

KOGANEI

**EW SERIES
SUPPORT SOFTWARE**

OWNER'S MANUAL (Ver. 1.0)

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For more information on the main unit and controller, see the various Elewave Series Owner's Manuals.

• Instruction Manual Numbers

	Rotaries	Hands	NS Sliders
Point type	X495062	X435042	X435041
Pulse train type	X495063	X435057	X435059

1. Software

1-1 Overview

This software communicates with Elewave series controllers and allows you to do operation settings and display the operating status of the actuator.

■ Setting of operation data

You can enter and edit operation data for operation position, speed, etc., and save and print files.

■ Operation

Starts/stops operation and executes return to origin based on the data you set.

■ Display

Displays current position, current I/O input, and errors.

1-2 System Requirements

■ Actuator

- Electric Hands model: **EWHA**□□
- NS Sliders model: **EWM5**□
- Electric Rotary model: **EWHRT**□

■ Operating System

• OS

Windows 2000, Windows XP, Windows Vista, Windows 7, Windows 8

• Computer System

□ Main unit:

[Windows 2000, Windows XP]

PC featuring a Pentium processor

[Windows Vista, Windows 7, Windows 8]

Processor recommended by Microsoft

□ Memory:

[Windows 2000, Windows XP]

At least 256 MB available

[Windows Vista, Windows 7, Windows 8]

Memory capacity recommended by Microsoft

□ Hard disk space: At least 100 MB available

□ Video monitor: 800 × 600 or better (1024 × 768 or better recommended)

□ Serial port: RS-232C serial port available

□ Other: .NET Framework 2.0 or .NET Framework 3.5 (SP1 or later) installed

2. Before You Begin

2-1 Preparation

- This software can be run without installing it on a computer.
- If the computer does not have .NET Framework installed, install one of the following files, which are on the CD, according to the computer you are using. (You can also download them from our website.)

Windows 2000: NetFx20SP2_x86.exe

Windows XP, Windows Vista, Windows 7, Windows 8: dotnetfx35setup.exe

2-2 Connecting Controller to a PC

- Use a serial cross cable for communication cable interlink to connect between the COM ports on the PC and controller.

3. Basic Operations for Selection of Controller Type

3-1 Software Startup Procedure

This support software acquires a COM port when it is started.

Select the COM port to use.

■ Online connection (support software is in communication with the controller)

- 1) After software startup, automatically starts communication with the controller.
- 2) Based on the response from the controller, the software finds the controller type, and moves to the operation window, by the controller type.

■ Online status (only support software is communicating) or offline status (not connected is selected)

- 1) After software startup, automatically starts communication with the controller.
- 2) Confirms that no response has come from the controller, and then moves to the operation window by the controller type.
- 3) Select the controller type to be used, and press the Set button.
- 4) Moves to the operation window, by the controller type.

Note 1: For Online, a move to the Controller Type window means that the support software and controller are not in communication. Check the controller power supply, connection, and connector.

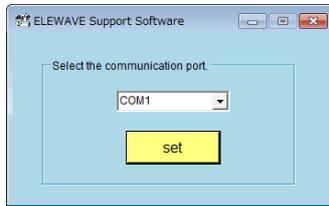
Note 2: For information about the operating windows for each type of controller, see "4. Basic Operations for Point Input Type" on page 9 and "5. Basic Operations for Pulse Train Input Type" on page 16.

3-2 Software Startup Flowchart

When you start the software the communication port selection window opens.

<Online connection (support software is in communication with the controller)>

Communication port selection window (initial window in the software)



Select the communication port. When communication with the controller is successful, various data is received from the controller. The operating window for the support software, depending on the controller model and controller type, opens automatically.

Operation window



Electric Rotary Point Type



Electric Hands Point Type



NS Sliders Point Type



Electric Rotary Pulse Train Type



Electric Hands Pulse Train Type



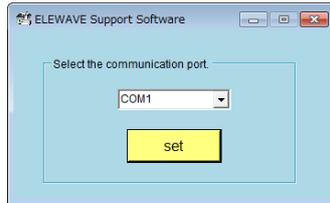
NS Sliders Pulse Train Type

If you purchase a standalone EWHC-NH, it is set to PRM0=84 (electric hands).

