number of length byte (1: default, 2: option) in the configuration of ModBus Master Property.

(3) Device(PMC-2HSP/2HSN)

Click device (PMC-2HSP/2HSN) in My System to check information in General of PMC-2HSP/2HSN property.

The 'My System' window displays a table of devices:

Name	Address	Status
RS-232	COM5	Disconnect
ModBus Master	RTU, 3, 1	Disconnect
PMC-2HSP...	Autonics	(1) EA
1	PMC-2HSP-...	Disconnect

The 'Property' window for 'PMC-2HSP/2HSN' shows the following details:

PMC-2HSP/2HSN	
File	
Description	ModBus Motion Controller
Date	2016.04.01
Date Modified	2016.04.01
Creation	
Revision	1.0.0
Version	
Vendor	Autonics
Product	PMC-2HSP/2HSN
Major Revision	1
Minor Revision	0

(4) Address(1)

Click device address (1) in My System to check information in General of PMC-2HSP/2HSN>>1 Property. You can also set User unit name and modify DAQ repeat interval and Frame interval.

The 'My System' window displays a table of devices:

Name	Address	Status
RS-232	COM5	Disconnect
ModBus Master	RTU, 3, 1	Disconnect
PMC-2HSP...	Autonics	(1) EA
1	PMC-2HSP-...	Disconnect

The 'Property' window for 'PMC-2HSP/2HSN >> 1' shows the following details:

PMC-2HSP/2HSN >> 1	
General	
Device Name	PMC-2HSP/2HSN
Unit Address	1
Model	PMC-2HSP-USB
DAQ Repeat Interval	0 msec
Frame Interval	40 msec
User Unit Name	
Version	HW : 12594, SW : 12848
[X Axis] Operation Mode	
[X Axis] Parameter	
[X Axis] Home Search Mode	
[Y Axis] Operation Mode	
[Y Axis] Parameter	
[Y Axis] Home Search Mode	
Pulse Mode	
Communication Option	
RPM	

In the device connected status, click device address (1) to check and modify parameter of the device.

2.4.7.3 DAQ List Properties

(1) General

Click DAQ list items, which are added from I/O list, to check information and to modify Tag name, Demical point and Unit in General of the selected I/O item Property

DAQ List		Delete All Select All Delete the selected item(s)										
Type	Num	No.	Device	Address	Source	Tag Name	Type	R/W	Read Mode	Unit	Calculation	Description
All	68	Standard Tag (68)										
Group												
Analog	18											
Digital	50											
String	0											
Video	0											
		✓	COM5_PMC-2HSP...	1	Present Position X	COM5_1_Present Position X	Analog	R	Cont		,	
		✓	COM5_PMC-2HSP...	1	Present Position Y	COM5_1_Present Position Y	Analog	R	Cont		,	
		✓	COM5_PMC-2HSP...	1	Drive Speed X	COM5_1_Drive Speed X	Analog	R	Cont		,	
		✓	COM5_PMC-2HSP...	1	Drive Speed Y	COM5_1_Drive Speed Y	Analog	R	Cont		,	
		✓	COM5_PMC-2HSP...	1	Program Step X	COM5_1_Program Step X	Analog	R	Cont		,	
		✓	COM5_PMC-2HSP...	1	Program Step Y	COM5_1_Program Step Y	Analog	R	Cont		,	

Property

PMC-2HSP/2HSN >> 1 >> Present Position X

General

Device: PMC-2HSP/2HSN

Address: 1

Source: Present Position X

Tag Name: COM5_1_Present Position X

Decimal Point: 0

Unit: [Dropdown]

Description:

(2) Write

Sets ON/OFF of tag value transmission.

Write

Value: OFF

ON

Sets reset or emergency stop.

Write

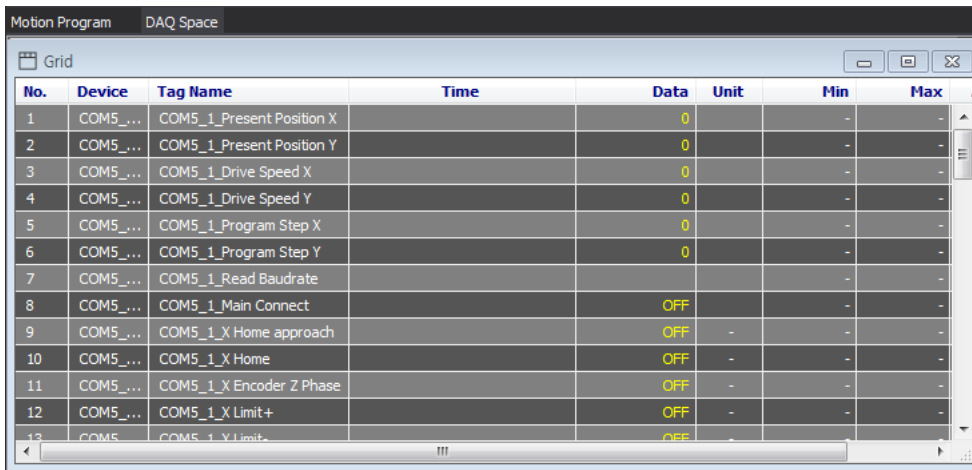
Value: Reset

2.4.7.4 DAQ Space Properties

Runtime screen property allows you to set Name, Information and Update interval of the added runtime screen (Grid, Line graph).

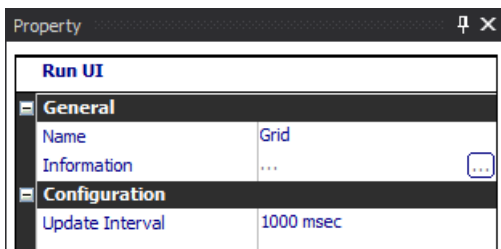
Click Grid in the runtime screen window to modify name in General of Run UI Property.

You can also modify update interval (default: 1,000ms) in the configuration of Run UI.



The screenshot shows a window titled "Motion Program" with a sub-tab "DAQ Space". Inside, there is a "Grid" window containing a table with the following data:

No.	Device	Tag Name	Time	Data	Unit	Min	Max
1	COM5_...	COM5_1_Present Position X		0		-	-
2	COM5_...	COM5_1_Present Position Y		0		-	-
3	COM5_...	COM5_1_Drive Speed X		0		-	-
4	COM5_...	COM5_1_Drive Speed Y		0		-	-
5	COM5_...	COM5_1_Program Step X		0		-	-
6	COM5_...	COM5_1_Program Step Y		0		-	-
7	COM5_...	COM5_1_Read Baudrate				-	-
8	COM5_...	COM5_1_Main Connect		OFF		-	-
9	COM5_...	COM5_1_X Home approach		OFF	-	-	-
10	COM5_...	COM5_1_X Home		OFF	-	-	-
11	COM5_...	COM5_1_X Encoder Z Phase		OFF	-	-	-
12	COM5_...	COM5_1_X Limit+		OFF	-	-	-
13	COM5_...	COM5_1_X Limit-		OFF	-	-	-

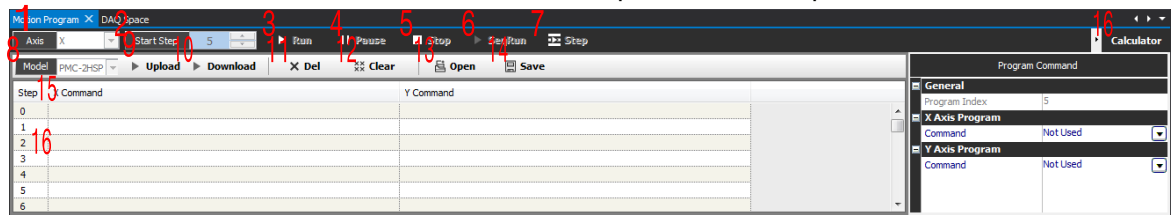


The screenshot shows a "Property" window for "Run UI". It has three sections: "General", "Information", and "Configuration".

Run UI	
General	
Name	Grid
Information	...
Configuration	
Update Interval	1000 msec

2.4.8 Motion program

Runs motor on the commands written in each step in order of steps from 0.



(1) Axis

: Select axis to run from X, Y, XY.

(2) Start Step

: Select step number to run or click the step in the editing box.

(3) Run

: Runs motor from the step which is selected in the start step or editing box.

(4) Pause

: Pauses after the currently running step has finished.

After pause, click [Run] button to restart from the next step.

(5) Stop

: Stops after the currently running step has finished.

After stop, click [Run] button to restart from the start step.

(6) SeqRun

: Runs in order of step, from 0 to End command.

(7) Step

: Runs only one step, which is selected in the editing box, repeatedly.

(8) Model

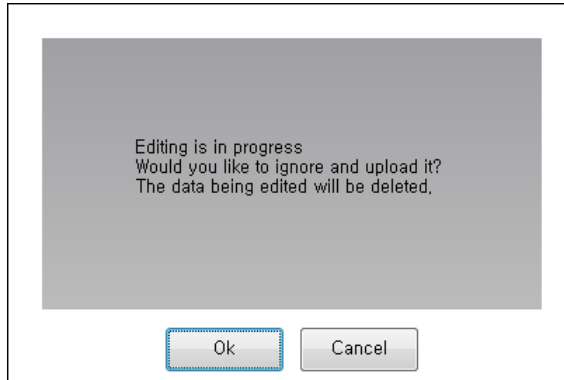
: Displays model name of the connected controller.

(9) Upload

Loads program which is saved in motion controller.

It is activated when the program in the motion controller and the one in the editing program are not synchronized.

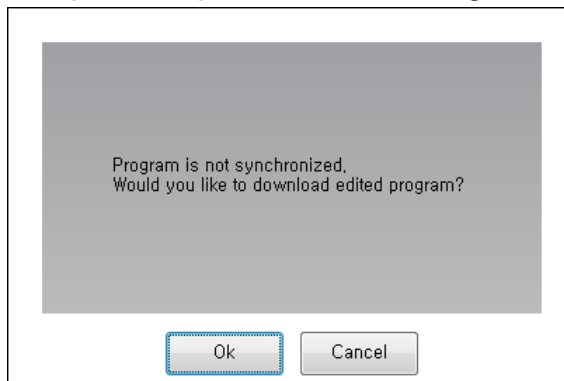
If there is edited program when you click the upload button, following message pops up.

**(10) Download**

Downloads edited program to motion controller.

It is activated when the program in the motion controller and the one in the editing program are not synchronized.

If they are not synchronized, following message pops up.



※ The programs are synchronized after clicking [Load] or [Send] button, these buttons are inactivated and commands will be written in motion controller in realtime.

(11) Del

Select the step to delete in the editing box and click [Del] button or press 'Delete' key to delete the step. You can delete multiple steps at once with 'Shift' key (consecutive selecting) and 'Ctrl' key (individual selecting). It deletes the selected step as well as command.

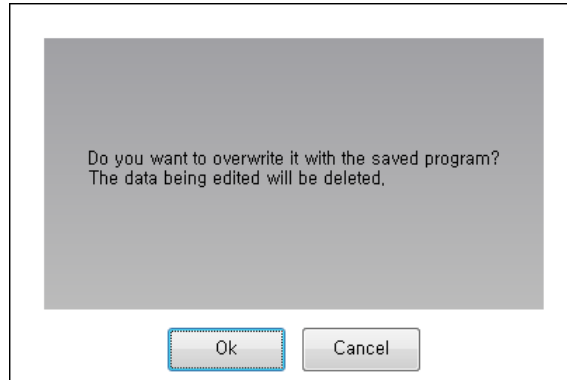
(12) Clear

Deletes commands written in all steps.

(13) Open

Opens a saved motion program command project file (*.amd).

If there is edited program when you click the open, following message pops up.

**(14) Save**

Saves currently applied motion program command as a project file (*.amd).

(15) Motion Program Command

Select a step in the editing box to display command items to write command in the program command window. With items in the program command window, you can write command and specific data of the command.

※ Command and specific data of the command can be different depending on the connected device. Please refer to the user manual of the device.

The screenshot shows the 'Motion Program' software interface. At the top, there are controls for 'Offline', 'Axis X', 'Start Step 7', and buttons for 'Run', 'Pause', 'Stop', 'SeqRun', and 'Step'. Below this is a toolbar with 'Model PMC-2HSP', 'Upload', 'Download', 'Del', 'Clear', 'Open', and 'Save'. The main area is a table with columns for 'Step', 'X Command', and 'Y Command'.

Step	X Command	Y Command
0	INC [Pos:1000 pulse], [Speed: 2], [Timer: 0], [End Pulse:1], [Both:0]	NOP
1	ABS [Pos:300 pulse], [Speed: 2], [Timer: 0], [End Pulse:1], [Both:0]	ABS [Pos:-1000 pulse], [Speed: 1], [Timer: 0], [End Pulse:0], [Both:0]
2	HOM [End Pulse:1], [Both:1]	ABS [Pos:1000 pulse], [Speed: 1], [Timer: 0], [End Pulse:0], [Both:0]
3	END	TIM [On Time:1000 msec]
4		END
5		

Below the table are two 'Program Command' windows. The left window shows the 'General' tab with 'Program Index' set to 0. Under 'X Axis Program', the 'Command' is 'INC'. The 'Position' is 'Not Used'. The 'Drive Speed' is '2'. The 'Post Timer' is '0'. The 'End Pulse' is '1'. The 'Both' option is '0'. Under 'Y Axis Program', the 'Command' is 'NOP'. The right window shows the same 'General' tab, but the 'Position' is set to '1000' and the 'Drive Speed' is set to '2 1000pulse(-8388608 ~ 8388607)'. The 'End Pulse' is '1' and 'Both' is '0'.

※ In value setting boxes, some only displays value and others can be modified. Modifiable items are displayed in edit type or combo box type.

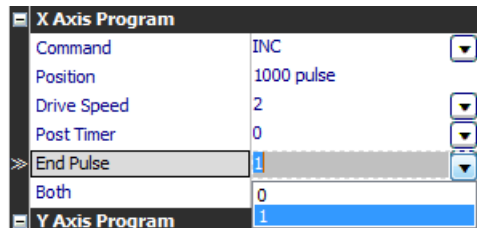
- Edit type



Enter number of text in the box.

Input range appears with mouse point over the box.

- Combo box type

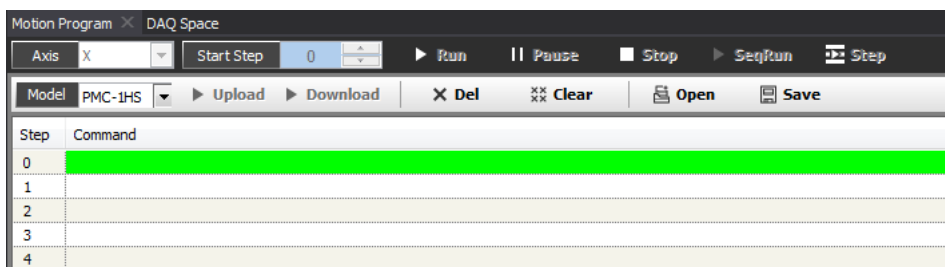


Click combo button or press 'Alt+direction' key to see a list of selectable items.

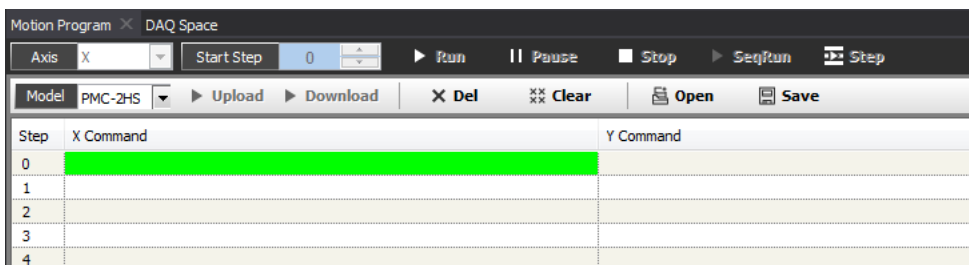


Note

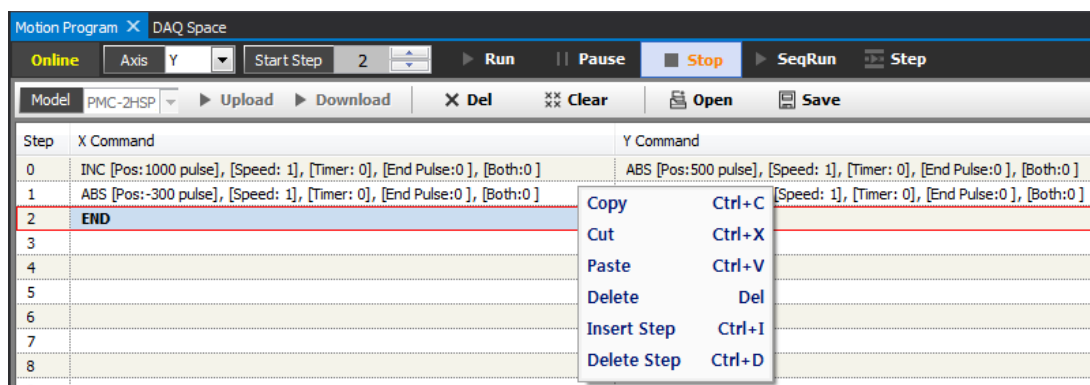
※1. PMC-1HS (1 axis)



※2. PMC-2HS (2 axis)



(16) Step setting



Right click a command to copy, cut, paste, or delete.

A new step can be added between step and step, and all steps can be deleted at once.

(17) Calculator

Click Calculator to open calculator window.

- PMC-2HSP Series
: Output PPS, Circle interpolation center position and Manual deceleration point calculating function.
- PMC-2HSN Series: Output PPS calculating function.

Calculator consists of Output PPS, Circle Interpolation and Manual Deceleration Point taps.

① Output PPS (PMC-2HSP/2HSN Series)

The screenshot shows the 'msCalculator' application window with three tabs: 'Output PPS', 'Circle Interpolation', and 'Manual Deceleration Point'. The 'Output PPS' tab is selected and highlighted with a red box. The window is divided into two main sections: 'Input' and 'Output'. The 'Input' section contains four text input fields: 'Speed Multiplier : 10', 'Acceleration Rate : 400', 'Start Speed : 50', and 'Drive Speed : 10'. The 'Output' section contains two text input fields: 'PPS' and 'Time for Start Speed to Drive Speed'. A red box highlights the 'Calculate' button at the bottom right of the window, next to a 'Clear Result' button.

Click Output PPS tap to enter values in Speed Multiplier, Acceleration Rate, Start Speed and Drive Speed in the Input box. After entering the value, click [Calculate] button to see the result of the calculation from PPS to acceleration time of drive speed in the Output box.

② Circle Interpolation (PMC-2HSP Series)

The screenshot shows the 'msCalculator' window with two tabs: 'Circle Interpolation' (selected) and 'Manual Deceleration Point'. The interface is divided into two main sections:

- Angle -> End Position:**
 - Input:** X Axis Center Position: 1000, Y Axis Center Position: 1000, Angle: 360, Direction: CW(FID).
 - Output:** Radius, X Axis Center Position, Y Axis Center Position, X Axis End Position, Y Axis End Position.
- End Position -> Angle:**
 - Input:** X Axis Center Position: 1000, Y Axis Center Position: 1000, X Axis End Position: 1000, Y Axis End Position: 1000, Direction: CW(FID).
 - Output:** Radius, X Axis Center Position, Y Axis Center Position, Angle.

Both sections have a 'Calculate' button and a 'Clear Result' button. The 'Calculate' buttons are highlighted with red boxes in the image.

Circle interpolation needs center position and end position.

There are two methods for calculation: entering center position and angle values for center position and end position, and entering center position and end position for radius and angle.

After entering the value, click [Calculate] button to see the result of the calculation in the Output box.

For detailed information about entering center position and end position, please refer to the user manual of PMC-2HSP/N.

**Note**

Calculation result of circle interpolation includes round-off error.

Since the input value is to be integer, result of calculation is also integer.

③ Manual Deceleration Point (PMC-2HSP Series)

Manual Deceleration Point is for setting manual deceleration point in circle interpolation, and is entered automatically when user writes CID, FID, RID commands in the main screen. When acceleration time between start speed and interpolation drive speed is longer than movement pulse, speed is unstable and warning popup appears. In this case, manual deceleration point calculation shows how to deal with. For CID, FID, RID commands, calculate manual deceleration point and check drive speed or manual deceleration point in the tap.

2.4.9 Message

Records events during running the program.

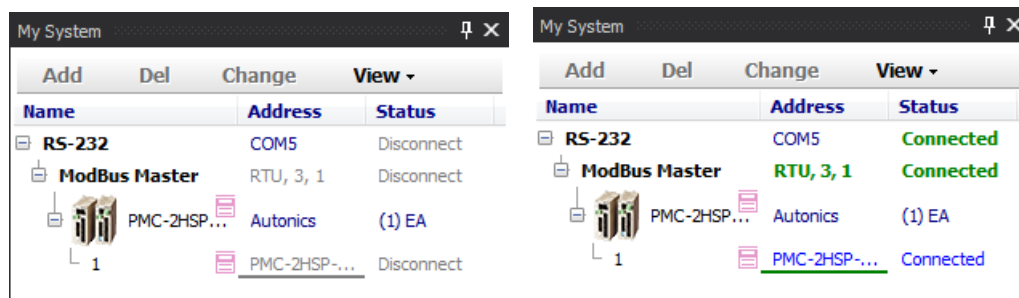
E.g.) Communication status (start/stop communication, communication error), log status (start/stop log), etc.

