

Ezi-MOTIONLINK[®] Plus-E

Network Based Motion Controller Plug-in to Servo Drives

User Manual

User Program (GUI) Function

(Rev.01)



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This manual describes how to operate User Program (GUI) for Ezi-MOTIONLINK Plus-E.

For more information, refer to related manuals as following

- (1) User Manual-Text
- (2) User Manual-Communication Function
- (3) User Manual-Position Table Function

1 . Installation and connection of the Program

Ezi-MOTIONLINK Plus-E is consists of two operation modes as follows.

- 1) Using of Motion Library (DLL) which is provided for the program from Windows /XP/ VISTA/Windows7/ Windows8
- 2) Using of Position Table (PT) through external signals input by the user.

Refer to the separate manuals for the above operating modes.

This chapter describes the user program (GUI) used for drive installation and commissioning.

1 - 1 . Installable PC environment

기종 : PC/AT 호환기

Ethernet 10/100base-T/TX Lan Card

하드디스크 필요 용량 10MB 이상

화면 SVGA(1024×768 이상)

CPU Pentium4 2.0GHz 이상

OS : WindowsXP/VISTA/ 7/ 8.1/ 10(32/64Bit)이 정상적으로 설치되어 있는 PC

1 - 2 . User Program (GUI) installation Method

Download [Ezi-MOTION_Plus-E_SETUP] program on

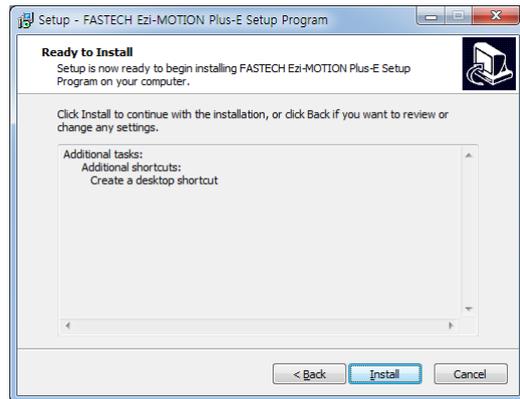
FASTECH website(http://fastech.co.kr/bbs/bbs/board.php?bo_table=eng_board5)

and install as shown below.

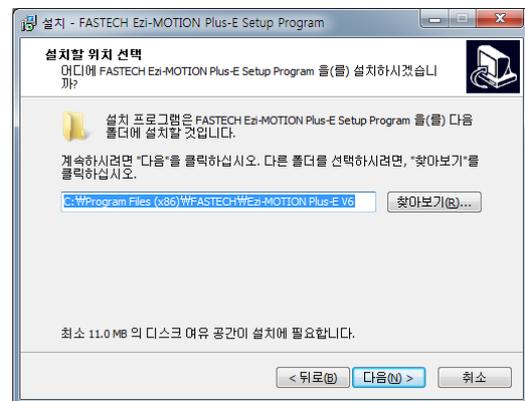
Select a language and click 'OK'



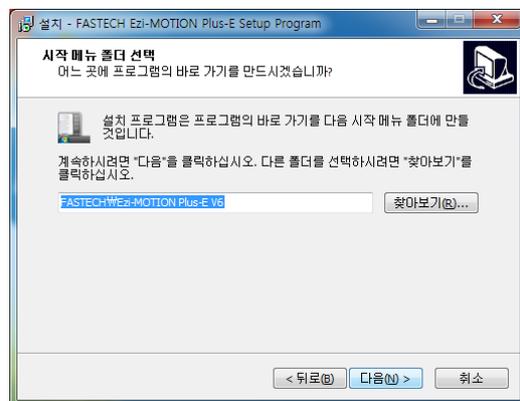
Select a folder where the program is installed,
And click 'Install'



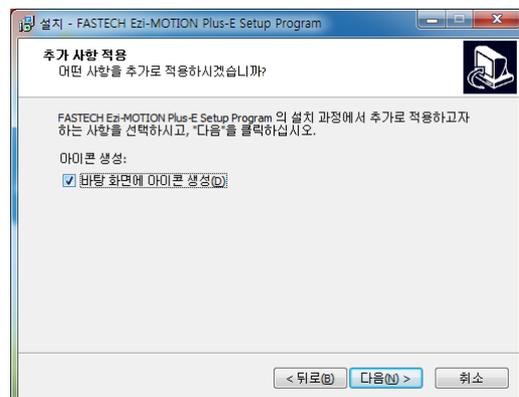
Select the folder location you want to install
and click 'Next'.



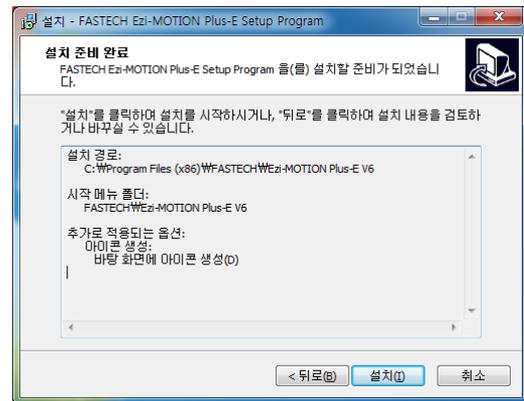
Select the Start menu folder and click 'Next'.



