



Micro Stepping System with Network Based Motion Controller



Step Motors with Integrated Drive and Controller

> User Manual User Program (GUI) Function

> > (Rev.08.05.029)



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This manual describes how to operate User Program (GUI) for Ezi-STEP Pus-R. For more information, refer related manuals.

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

1. Installation and Connection of the Program

Ezi-STEP Plus-R consists of two operation modes as follows:

- 1) Using Motion Library (DLL) provided for the program from Windows 2000/XP/VISTA
- 2) Using position table (PT) and external signals inputted by the user

For the operation modes above, refer to each related manual.

This chapter describes the user program used for installation and running test of the controller. Ezi-STEP Plus-R is associated with RS-485. So, the user needs to convert RS-232C or USB for the PC into RS-485

1.1 Installation Environment of PC

Machine Type: Compatible with PC/AT RS-232C Port or USB Port Hard disk more than 10MB Screen SVGA(1024×768 or more) CPU Pentium4 2.0 GHz or more OS: Windows 2000/XP/VISTA should be normally installed.

1.2 User Program(GUI) Version

There are 2 kinds of program version for STEP Plus-R.

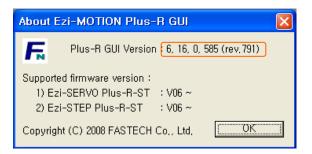
(1) Firmware program in drive :

After connect the User Program(GUI), Version number can be check in 'Board List' Window.

(2) User Program(GUI) in PC :

After connect the User Program(GUI), Version number can be check in 'About Plus-R GUI…' menu in 'Help' menu.





The level of 2 kinds program must be same as follows.

Firmware version	compatability	User Program(GUI) version
Level 6 (VO6.0x.0xx.xx)	<->	Level 6 (6.xx.x.xxx)
Level 8 (VO8.xx.Oxx.xx)	<->	Level 8 (8.xx.x.xxx)

Caution Do not mixed the drive of different version level in one network segment.

1.3 User Program (GUI) Installation Method

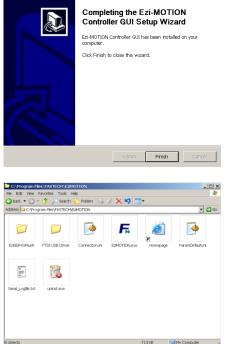
Click ExiMOTION PlusR Setup ver 5.0.2.519 (rev. 240).exe Exi-MOTION PlusR GUI Program icon at the installation program provided with the product, and perform as described at the window.

Installer Language × Select a language of installation screen. Please select a language. English OK Cancel _ 🗆 🗙 Installation Start window. Welcome to the Ezi-MOTION Click 'Next' button. 27 Controller GUI Setup Wizard This wizard will guide you through the installation of Ezi-MOTION Controller GUI. It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer. Click Next to continue. Next > Cancel Ezi-MOTION Controller GUI Setup _ [[| ×| Select all installation components, Choose Components Choose which features of Ezi-MOTION Controller GUI you want to install. and click 'next' button. Check the components you want to install and uncheck the components you don't want to install. Click Next to continue. Main Files (required) Ezi-SERVO Plus-R Library Ezi-SERVO Plus-R Exampli Select components to install: Position Table Sample FTDI US8 Driver Space required: 6.3MB 4 < Back Next > Cancel Ezi-MOTION Controller GUI Select a folder where the program is installed, Choose Install Location Choose the folder in which to install Ezi-MOTION Controller GUI. and click 'Install' button. Setup will install Ezi-MOTION Controller GUI in the following folder. To install in a different fixler, click Provise and select another fixler. Click Install to start the installation. Browse. Space required: 6.3MB Space available: 60.0GB

- www.fastech.co.kr -

< Back Install Cancel

Installation is completed.



_ 🗆 ×

Then installation is completed at the selected folder,

'Program Files/FASTECH/EziMOTION PlusR'

folder is created and also GUI icon and program folders are installed.

1) Include folder: *dll, *.lib, *.h files

2) Example folder: source code for sample

3) PT_Samples/Ezi-STEP folder: sample data files for position table.

4) FTDI USB Driver folder: driver program for USB converter

When using USB to RS-485 converter, you need to install driver program for that.

1.4 USB to RS-485 Converter Installation Method

In case of using RS-232 to RS-485 converter, there's no need to install for converter. But when you connect USB to RS-485 converter to PC, you can see the Installation Start window.