Level	Time	Tag	Message
info	06-09 08:14:49:899	MbDevice	COM5, Modbus Device Unit DAQ Run, device : 0/1, (null)
info	06-09 08:14:49:900	MbDevice	COM5, Modbus Device Unit DAQ Run, unit : 0/1, (null)
info	06-09 08:14:49:909	Main	Start Run!
info	06-09 08:14:58:384	MbDevice	COM5, Modbus Device Unit DAQ Run, device check : 1, 0
info	06-09 08:14:58:387	MbDevice	COM5, Modbus Device Unit DAQ Run, device : 0/1, (null)

2.4.10 My System

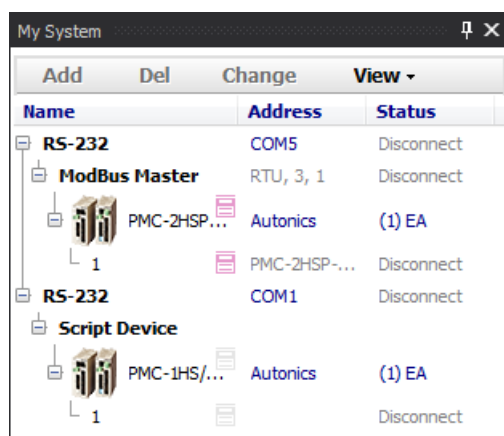
My System displays devices and units added from the device list in a tree structure. You can also check and configure connection status.

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



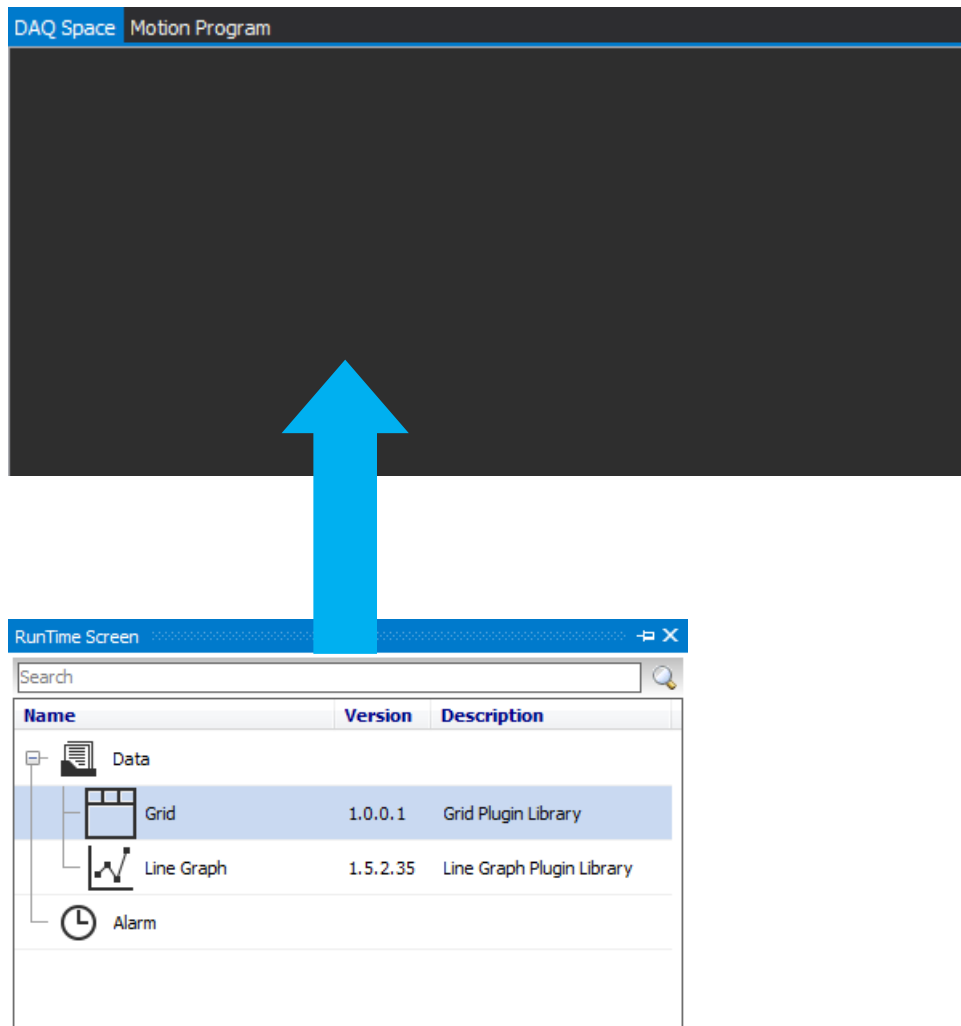
- **RS-232**
: Allows property modification related to RS-232 communications in Property when devices are disconnected.
- **ModBus Master**
: Allows property modification related to ModBus Master Protocol in Property when devices are disconnected. Mode and the number of retries are displayed.
- **Device (PMC-2HSP/2HSN)**: Displays information of the connected device.
- **Unit (1)**: Displays the parameter of the unit and allows modification of it.

It is possible to connect a device to multiple communications ports, as follows.



2.4.11 Runtime Screen

Double click UI item in the runtime screen to add the item to DAQ space.



2.4.12 DAQ List

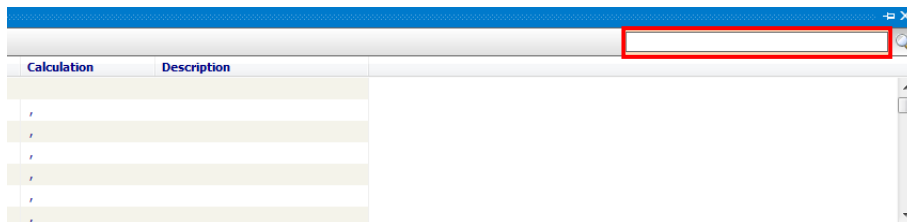
DAQ List is a list of I/O sources to communicate.

The number of I/O sources is displayed by signal type in the left list, and selecting a item in the list rearrange I/O sources in right list by signal type.

Type		Num
All		136
Group		
Analog		86
Digital		50
String		0
Video		0

Delete All		Select All		Delete the selected item(s)						
No.	Device	Address	Source	Tag Name	Type	R/W	Read Mode	Unit	Calculation	Description
Standard Tag (136)										
✓	COM5_PMC-2HSP...	1	Present Position X	COM5_1_Present Position X	Analog	R	Cont			
✓	COM5_PMC-2HSP...	1	Present Position Y	COM5_1_Present Position Y	Analog	R	Cont			
✓	COM5_PMC-2HSP...	1	Drive Speed X	COM5_1_Drive Speed X	Analog	R	Cont			
✓	COM5_PMC-2HSP...	1	Drive Speed Y	COM5_1_Drive Speed Y	Analog	R	Cont			
✓	COM5_PMC-2HSP...	1	Program Step X	COM5_1_Program Step X	Analog	R	Cont			
✓	COM5_PMC-2HSP...	1	Program Step Y	COM5_1_Program Step Y	Analog	R	Cont			

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



Note

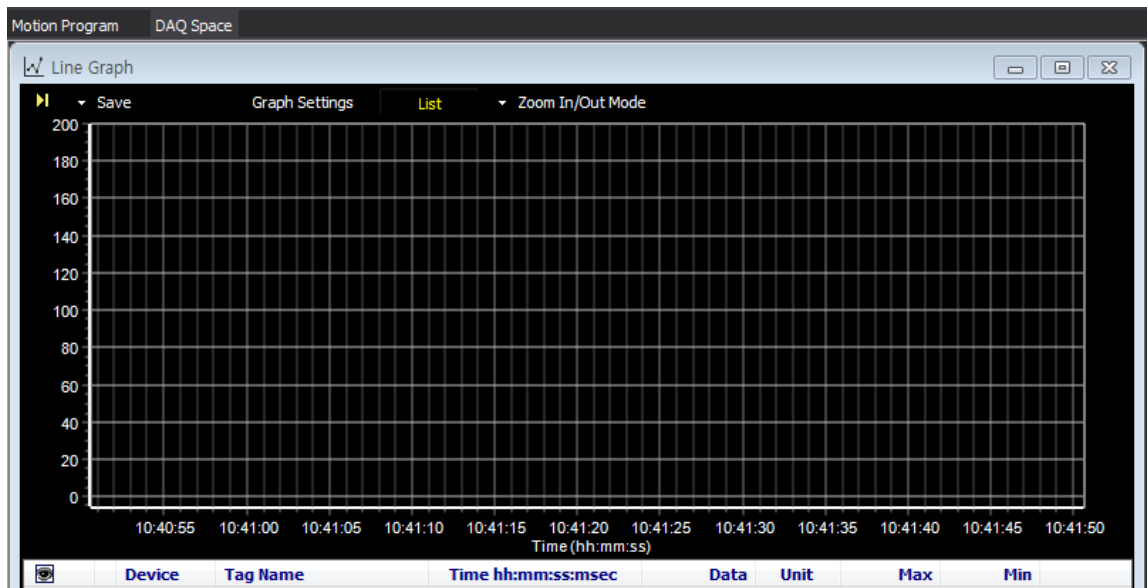
For certain I/O sources, demical point and unit is set automatically. This is set according to the setting value of the parameter.

Select I/O source to add from the DAQ list and drag/drop to the runtime screen.

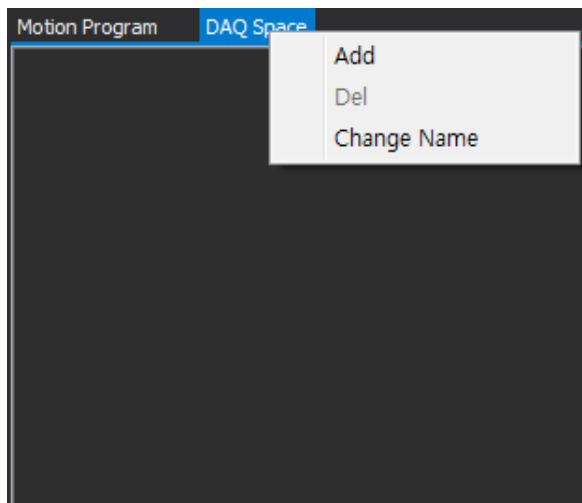
Items of the DAQ list can not be added to the runtime screen when the monitoring is running.

2.4.13 DAQ Space

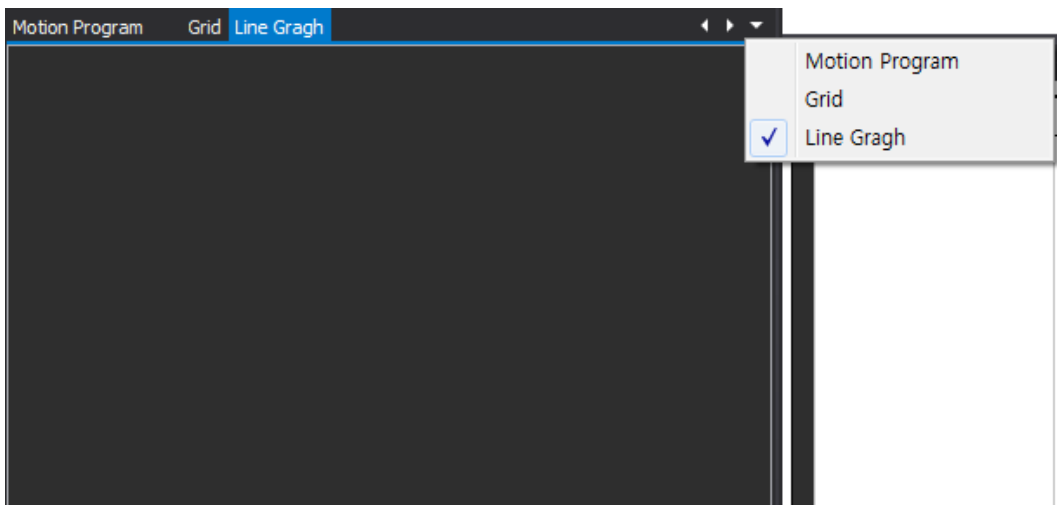
DAQ space displays UI screen (Grid, Line graph) added from the runtime screen.



Right click 'DAQ Space' name on the top right side of the DAQ space screen to add or delete the DAQ space screen or modify name of the screen.



Click pull-down icon (▼) in the top right side of the DAQ space screen to select the activated space.

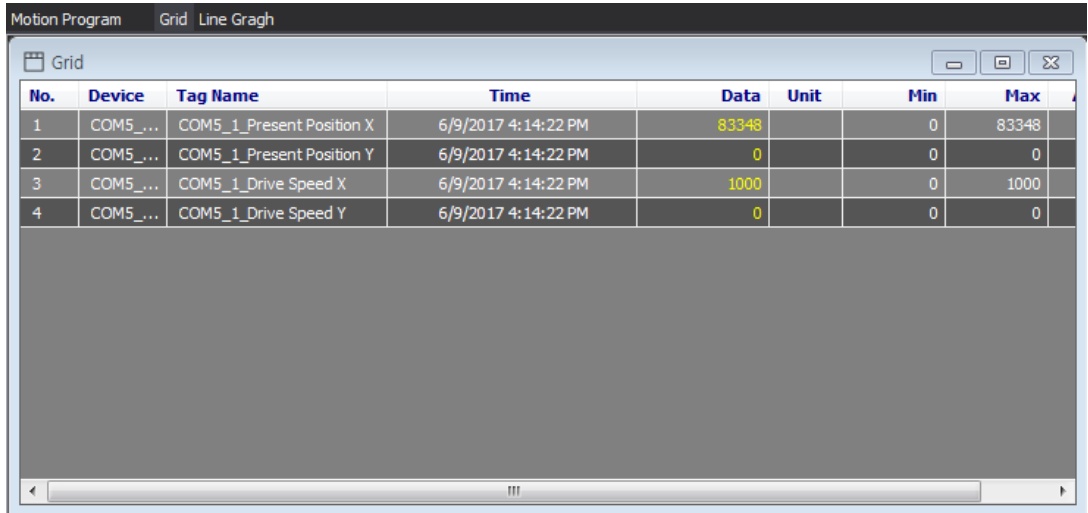




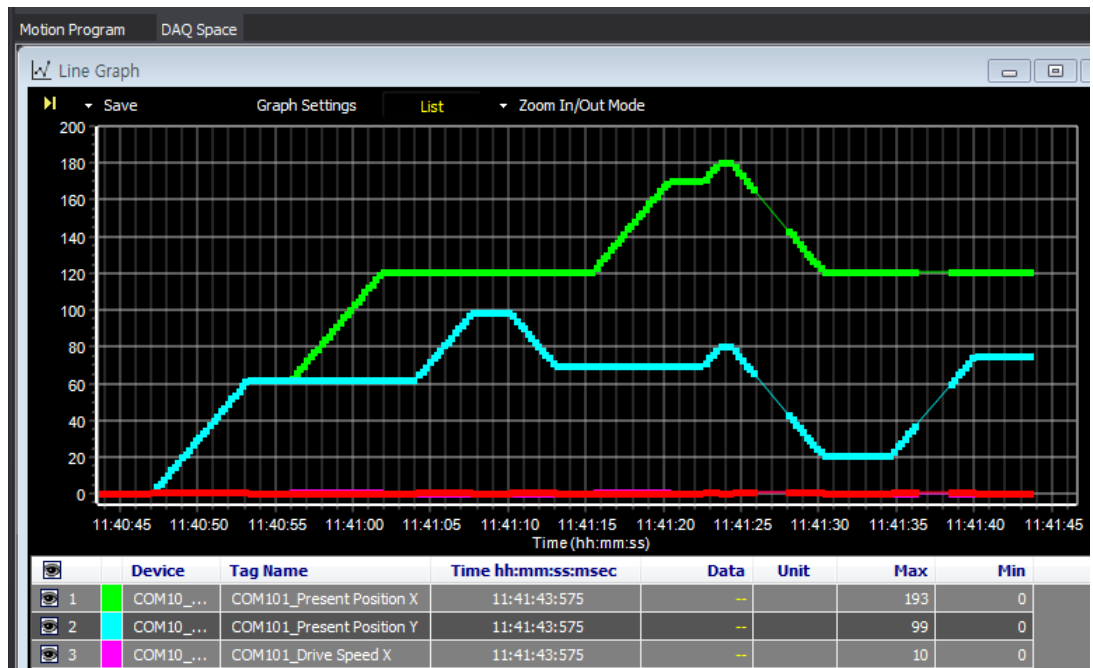
Ex.

Names of two DAQ space screens are changed into 'Grid' and 'Line graph'.

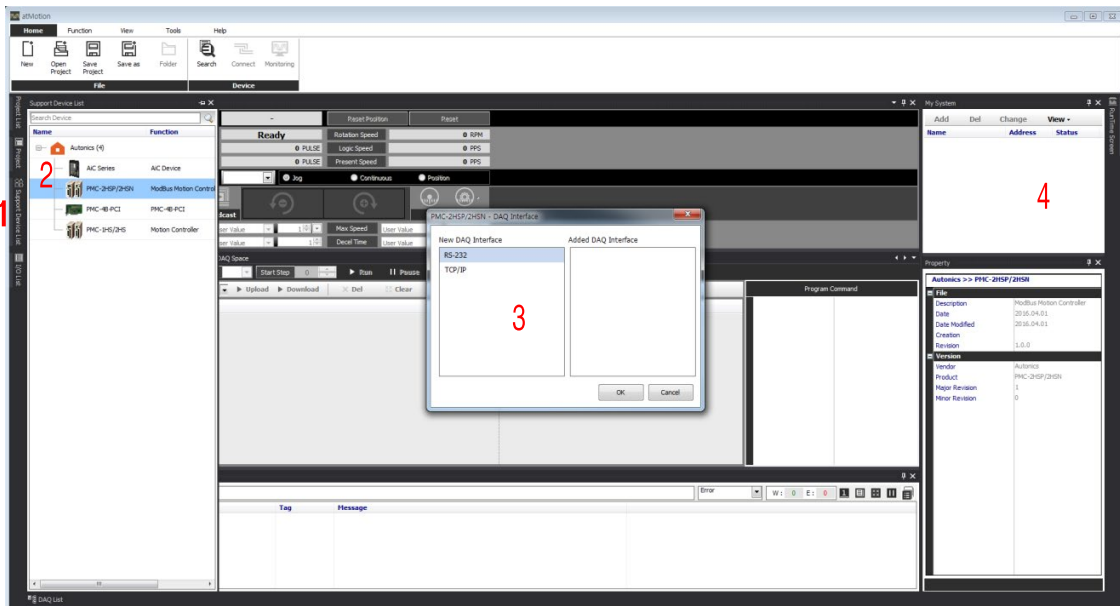
(1) Grid



(18) Line Graph



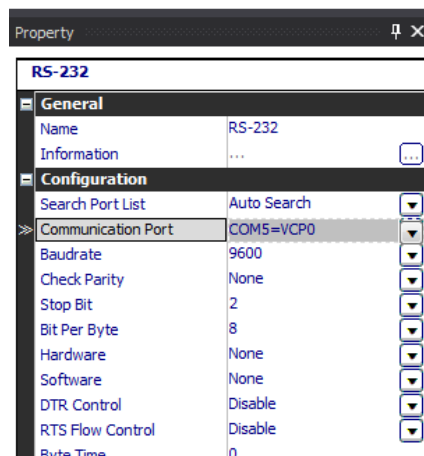
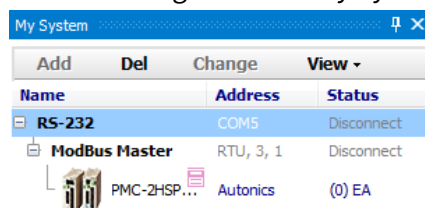
3 Getting started



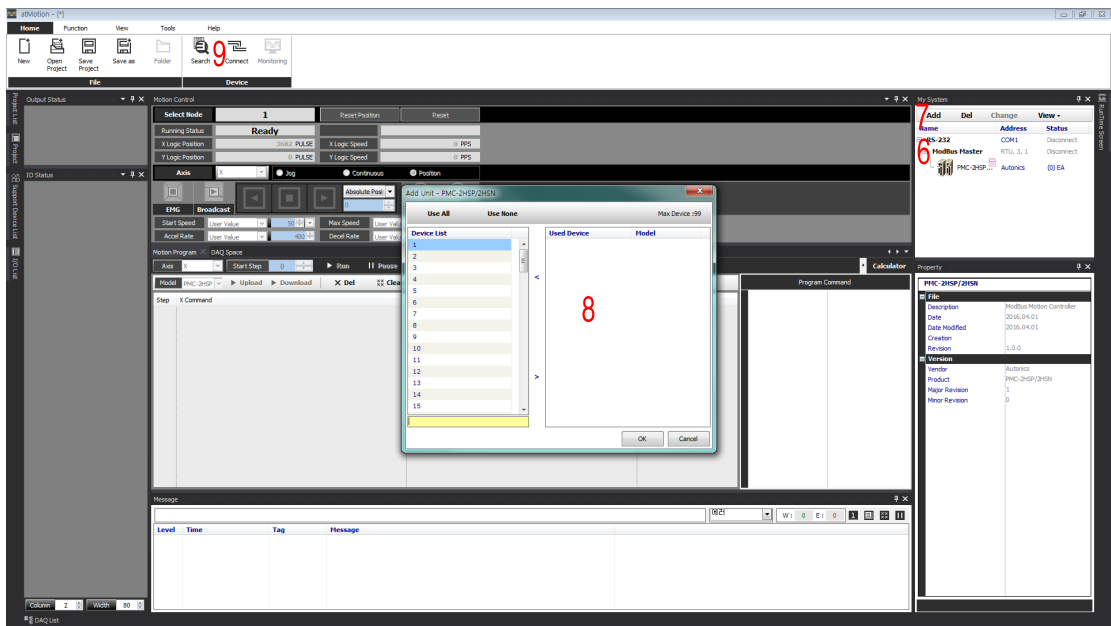
The basic work order is followings.