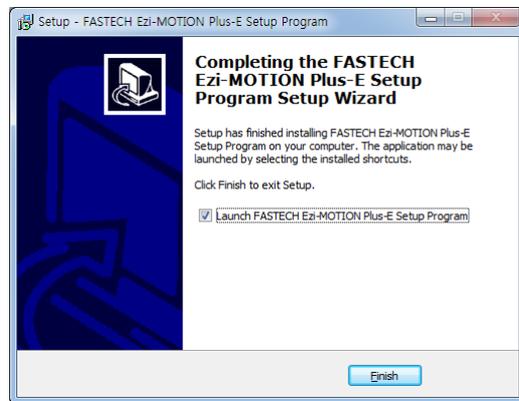
Choose whether to create an icon on your
desktop and click 'Next'



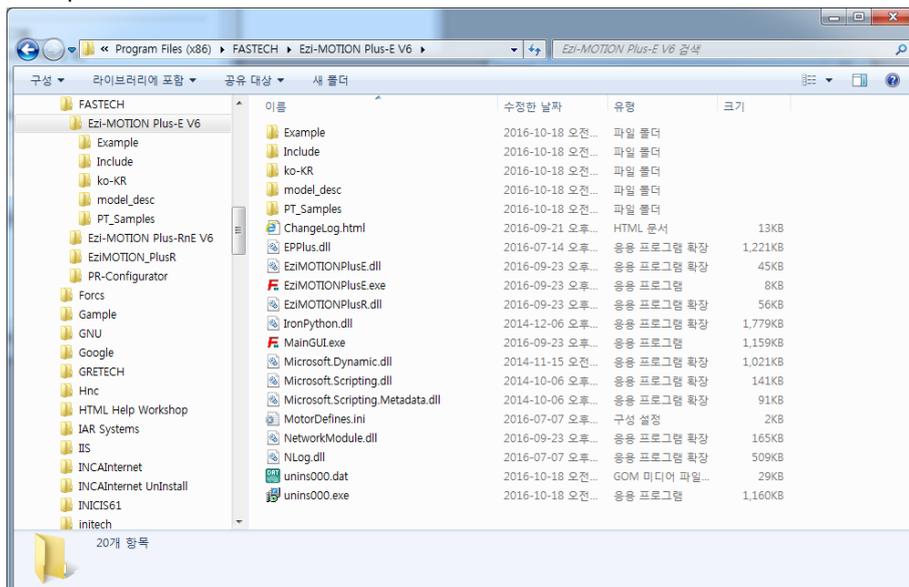
Check the installation environment
and click 'Install'



Installation is completed



When installation is completed in the specified folder, GUI and required files are installed in the specified folder as shown below



- 1) Include folder: *.dll, *.lib, *.h files (32bit)
x64 Subfolder of Include folder : *.dll, *.lib (64bit)

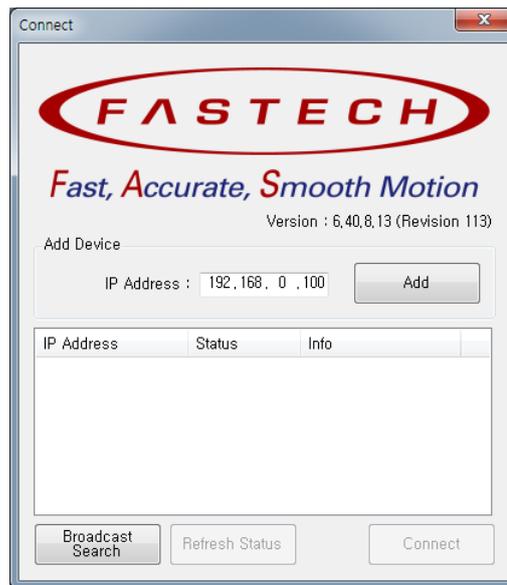
2) Example folder : source code for sample

3) PT_Samples folder : sample data files for position table

1 - 3 . Connecting PC with Drive Module

((1) To communicate with controller module, the user should prepare Ethernet cable and connect it with the PC. For more information, please refer to 「[User Manual-Text](#)」

Execute User program(GUI), Ezi-MOTION PlusE V6 and click 'Connect'. Then the following window will be displayed.



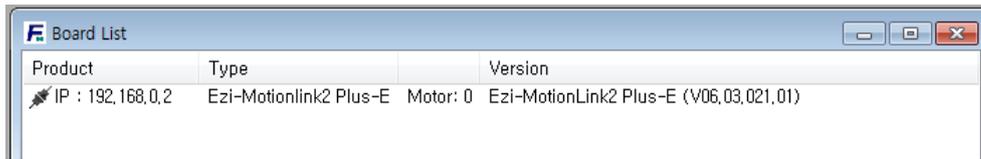
Button	Description
ADD	Enter IP Address and click 'Add' If the item does not exist with added IP Address, List will not be added.
Broadcast Search	Search every item that can be connected and add it to the List.
Refresh Status	Check the connection status of listed item.
Connect	Connect the listed item and execute GUI.

- After setting each IP Address and clicking 'Broadcast Search', every item will be displayed on the list. Click 'Connect' then every item will be connected with GUI.

 Caution	<p>1. Please assign different IP Addresses of connected drives to a single network (segment).</p> <p>2. If the connection fails, please check IP conflict and IP Address of PC.</p>
----------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

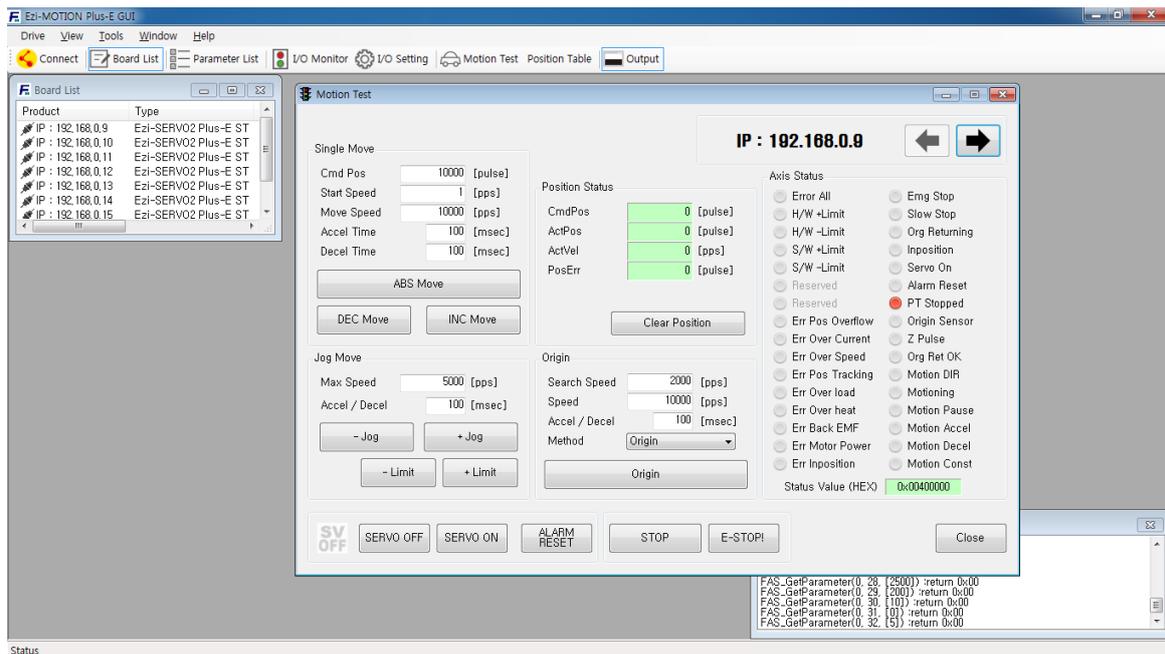
(2) When the connection is completed, the window will appear as show below.