After select ① click 'Next' button. When internet is connected to PC, it is possible to use 'automatically' installation





1.5 Connecting PC with Drive Module

(1) To communicate with controller module, the user should prepare communication converter and cable and connect them with the PC. For more information, refer to 「User Manual-Text」.

Execute Execute Ezi-MOTION (Ezi-SERVO Plus-R) which is User Program (GUI), click 'Connect' button, and the following window will be displayed.

Connect to Ezi-MOTION PlusR				
FASTECH Fast, Accurate, Smooth Motion Control Ezi-MOTION Plus-R GUI				
Fo r Windows 2k, XP File Ver. 8, 0, 0, 554				
Communication Port				
Port No. COM1				
Baudrate 115200				

ltem	Description		
Port No.	To assign the port number of RS-232 or USB which is connected with drive module at the PC		
Baudrate	To measure the communication speed that connects the drive to RS-485 communication. This should correspond to the switch (SW2) which sets the controller communication speed. (Drive: adjusted to 115200[bps] at the factory).		

After setting, click 'Connect' button, and the controller module will try to connect 16 drives from 0 to 15 at the setting speed through a pertinent communication port.

A Caution	 The communication speed of drive modules connected with one segment must be set to the same value.
	 When they are not connected, the user needs to check the port or the baudrate.

If the drive which is non-suitable for version 8 is connected, next message box is Displayed to inform.

Error	
Ezi-MOTION Plus-R	
SlaveNo : 0 Not supported firm ware version [V6,3,43,4]	\triangleright
OK	

At this time, using another User Program(GUI) for Firmware version 6.

(2)When drive modules are normally connected, the user can check detailed information of controller list including the communication speed, motor type and Firmware program version at the following window.

F.	Board List		
Г	Controller List—		
	Device List	Туре	Motor
	🖃 Port 77		
	Slave 0	Ezi-STEP Plus-R-ST	56L
	Slave 3	Ezi-SERVO Plus-R-ST	56M

2. Main Window

Ezi-MOTION GUI - Motion Test			
<u>Eile ⊻iew H</u> elp			
	Axis C I/O I/O I/O Setting		
📕 Board List	Motion Test		
Controller List Type Information Baudrate : 115200 EzI-SERVO-Plus-R-ST RS485 communication (' Image: Second se	Single Move Cmd Pos 10000 [pulse] Start Speed 100 Move Speed 100000 [pps] Accel Time 100 Decel Time 100 [msec] Abs Move DEC Move INC Move	Position Status Cmd Pos 10000 [pulse] Actual Pos 10000 [pulse] Actual Vel 0 [pps] Pos Error 0 [pulse] Clear Position	Slave No 0 Image: Constraint of the state Error All Erng Stop H/W +Limit Slow Stop H/W +Limit Org Returning S/W +Limit Inposition S/W +Limit Servo On Pos Tracking Alarm Reset Pos Cnt Over PT Stoped Error Servo Alarm Origin Sensor
Parameter List	Jog Move Max Speed 50000 [pps]	Origin Low Speed 1000 [pps] High Speed 5000 [pps]	Err Over Current Z Pulse Err Over Speed Org Ret OK Err Speed Motion DIR Err Over load Motioning
I/O Monitor I/O Setting	Accel/Decel 100 [msec] -Jog +Jog	Accel/Decel 50 [msec] Mode Origin	Err Over heat Motion Pause Err Rev Power Motion Accel Err Motor Power Motion Decel
Motion Motion Test	Limit	Origin	Status Value (HEX) 0x00580000
Repeat Test Position Table	SERVO OFF	STOP E-STOP!	Close
* FAS_MoveVelocity(22, 0, 50000, 0); Return FAS_MoveStop(22, 0, 0); Return : 0 FAS_SetCommandPos(22, 0, 0); Return : 0 FAS_SetActualPos(22, 0, 0); Return : 0 FAS_MoveSingleAxisIncPos(22, 0, 10000, 1)			
준비			NUM

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



There are 'View' menu to display other windows simply and 'File' menu which the user can connect and disconnect communication.

2.2 Toolbar



There are various buttons to go to the next window.

