# Ezi-MotionLink®Plus-E

**Network Based Motion Controller Plug-in to Servo Drives**

# User Manual

# Position Table Function

（ **Rev.06** ）

**FASTECH**

# Table of contents

## ※ Before Getting Started

· **Presented 「 Ezi-SERVOII Plus-E User Manual " Position Table"」 explains position table functions of Ezi-SERVOII Plus-E. Here are 「User Manual_ Text」, 「User Manual Communication Function」 in this manual. Please utilize our product afterward understanding about proper usage method with reading these contents carefully.**
 **The word as 'Position Table' can be presented as PT (Position Table) from the following text.**

· **In particular, Please don't forget to memorize whole matters that requires attention about safety in 「User Manual_ Text」 and should try to understand properly. Besides please be safe to do not use the products improperly in any case. At worst, serious damage can be occurred as like death.**
 **We provide this instruction manual and other instruction manual as well. Please keep these manuals in appropriate place whenever you need to find and read comfortably**

<span style="color:red">**The position table of Ezi-MOTIONLINK Plus-E operates only by communication command and does not operate by external contact.**</span>

# 1 . Windows of Position Table (PT)

## 1 - 1 . Loading Position Table data

When click the 'Pos Table' button on main menu of User Program(GUI), then the system displays the following message box and loads data saved in RAM area of drive.
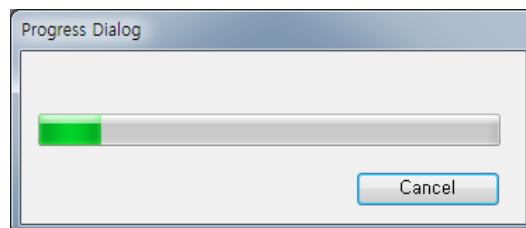


Functions of Position Table allows to process motions in the orders that were predefined by user. In the case of this Ezi-SERVOII Plus-E drive, up to 256 steps can be saved.

Major functions for saving items are shown as following:
  (1) Editing function of Motion command (Input / Edit / Remove / Copy)
  (2) Motion start and stop commands in the user GUI program
  (3) Teaching function
  (4) Save and recall position table file of motion instruction
  (5) Display the currently running PT items
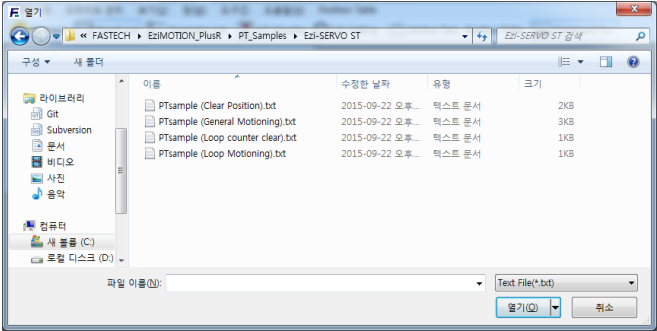
When electric power is supplied to drive, the Position Table data saved in ROM area of drive is copied to RAM area and once click the 'Pos Table' button, then the system loads the data saved in RAM area of drive.

## 1－2．Main Window of Position Table

The following window describes windows and buttons which execute the position table function.
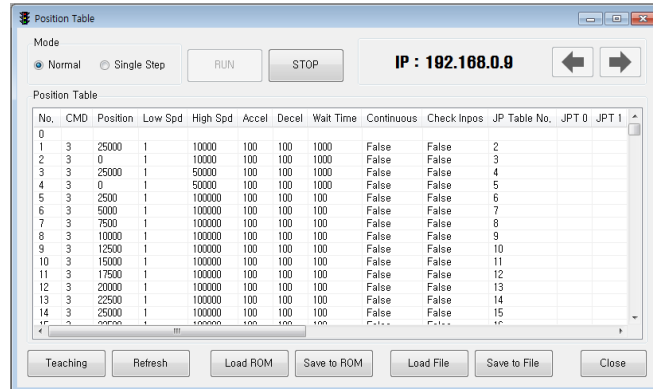


| Button Name | Description |
|---|---|
| Normal/Single Step | The user can select modes to execute the position table.<br>Normal:   All position commands are in order executed according to conditions saved in the position table.<br>Single Step : Only single position command is executed. |
| Run/Stop/Next | To run/stop items at the defined position table |
| Teaching | Teaching is executed by either using external input signal or user program. By clicking this button, the user can easily use teaching function at the user program window. For more information, refer to P12. 3-2 「Teaching Function」 |
| Refresh | To display the position value measured by the teaching function. For more information, refer to P12. 3-2 「Teaching Function」. |
| Save to ROM | To save current position table data in ROM drive |
| Load from ROM | To open position table data saved in ROM drive |
| Save to File | To save current position table data to an external file (It is saved to a folder defined by the user with a file name defined by the user. The extension is *.txt.) |
| Load File | To read position table data saved in external file<br> |

* Up to 256 position table commands can be input and saved for S-SERVO-PR.