- 1) IP Address of Connected drives
- 2) Firmware Version



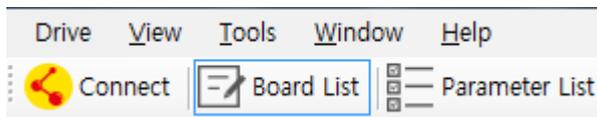
Product	Type	Version
IP : 192,168,0,2	Ezi-Motionlink2 Plus-E Motor: 0	Ezi-MotionLink2 Plus-E (V06,03,021,01)

2 . Main Window



This is the basic window to operate the program. Each window is displayed in this window. The user can open each window with a toolbar.

2 - 1 . Menu



Menu	Description
Drive	To connect or disconnect with the drive
View	To open each window
Tool	To select a language
Window	To change window's array

2 - 2 . Toolbar



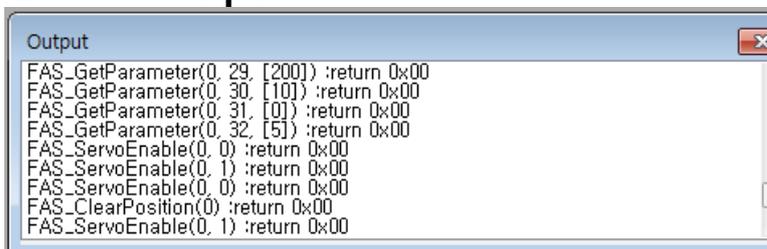
There are various buttons to go to the next window.

(Some buttons will be 'Enable' or 'Disable' according to the connected item.)

Click each button, and the following functions will be executed.

Button	Description
Connect	To connect or disconnect with the drive
Board List	To display connected module information and communication status
Parameter list	To set parameter values related to operation control like a position command
I/O Monitor	To monitor digital I/O signals of Drive CN1 connector
I/O Setting	To set digital I/O signals of Drive CN1 connector
Motion Test	To execute motion commands such as Jog operation, Position operation, Origin return operation
Position Table	It is a function that can input, modify, store and execute data for position table.
Output	Displays the DLL function corresponding to the currently executing command.

2 - 3 . Output



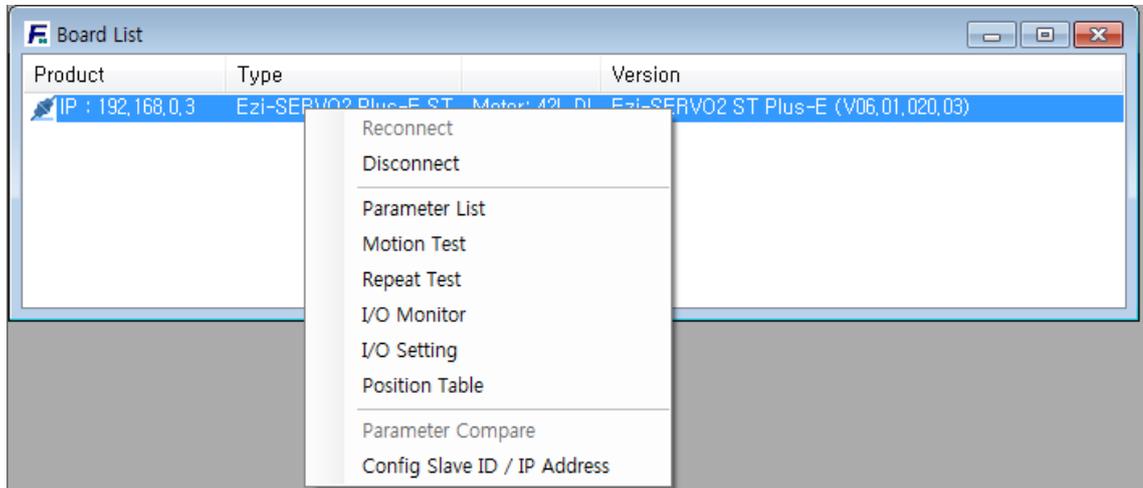
Click 'Output' at the Toolbar or check [Menu] – [View] – [Output], and the above window will be displayed.

This window includes commands used for the controller. The user can check that which function is used, how parameter values are inputted, and how they are normally processed.

The above window displays functions which the user inputs or functions used when the user clicks each button. For more information of commands, please refer to [「User Manual-Communication Function」](#)

2 - 4 . Board List

To check the drive list connected with communication. The user can check information of each drive. Select the connected drive and Right-click. Then there are buttons to go to windows for function setting or testing.



Type of Information :

- 1) IP Address.
- 2) Product Type.
- 3) **Product Firmware Version**

- Disconnect / Reconnect

Disconect : Disconnect the drive

Reconnect : Reconnect the drive

- Parameter List

To display the window that the user can check, edit, and manage drive parameters.

- Motion Test

To execute motion commands such as Jog operation, Position operation, Origin return operation

- Repeat Test

To test fixed motioning for 1 axis repeatedly

- I/O Monitor

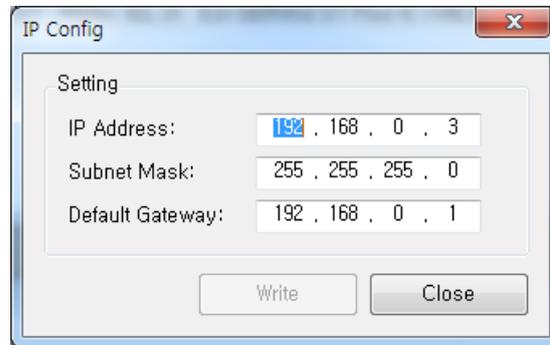
To monitor digital I/O signals of CN1 connector

- I/O Setting

To set digital I/O signal assignment of CN1 connector

- Position Table
To input and execute position table data
- Config Slave ID / IP Address

To configure IP Address / Subnet Mask / Gateway



After clicking "Write" and Power reset, Configuration is applied.