To use it as a controller for NS Sliders, initialize the parameters when switching to an NS slider model.

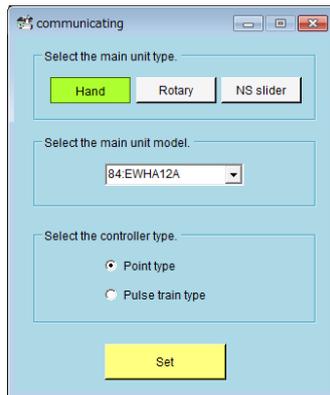
<Online status (Only support software is in communication)>

Communication port selection window (initial window in the software)



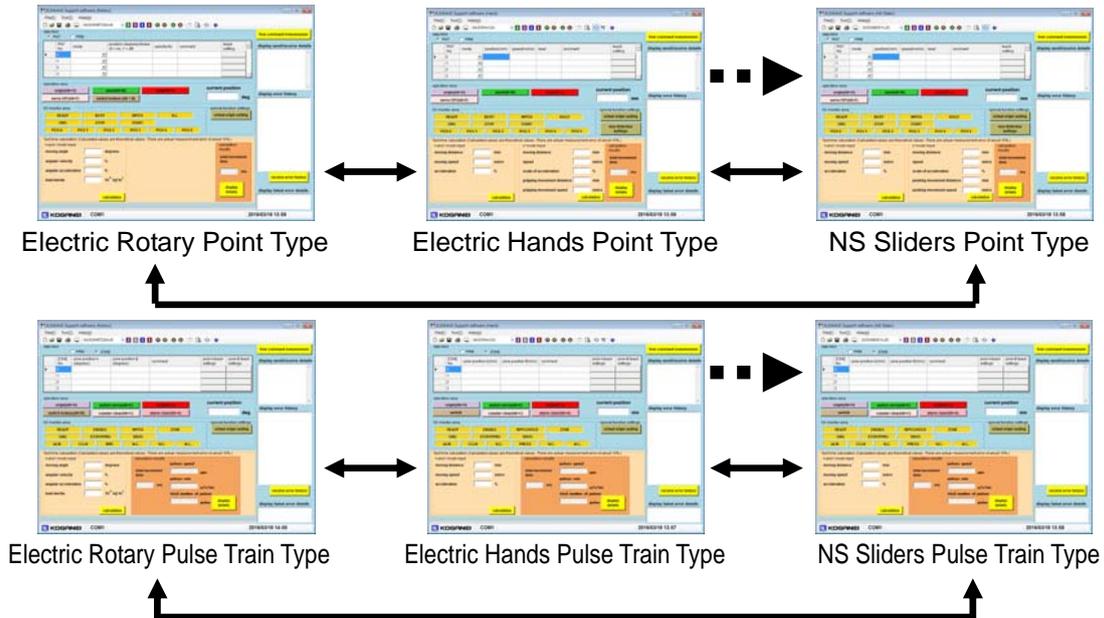
Select the communication port. If the communication with the controller is lost, the model selection window opens.

Model Selection Window



The main window of the support software opens, in which the controller type and main unit model were selected in the model selection window.

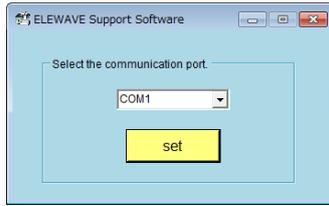
Operation window



If you purchase a standalone EWHC-NH, it is set to PRM0=84 (electric hands). When in communicating with the controller to use it as a controller for NS Sliders, initialize the parameters when switching to an NS slider model. Refer to "6-1 Model Selection Window and Description" regarding the pop-up windows that appear when changing models.