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 com			
Axis Param To sort parameters that the user can change them easily			
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			
Mation Test	To execute motion commands such as Jog operation, Position operation, Origin		
Motion Test	return operation		
Pos Table To input and execute position table data			
Cmd Bar To display DLL function corresponding to the command being executed			

2.3 Cmd (Command) Bar

* FAS_SetParameter(22, 0, 3, 988); Return : 0
FAS_SetParameter(22, 0, 3, 9887); Return : 0
FAS_SetParameter(22, 0, 3, 1); Return : 0
FAS_SetParameter(22, 0, 3, 10); Return : 0
FAS_SetParameter(22, 0, 3, 10); Return : 0
FAS_MoveSingleAxisIncPos(22, 0, 10000, 50000, 0); Return : 0
FAS_SetActualPos(22, 0, 0); Return : 0
FAS_MoveSingleAxisIncPos(22, 0, 10000, 50000, 0); Return : 0
FAS_MoveStop(22, 0, 0); Return : 0
FAS_MoveStop(22, 0, 0); Return : 0
FAS_MoveStop(22, 0, 0); Return : 0

Click 'Cmd Bar' at the toolbar or check 'Menu→View→Command Bar', 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 he clicks. For more information of commands, 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. There are buttons to go to windows for setting or testing function.

Informations :

- 1) Slave ID number and type of drive.
- 2) Motor type.
- 3) Communication speed
- 4) Firmware version number of drive.

📕 Board List				
Controller List				
Device List				
E Port 77				
	Slave 0 Ezi-STEP Plus-R-ST 56L			
Slave 3	Ezi-SERVO Plus-R-ST	56M		
<		>		
1-4				
Parameter				
(1		
Parameter	List Axis Para	ameter		
LI/0				
I/O Monit	or I/O Se	tting		
		ang		
- Motion				
(Woldon				
Motion Test				
Repeat Test Position Table				

2.4.1 Parameter Area

Button	Function			
Parameter List	To display the window that the user can check, edit, and manage drive parameters			
Axis Parameter	To display parameters edited when the machine is set up			

2.4.2 I/O Area

Button	Function
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.

2.4.3 Motion Area

Button	Function								
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								
Position Table	To input and execute position table data								

2.5 Repeat Test

The repeat test is possible for up to
 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.

🚦 Repeat Test 🦯		
Position Data		0 0
Position 2 10000 [(pulse)	
☐ Position 3	[pulse] Status	
Move Speed 10000 ([pps] Cmd Pos	0 [pulse]
	Actual Pos	0 [pulse]
Move Post Move Post Mov	ve Pos3 Actual Vel	0 [pps]
	Pos Error	0 (pulse
Repeat Data (2)	Cycle Time	4479 [msec]
Delay Time 0 ([msec] Repeat Count	2
Repeat 0	4	Clear Status
1	<u> </u>	1
E-Stop Stop	Repea	t Close

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

				Slave	əNo (
ame	eters					
	Name	Unit	Field	Default	Value	Comment
0	Pulse Per Revolution		0~15	10	10	1000
1	Axis Max Speed	[pps]	1~500000	500000	500000	
	Axis Start Speed	[pps]	1~35000	1	1	
3		[msec]	1~9999	100	100	
4		[msec]	1~9999	100	100	
5		[%]	1~500	100	100	
	Jog Speed	[pps]	1~500000	5000	5000	
	Jog Start Speed	[pps]	1~35000	1	1	
	Jog Acc Dec Time	[msec]	1~9999	100	100	
	Alarm Logic		0~1	0	-	Low Active
	Run/Stop Logic		0~1	0	-	Low Active
	Alarm Reset Logic		0~1	0		Low Active
	S/W Limit Plus Value	[pulse]	±134217727	134217727	134217727	
	S/W Limit Minus Value	[pulse]	±134217727	-134217727	-134217727	<u>.</u>
	S/W Limit Stop Method		0~1	1		Stop
	H/W Limit Stop Method		0~1	1		Stop
	Limit Sensor Logic	/1	0~1	0	-	Low Active
	Org Speed	[pps]	1~500000	5000	5000	
	Org Search Speed	[pps]	1~500000	1000	1000	
	Org Acc Dec Time Org Method	[msec]	1~9999 0~2	50 0	50	Origin
20			0~2 0~1	0		Urigin CW
	Org OffSet	[pulse]	±134217727	0	0	C W
	Org Position Set	(pulse)	±134217727	0	0	
20		[hoise]	±154217727	0	0	

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 Slave No



To display drive 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
0	Pulse Per Revolution		0~9	9	9
1	Axis Max Speed	[pps]	1~500000	500000	500000
2	Axis Start Speed	[pps]	1~500000	1	1
3	Axis Acc Time	[msec]	1~9999	100	250
2	Axis Dec Time	[msec]	1~9999	100	100
5	Speed Override	[%]	1~500	100	100
	· · ·	1.6 3			

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 Buttons

Button	Description							
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	Sets '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.)							