* By using each position table command, the user can edit the file such as edit, copy, paste, and delete

## 1－3．Position Table Editor

When click right mouse button on a selected Position Table data line, then the following popup menu is activated
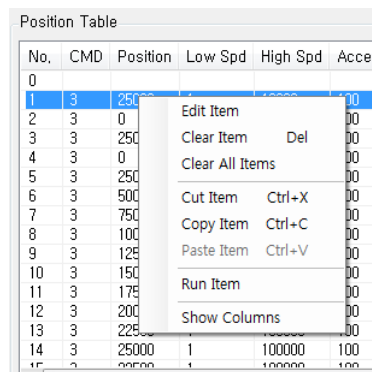


(1)  Edit Item: You can edit data on the following dialog box shown as below

(2)  Clear Item: All the items of selected PT are cleared.

(3)  Clear All Items: While above function "Clear Item" clears data for one selected order, this function clears data for all the orders of 256 Position Table.

(4)  Cut Item: Used to cut selected item data of PT in order to paste on other position.

(5)  Copy Item: Used to copy selected item data of PT in order to paste on other position

(6)  Paste Item: Paste the copied data to clipboard by "Cut"or "Copy"to other selected position.

(7)  Run Selected Item: Execute motion order from the selected No. of Position Table

Double click on selected line of Position Table data or click the "Edit Item" from popup menu button shown above figure, then the dialog box shown right is activated.
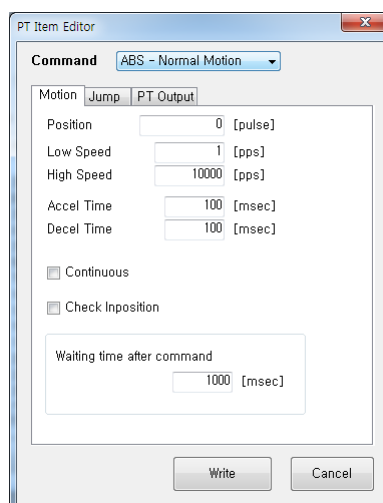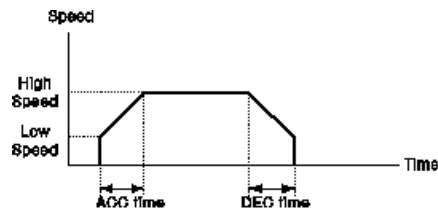


Enter each value on [Motion], [Jump], [PT Output] tab.

After complete editing of all data completely, click "Save' to save data to RAM. In order to save data to ROM area, click 'Save to ROM' on main screen of Position Table.
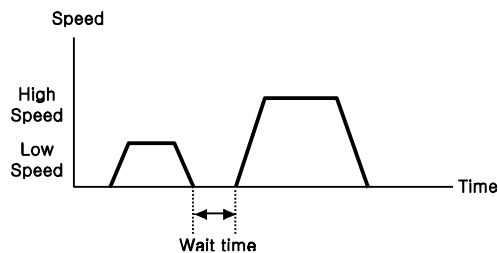
# 2 . Position Table Item （PT）

## 2 - 1 . Explanation of Position Table Item

| 설정 항목 | 내용 | 단위 | 하한 | 상한 |
|---|---|---|---|---|
| **Command** | Specifies type of motion. For more details, refer to 「2.2 Command」. | - | 0 | 10 |
| **Position** | Specifies position/movement scale by number of pulse. | pulse | -134,217,728 | +134,217,727 |
| **Low Speed** | Specifies low speed by number of pulse in accordance with type of motion. For more details, refer to 「2.2 Command」. | pps | 1 | 500,000 |
| **High Speed** | Specifies high speed by number of pulse in accordance with type of motion. For more details, refer to 「2.2 Command」. | pps | 1 | 2,500,000 |
| **ACC time** | Specified acceleration time by msec when starting motion. | ms | 1 | 9,999 |
| **DEC time** | Specified acceleration time by msec when stopping motion. | ms | 1 | 9,999 |
| |  | | | |
| **Wait time** (대기 시간) | Specifies waiting time by msec for starting motion of next PT when specifying PT No. for jump/skip. If JP Table No is specified as blank or 'Continuous Action' is specified, this is ignored. | ms | 0 | 60,000 |
| |  | | | |
| Even if Wait Time is specified as 0[ms], the system waits for the completion signal of position setting (INP signal) or motor stop signal before starting next Position Table | | | | |