- 1st Click support device list in the middle left side of the screen.
- 2nd Select a device from the support device list to add the device to My System (double click the name of the device or right click and select 'Add to My System').
- 3rd Select RS-232 interface.

After selecting communication interface in My System, set communication configuration in Property below My System.
- 4th After selecting RS-232 in My System, configure communication in Property.



5th After selecting RS-232 in My System, select the relevant communication port in Property.



6th Select the device in My System.

7th Click [Add] button.

8th Add relevant unit (address).

9th Connect (reding and setting of the device parameter is possible).

10th Run the program.



Ex.

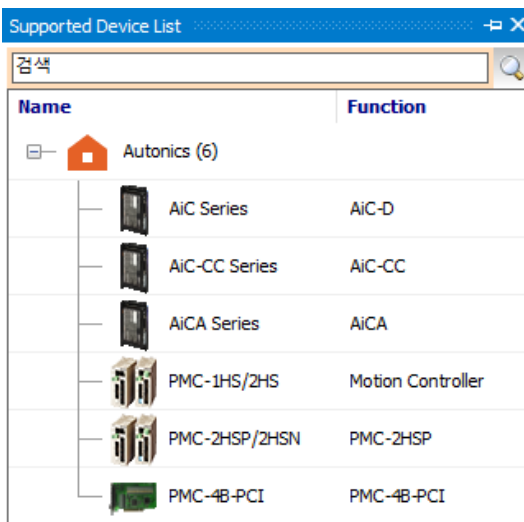
With [Search] function, a device can be added to My system.

For more information, please refer to '2) device' in '2.4.1 menu'.

3.1 Support Device List - Selecting a Device

For example: PMC-2HSP (address 1) is connected to RS-232 port 1.

Select a device to communicate in the support device list. The support device list docking screen) is a list of devices supported by atMotion and the devices in the list are only possible to communicate.

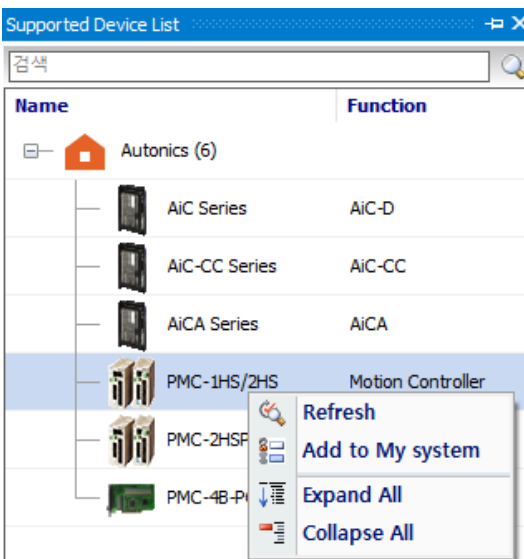


Select a device in the support device list to check the basic information for the device in Property.

Click (+) extension button in the support device list to see a list of supported device list.

Select a device (PMC-2HS) to add to My System.

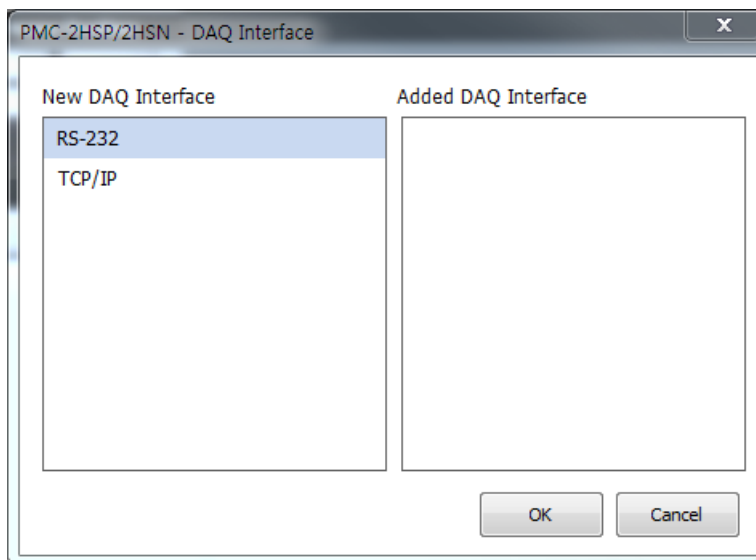
Double click the name of the device or right click and select 'Add to My System'.



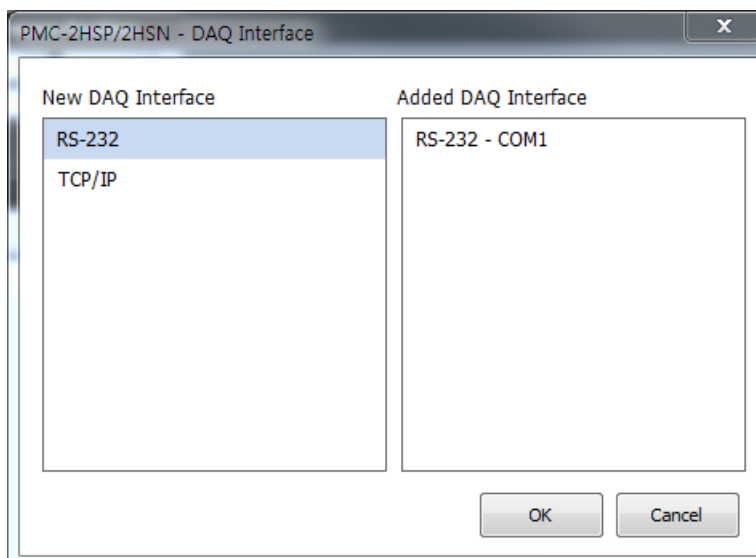
- Refresh: Updates Support Device List when device files (*.dev) are added.

- Add to My System: Adds device to My System to communicate.
- Expand all: Displays the list of all supported devices.
- Collapse all: Hides the list of all supported devices.

Select RS-232 and click [OK] button or double click RS-232 from the New DAQ interface. You can modify the configuration of the added DAQ Interface in Property.



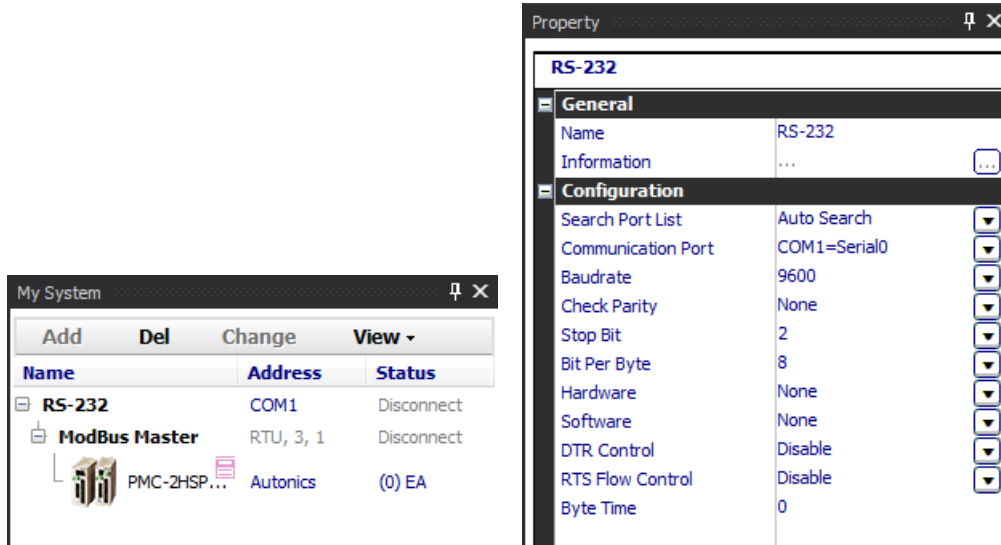
If there is another device added earlier, you can see RS-232-COM1 in the Added DAQ interface.



3.2 Setting RS-232, TCP/IP

3.2.1 RS-232C

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

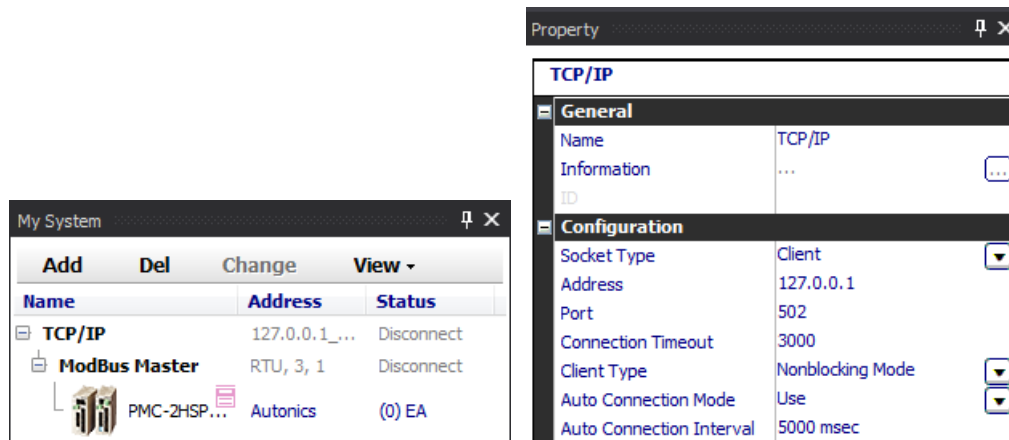


Modification of the name displayed in My System is possible at the name in Property. Items in Property are followings.

Item		Description
Search Port List	Fix Init List	Loads communication port list of computer at the point when RS-232 is added, saves it to the Port List and then fixes it.
	Auto Search	When the port list of the computer (such as USB, 232) is changed, rearranges Port list.
Communication Port		Displays a list of connectable COM Ports. You can designate the connected COM Port.
Baudrate		1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200bps
Check Parity		Allows selecting communication parity. (None, Odd, Even, Mark, Space)
Stop Bit		Allows selecting stop Bit. (1, 1.5, 2)
Bit Per Byte		Allows selecting byte size. (5, 6, 7, 8)
Hardware		None, RTS/CTS
Software		None, XON/XOFF
DTR Control		Disable, enable, handshake
RTSFlow Control		Disable, enable, handshake, toggle

3.2.2 TCP/IP

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



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

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

The Config items are following.

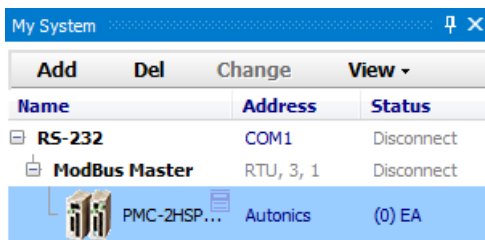
Item		Description
Socket Type	Client	Sets as client mode (when connecting PMC-2HSP)
	Server	Sets as server mode.
Address		Enters the designated IP Address from the main device.
Port		Sets port number.
Connection Timeout		Sets Connection Timeout
Client Type	Non Blocking	After transmission, next transmission is available regardless of response.
	Blocking	After transmission, next transmission is available after receiving response.
Auto Connection Mode	Use	Uses auto connection mode.
	Not used	Not use auto connection mode.

3.3 Adding a Unit to My System

[Add] button in My System can be inactivated depending on the connected device. Please refer to the user manual of the device.

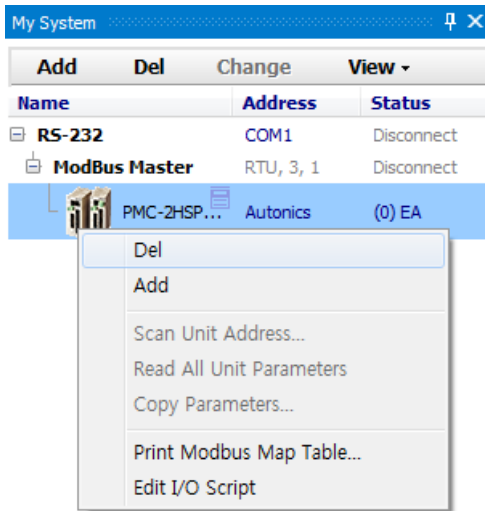
My system displays device and communication interfaces added from the support device list in a tree structure. It also displays connection status and allows you to add, change and delete device units (addresses).

Select an item in My System to set or modify in Property.



The screenshot shows a window titled "My System" with a table of device units. The table has columns for Name, Address, and Status. The first two rows are "RS-232" and "ModBus Master", both with a status of "Disconnect". The third row, "PMC-2HSP...", is highlighted in blue and has a status of "(0) EA".

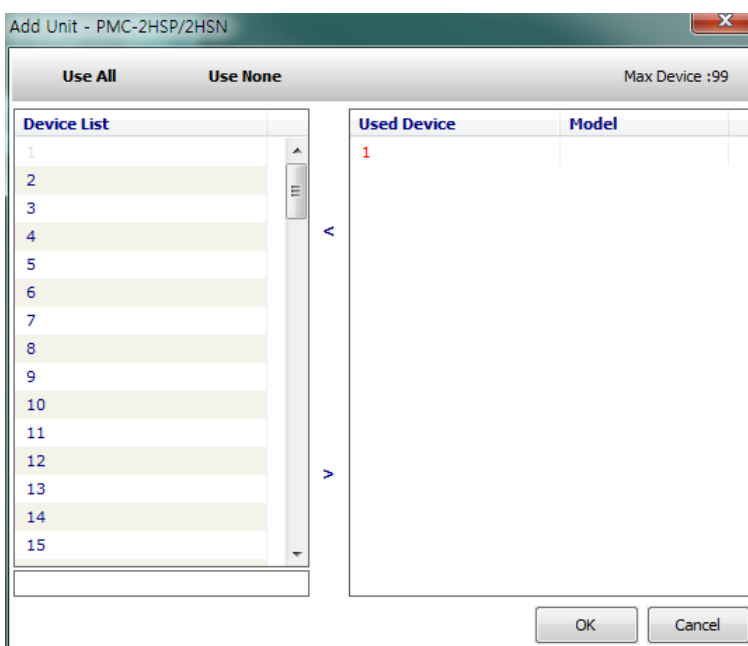
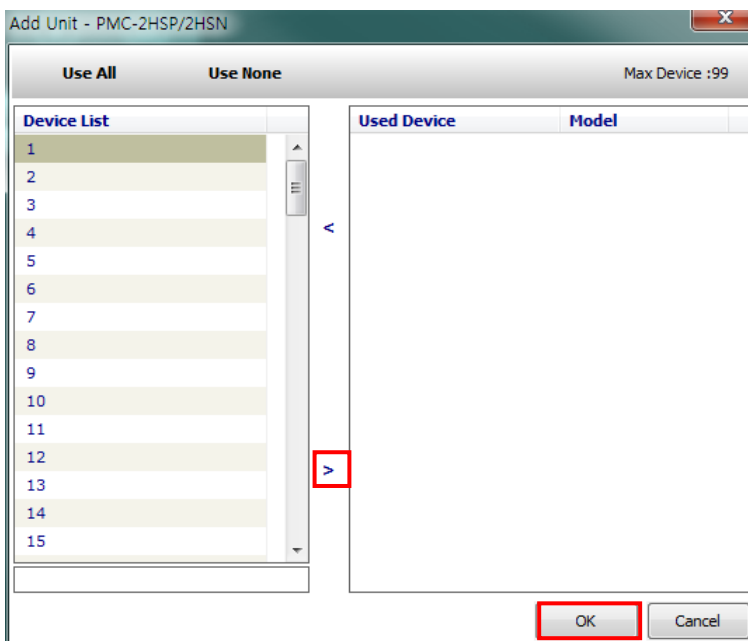
Add	Del	Change	View ▾
Name	Address	Status	
RS-232	COM1	Disconnect	
ModBus Master	RTU, 3, 1	Disconnect	
PMC-2HSP...	Autonics	(0) EA	



Select PMC-2HSP device to activate [Add] button.

In order to add unit (address), click [Add] button in the top of My System or right click the device and select 'Add'.

Select designated address (1) of the PMC-2HSP device and double click or click [>] button to add the unit to the Used device list and then click [OK] button.



Now you can see the unit (address 1) under the device in My System. In case of adding same type of multiple devices, click [Add] button and add device. (Maximum 99 devices can be added.)

The image shows two screenshots of the 'My System' window. The left screenshot shows the 'My System' window with a tree view where the unit '1' is selected. The right screenshot shows the same window with a context menu open over unit '1', listing options like Del, Change, Parameter Mask Settings..., User Group Settings..., Read All Parameters, Save Parameter Values..., and Connect.

Name	Address	Status
RS-232	COM1	Disconnect
ModBus Master	RTU, 3, 1	Disconnect
PMC-2HSP...	Autonics	(1) EA
1		Disconnect

Select the unit address (1) to activate [Change] button.

In order to change unit (address), click [Change] button in the top of My System or right click the unit address (1) and select 'Change'.

Clicking [Change] button displays using address(1) in yellow.

Select address to change and click [OK] button to change address of the unit.

The image shows the 'Change Unit - PMC-2HSP/2HSN - 1' dialog box. It has a 'Device List' on the left with addresses 1 through 15, where address 1 is highlighted in yellow. On the right, there is a 'Used Device' list with address 1. The 'Max Device' is set to 99. There are 'OK' and 'Cancel' buttons at the bottom.



Note

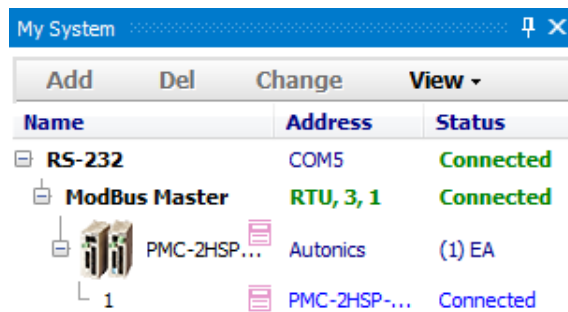
In the connected status, unit (address) cannot be deleted, changed or added.

3.4 Scan Unit

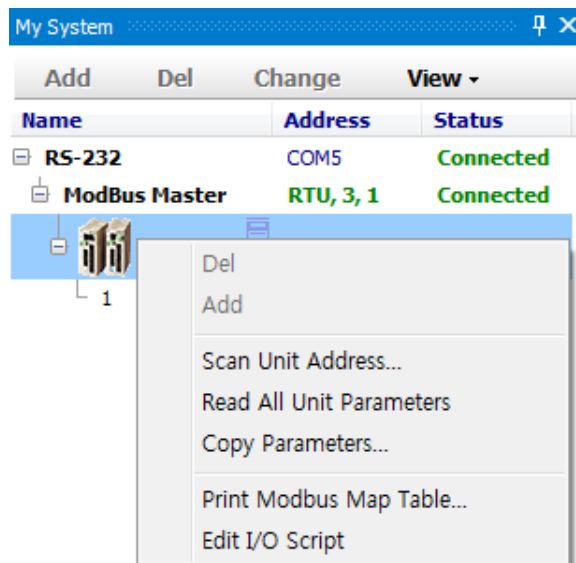
'Unit address scan' can be inactivated depending on the connected device. Please refer the user manual of the device.

Scan Unit scans multiple device units connected to the communication. You can check the detected units and add them to My System.

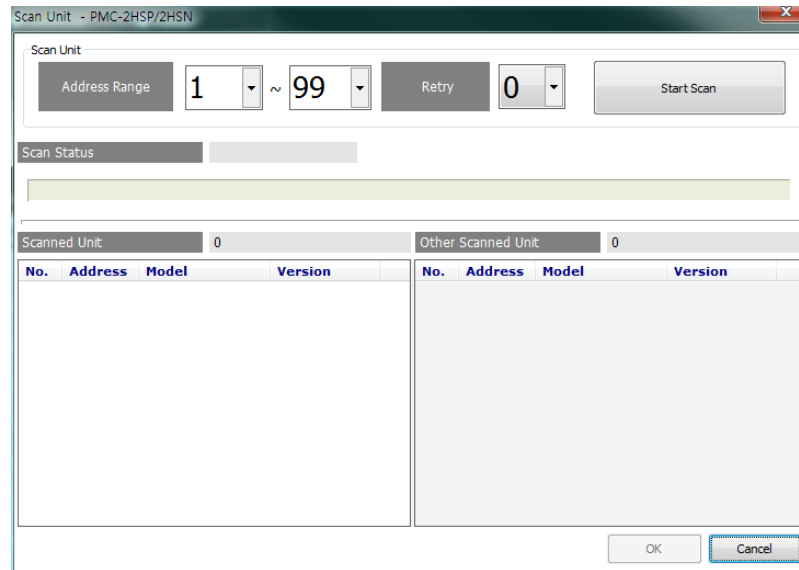
1st Add PMC-2HSP device and configure RS-232 settings as followings, and then connect the device.