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

For more information of parameter types and their functions, refer to 「User Manual-Text, 12. Parameters」.

3.4 Save/Load to a File

Ezi-STEP Plus-R can save parameters and position table data to an external file folder and can read them if necessary.

Save As		<u>?</u> ×
Save in:	🔁 External files 💽 🔶 🖆	-
History History Desktop My Computer	n 2 axis_param.fpt n sample_param.fpt	
My Network P	File name: Save as type: Parameter File(*.fpt)	Save Cancel
	oorooo yyo. Transioorinid (ht)	, <u> </u>

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

File extension for parameter is *.fpt and for Input/output is *.fit. File extension for position table data is *.txt.

4. Axis Parameter

🗞 Axis Parameter	
	Slave No 0 🛑 🔿
Motor Direction	Run/Stop Signal Logic
Origin — Origin Direction ————	H/W Limit Stop Mode
⊙ CW ⊙ CCW	C E-Stop © Stop
Origin Offset	
0	S/W +Limit Value 134217727 [pulse]
Origin Position Set	S/W -Limit Value [-134217727 [pulse]
Speed Override	
Max Speed Ratio 100	% Close

The above window is to enable the user to easily operate some important items of '3. Parameter List' items according to each function.

For more information of parameter types and their functions, refer to ^{[User Manual-Text,} 12. Parameters].

5. I/O Monitoring

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

•) I/O Ma	nitoring							
						Slave No	0		
	INPUT-								
(LMT+	Limit +	IN 5	PT A4		Alarm Reset 🗸		JPT IN O	
	LMT-	Limit -	IN 6	PT A5		Servo Op		JPT IN 1	
	ORG	Origin	IN 7	PT A6	, 	Pause (2)		JPT IN 2	
		Clear Pos	IN 8	PT A7		Origin Search		JPT Start	
	IN 1	PT A0	IN 9	PT Start		Teaching		User IN 0	
	IN 2	PT A1		Stop		+ Stop		User IN 1	
	IN 3	PT A2		Jog +		- Stop		User IN 2	
\backslash	IN 4	PT A3		Jog -		E-Stop		User IN 3	/
l	\geq								
1	OUTPUT								
	COMP	Compare Out	OUT 8	Org Search Ol		User OUT 1			
	OUT 1	InPosition	OUT 9	Servo Ready		User OUT 2			
	OUT 2	Alarm		+ Stop OUT		User OUT 3			a
	OUT 3	Moving		- Stop OUT		User OUT 4			લ
	OUT 4	Acc/Dec		PT OUT 0		User OUT 5			
	OUT 5	ACK		PT OUT 1		User OUT 6		O Logic Settir	ng
	OUT 6	END		PT OUT 2		User OUT 7	<u> </u>		_
	OUT 7	AlarmBlink		User OUT 0		User OUT 8)	Class	
								Close	ļ

I/O Monitoring of Version 6 level GUI

I/O Monitoring of Version 8 level GUI

		D 1/0 M	lonitoring									
	ſ								Slave	No	0	
	L								Clave	NO 1		
		INPUT -										
U		LMT+	Limit +		PT A4	IN 5	Alarm Reset (2)	IN 8	JPT IN 2		User IN 6	
	L	LMT-	Limit -		PT A5		Servo On 🗡	IN 9	JPT Start		User IN 7	
	L	ORG	Origin		PT A6		Pause 🗹		User IN 0		User IN 8	
	L		Clear Pos		PT A7		Origin Search		User IN 1			
	L	IN 1	PT A0	IN 3	PT Start		Teaching		User IN 2			
	L	IN 2	PT A1	IN 4	Stop		E-Stop		User IN 3			
	L		PT A2		Jog +	IN 6	JPT IN O		User IN 4			
			PT A3		Jog -	IN 7	JPT IN 1		User IN 5			/
		OUTPUT										
3	K	001101										
	L		Compare Out	OUT 6	Org Search Ok		User OUT 1					
	L	OUT 1	Inposition	OUT 7	Servo Ready		User OUT 2					
	L	OUT 2	Alarm		Reserved		User OUT 3					
	L	OUT 3	Moving	OUT 9	Brake		User OUT 4					4
	L		Acc/Dec		PTOUTO		User OUT 5					/
	L		PT ACK		PT OUT 1		User OUT 6			Γ		
		OUT 4	PT End		PT OUT 2		User OUT 7				I/O Logic Set	cing
		OUT 5	AlarmBlink		User OUT 0		User OUT 8				Cla	ose