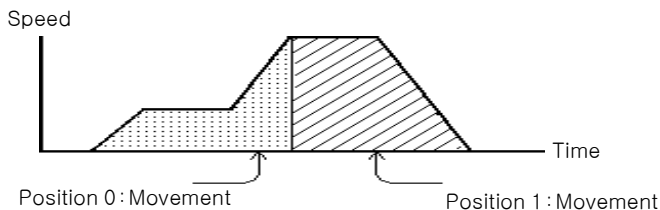| | | | | |
|---|---|---|---|---|
| **Continuous action** (연속 동작 유/무) | If this item is checked as 'check (1)', the system continues action of current position and next position. | - | 0 | 1 |

Condition 1) For this function the 'Command' item value must be '0~7'.

This function has to be used in sequentially increased goal position or sequentially decreased goal position.

Condition 2) When this function is used for more than 2 PT steps, every PT step have to be 'Continuous action' mode

Example) When Position No 0, 1 are specified as under, that is, position 0 is specified as Continuous Action,

| PT No | Cont Act | JPT No |
|---|---|---|
| Position 0 | 1 | 1 |
| Position 1 | 0 | - |



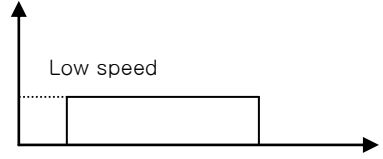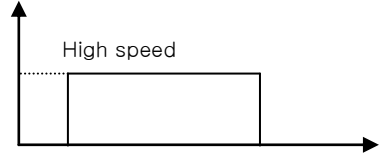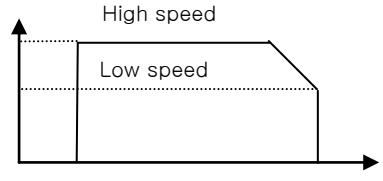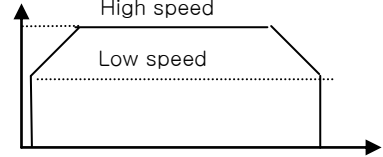| | | | | |
|---|---|---|---|---|
| **JP Table No.** (Jump position number) | If this item is set, the position operation of jump PT is executed automatically after the end of position operation. Set the program exit to 'blank'. | - | 0 | 255 |
| **JPT 0** (Input jump position number 0) | | - | 0 | 255 |
| | | | 10,000 | 10,255 |
| **JPT 1** (Input jump position number 1) | **Ezi-MOTIONLINK Plus-E does not support this function.** | - | 0 | 255 |
| | | | 10,000 | 10,255 |
| **JPT 2** (Input jump position number 2) | | - | 0 | 255 |
| | | | 10,000 | 10,255 |
| **Loop Count** (Loop count) | If this item is set, jump to "jump position number" after executing the number of times of setting the position (number of loops). | - | 0 | 100 |
| **Loop Jump Table No.** (Jump position number after loop) | **Ezi-MOTIONLINK Plus-E does not support this function.** | - | 0 | 255 |
| | | | 10,000 | 10,255 |
| **PT set** (Start / Pass / End position notification function) | **Ezi-MOTIONLINK Plus-E does not support this function..** | - | 0 | 23 |

| | | | | |
|---|---|---|---|---|
| **Loop Counter Clear** (Loop Clear) | If this item is checked, Loop Count of specified no of PT is to be cleared. | - | 0 | 255 |
| **Check Inpos** (Set the type of stop recognition) | If this item is checked, stop condition is recognized as In-position finishes. | - | 0 | 1 |
| **Trigger Pos** (Position value for passing position notification) | Specifies position where the   PT Output0, PT Output1, PT Output2 signal is   ON in case of 'PT set'is 17~23. For more details, refer to「3.6 Start/Pass/End Signal Function」 | pulse | -134,217,728 | +134,217,727 |
| **Trigger Time** (Width of signal for notification of the pass position) | Specifies pulse width where the   PT Output0, PT Output1, PT Output2 signal is ON in case of 'PT set' is 17~23. For more details, refer to「3.6 Start/Pass/End Signal Function」 | ms | 0 | 65,535 |