Final number of IP Address does not change.

Final number can be **set via Switch**.

Ex) The value of the switch : 3

IP address before change: 192.168.0.3

Change IP Address: 192.170.10.100

Changed IP Address: 192.170.10.3 (after power reset)

2 - 5 . Repeat Test

① The repeat test is possible for up to 3 absolute position values.

② Delay time and repeat count can be set every repeat.

* Delay Time : Stand-by time until each Motion is ended and then next motion is started. The unit is [msec].

* Repeat : To define the motion loop count. If this is set to '0', the test is endlessly repeated.

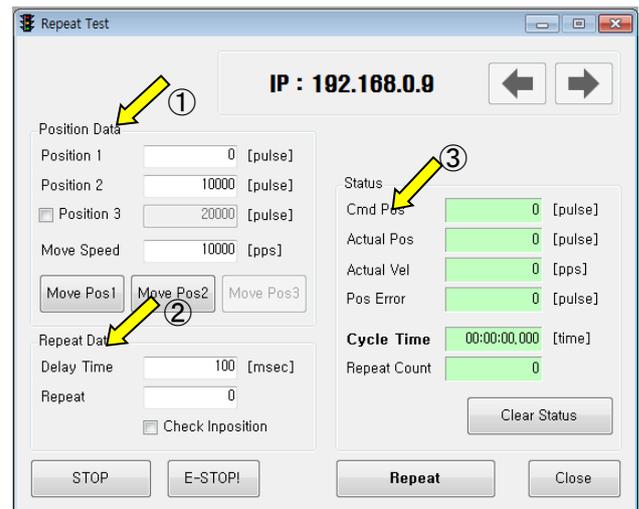
(The Motion loop is operating as following order Position1 -> Position2 -> Position1 and it is the 1 repeat when this cycle is done.

③ Operation status and repeat count are displayed.

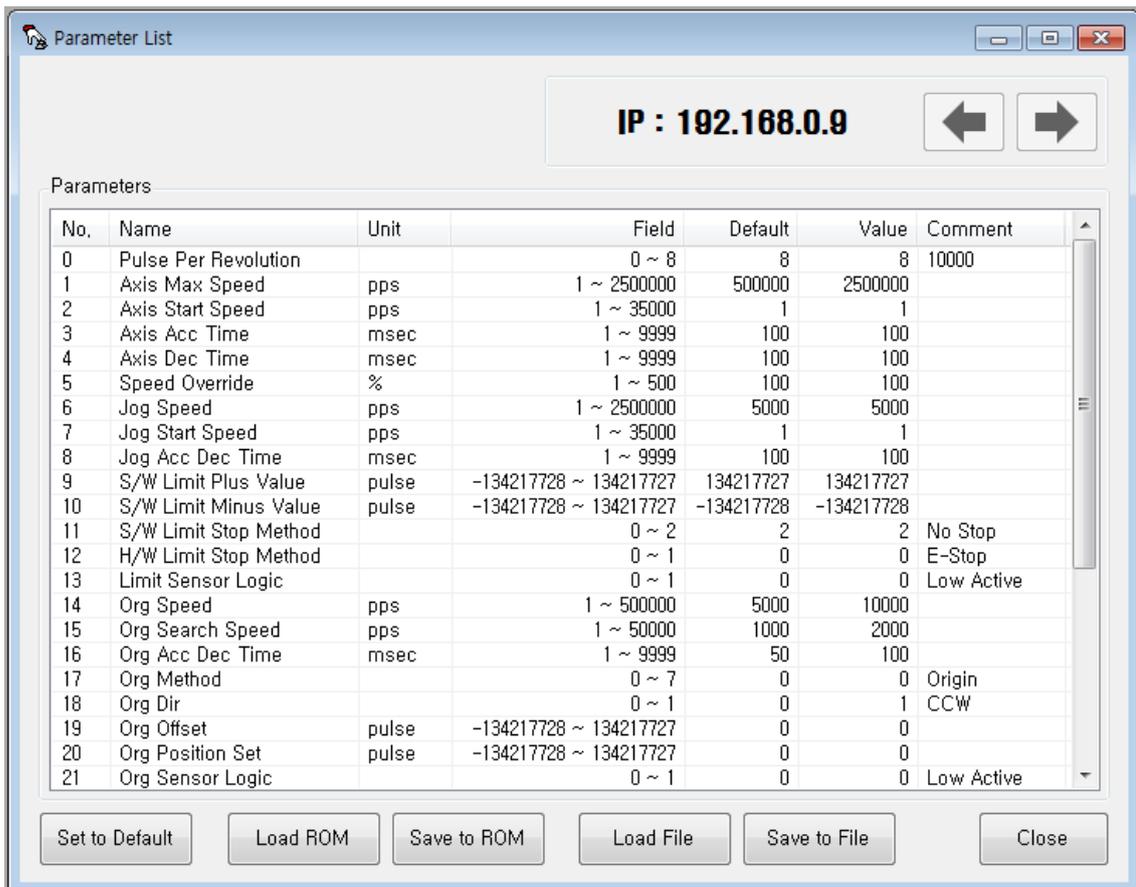
* Cycle Time : displays the time until repeat test is completely finished.

* Repeat Count : increases whenever one motion loop is finished.

④ When the user clicks 'Repeat' button while the machine is operating, the cycle in service ends and the machine stops operating. Click 'Stop' or 'E-Stop' button, and the machine will stop regardless of the cycle.