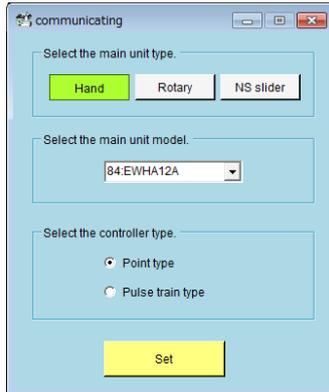
<Offline status (not connected is selected)>

Communication port selection window (initial window in the software)



Not connected is selected for the communication port. The model selection window opens.

Model Selection Window



The main window of the support software opens, in which the controller type and main unit model were selected in the model selection window.

Operation window



Electric Rotary Point Type



Electric Hands Point Type



NS Sliders Point Type



Electric Rotary Pulse Train Type



Electric Hands Pulse Train Type



NS Sliders Pulse Train Type

Refer to "6-1 Model Selection Window and Description" regarding the pop-up windows that appear when changing models.

4. Basic Operations for Point Input Type

4-1 Operation Procedure

This section describes the operation procedure.

- 1) Align with the specified actuator number and initialize the parameters.
(Be sure to do this if you purchased a standalone controller.)
- 2) Set the use conditions and so on using the parameters in the Data area.
- 3) In the Data area, set the virtual origin point shift.
(This setting is unnecessary if it is the same as the normal origin.)
- 4) In the Data area, enter point data.
- 5) Send the point data and parameter data.
- 6) In the Operation area, perform the return to origin operation.
- 7) In the Setting area, select the line of the point number that you want to operate.
- 8) In the Operation area, start operation by clicking Start.

To operate another point data number, repeat steps 6 and 7 above.

Caution:

When operating the main unit in an operation mode, always provide an emergency stop or stop function externally.

The program's own stop function may not work if a communication error or some other problem occurs.

4-2 Support Software Operation Window

The screenshot shows the ELEWAVE Support software (Hand) interface. The window title is "ELEWAVE Support software (Hand)". The menu bar includes File (F), Tool (T), and Help (H). The tool bar shows icons for file operations and system functions. The status bar at the bottom displays "KOGANEI COM1" and the date/time "2016/03/18 13:59".

The main interface is divided into several sections:

- data field:** Contains a table with columns: PNT No., mode, position (mm), speed (mm/s), level, comment, and teach setting. The table has 4 rows (0-3).
- operation area:** Includes buttons for "origin(Alt+O)", "start(Alt+M)", "stop(Alt+S)", and "servo OFF(Alt+F)". It also shows "current position" in mm.
- I/O monitor area:** Displays status indicators for READY, BUSY, INPOS, HOLD, ORG, STOP, START, and POS 0 through POS 5.
- special function settings:** Includes buttons for "virtual origin setting" and "size detection settings".
- free command transmission button:** A yellow button labeled "free command transmission".
- transmission display area:** A scrollable area labeled "display send/receive details".
- error history display area:** A scrollable area labeled "display error history".
- newest error display area:** A scrollable area labeled "display latest error details".
- tact time calculation area:** Contains input fields for moving distance, moving speed, acceleration, and gripping movement distance/speed, along with "calculation" buttons and "display details" buttons.

Arrows on the left side of the screenshot point to the menu bar, tool bar, status bar, data area, operation area, I/O monitoring area, special function settings area, free command transmission button, transmission display area, error history display area, newest error display area, and tact time calculation area. Arrows on the right side point to the free command transmission button, transmission display area, error history display area, newest error display area, and tact time calculation area.