## 2‐2. Type of Command

Item "Command" specifies type of action pattern to be executed for each position and the followings in the table are list of commands

| Command Name | Specified Value | Description |
|---|---|---|
| Abs Move low speed. | 0 | The value in the item "Position" is value for absolute position.<br>'Teaching' function can be used.<br>'Continuous Action' function can be used. |
| Abs Move high speed. | 1 | |
| Abs Move high speed with deceleration. | 2 | |
| Abs Move with acceleration and deceleration. | 3 | |
| Inc Move low speed. | 4 | The value in the item "Position" is value for relative position.<br>'Teaching' function is not supported.<br>'Continuous Action' is not supported. |
| Inc Move high speed | 5 | |
| Inc Move high speed with deceleration. | 6 | |
| Inc Move with acceleration and deceleration. | 7 | |
| Move to Origin | 8 | Execute the command to move to origin based on the specified current parameters specified.. |
| Clear Position | 9 | Reset 'command position' value and 'actual position' value based on current position and clears the values as 0. |

The following table shows speed patterns for each action of command.

| Command Name | Specified Value | Motion Pattern |
|---|---|---|
| Abs Move low speed | 0 | Low speed |
| Inc Move low speed | 4 | |
| Abs Move high speed | 1 | High speed |
| Inc Move high speed | 5 | |
| Abs Move high speed with deceleration | 2 | High speed / Low speed |
| Inc Move high speed with deceleration | 6 | |
| Abs Move with acceleration and deceleration | 3 | High speed / Low speed |
| Inc Move with acceleration and deceleration | 7 | |

# 3 . Execution of Position Table

## 3 - 1 . Explanation of Position Table Item

Position Table operation is executed by input signal or communication command. The followings are example of Position Table operation by input signal to be explained step by step.

In the case of Position Table operation by communication command, the system is executed by sending the communication commands corresponding to the control input signal.
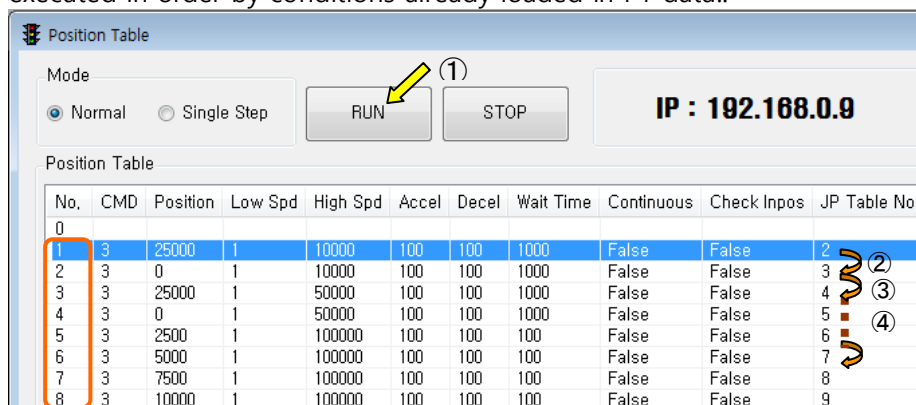
1) Set the position number (0 ~ 255).

2) When the servo is OFF, the servo turns ON.

3) Start operation by communication command.

## 3 - 2 . Operation Mode

Position Table commands can be executed by two modes as follows.

### 3 - 2 - 1 . Normal

Select 'Normal' at the main window of position table, and all commands will be executed in order by conditions already loaded in PT data..
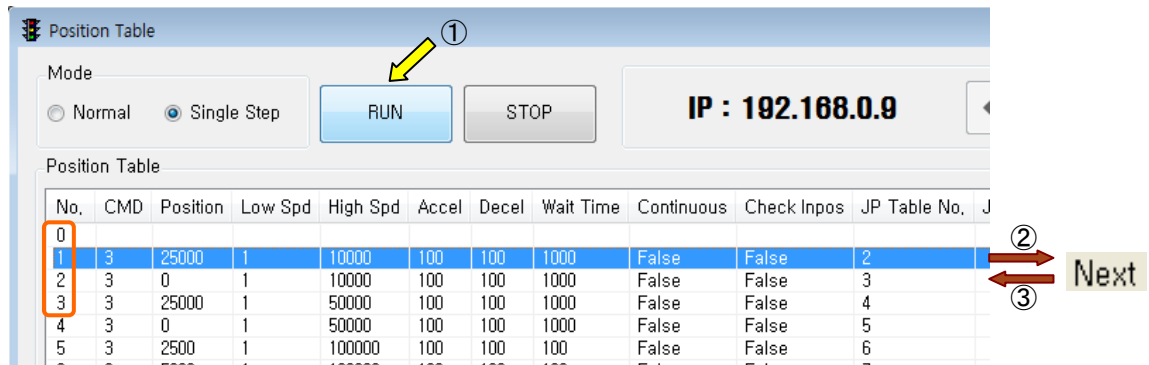


1)  While Normal mode is selected, the user sets PT number to 0 and click 'Run' and then PT 0 is executed.