3 . Parameter List



항목	설명
No.	Parameter number
Name	Parameter name
Unit	Parameter unit
Field	Parameter field
Default	Parameter default value
Value	Current parameter value
Comment	Current parameter description

The user can set and save parameter values related to motion control by each drive module. 'Value' column displays the value applied to current motion control and can be edited

3 - 1 . IP Address

IP : 192.168.0.9

To display drive's number for the current parameter list window. By using right/left arrow key, the user can select other drive.

Buttons at the bottom bar including 'Save to ROM' is available only for the current drive. To

control several drive parameters, the user should execute related each one of slave independently.

3 - 2 . Parameter input

No.	Name	Unit	Field	Default	Value	Comment
0	Pulse Per Revolution		0 ~ 8	8	8	10000
1	Axis Max Speed	pps	1 ~ 2500000	500000	2500000	
2	Axis Start Speed	pps	1 ~ 35000	1	1	
3	Axis Acc Time	msec	1 ~ 9999	100	100	
4	Axis Dec Time	msec	1 ~ 9999	100	100	

Select parameters as shown at the table, and the input box will be displayed and then the user can edit parameter values. When the user inputs the parameter value, it is saved to RAM area of the drive. The machine operates as the parameter is edited. However, when the drive is powered off, the value is deleted. To continuously operate the machine as the parameter value is set, the user must click 'SAVE to ROM' button and save the edited value to ROM.

When the input value is out of right range, it is displayed in red color. The value cannot be inputted in RAM of the drive.

3 - 3 . Parameter List window Button

Click each button, and the following functions will be executed

버튼	설명
Set to Default	Converts all parameter values into 'Default Value'
Load ROM	Converts 'Value' items into values saved to the ROM area.
Save to ROM	Saves 'Value' items to the ROM area. (Even though the drive is powered off, they are not deleted.)
Load File	Set 'Value' items to the values saved to an external file.
Save to File	Saves the current values to an external file. (The user defines folder position and file name. The extension is *.fpt.)

For more information of parameter types and their functions, please refer to 「[User manual-Text, 9. Parameters](#)」

3 - 4 . Save/ Read to a file

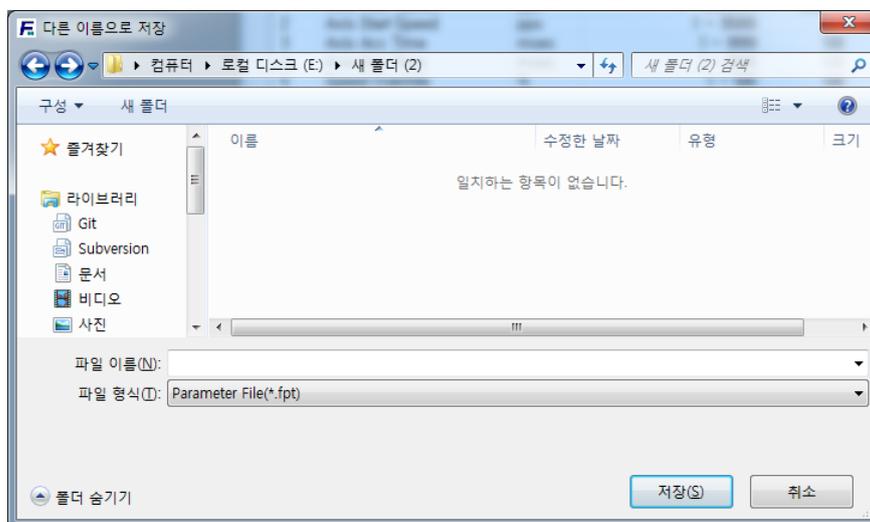
Ezi-MOTIONLINK Plus-E can save parameters, Input/output and position table data to an external file folder and can read them if necessary.

The user can edit a name of file, click 'Save' button, and save data. Then can select a file, click 'Open' button and read data.

File extension for parameter: *.fpt

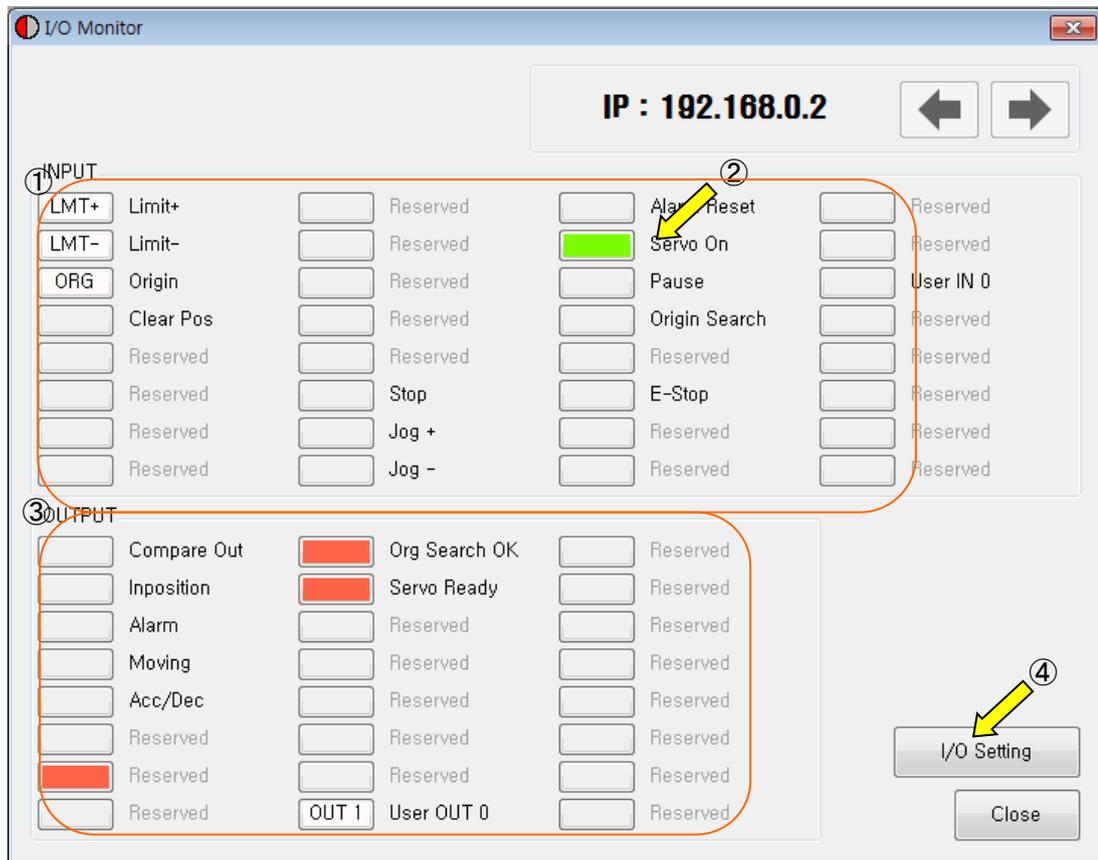
File extension for Input/output: *.fit

File extension for position table data: *.txt



4 . I/O Monitoring

The user can set and check control I/O signals related to operation control through CN1 connector. The next window is the sample setting of I/O Monitoring status.