2nd When connected, select PMC-2HSP device and right click to select 'Unit address scan'.

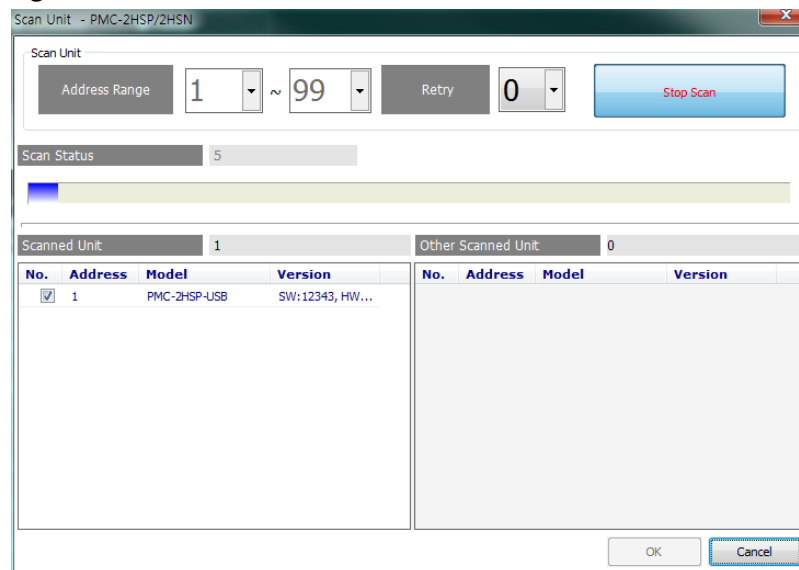


3rd Unit scan dialog appears as follows.

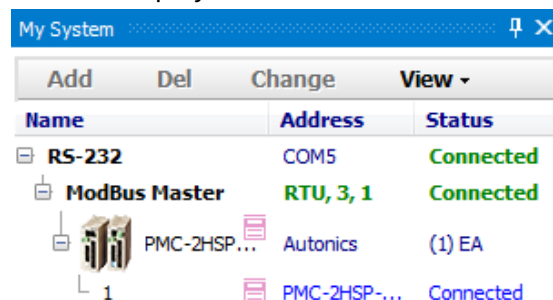


4th Set an address range to scan and click [Start scan] button to scan units automatically.

Scanned units are listed on the left side and other scanned units are listed on the right side.



5th Check a unit to add from the list and click [OK] to add the unit automatically which is displayed as 'connected'.



3.5 DAQ List

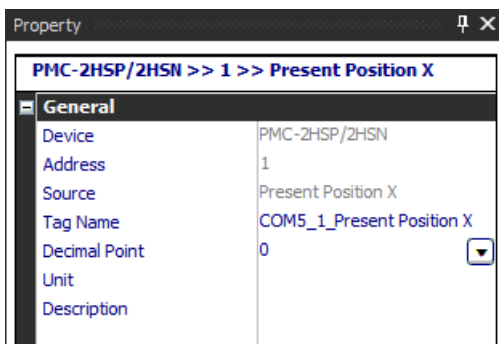
DAQ List displays a list of I/O sources to communicate.



Type	Num	Delete All Select All Delete the selected item(s)									
No.	Device	Address	Source	Tag Name	Type	R/W	Read Mode	Unit	Calculation	Description	
Standard Tag (68)											
✓	COM5_PMC-2HSP...	1	Present Position X	COM5_1_Present Position X	Analog	R	Cont				
✓	COM5_PMC-2HSP...	1	Present Position Y	COM5_1_Present Position Y	Analog	R	Cont				
✓	COM5_PMC-2HSP...	1	Drive Speed X	COM5_1_Drive Speed X	Analog	R	Cont				
✓	COM5_PMC-2HSP...	1	Drive Speed Y	COM5_1_Drive Speed Y	Analog	R	Cont				
✓	COM5_PMC-2HSP...	1	Program Step X	COM5_1_Program Step X	Analog	R	Cont				
✓	COM5_PMC-2HSP...	1	Program Step Y	COM5_1_Program Step Y	Analog	R	Cont				

To add I/O sources from the DAQ list to the runtime screen, select the source to add, and drag and drop to the runtime screen.

Select a source from the DAQ list to check and modify the item in Property.



Property	
PMC-2HSP/2HSN >> 1 >> Present Position X	
General	
Device	PMC-2HSP/2HSN
Address	1
Source	Present Position X
Tag Name	COM5_1_Present Position X
Decimal Point	0
Unit	
Description	

Items of the general in Property are followings.

- Device: Device name
- Address: Unit address
- Source: I/O source name
- Tag name: Saves tag name as 'address_I/O tag name' and is changeable.
- Decimal point: Changes the decimal point of data.
- Unit: Changes the unit of data.
- Description: Allows writing the description.



Note

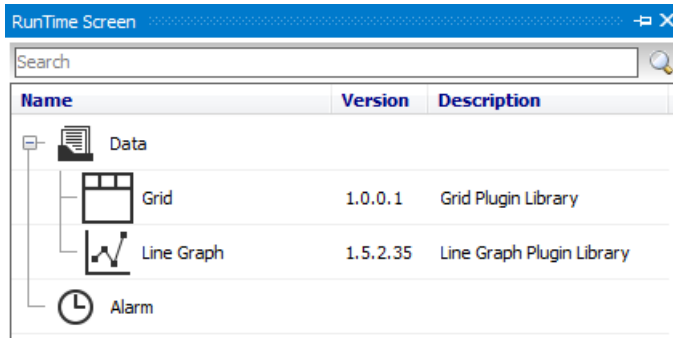
For certain I/O sources, demical point and unit is set automatically. This is set according to the setting value of the parameter.

Items of the DAQ list can not be added to the runtime screen when the monitoring is running.

3.6 Adding from DAQ List to Runtime Screen Library

Runtime screen is for monitoring the data, and you can search and select the runtime screen.

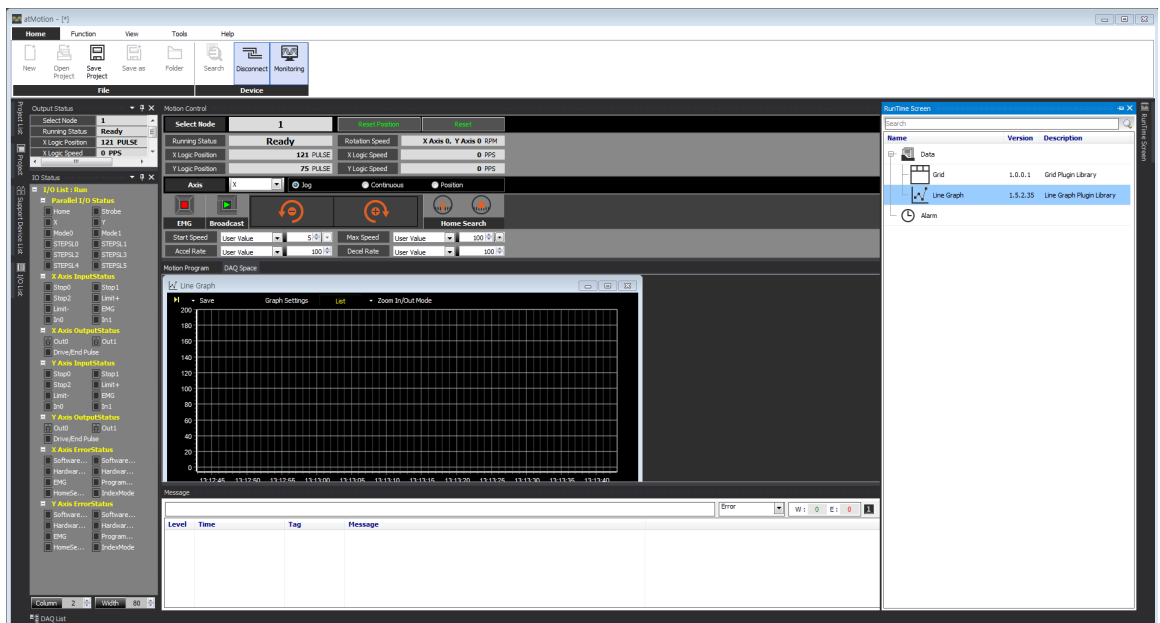
Runtime screens can be set and added according to the user environment.



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

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

Following is the example of the runtime screen display (Line graph).



3.6.1 Data

3.6.1.1 Grid

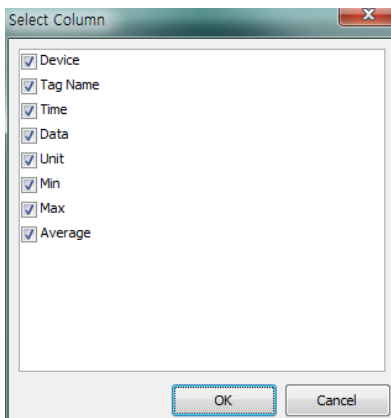
Grid displays multiple I/O sources in text.

Whenever data is updated in 'monitoring' status, the color of the time column inverts.

No.	Device	Tag Name	Time	Data	Unit	Min	Max
1	COM3_...	COM3_1_Present Position X	6/9/2017 4:14:22 PM	0		0	0
2	COM3_...	COM3_1_Present Position Y	6/9/2017 4:14:22 PM	0		0	0
3	COM3_...	COM3_1_Drive Speed X	6/9/2017 4:14:22 PM	0		0	0
4	COM3_...	COM3_1_Drive Speed Y	6/9/2017 4:14:22 PM	0		0	0
5	COM3_...	COM3_1_Program Step X	6/9/2017 4:14:22 PM	0		0	0
6	COM3_...	COM3_1_Program Step Y	6/9/2017 4:14:22 PM	0		0	0
7	COM3_...	COM3_1_Read Baudrate	6/9/2017 4:14:22 PM	9600		-	-
8	COM3_...	COM3_1_Main Connect	6/9/2017 4:14:22 PM	ON		-	-
9	COM3_...	COM3_1_X Home approach	6/9/2017 4:14:22 PM	OFF	-	-	-
10	COM3_...	COM3_1_X Home	6/9/2017 4:14:22 PM	OFF	-	-	-
11	COM3_...	COM3_1_X Encoder Z Phase	6/9/2017 4:14:22 PM	OFF	-	-	-
12	COM3_...	COM3_1_X Limit+	6/9/2017 4:14:22 PM	OFF	-	-	-
13	COM3_...	COM3_1_X Limit-	6/9/2017 4:14:22 PM	OFF	-	-	-

Grid column is editable. Right-click the head of grid, 'Select Column' dialog box appears.

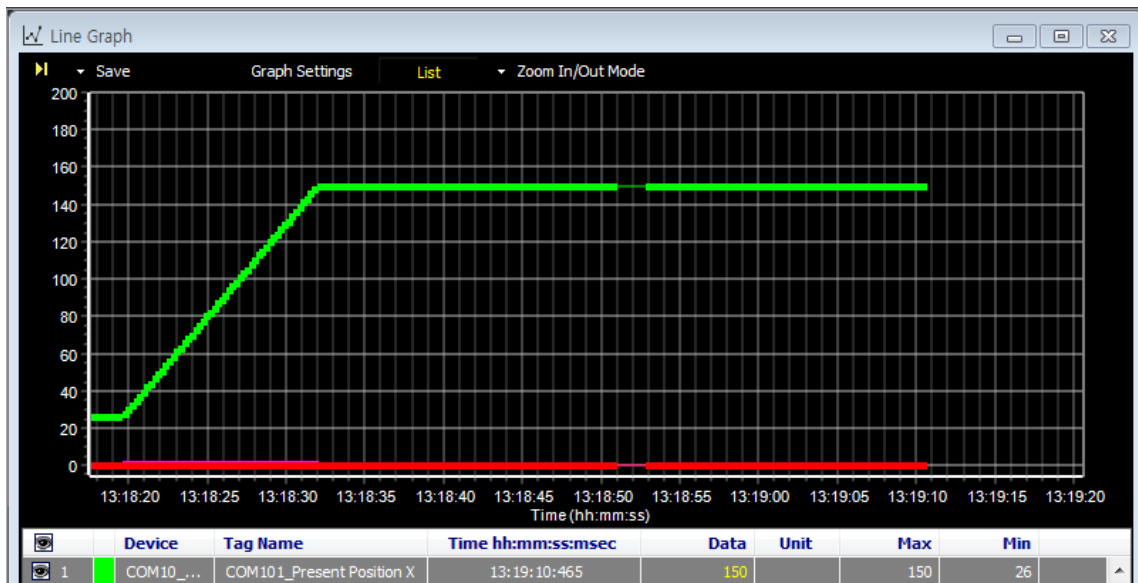
You can check the desired item to show.



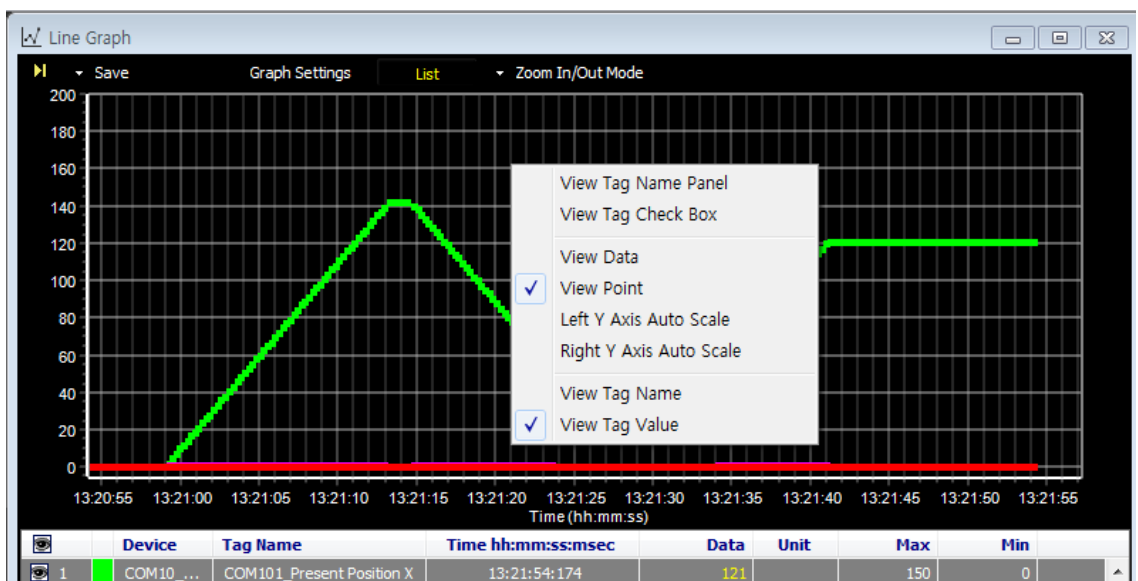
If you did not check 'Display When Updated' from the pop-up menu of the right click, the color does not invert upon update. If you select 'Reset Min./Max.' in the pop-up menu of the right click, min. and max. columns are reset and shows min./max. values from that point on.

No.	Device	Tag Name	Time	Data	Unit	Min	Max
1	COM3_...	COM3_1_Present Position X	6/9/2017 4:14:59 PM	0		0	0
2	COM3_...	COM3_1_Present Position Y	6/9/2017 4:14:59 PM	0		0	0
3	COM3_...	COM3_1_Drive Speed X	6/9/2017 4:14:59 PM	0		0	0
4	COM3_...	COM3_1_Drive Speed Y	6/9/2017 4:14:59 PM	0		0	0
5	COM3_...	COM3_1_Program Step X	6/9/2017 4:14:59 PM	0		0	0
6	COM3_...	COM3_1_Program Step Y	6/9/2017 4:14:59 PM	0		0	0
7	COM3_...	COM3_1_Read Baudrate	6/9/2017 4:14:59 PM	9600		-	-
8	COM3_...	COM3_1_Main Connect	6/9/2017 4:14:59 PM	ON		-	-
9	COM3_...	COM3_1_X Home approach	6/9/2017 4:14:59 PM	OFF	-	-	-
10	COM3_...	COM3_1_X Home	6/9/2017 4:14:59 PM	OFF	-	-	-
11	COM3_...	COM3_1_X Encoder Z Phase	6/9/2017 4:14:59 PM	OFF	-	-	-
12	COM3_...	COM3_1_X Limit+	6/9/2017 4:14:59 PM	OFF	-	-	-
13	COM3_...	COM3_1_X Limit-	6/9/2017 4:14:59 PM	OFF	-	-	-


3.6.1.2 Line Graph

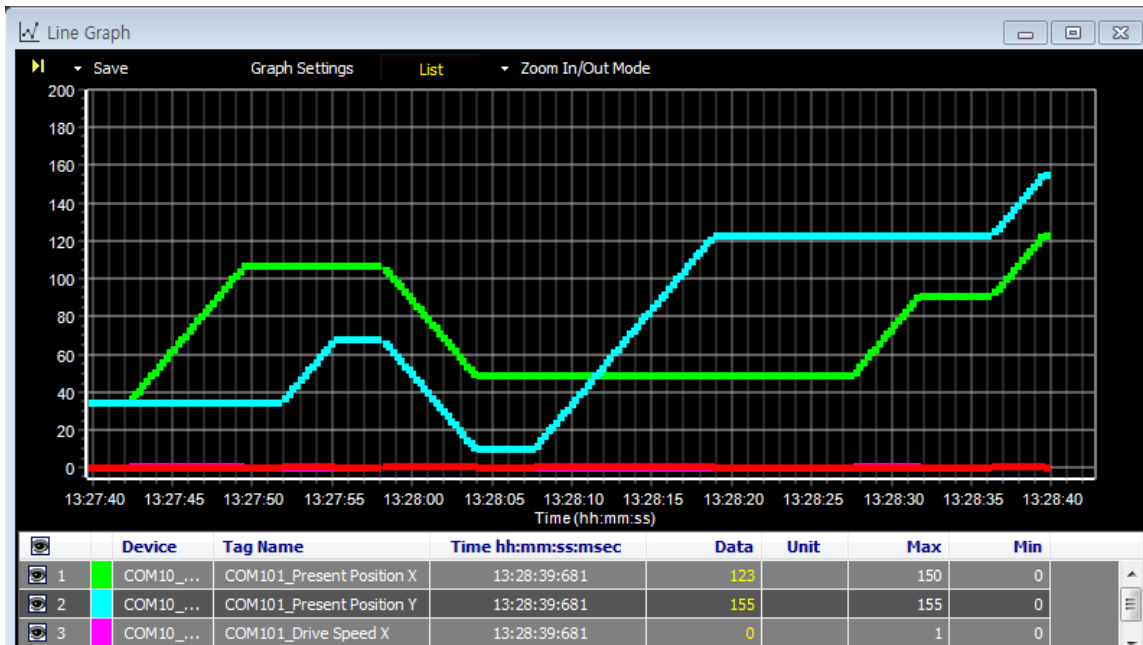


Right click to config graph display settings (such as Tag, View data, View point and Left/Right Y axis auto scale).

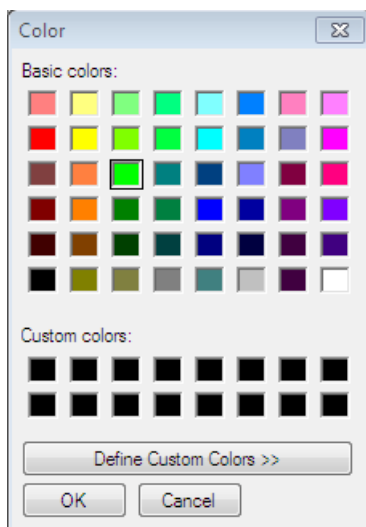


Line graph displays multiple I/O sources in line graph.

A list of the added I/O sources is displayed below the graph. Use the checkbox of  to show/hide the graph.

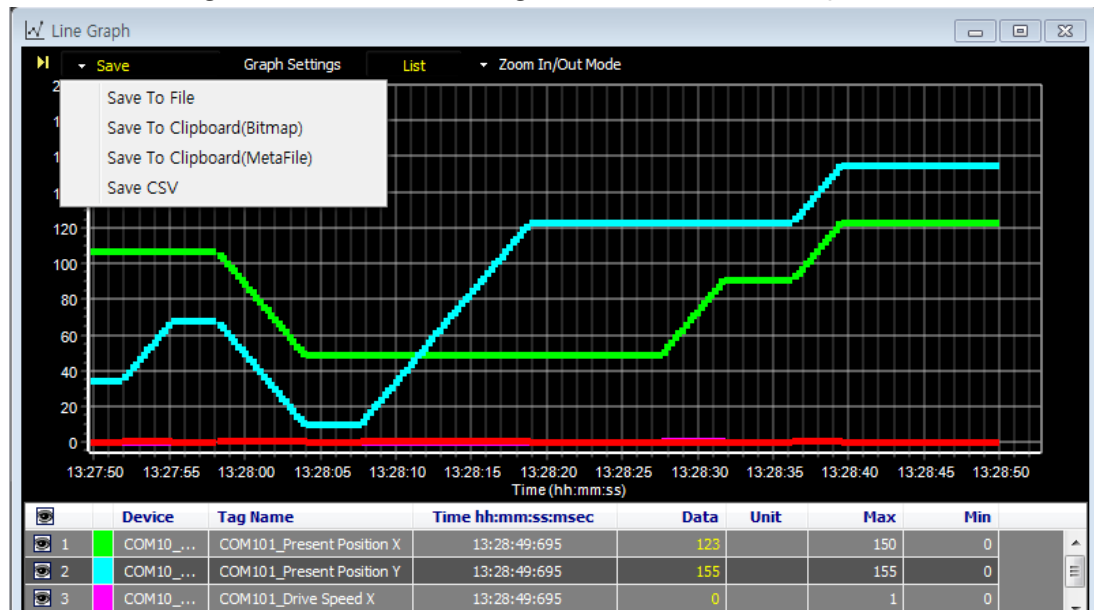


To change the color of each I/O source, double-click the color in front of device.