1) Input Signal : ①

There are 32 definable input signals. However, just 12 signals of them can be connected with CN1 connecter physically at one time.

The first three signals are fixed to '*L/M/T+*', '*L/M/T-*' and '*OR/G/N*' sensors. Therefore other signals cannot be connected and used with these pins. The user can set up to 9 signals(*1) to Input 9 pins at one time. '*IN1*' ~ '*IN9*' indicators are displayed to current setting signals.

When each signal is [ON] through CN1 connecter, 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 'IN1' ~ 'IN9' 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 10 signals of them can be connected with CN1 connecter physically at one time

The first signal 'COMP' is used to specific purpose only. Therefore other signals cannot be connected and used with this pin. The user can set up to 9 signals(\star 2) to Output 9 pins at one time. 'OUT1' ~ 'OUT9' indicators are displayed to current setting signals.

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

4) Virtual Output Function:

After assigning the 'User OUT O' ~ 'User OUT 8' signals to OUT1' ~ 'OUT9', when click that button the signal changed [ON]/[OFF] through that pin.

5) I/O Logic Setting button: ④

Click this icon, and the following window will be displayed. Then he can assign a pertinent signal to the physical pin of CN1 connecter and define 'Active Level' of the signal.

- *1 : Ezi-STEP-PR : The user can set up to 9 signals for input.
 Ezi-STEP-PR-MI/Ezi-STEP-ALL : The user can set up to 7 signals for input.
- *2 : Ezi-STEP-PR : The user can set up to 9 signals for output.
 Ezi-STEP-PR-MI/Ezi-STEP-ALL : The user can set up to 1 signals for output.

6. I/O Logic Setting

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

for Ezi	-Step-pr	:						
	🌓 I/O Settin	g						
	Assign INP	UT Limit +	_	Low Active	SI	ave No	3	(
	LIMIT -	Limit -		Low Active	Assign OUT	PUT		
	ORIGIN	Origin	-	Low Active	COMP	Compare Out	-	Low Active
	INPUT 1	Clear Pos	X	Low Active	OUTPUT 1	Inposition	•	Low Active
	INPUT 2	PT A0	Ð	Low Active	OUTPUT 2	Alarm	•	Low Active
	INPUT 3	PT A1	•	Low Active	OUTPUT 3	Moving	•	Low Active
	INPUT 4	PT A2	-	Low Active	OUTPUT 4	Acc/Dec	•	Low Active
	INPUT 5	PT A2 PT A3 PT A4		Low Active	OUTPUT 5	AlarmBlink	•	Low Active
	INPUT 6	PT A5 PT A6		2ow Active	OUTPUT 6	Servo Ready	•	Low Active
	INPUT 7	PT A7 PT Start Stop	4	Low Active	OUTPUT 7	[NONE]	•	Low Active
	INPUT 8	Jog + Jog -		Low Active	OUTPUT 8	[NONE]	•	Low Active
	INPUT 9	Alarm Reset Servo On Pause		Low Active 3	OUTPUT 9	[NONE]	•	Low Active
		Origin Search Teaching	~			-4/		
	Set to DEF	AULT Load	ROM	Save to ROM	Load File	Save to	File	Close

for Ezi-STEP-PR-MI/Ezi-STEP-ALL :