No.	Name	Description																					
	Menu bar	<p>Displays the names of top-level menus. There are 3 pull-down menus organized by function.</p> <p>■ File</p> <ul style="list-style-type: none"> • New: Deletes existing settings then initializes new file settings in the window. • Open: Reads settings from a saved file and displays them on screen. • Save: Saves settings. • Print: Prints settings. • Exit: Quits the program. <p>Comments can be written in the files, but they will not be stored on the controller.</p> <p>■ Tool</p> <ul style="list-style-type: none"> • Batch send (point): Sends point data to the controller. • Batch send (parameters): Sends parameter data to the controller. • Batch receive (point): Receives point data from the controller. • Batch receive (parameters): Receives parameter data from the controller. • Initialize (point): Initializes point data. • Initialize (parameters): Initializes parameter data. Select an actuator number before initializing parameter data. • Initialization (origin position): Initializes origin position. • Initialization (error history): Initializes error history data. • Error history display: Displays the last 16 errors. (The entry at the very bottom is the most recent error.) • Size detection settings ^{Note 1)}: The size detection window opens and you can search for sizes. • Virtual origin setting: The teaching settings window opens and you can set the virtual origin using the teaching moves. • Change COM port: The COM port settings window opens and you can set the COM port. • Compare: Compares the settings with the data on the controller. • Change models: You can change the model selected in the support software. • Switch NS slider model ^{Note 2)}: You can switch models from a hand controller to an NS slider controller. You can also change to an NS slider in the support software window. • Free command transmission: The free command transmission screen opens. <p>■ Help</p> <ul style="list-style-type: none"> • Version Information: Displays version information of NS Sliders support software. 																					
	Tool bar	<p>Provides buttons that function as shortcuts for frequently used commands.</p> <table border="0"> <tr> <td> New</td> <td> Open</td> <td> Save</td> </tr> <tr> <td> Print</td> <td> COM setting</td> <td> Initialize (point)</td> </tr> <tr> <td> Initialize (parameters)</td> <td> Initialize (origin position)</td> <td> Initialize (error history)</td> </tr> <tr> <td> Send (point)</td> <td> Send (parameter)</td> <td> Receive (point)</td> </tr> <tr> <td> Receive (parameter)</td> <td> Match</td> <td> Receive error history</td> </tr> <tr> <td> Change model</td> <td> Switch NS slider model ^{Note 2)}</td> <td></td> </tr> <tr> <td> Acquire version information</td> <td></td> <td></td> </tr> </table>	 New	 Open	 Save	 Print	 COM setting	 Initialize (point)	 Initialize (parameters)	 Initialize (origin position)	 Initialize (error history)	 Send (point)	 Send (parameter)	 Receive (point)	 Receive (parameter)	 Match	 Receive error history	 Change model	 Switch NS slider model ^{Note 2)}		 Acquire version information		
 New	 Open	 Save																					
 Print	 COM setting	 Initialize (point)																					
 Initialize (parameters)	 Initialize (origin position)	 Initialize (error history)																					
 Send (point)	 Send (parameter)	 Receive (point)																					
 Receive (parameter)	 Match	 Receive error history																					
 Change model	 Switch NS slider model ^{Note 2)}																						
 Acquire version information																							
	Status bar	<ul style="list-style-type: none"> • Connected port name • Date • Time 																					
	Data area	<ul style="list-style-type: none"> • Switches between the point entry field and parameter entry field by switching the display. • Enters the target position, speed, gripping (pressing) level ^{Note 3)} as operation data. 																					
	Operation area	<ul style="list-style-type: none"> • Starts/stops operation and executes return to origin based on the data you set. In addition, the current position will be displayed in the current position display box. • Turns the servos off and the brakes on/off ^{Note 4)}. 																					

No.	Name	Description
	I/O monitoring area	<ul style="list-style-type: none"> • Displays the output status of the READY, BUSY, INPOS , and HOLD ^{Note 5)} signals. • Displays the output state of the ORG, STOP, and START signals. • POS 0 to 5: Displays the input status of point setting input POS 0 to 5.
	Special function settings area	<ul style="list-style-type: none"> • Virtual origin setting: Opens a window for setting the position of the virtual origin position setting manually or by teaching. • Size detection settings ^{Note 1)}: Opens the window for size detection settings.
	Free command transmission button	<ul style="list-style-type: none"> • Opens the free command transmission window.
	Transmission display area	<ul style="list-style-type: none"> • Displays the data transmitted between the computer and the controllers.
	Error history display area	<ul style="list-style-type: none"> • Displays errors in the error history display box.
	Latest error display area	<ul style="list-style-type: none"> • Displays the errors that have occurred in the Latest error display box. It is overwritten when a new error occurs.
	Tact time calculation area	<ul style="list-style-type: none"> • The tact time can be calculated by inputting the settings data.