(1) Save Image

Save Image 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.

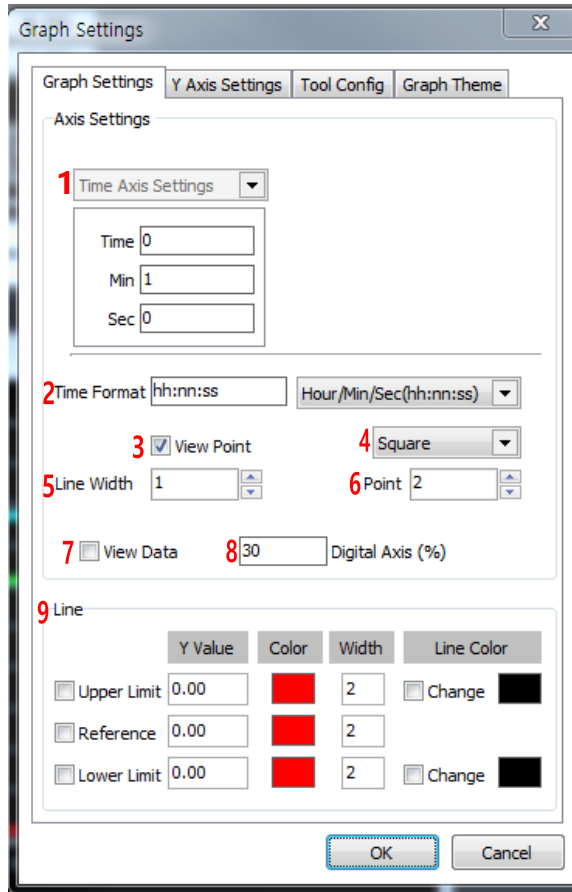


- Save To File: Saves in Bitmap (*.bmp) or Windows metafile (*.wmf).
- Save To Clipboard (Bitmap): To use this image directly for other application program, saves image in Bitmap (*.bmp) file to clipboard.
- Save To Clipboard (MetaFile): To use this image file directly for other application program,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

(2) Graph Settings

- Graph Settings tab

Configures general graph settings.



No.	Items	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 values when selected (hides data value when not selected).
8	Digital Axis (%)	Sets digital axis as a percentage.
9	Line	Sets whether display 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

Sets Y axis direction and range of each tag.

Graph Settings

Graph Settings Y Axis Settings Tool Config Graph Theme

Left Y Axis Min -50.00 Unit

Auto Scale Max 200.00 Inverted

Grid Increment 0

1

Right Y Axis Min -50.00 Unit

Auto Scale Max 200.00 Inverted

Grid Increment 0

2

Y Axis Settings

No	Tag Name	Type	Axis
1	COM101_Present Position X	Analog	Left Y Axis
2	COM101_Present Position Y	Analog	Left Y Axis
3	COM101_Drive Speed X	Analog	Left Y Axis
4	COM101_Drive Speed Y	Analog	Left Y Axis

3

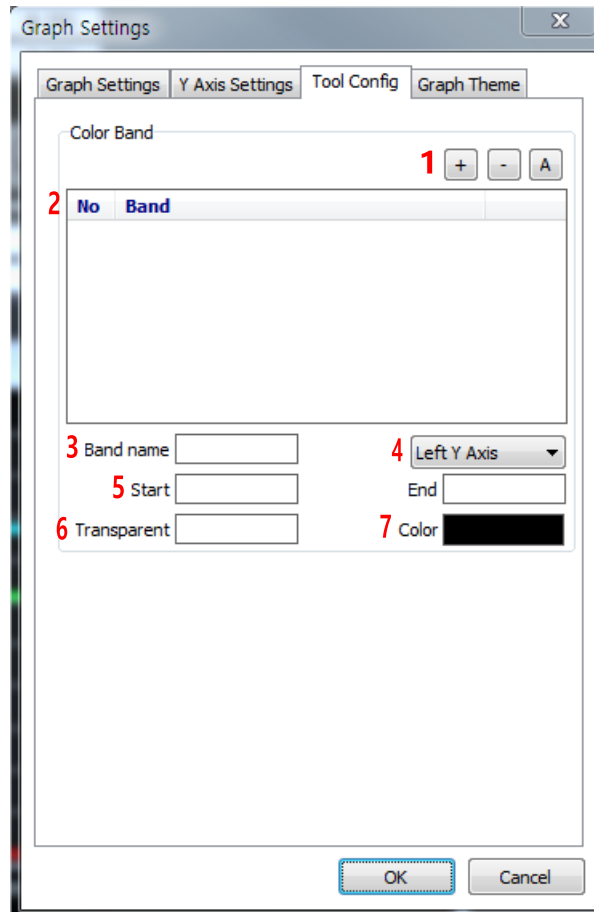
Left Y Axis Right Y Axis

OK Cancel

No.	Items	Description
1	Left/Right Y Axis	Sets auto scale, the max./min. range and unit of the left/right Y axis of the selected tag. Sets whether invert Y axis.
2	Tag List	Displays a list of tags added to the line graph. Selects a tag to be Y axis.
3	Left/Right Y Axis	Sets the Y axis type of the selected tag (left/right).

- Tool Config tap

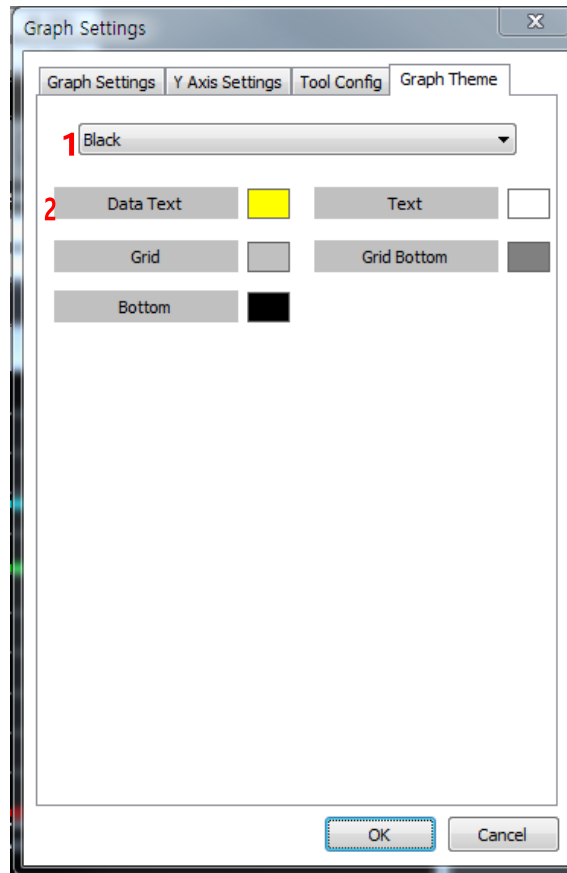
A certain range in the line graph can be emphasized with a color band. Tool Config tap is for setting color band.

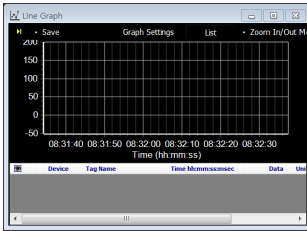
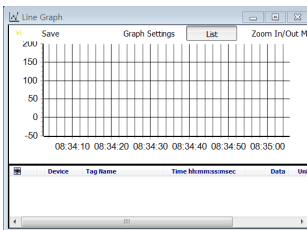


No.	Item	Description
1	Add/Delete/Delete All	Adds, deletes or deletes all color bands.
2	Band List	Displays a list of the added color band.
3	Band Name	Sets name of the color band
4	Base Axis	Sets a Y axis which the color band bases on.
5	Start/End	Sets starting, ending point of the color band range.
6	Transparent	Sets transparency of the color band.
7	Color	Sets color of the color band.

- Graph Theme

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



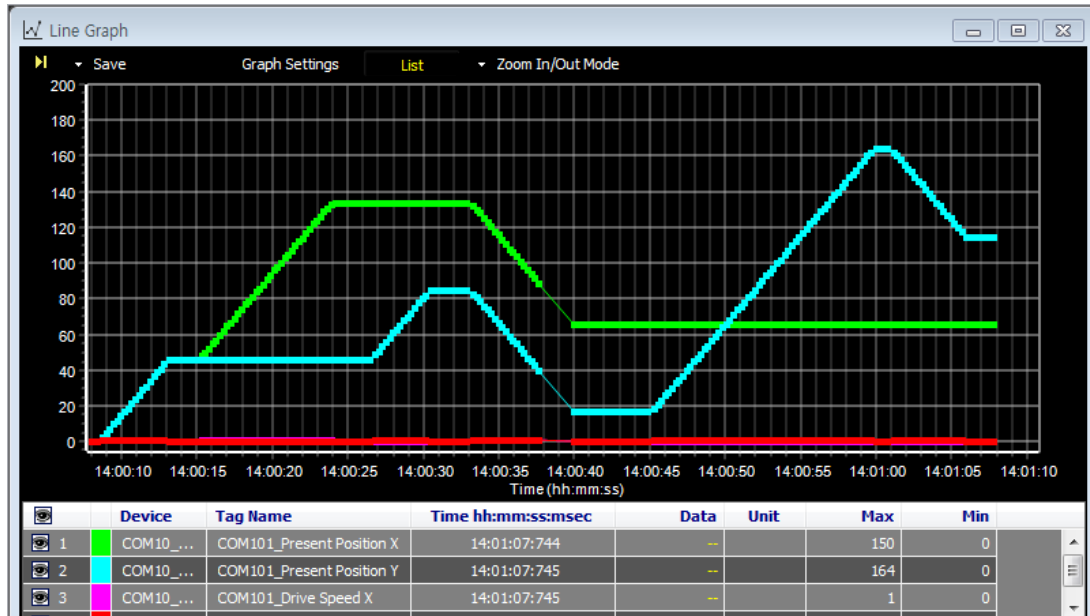
No	Item	Description
1	Graph theme	<p>Selects graph theme.</p> <p>- Black</p>  <p>- White</p> 
2	Data text/Text/Grid/ Grid bottom/Bottom	According to the set graph theme, sets colors of data text/ text/grid/grid bottom/bottom separately.

(3) List

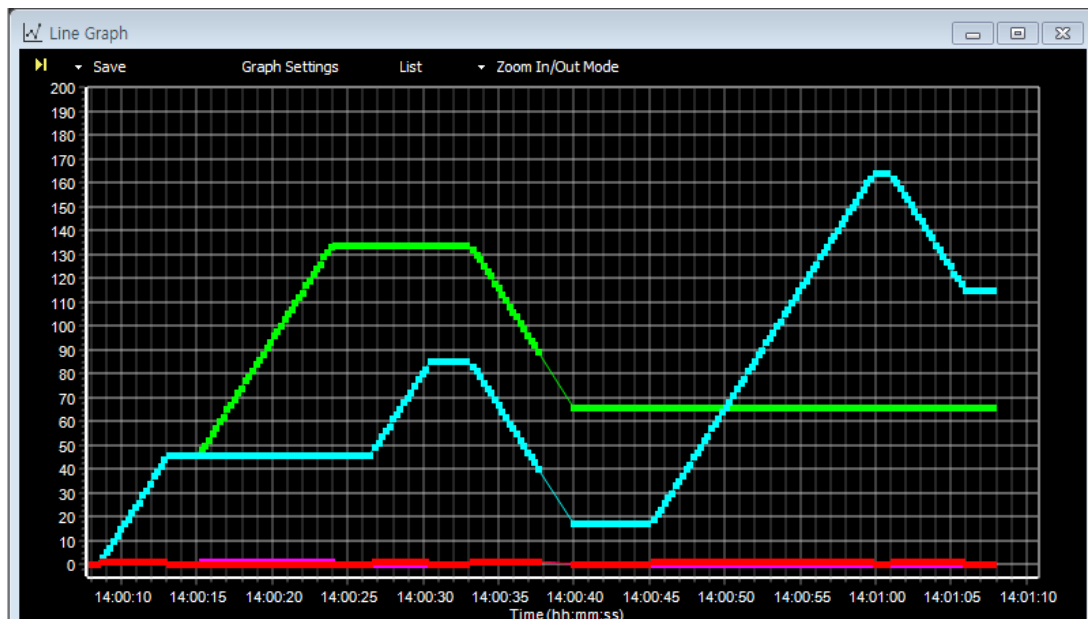
Sets whether display a list of I/O sources below the line graph.

Click [List] button to shift between ON and OFF.

- List ON

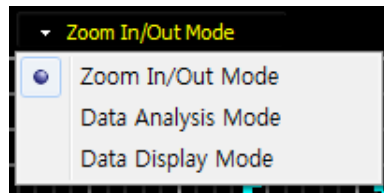


- List OFF



(4) Zoom In/Out Mode

Sets to zoom in or zoom out the line graph.



- Zoom In/Out Mode

- ① Screen zoom in



On the graph, click and drag left mouse to the lower right side to enlarge the selected area.

- ② Screen zoom out



On the graph, click and drag left mouse to the upper left side to return to the default scale.

- ③ X/Y axis reposition



On the graph, click and drag right mouse to move to another area in the graph. In the status that the graph is enlarged or X/Y axis is repositioned, X axis will be frozen automatically, when data is updated.

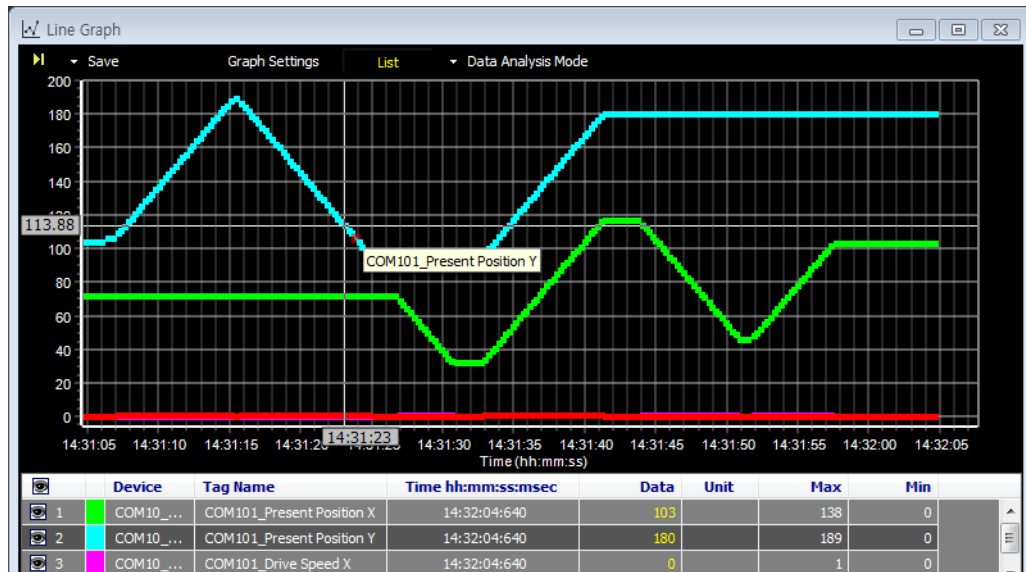
The program regards this status as a monitoring mode, keeps current status of repositioned axis or modified scale by users.

- ④ Mouse wheel function

Action	Function
Ctrl + Mouse wheel Up	Enlarges range of X axis
Ctrl + Mouse wheel Down	Reduces range of X axis
Shift + Mouse wheel Up	Enlarges range of Y axis
Shift + Mouse wheel Down	Reduces range of Y axis
Mouse wheel	Reduces/Enlarge range of X, Y axis

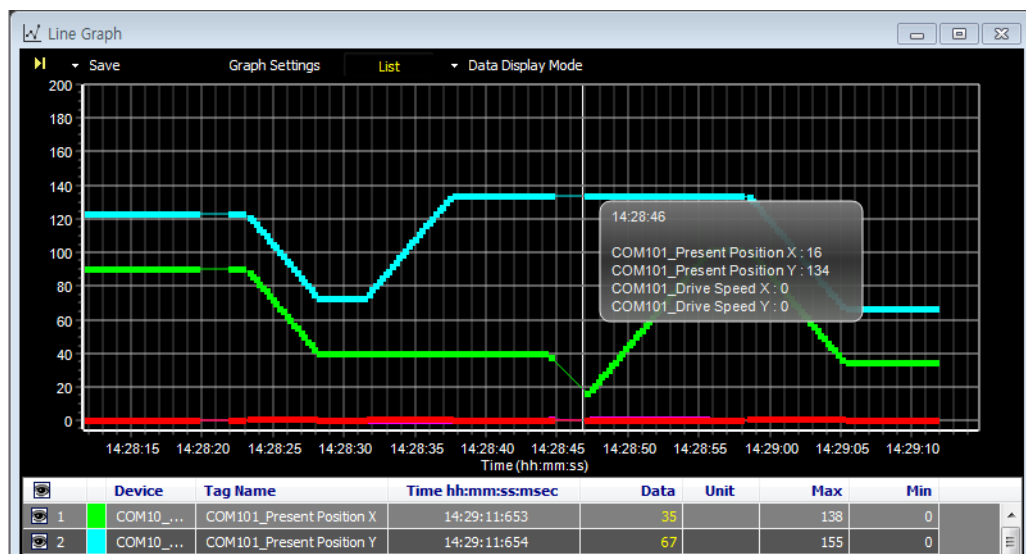
- Data Analysis Mode

On the graph, displays the value of X axis (time) and Y axis of the point where mouse is pointing.



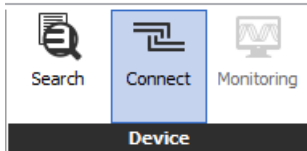
- Data Display Mode

On the graph, displays all value of the x axis (time) and Y axis of the line where mouse is on.



3.7 Connection

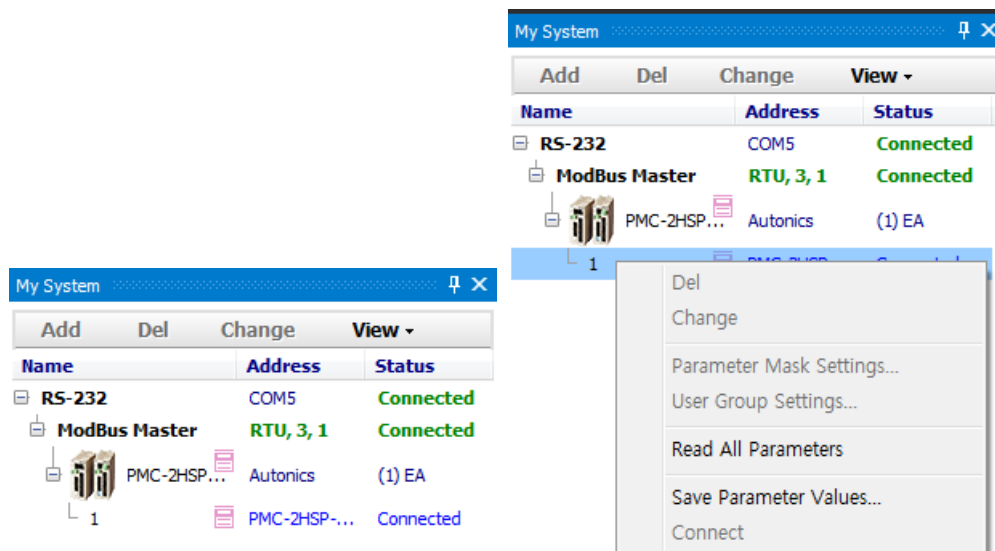
All necessary settings to connect a device has completed.



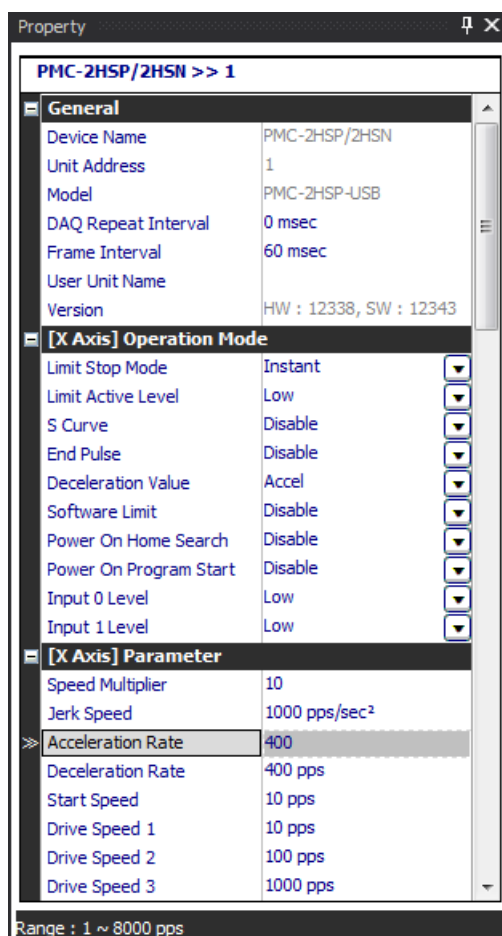
Clicking the [Connect] button displays connection status in My System and the status turns into 'Connected' when the connection is completed.