Assign INP LIMIT +	Limit +	v	Low Active		Sla	ve No	1	
LIMIT -	Limit -	_	Low Active	⊢Assign	Ουτρι	л		
ORIGIN	Origin	-	Low Active	COMPA	RE C	ompare Out	-	Low Active
INPUT 1	PT A0	•	Low Active	OUTPU	T 1 Ing	position	•	Low Active
INPUT 2	PT A1	•	Low Active	OUTPU	T		_	Low Active
INPUT 3	PT A2	•	Low Active	OUTPU	Т		_	Low Active
INPUT 4	PT Start	•	Low Active	OUTPU	Т		~	Low Active
INPUT 5	Stop	•	Low Active	OUTPU	Т		_	Low Active
INPUT 6	Alarm Reset	•	Low Active	OUTPU			-	Low Active
INPUT 7	Origin Search	•	Low Active	OUTPU			-	Low Active
INPUT		-	Low Active	OUTPU			-	Low Active
INPUT		T	Low Active	OUTPU	Т		-	Low Active

The assignment method is same in input and output.

1) Signal Assignment : ①

To change pin assignment of CN1 connecter, 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 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 in 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, 7. Control Input and Output Signal」.

4) Load and Save to File : ④

Current I/O Logic setting status can be saved to external file and load from external file. Refer to $\lceil 3.4 \text{ Save/Read}$ to a File].

7. Motion Test

To test the motor connected with the controller drive. The user can test motion for one axis. He 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.

7.1 Initial Movement

- 1) Click 'Motion Test' at the manin menu.
- The window as shown to the right is displayed.
- 3) When power is ON, it display 🂦

The motor starts to be electrified and the motor becomes 'lock' status.

4) Jog Operation

After setting jog related parameters, click -Jog +Jog and press it for a while, and the motor will be operated to the setting direction.

5) According to the motion of motor, the user can check <u>sits position and operation status</u>. For more information, refer to ^{[User Manual-Text, 9. Other Operation Functions].}

6) Origin Return Operation.

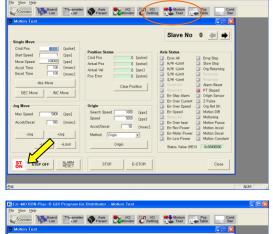
Click 'Origin', and origin return motion will be operated. The motion type may be different subject to how origin return type(parameter) is selected.

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

7.2 Single Move Operation

The user can test straight-line move command for one axis. 'Abs Move' button finds and moves to the absolute position, and 'DEC Move' and 'INC Move' find and move to the relative position.

Single Move							
Cmd Pos	10000	[pulse]					
Start Speed	1	[pps]					
Move Speed	50000	[pps]					
Accel Time	100	[msec]					
Decel Time	100	[msec]					
Abs Move							
DEC Move	INC 1	Move					





- * Cmd Pos: Indicates target position value. The unit is [pulse]. When 'Abs Move' is executed, this displays the absolute position. When 'DEC Move' or 'INC Move' is executed, this displays the relative position.
- * Start Speed: To set AxisStartSpeed at the second item in parameter lists. 'Start Speed' should be smaller than 'Move Speed'.
- * Move Speed: To set the moving speed when Abs Move, DEC Move, or INC Move is executed. 'Move Speed' should be larger than 'Start Speed'.
- * Accel Time, Decel Time: To set AxisAccel and AxisDecel Time in parameter lists.

7.3 Position Status

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

- * Cmd Pos: displays target position value while the motor is operating.
- * Actual Pos: displays current position value while the motor is operating.

(When external encoder is connected)

- * 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.

7.4 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 white.

- When PT motioning is completed, 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, 7.4 Output Signal].
- 3) After removing the alarm cause, click 'ALARM RESET' to check that the alarm is released. Then change the LED into STEP ON again.

Actual Pos	0	[pulse]		
Actual Vel	99972	[pps]		
Pos Error	0	[pulse]		
	01 D			
	Clear Position			

261156 [nulse]

Position Status Cmd Pos

(2)			
	Axis St	atus	
M	🔵 Err	or All 🛛	Emg Stop
	🍯 н/ч	🛚 +Limit 🛛 🖸	Slow Stop
	🔘 H/V	V -Limit 🛛 🖸	Org Returning
	🔘 S/\	W +Limit 🛛 🖸	Reserved
	🔘 S/\	W -Limit	eserved
	🔘 Re:	served 🖉	Alarm Reset
	🔘 Re:	served 🧧	PT Stoped 3
	ST	CTED OFF	
	ŎŃ	STEP OFF	RESET

7.5 Stop Operating

7.5.1 Temporary Stop

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~IN9, the actual external

-INPUT							
LMT+	Limit +	IN 5	PT A4		Alarm Reset 🔨		JPT IN 0
LMT-	Limit -	IN 6	PT A5		Servo Op		JPT IN 1
ORG	Origin	IN 7	PT A6		Pause 🗳		JPT IN 2
	Clear Pos	IN 8	PT A7		Origin Search		JPT Start
IN 1	PT A0	IN 9	PT Start		Teaching		User IN 0
IN 2	PT A1		Stop		+ Stop		User IN 1
IN 3	PT A2		Jog +		- Stop		User IN 2
IN 4	PT A3		Jog -		E-Stop		User IN 3

signal must be supplied to [ON] status.