2)  PT 1 is executed by PT data jump conditions.

3)  PT 2 is executed by PT data jump conditions.

4)  As mentioned above, next PT number is automatically executed by position data jump conditions.

5)  Click 'Stop' to stop operating.

### 3 - 2 - 2 . Single Step

Select 'Single Step' at the main window of position table, and only corresponding PT command will be executed and next PT commands will be on stand-by. This mode can be easily used when the user executes testing for each position command. And it is

available for User Program (GUI) only.



1) )While Single Step Mode is selected, the user sets PT number to 0 and click 'Run' and then PT 0 is executed.

2) After execution is stopped, 'Run' icon is changed into ' Next ' and next command is on stand-by.

3) Click Next button, and PT 1 will be executed.

4) When pressing each Next button, one PT command is executed.

5) Click 'Stop' to stop operation. After operation is stopped, the user can set new PT number and click 'Run' button to start the program again.

## 3 - 3 . Teaching Function

Teaching signal functionalizes that the position value[pulse] being working can be automatically inputted into a 'position' value of a specific position table.

It is the easy method to measuring the position value when it is difficult to calculate the real movement distance ( position value ). The type of commands which is using teaching function are in the below table.

| Command Name | Value | To be used or not |
|---|---|---|
| Abs Move low speed. | 0 | Teaching' can be used. |
| Abs Move high speed | 1 | |
| Abs Move high speed with deceleration. | 2 | |
| Abs Move with acceleration and deceleration. | 3 | |
| Inc Move low speed. | 4 | 'Teaching' cannot be used. |
| Inc Move high speed | 5 | |
| Inc Move high speed with deceleration. | 6 | |
| Inc Move with acceleration and deceleration. | 7 | |
| Move to Origin | 8 | |
| Clear Position, Push Abs Move, Stop | 9,10,11 | |

### 3 - 3 - 1 . Teaching by user program

If user click 'Teaching' button on Position Table screen, the following dialog box is activated.

⑥
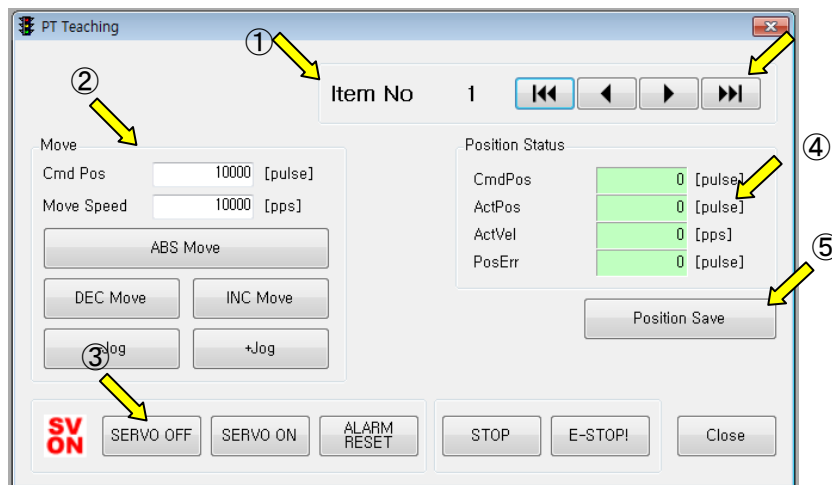


① Select Position Table No, the figure shows that no 6 of PT is selected among 256 Position Tables.

② To specify the position of motor where to teach and move it.

③ Turn ON or OFF of Servo during teaching.

④ Displays current position information and the value displayed in "Actual Pos(ition)"is to be teaching value.

⑤ When clicking this "Teaching" button, current value displayed in "Actual Pos" will be saved in the item "Position" of the current PT (No 6 above case). The values are to be saved on RAM and click 'Save to ROM' button in order to save on ROM

⑥ In order to move to the next position, select PT No. by using arrow keys

## 3 - 4 . Input condition Jump
**Ezi-MOTIONLINK Plus-E does not support this function.**

## 3 - 5 . Loop condition Jump
**Ezi-MOTIONLINK Plus-E does not support this function.**

## 3 - 6 . Start/Pass/End Signal function
**Ezi-MOTIONLINK Plus-E does not support this function.**

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