In order to set the parameter of the unit through atMotion, reading all parameters of the unit is necessary.

Right click address(1) in My System and click 'Read All Parameters' in the drop menu.



After reading is completed, editing and checking the parameter are possible in Property.



Modified parameter values in Property are applied to the device through communication.

While applying the parameters, all parameters are displayed in gray color (not modifiable) and turns back to original color after applying is finished.

Press 'Enter' key after modifying values for edit type, and click combo button on the right side or press 'Alt+direction' key to select a certain item for combobox type.

When the parameter item related to unit or range is modified, the modified values are applied to rest of parameters which are related to the modified unit or range items.

When modified value is out of range, the modified value is ignored and returns to the original value.

the range of the setting value is displayed at the bottom of the property.

Parameter Items with designated input format only allows values in the format.

Parameters in disable status are displayed in gray color without setting values.

Parameters in reading mode are displayed in gray color.

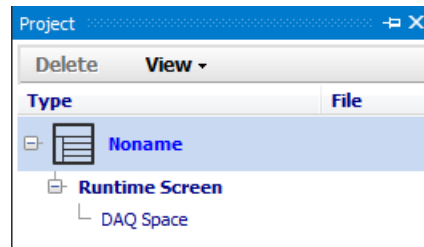
Regardless of the set up language, the language of the parameter is only displayed in English.

3.8 Saving Project

Saves currently monitoring project.

Setting values of device, RS-232 configuration, repeat interval and runtime screen are saved in project and specifying properties of project is necessary prior to saving project.

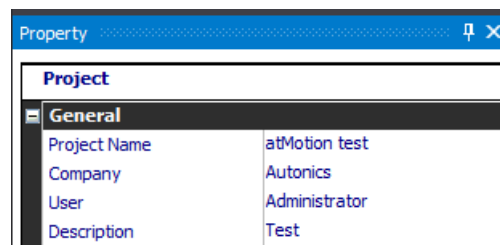
1st Click 'Noname' at the top of the menu tree in the project.



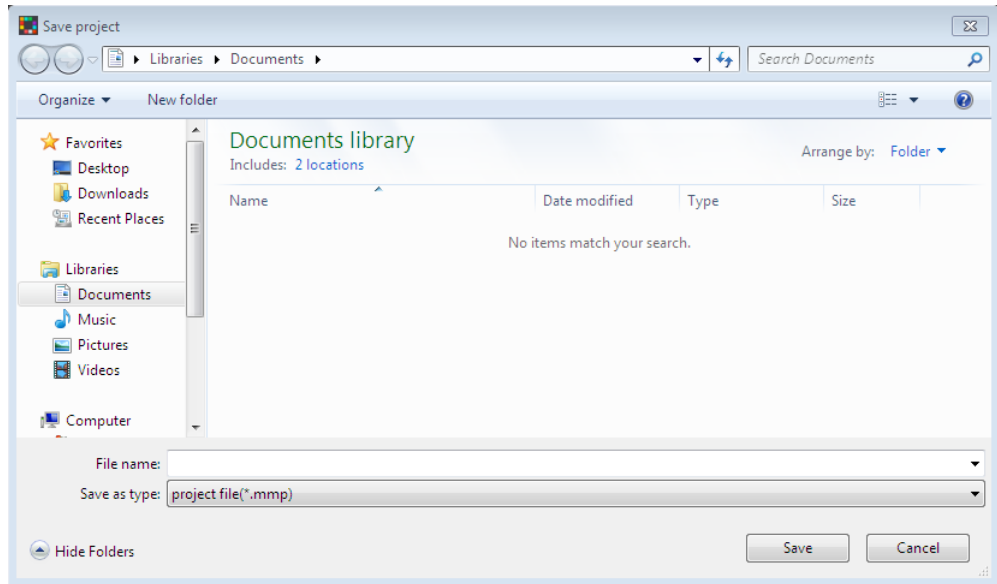
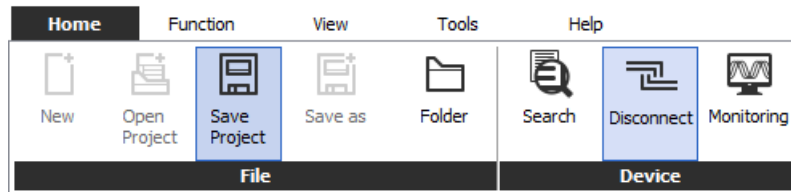
2nd In Property of the project, the name of the project is displayed as noname and company, user and description are empty.



You can enter the information in the project name, company, user and description as follows.



3rd Click 'File > Save Project' to save the project in the desired destination.



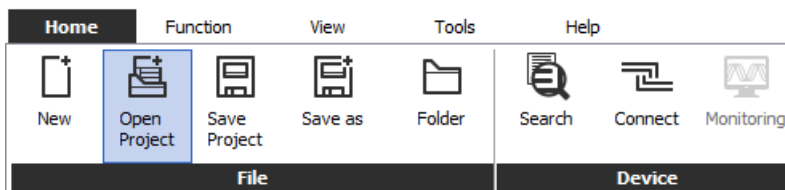
3.9 Opening a project

Opens a saved project.

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

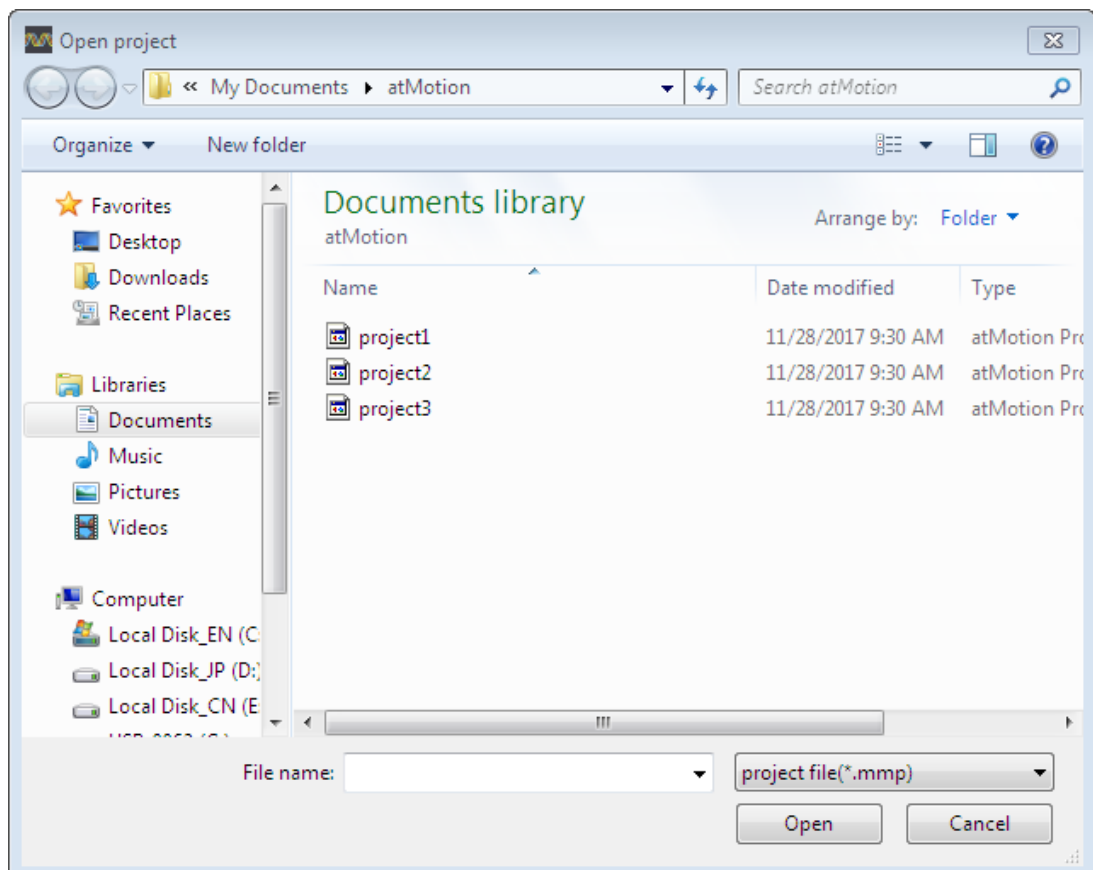
3.9.1 Open Project

Open Project is the most common way to open a project file by directly selecting project file.



3.9.2 Open a saved project file

Opens a saved project file by double-clicking the file from the list.



3.9.3 Open from Project List

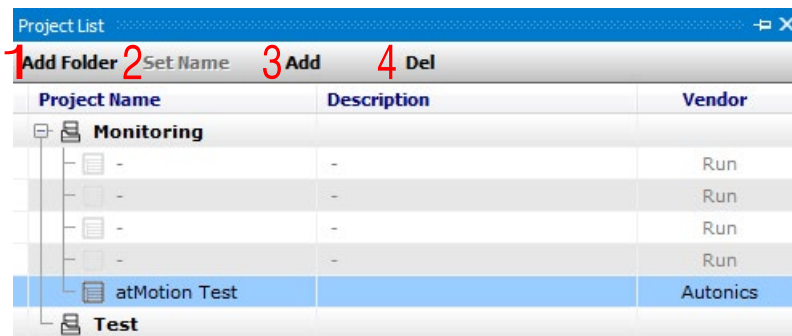
Open from Project List opens a project file from the list of the project file of frequent use.

This function makes management of the project file convenient by listing frequently using project file to the list like bookmark of the web browser.

It is possible to make a subfolder under the project list as well as change the name of the file or folder, add project file, and add or delete the file or folder.

Selecting a folder activates Add folder, Set name, Add and Del.

Selecting a file activates Add folder, Add and Del.



No.	Item	Description
1	Add Folder	Adds folder.
2	Set Name	Changes the name of a folder.
3	Add	Adds a project file. Clicks [Add] button to open the 'Open' window.
4	Del	Deletes the selected file or folder.

3.10 Parameter Save/Copy

Save or copy the set parameters.

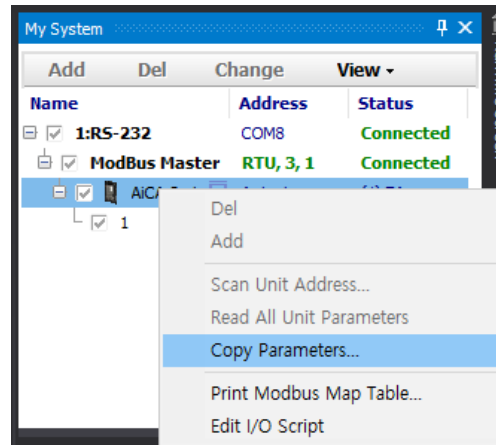
The parameter save/copy function is available only when the device monitoring is deactivated and the copy button is disabled when the device monitoring is running.

3.10.1 Parameter Save

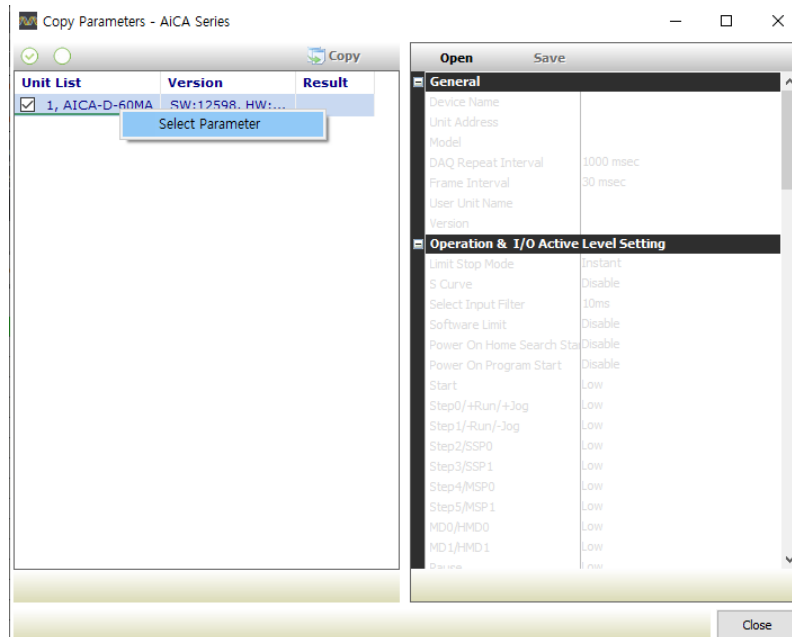
In case of the parameter copy function is not available due to multiple connection of identical devices is not available on atMotion, saving the specific device setting and using the saved file is allowed for later connection.

1st Connect a device to at Motion to save the parameters as a file.

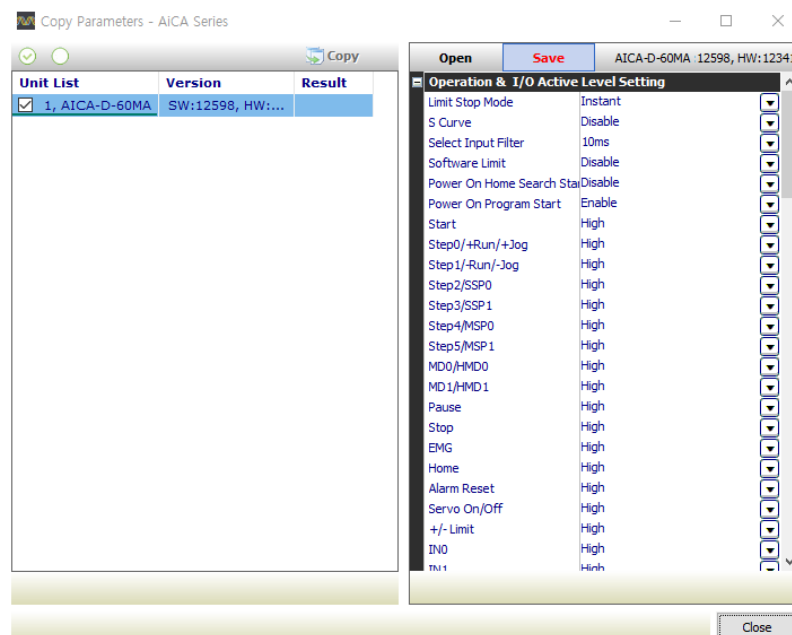
2nd After selecting device unit in My System, right click and select 'Copy Parameters...'.
Parameters...'.



3rd When Copy Parameters window appears as below, right click and select 'Select Parameter'.



4th When the parameter value of the unit is appeared on the right side of the dialog, click the [Save] button to save the parameters in *.prx format.



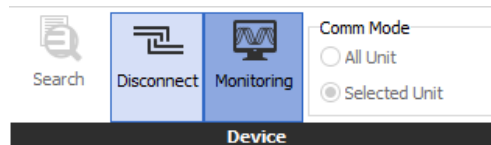
3.10.2 Parameter Copy

In case of connecting single or multiple identical devices, the parameter copy function is available. Copying the parameter setting from the existing saved parameter file or from a specific device (copy base unit) to various other devices (copy target units) is available.

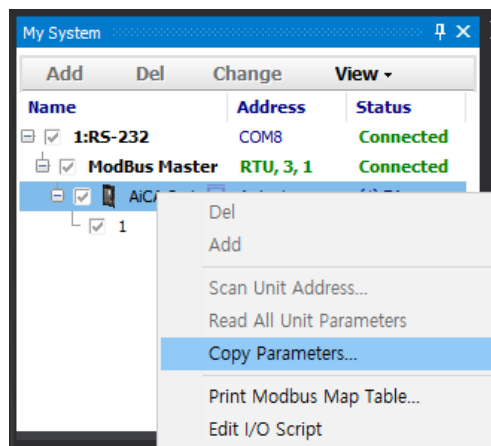
(1) In case of copying a saved parameter setting file

1st Connect a device to atMotion to copy the parameter file.

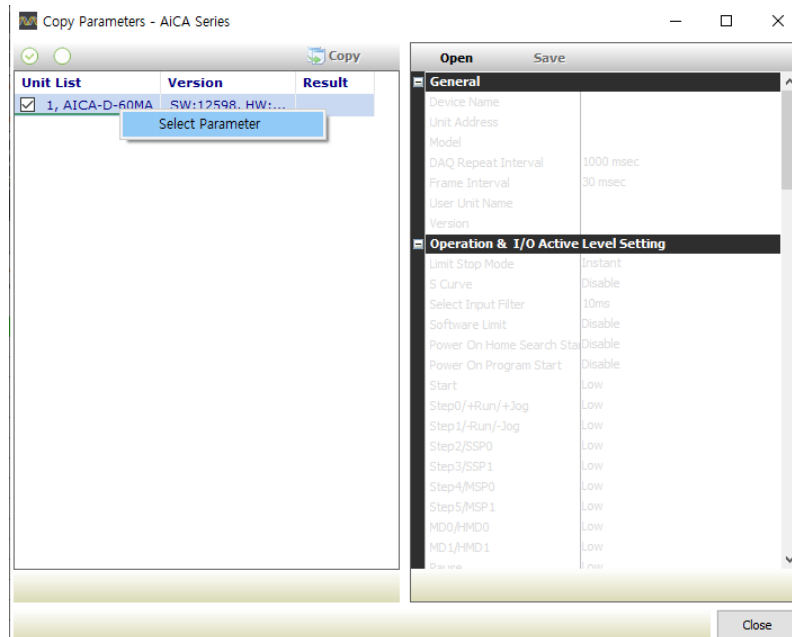
2nd If the monitoring function is enabled, press the Monitoring button on the top to deactivate the monitoring function.



3rd After selecting device unit in My System, right click and select 'Copy Parameters...'

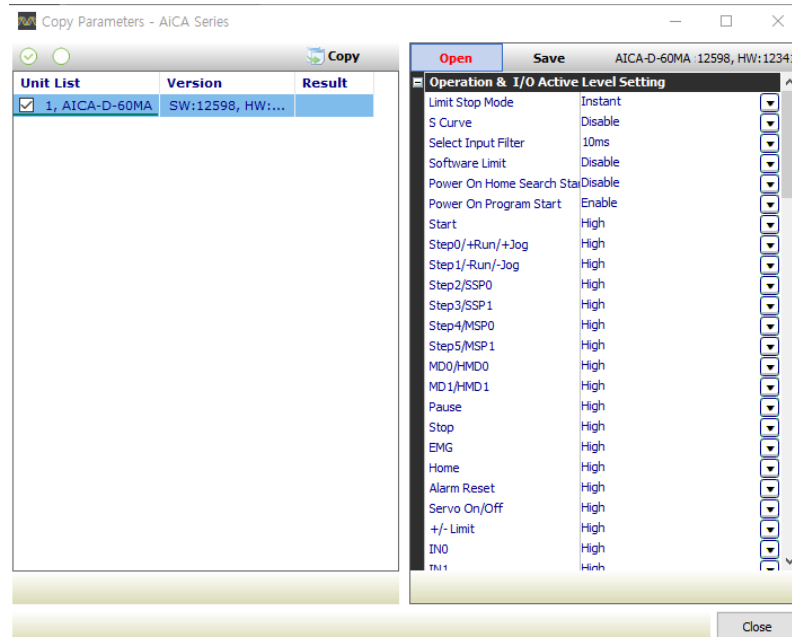


4th When Copy Parameters window appears as below, right click and select 'Select Parameter'.



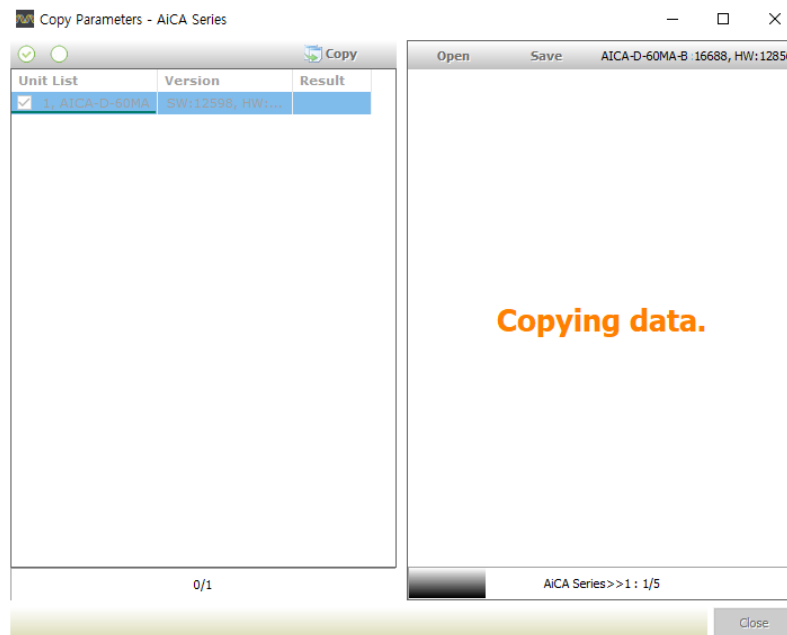
5th Select the saved parameter setting file by clicking [Open] button.