7.5.2 Complete Stop

When the motor needs to stop completely during operation,

the button as shown to the right is available. 'STOP'

STOP E-STOP!

button includes deceleration function, and 'E-STOP' button does not include deceleration function.

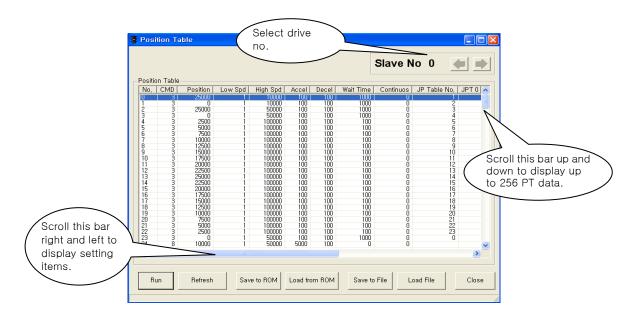
8. Position Table (PT)

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

Loading	×
Loading Position Table Data	
30%	
(<u>Cancel</u>	

1) Reading position table data

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



Position table data can be changed at any time. The position table can save up to 256 step data. If the position table is used to the program area, it may be used for all point numbers without restriction. That is, 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 ltem', and the user can edit data at the window like 3) below.

-Positio	Position Table									
No,	CMD	Position	Low Spd	🕼 Spd	Accel	Di				
0	3	25000		10000	100					
1	31			10000	100					
2	Ed	dit Item	000	100						
3		ear Item		000	100					
4			000	100						
5	Re	e <u>l</u> oad Item fr	000	100						
6		_		000	100					
7	Cu	ut Item	× 000	100						
8	C	Copy Item Ctrl-C			100					
9			- 600	100						
10	Pa Pa	aste Item	V 000	100						
11			000	100						
12	<u> </u>	un Selected	ltern	000	100					
13	3	25000		100000	100					

- 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 inputted, click 'Save' key to save data.
 - * To edit the next position table, the user should use PT select button.

Position Table Item Editer	
Item No. : 0003	3-1
Command ABS - Normal Motion	
Motion Position 0 Low Speed T High Speed 50000 Accel Time 100 Decel Time 100	Jump JP Table No. 4 IF JPT 0 0 IF JPT 1 0 IF JPT 2 0
Enable Continuous Action	Counting Loop
Waiting Time after command	JP Table No, at the 0 end of loop
1000	PT Output Set
Clear Loop Count	C Start Sign C End Sign
3-3°	
Begin 4 DEnd	Save Close

This data is saved in 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'.

8	Position	Table						
Г	Mode ——			<u>/</u> (4)-2)			
	Normal	⊂ Single Step		· • 2	-	<u>(4)</u> –1	Slave No	0
_	Position Ta	ble			/	\sim -		
	No. CM	D Position Low	Spd High Spd	Accel Dece	Wait	Continuous JP	Table No. [JPT 0]	JPT 1 JPT 2
	n.	3 25000	1 10000	100 100		n	1	
	1	3 0 3 25000	1 10000 1 50000	100 100 100 100		Õ	2 3	
	3	3 0	1 50000	100 100		ŏ	4	
	4	3 2500	1 100000	100 100	100	Ō	5	
	5	3 5000	1 100000	100 100		0	6	
	6	3 7500 3 10000	1 100000	100 100		0	7	
	7	3 10000	1 100000	100 100		0	8	
	8	3 12500	1 100000	100 100		0	9	
	9	3 15000	1 100000	100 100		0	10	
	10	3 17500	1 100000	100 100	100	Q	11	<u>~</u>
	<							>
	,							
	Teaching	Refresh	Save to ROM	Load from	ROM	Save to File	Load File	Close
_								
<								>
								11

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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