1) Input signal : ①

There are 32 definable input signals. However, just 4 signals of them can be connected with CN1 connector physically at one time.

The first three signals are fixed to '**LIMIT+**', '**LIMIT-**' and '**ORIGIN**' sensors. Therefore other signals cannot be connected and used with these pins. The user can set up to 9 signals to Input 9 pins at one time. '**INI**' indicators are displayed to current setting signals.

'When each signal for set as **INI** is [ON] through CN1 connector, icon is changed into '**green**'. When the signal is [OFF], it returns to 'white' to the original state.

2) Virtual Input Function: ②

Even though the input pin is not assigned to 'INI' at all, the user can click each button and virtually change the signal into [ON]/[OFF]. For instance, click 'Pause' button, and the stop function will be operated temporarily. But only 'PT Start' signal is exceptional.

3) Output Signal : ③

There are 24 definable output signals. However, just 1 signal of them can be connected with CN1 connector physically at one time

OUT1' is displayed on the currently set signal.

When each signal is [ON] through CN1 connector, icon is changed into '**Red**'. When the signal is [OFF], it returns to 'white' to the original state.

4) Virtual Output Function :

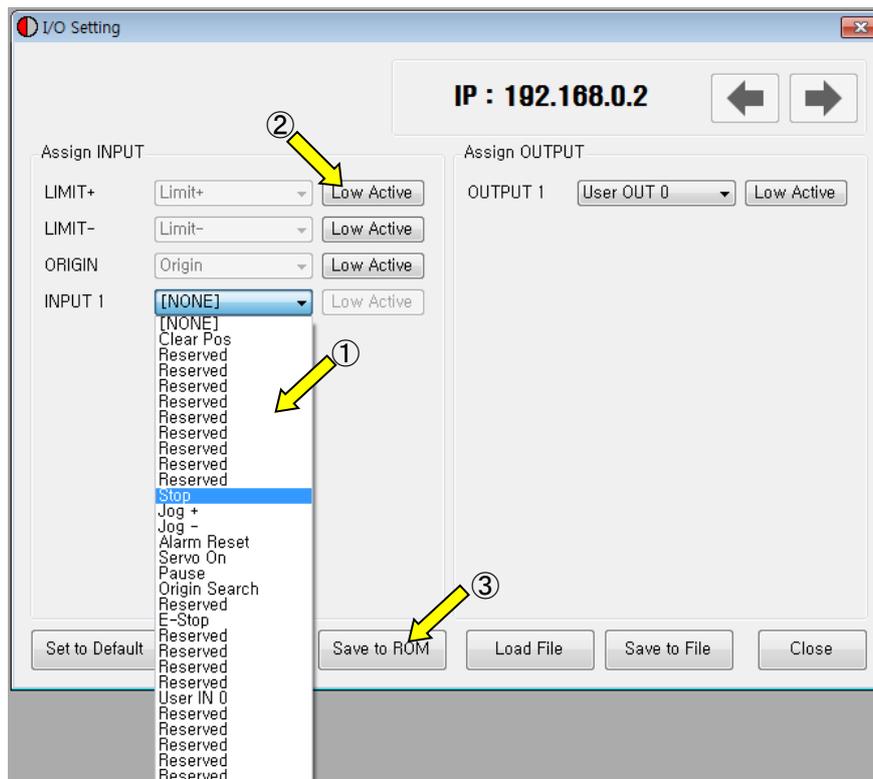
'After assigning the 'User OUT 0' signals to OUT1', when click that button the signal changed [ON]/[OFF] through that pin.

5) I/O Logic Setting 버튼 : ④

The desired signal is assigned to the physical pin of the CN1 connector, and a screen for specifying the 'Active Level' of the signal is executed.

4 - 1 . I/O Logic Setting

Click 'I/O Logic Setting' icon at the I/O Monitor window, and the following window will be displayed.



The assignment method of input and output is same and using as following

1) Signal Assignment: ①

To change pin assignment of CN1 connector, click button to the right of the corresponding signal name as showed above, and select signals will be displayed at the drop-down menu.

2) Signal Level Assignment: ②

These buttons provide the user with functions that he can select the active level of signal for the signal to be recognized to [ON]. He can click the button to the right of the signal name and set the signal.

* Low Active : when the signal is set[ON] to 0 volt

* High Active : when the signal is set[ON] to 24 volt

3) Save : ③

Output pin of CN1 can be set described same as input. All changed signals are temporarily saved to the RAM area. To save them to the ROM area, the user must click 'Save to ROM' button. At this time, **current parameter values are saved to the ROM** area as well.

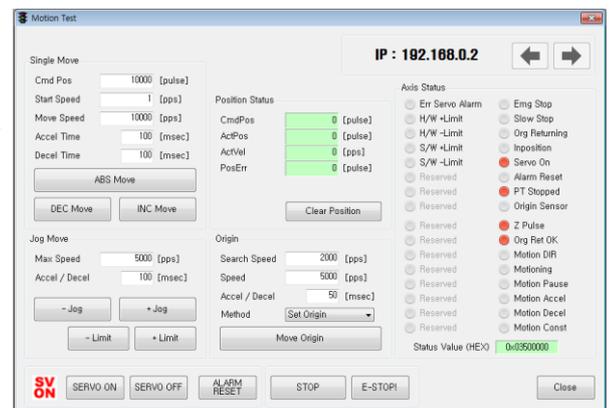
For more information of 'I/O Monitoring' and 'I/O Logic Setting' windows, refer to [「User Manual-Text, 5. Control Input and Output Signal」](#)

5 . Motion Test

To test the motor connected with the controller drive. The user can test motion for one axis. The user can test that the motor moves to the given position, and also simply transfer the motor to one direction. The user can move the motor to the origin or the limit and then test its sensor. At the position status and the axis status, the user can check the position, speed, and status of the current axis.