Load the parameter values on the right side of the dialog as below.



6th Press [Copy] button to start copying.

The 'Copying data.' text will appear on the right side of the dialog.

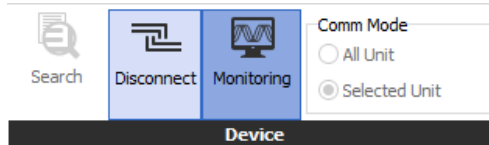


7th When copying is complete, the 'Copy Completed!' dialog appears.

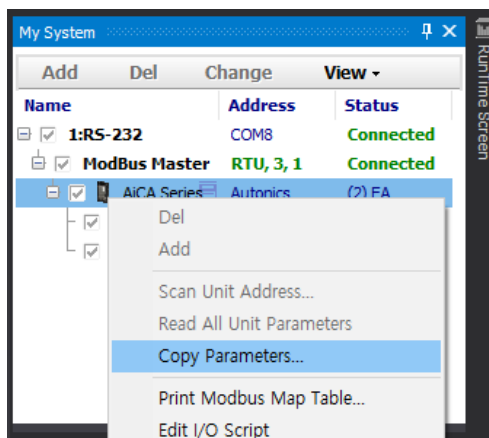
(2) In case of copying from a specific device (copy base unit) to another device (copy target unit)

1st Connect devices to atMotion to copy the parameter file.

2nd If the monitoring function is enabled, press the Monitoring button on the top to deactivate the monitoring function.

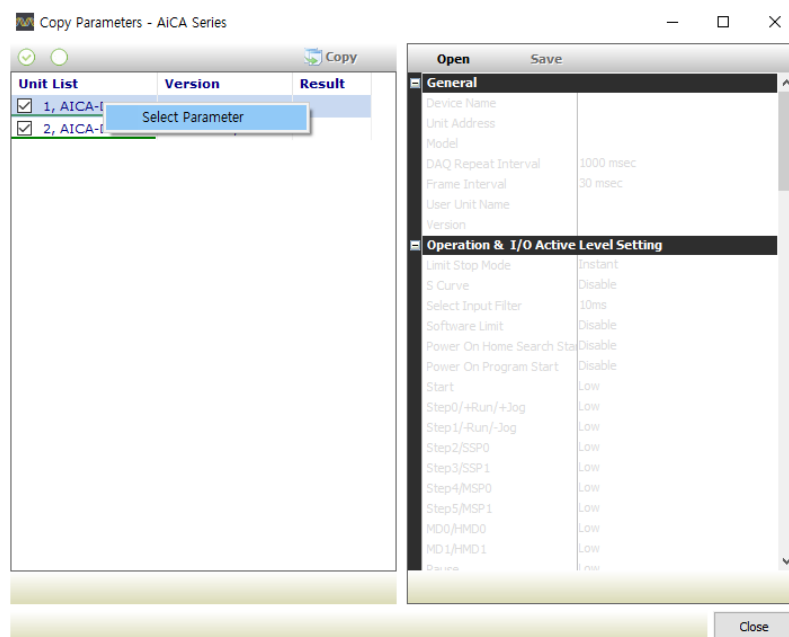


3rd After selecting device unit in My System, right click and select 'Copy Parameters...'

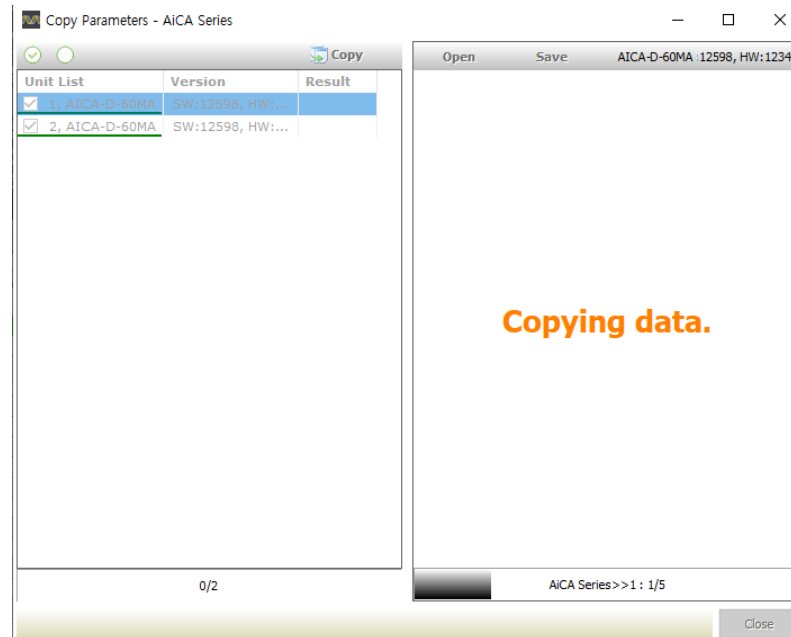


4th When the Copy Parameters window appears as below, check the copy base unit and the copy target unit on the unit list.

5th Right click the copy base unit and select 'Select Parameter'.



6th After selecting the copy target unit, press [Copy] button to start copying.
The 'Copying data.' text will appear on the right side of the dialog.



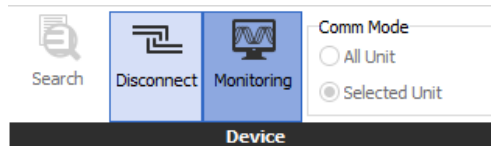
7th When copying is complete, the 'Copy Completed!' dialog appears.

3.11 Factory Reset

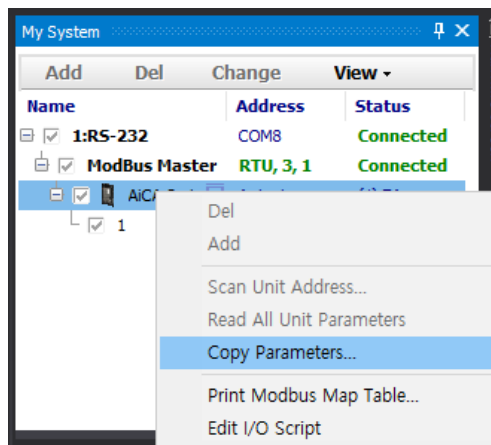
The factory reset function is used to set the device with the factory default parameters.

1st Connect a device to atMotion to factory reset.

2nd If the monitoring function is enabled, press the Monitoring button on the top to deactivate the monitoring function.

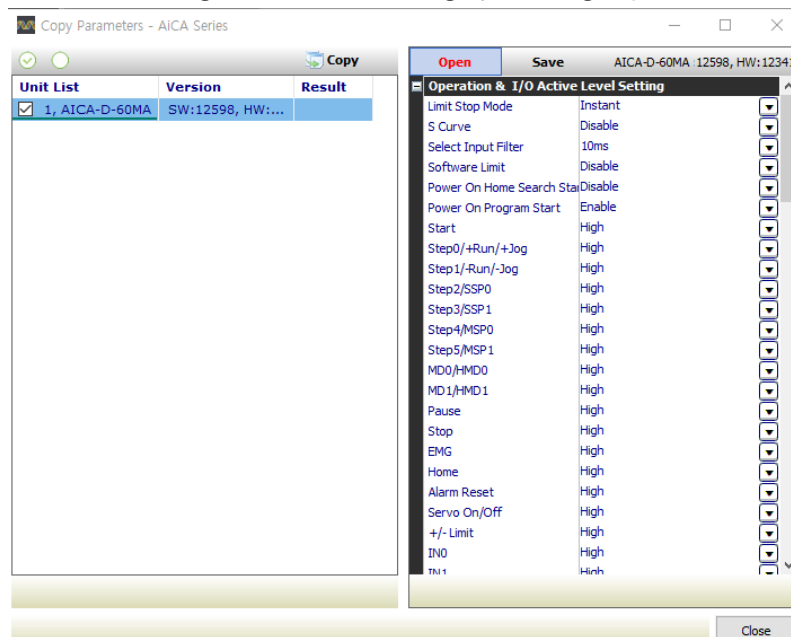


3rd After selecting device unit in My System, right click and select 'Copy Parameters...'



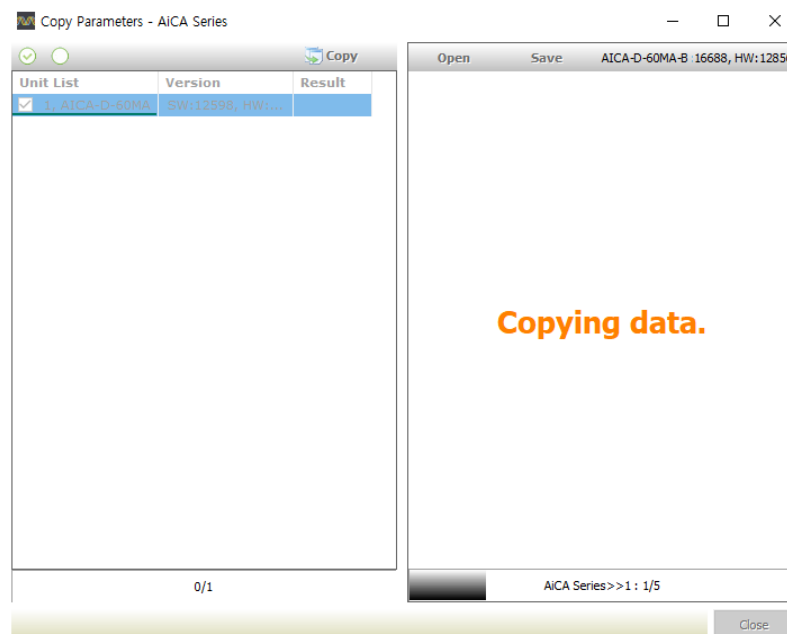
4th Check the device unit to be factory reset on the unit list.

5th Select the saved parameter setting file of the model to be factory reset from the directory of 'C:\Program Files (x86)\AUTONICS\atMotion\device' folder to load values on the right side of the dialog by clicking [Open].



6th Press [Copy] button to start copying.

The 'Copying data.' text will appear on the right side of the dialog.



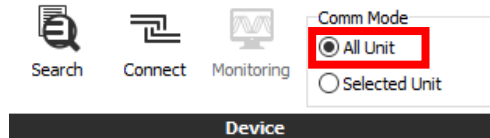
7th When copying is complete, the 'Copy Completed!' dialog appears.

3.12 Comm Mode

The communication mode function is to select whether to display the monitoring data of all connected units or to display only the monitoring data of the selected unit in case of connecting multiple identical device.

(1) All Unit

1st Select 'All Unit' in [Comm Mode] before connecting the device.



2nd Click the connect button on the top.

3rd The monitoring data of all connected units in the My System will be loaded when monitoring.

My System		
Name	Address	Status
1:RS-232	COM8	Connected
ModBus Master	RTU, 3, 1	Connected
AiCA Series	Autonics	(10) EA
1	AICA-D-60MA	Connected
2	AICA-D-60MA	Connected
3	AICA-D-60MA	Connected
4	AICA-D-60MA	Connected
5	AICA-D-60MA	Connected
6	AICA-D-60MA	Connected
7	AICA-D-60MA	Connected

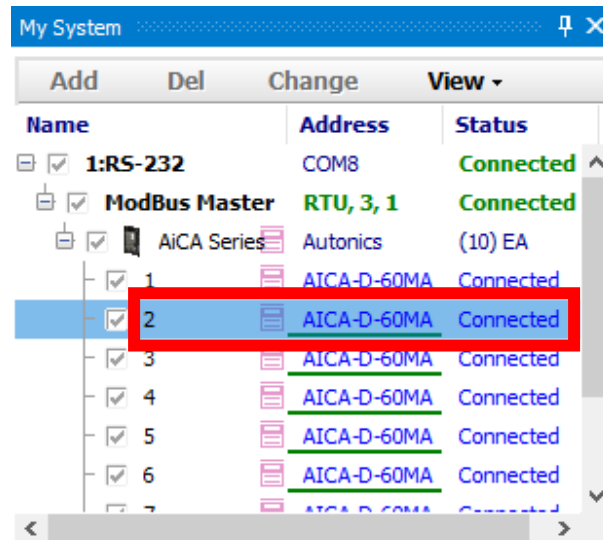
(2) Selected Unit

1st Select 'Selected Unit' in [Comm Mode] before connecting the device.



2nd Click the connect button on the top.

3rd Select the desired device unit to load the monitoring data in the My System.
The monitoring data of the selected connected unit in the My System will be loaded when monitoring.



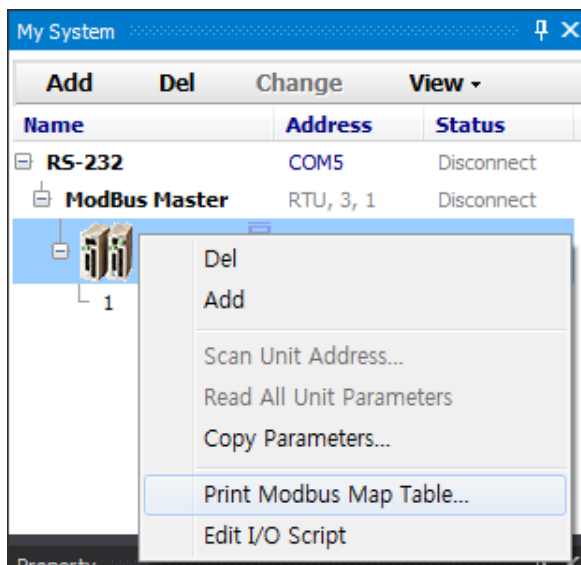
3.13 ModBus Map Table Report

ModBus Map Table Report can be inactivated depending on the connected device. Please refer to the user manual of the device.

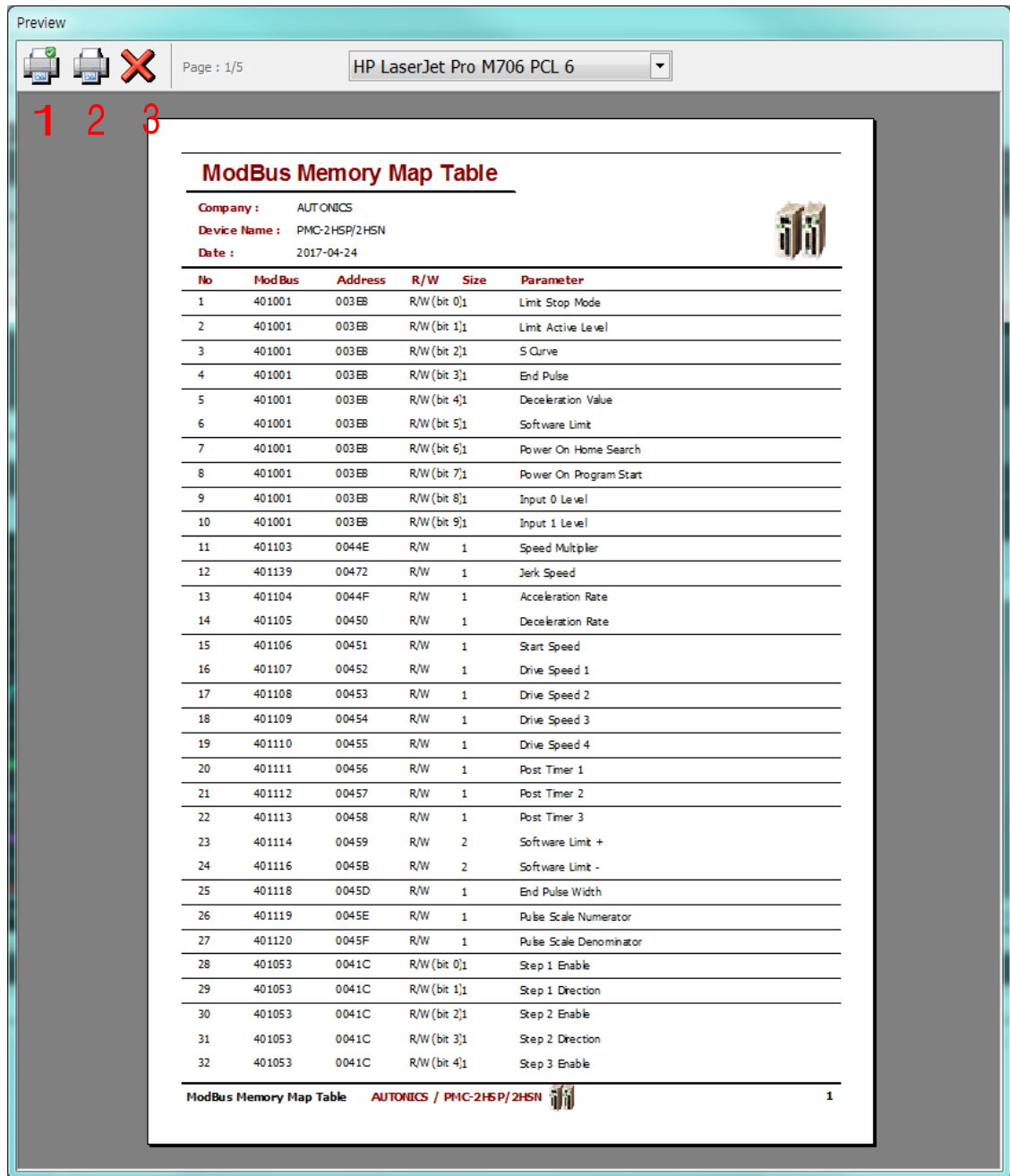
ModBus Map Table Report exports ModBus map table of the device using ModBus communication in a report format.

Direct printing and saving in PDF file (*.pdf), HTML file (*.html) are supported.

While a device is connected, right click the device in My System and click 'Print ModBus Map Table...' in the drop menu box.



The following is screen of preview.



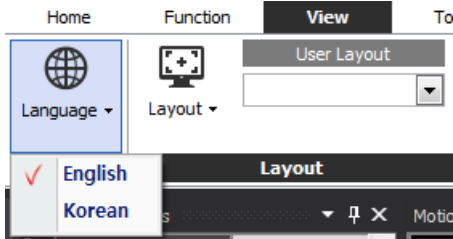
No.	Item	Description
1	Printer Settings	Sets printer settings to print. Printer settings can be different depending on the model of the print.
2	Print	Prints ModBus map table.
3	Close	Closes the preview window.

4 Changing Program Language

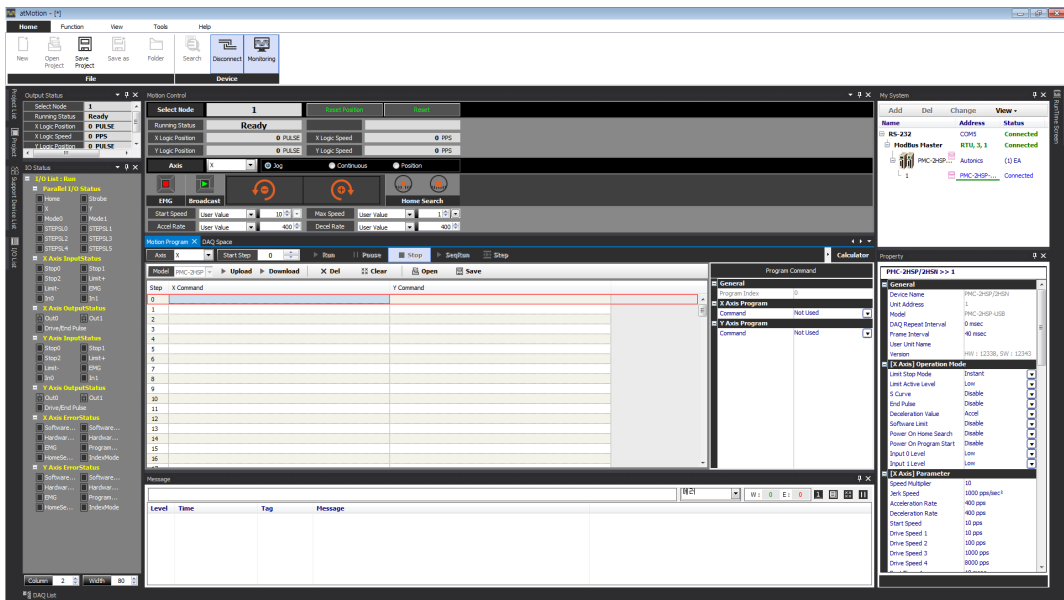
4.1 Change Language

Changes the language of the program.

Default language is the program installation language.



Select 'view > Language' in the tool bar to change the program language.

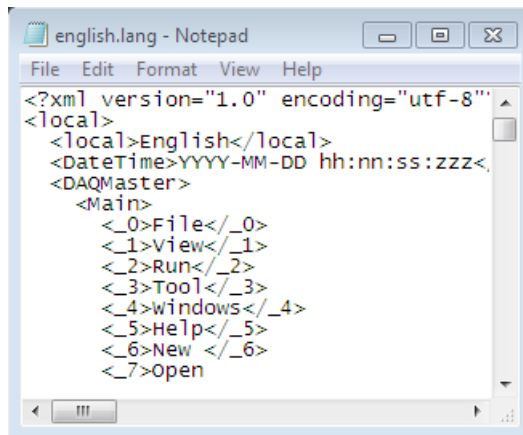


4.2 Modifying and Adding Languages

You can add or modify the program language of atMotion.