5 - 1 . Initial Movement

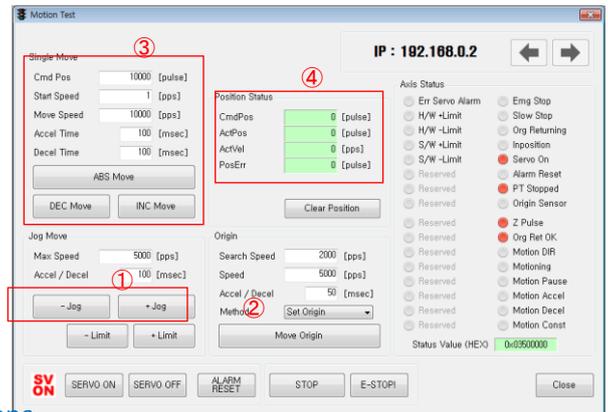
- 1) Click 'Motion Test' at the main menu.
- 2) The window as shown to the right is displayed.
- 3) Select drive to test drive.
- 4) Click and the motor will be Servo ON and the icon will be changed into . At this time, the motor starts to be electrified



4) Jog operation (①)

After setting the jog related parameters
Click and press it
During the click these button , motor will
be operated to the setting direction

5) According to the motion of motor,
The user can check its position and operation
status. For more information, refer to
[「User Manual-Text, 12. Other Operation Functions」](#)



6) Origin Return operation. (②)

Click 'Origin', and origin return motion will be operated. The motion type may be
different subject to how origin return type(parameter) is selected.

7) When origin return is finished, the red LED Origin Search OK like
at the 'Axis Status' window. For more information, refer to [「User Manual-Text, 9. Other
Operation Functions」](#).

8) Single Move operation(③)

The user can test the linear motion command of one axis.
'Abs Move' button moves absolute target position,
'DEC Move' and 'INC Move' move to relative target position
* Cmd Pos : This is Target position value, the unit is [pulse].
It is the absolute value position when executing
Abs Move, and the relative coordinate value position
when executing DEC Move, INC Move.

* Start Speed : This parameter is linked with Axis 2 Start Speed.

If you change it, the parameter value changes as well.

Start Speed must be less than Move Speed.* Move Speed : Abs Move, DEC

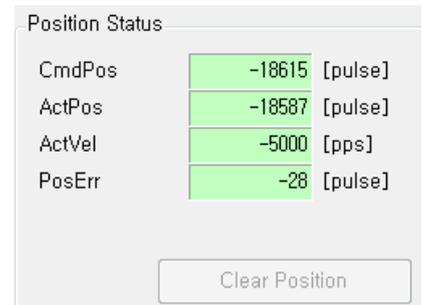
* Accel Time, Decel Time : Parameter 3 and 4 Axis Accel and Axis Decel Time are linked with
each other, If it is changed , the parameter value changes as well.



9) Position Status(4)

To displays the current position of axis. Click to Clear Position button, and Cmd Pos value and Actual Pos value will be initialized to '0 (zero)'.

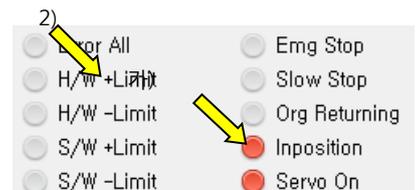
- * Cmd Pos : displays target position value while the motor is operating.
- * Actual Pos : displays current position value while the motor is operating.
- * Actual Vel : displays the actual operation speed of motor.
- * Pos Error : displays the difference between Cmd Pos value and Actual Pos value. By this value , the user can check how much the current target position is tracked correctly.



10) Axis Status and Alarm

To display the current axis status. Each status is displayed to On/Off. 'On' indicates in red and 'Off' indicates in gray.

- 1) when the motor stops operation and in-position is finished, the corresponding LED at the right figure is displayed in Red
- 2) When an alarm occurs during operation, the corresponding LED is displayed in red. For more information of alarm types, refer to 「User Manual-Text, 5.4 Output Signal」.
- 3) After removing the alarm cause, click 'ALARM RESET' to check that the alarm is released. Then change the LED into Servo ON again



11) Stop Operation

There are 'Pause', 'Stop' and 'E-Stop' commands for Stop operating.

- 1) Temporary Stop (Pause)

Click 'Pause' button at the I/O Monitoring window to stop the motion temporarily. When clicking the button again, the motor restarts to operate.

If 'Pause' signal is set to IN1, the actual external signal must be supplied to [ON] status



- 2) Deceleration stop (Stop), Emergency stop (E-Stop)

When the motor needs to stop during operation, the button as shown to the right is available

'STOP' button includes deceleration function and

'E-STOP' button does not include deceleration function.