Language file is in XML file and placed in 'lang' folder in the installation folder.

Open the 'lang' file through Notepad to edit the contents.



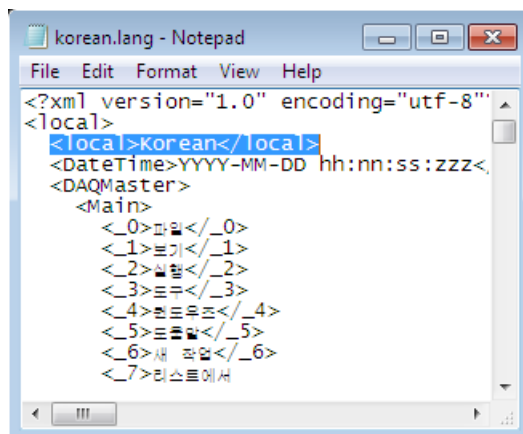
```

english.lang - Notepad
File Edit Format View Help
<?xml version="1.0" encoding="utf-8"
<local>
<local>English</local>
<DateTime>YYYY-MM-DD hh:nn:ss:zzz<
<DAQMaster>
  <Main>
    <_0>File</_0>
    <_1>View</_1>
    <_2>Run</_2>
    <_3>Tool</_3>
    <_4>windows</_4>
    <_5>Help</_5>
    <_6>New </_6>
    <_7>open
  
```

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

Change 'Korean' in the <local>Korean</local> part, highlighted with the blue color, into another language to change

(For example, to change the language into Korean: Change 'file' to '파일')



```

korean.lang - Notepad
File Edit Format View Help
<?xml version="1.0" encoding="utf-8"
<local>
<local>korean</local>
<DateTime>YYYY-MM-DD hh:nn:ss:zzz<
<DAQMaster>
  <Main>
    <_0>파일</_0>
    <_1>보기</_1>
    <_2>실행</_2>
    <_3>도구</_3>
    <_4>윈도우</_4>
    <_5>도움말</_5>
    <_6>새 파일</_6>
    <_7>리스트에서
  
```

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

5 Running

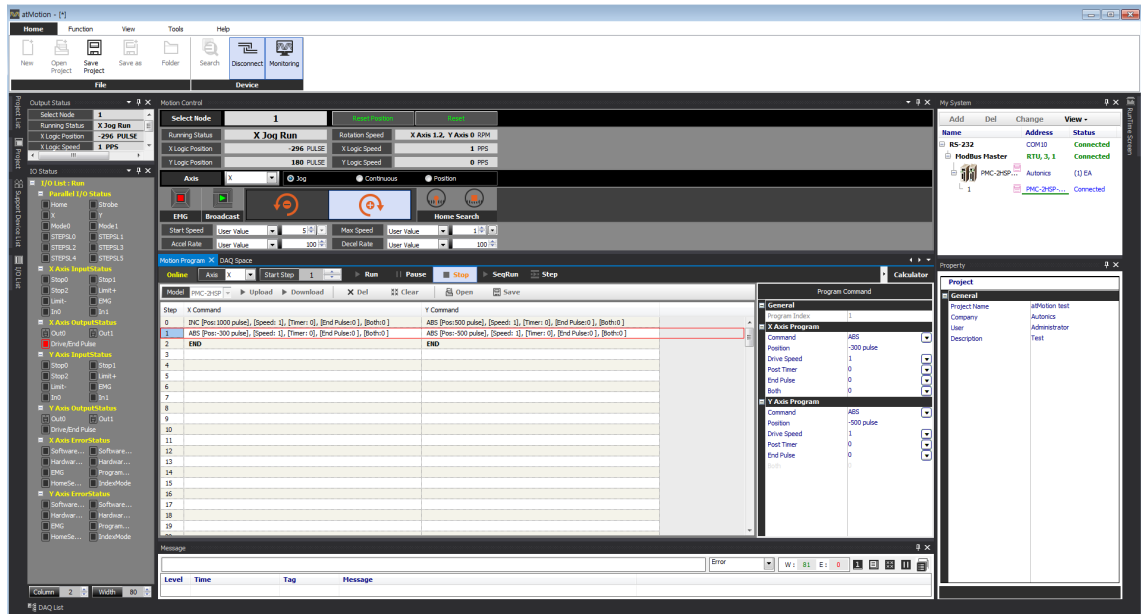
Motion driver provides five running modes such as Home Search as follows.

Running mode	Description
Index mode	Runs only one step which is selected from the motion program.
Jog mode	Runs a motor while input signal (CW, +, clockwise) (CCW, -, counter clockwise) is ON.
Continuous mode	Runs a motor when input signal (CW, +, clockwise) (CCW, -, counter clockwise) is on and stops a motor when stop button is clicked.
Motion program	Runs a motor according to written program.
Position mode	Moves a motor as much as set value.
Home Search	Runs Home Search

5.1 Jog Mode

Jog mode runs a motor while input signal (CW, +, clockwise) (CCW, -, counter clockwise) is ON.

- 1st Select Jog at the mode selection box in the motion control.
- 2nd Keep clicking W(+) or CCW(-) button to run the motor.
- 3rd Release clicking to stop the motor.



5.2 Continuous Mode

Continuous mode runs motor to selected direction until internal stop command or external stop signal is input. Continuous mode and Home Search mode are included.

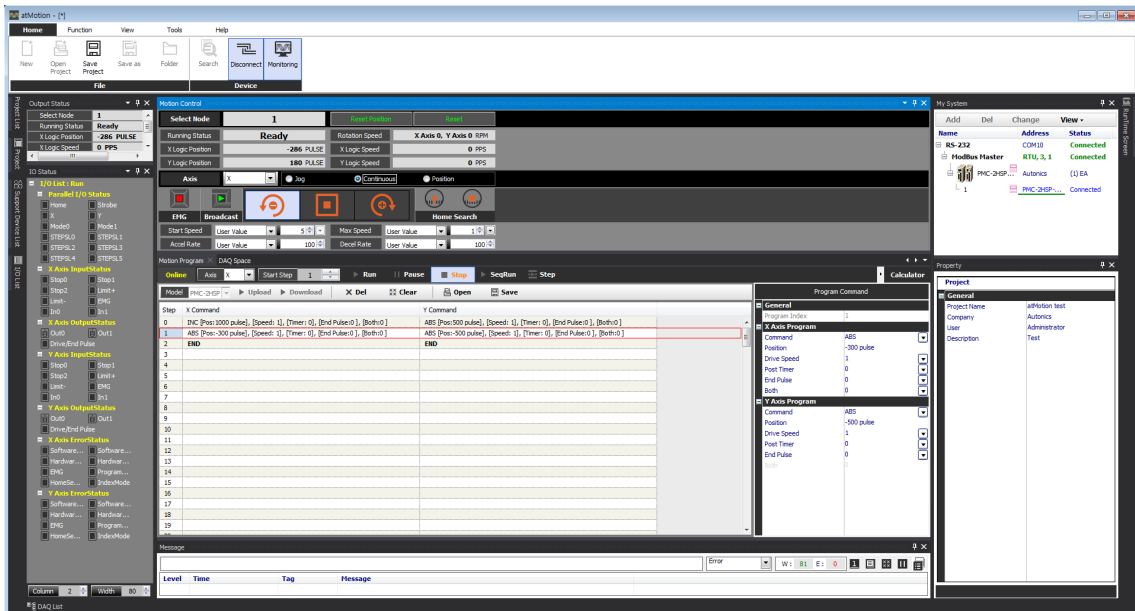
Stop command includes decelerating stop and immediate stop. In the most case, stopping mode is decelerating stop except some situations that final running speed is slower than initial running speed or reset, emergent stop is necessary.

1st Select Continuous at the mode selection box in the motion control.

2nd Set start speed and max speed (editable in running).

3rd click W(+) or CCW(-) button to run the motor.

4th Stop(■) button or limit signal of the direction stops the motor.

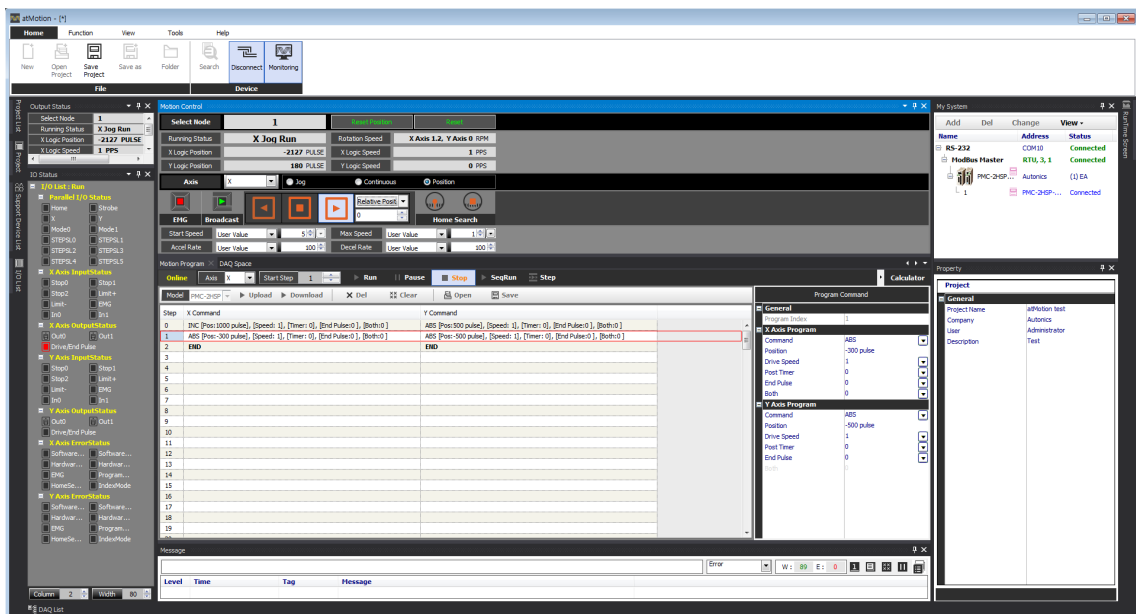


5.3 Position Mode (Quantitative Running)

Position (Preset) mode moves a motor as much as a fixed quantity.

Runs a motor as much as designated number of pulse, at a constant speed or accelerate/decelerate speed. When the number of remaining pulse is fewer than the number of consumed pulse for accelerating, starts decelerating, and when pulse output is over, running is finished.

- 1st Select Position at the mode selection box in the motion control.
- 2nd Select position (preset) mode from relative position and absolute position.
- 3rd Set position to move at the position setting box.
- 4th Set speed at the speed setting box (editable in running).
- 5th Runs the motor by clicking CW(+) or CCW(-) button.
- 6th Stop(■) button, or movement completion to the designated position or limit signal of the direction stops the motor.

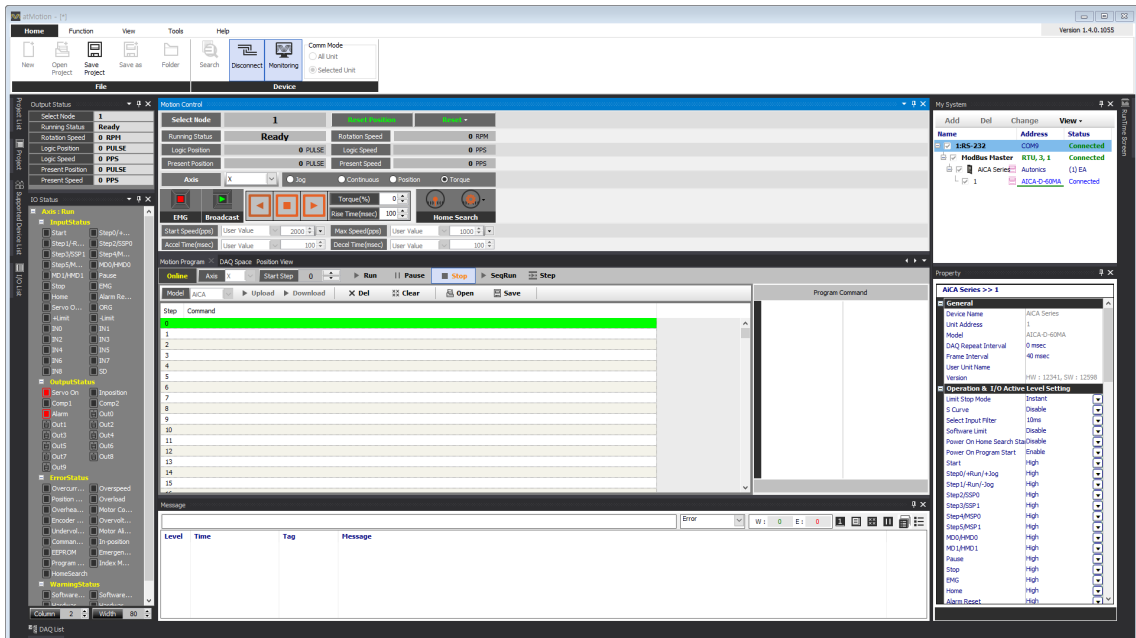


5.4 Torque Mode

Torque Mode operates a motor with the specified amount of force. (AiCA only)

Torque is set as a percentage of the model's maximum torque. The maximum speed can be regulated. The direction and the time(Rise time) to reach the specified torque can be set.

- 1st Select Torque at the mode selection box in the motion control.
- 2nd Set the Rise Time(msec). (Input range: 0 to 10,000)
- 3rd Set the T_Mode Limit Speed in the property box. (Input range: 0 to 10,000)
- 4th Click CW(▶) or CCW(◀) button to execute the operation.
- 5th It stops when clicking Stop(■) button or when limit signal of forward direction is input.



5.5 Home Search

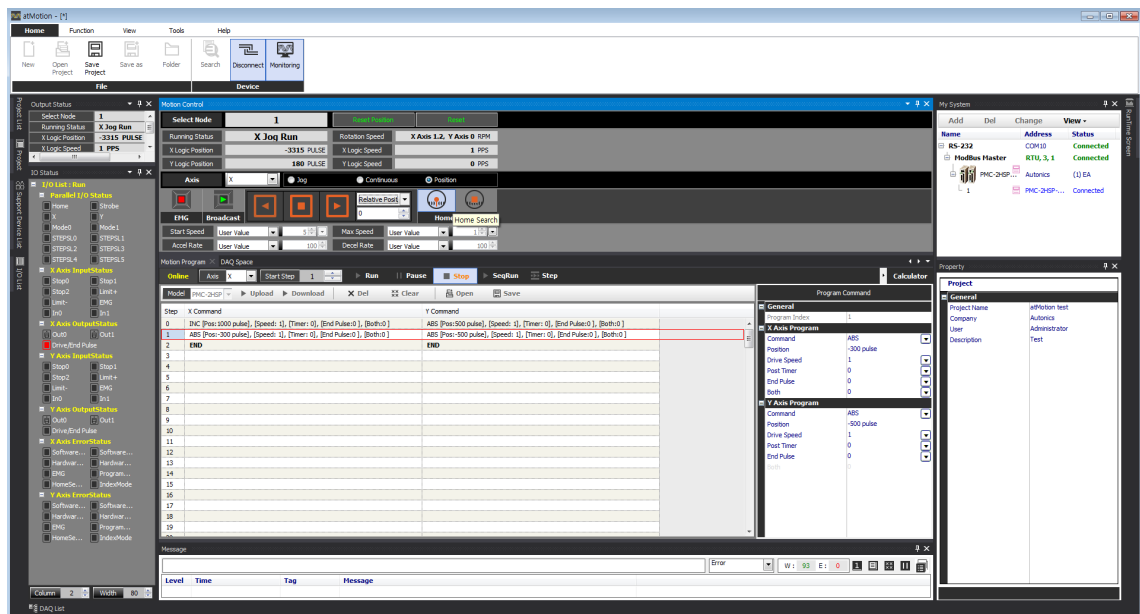
While a motor is moving, a sensor figures out the position of the motor.

Home Search is that the motor returns to the position of home sensor after movement is finished.

1st Click [Home search] button to operate Home search.

2nd Home search is operated according to the setting value of Home Search Mode in Property.

3rd Click [Home Search Stop] button to stop operation.



5.6 Index Mode

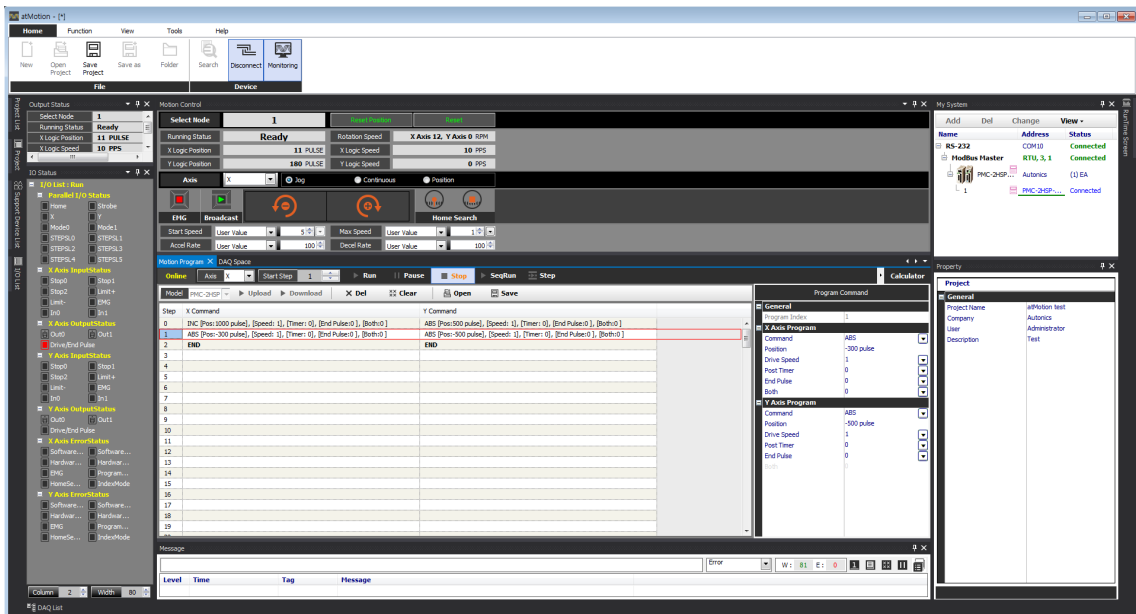
Index mode runs only one step which is selected from the motion program.

1st Select one step in the motion program.

2nd Download after entering command at the program command in the right side or upload commands which are saved in the controller.

3rd Enter the number of step in the upper side of the motion program or click the step in the list.

4th Click [Step] button in the upper side of the motion program to run the step.



5.7 Motion Program

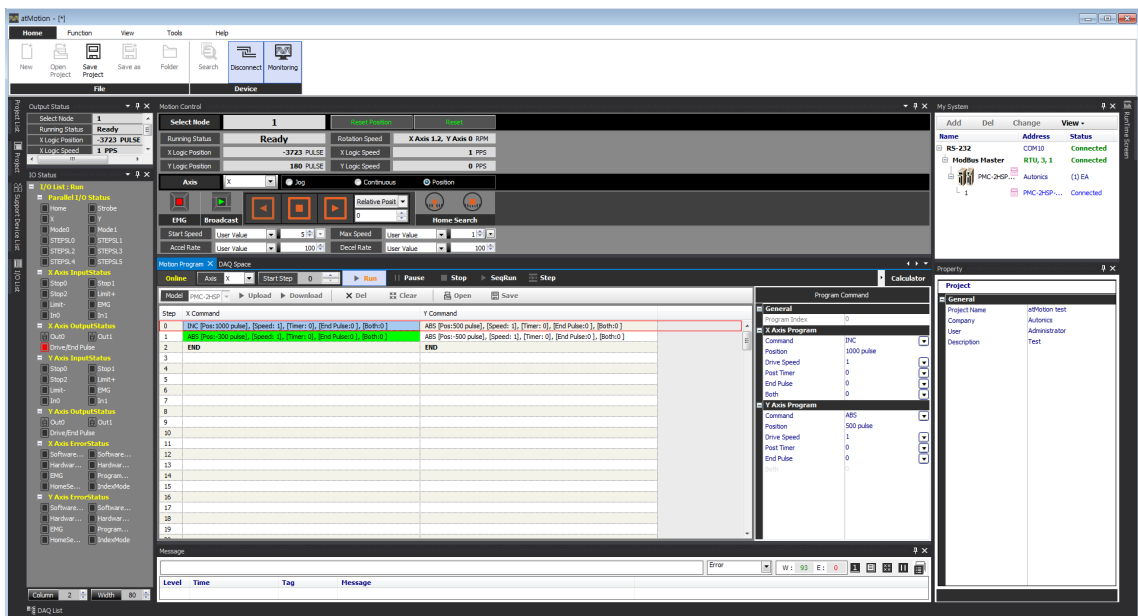
Motion program mode runs a motor according to the written program.

1st Select a step in the motion program.

2nd Download after entering command at the program command in the right side or upload commands which are saved in the controller.

3rd Enter the number of step in the upper side of the motion program or click the step in the list.

4th Click [Run] button in the upper side of the motion program to run the step.



Make Life Easy: **Autonics**

* Dimensions or specifications on this manual are subject to change and some models may be discontinued without notice.