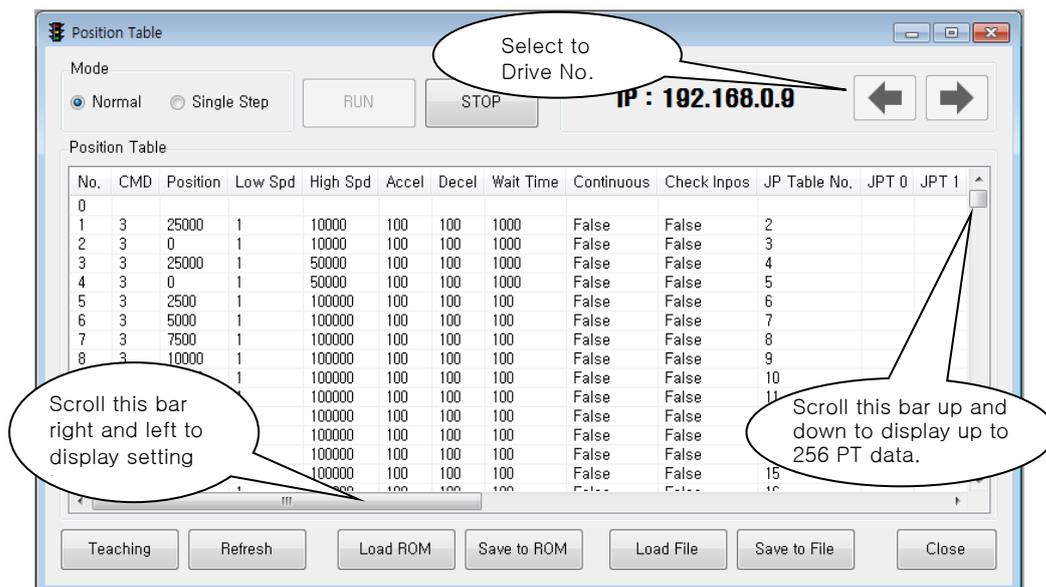
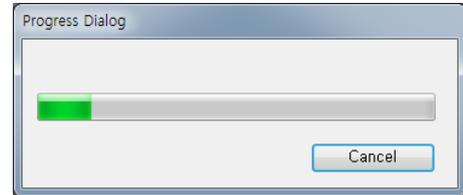


6 . Position Table (PT)

For more information of position table, refer to 「User Manual-Position Table Function」.
This chapter introduces its basic usage.

1) Reading position table data

Click 'Pos Table' icon at the main menu, and data saved to the RAM area will be loaded and then the following window will be displayed



The user can always change the position table data except when the user is in the position table operation.

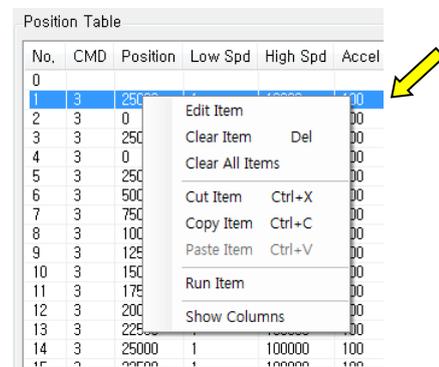
The position table can save up to 256 step data. If the position table is used to the program area, it can be used for all point numbers without restriction. In other words, it is possible to start at a random point number and jump to other point number

2) Put the mouse on a specific PT data line,

click its right button, and the pop-up menu will be displayed as shown to the right.

All of the functions can be implemented.

Click 'Edit Item', and the user can edit data at the window like 3) below.



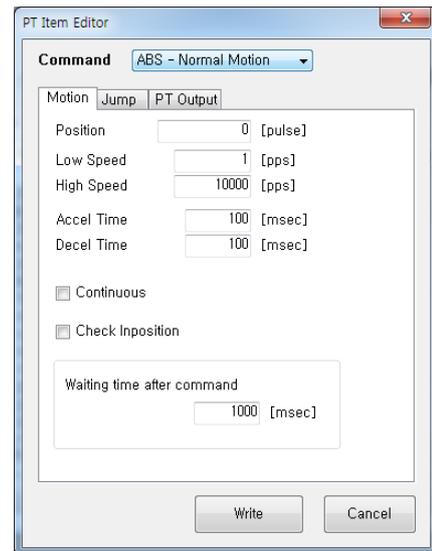
3) Put the mouse on a specific PT data line, double click its left key, and the right window will be displayed.

* Input the value in order from 'Command' related items according to operation modes.

* When all data of the positing table is completely input, click 'Save' button to save the data.

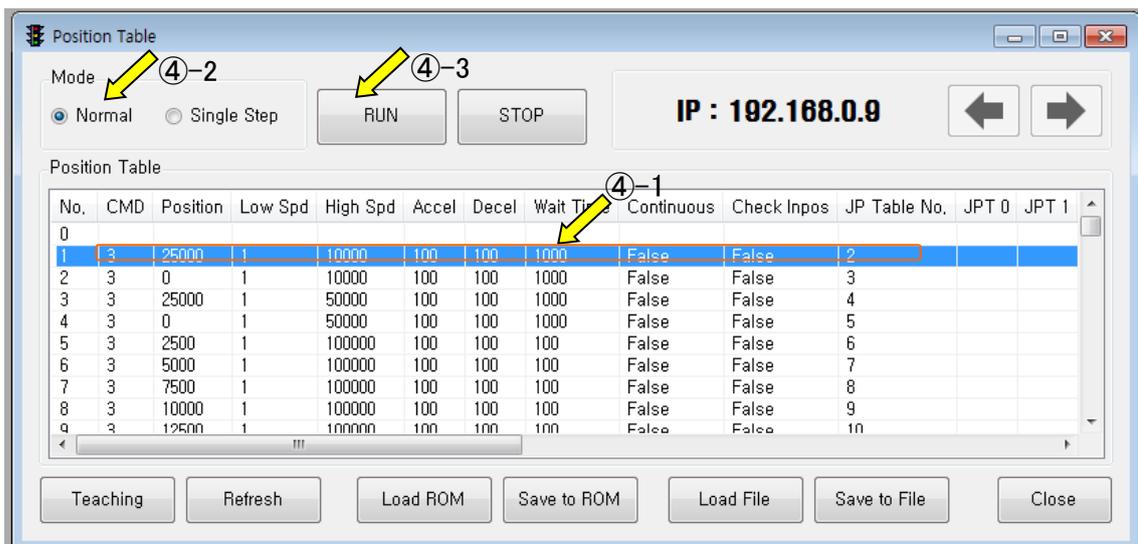
* To edit the next position table, the user should use PT select button

* Refer to [「User Manual_Position Table Function」](#) for more detail information



This data is saved to the RAM area. So, when power is off, data is deleted. Click 'Save to ROM' button, and save the data to the ROM area.

4) Set the motor to 'Servo ON' and select the mode 'Normal', click PT No to start motion, and then execute 'Run'.



While PT No is operated in sequence, PT lines in service are changed in grey. Also, the user may monitor the operation status as described at '7.3 Position Status' and '7.4 Axis Status' through 'Motion Test' window,



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