Note 1) Not displayed for electric rotary models.

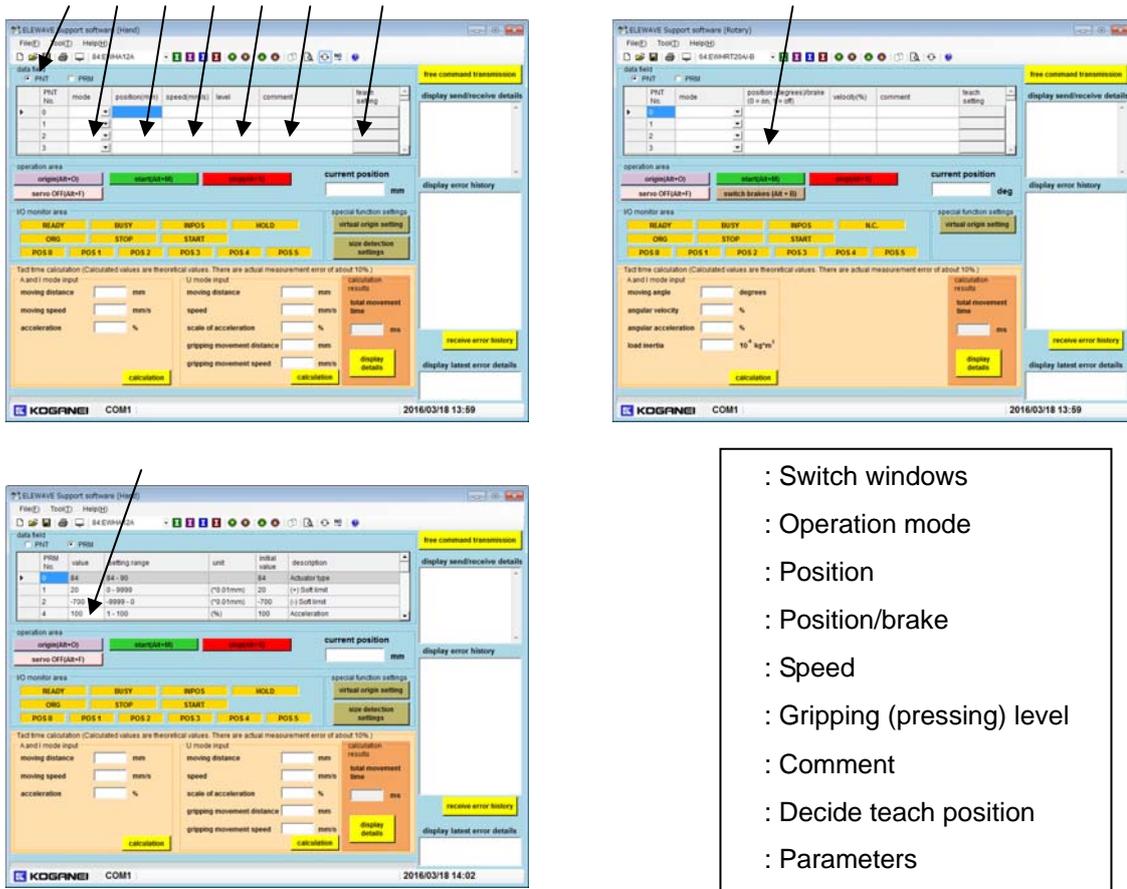
Note 2) Displayed for electric hands models only.

Note 3) Electric rotary models do not have a gripping (pressing) level.

Note 4) Displayed for electric rotary models only.

Note 5) It is N.C. for electric rotary models.

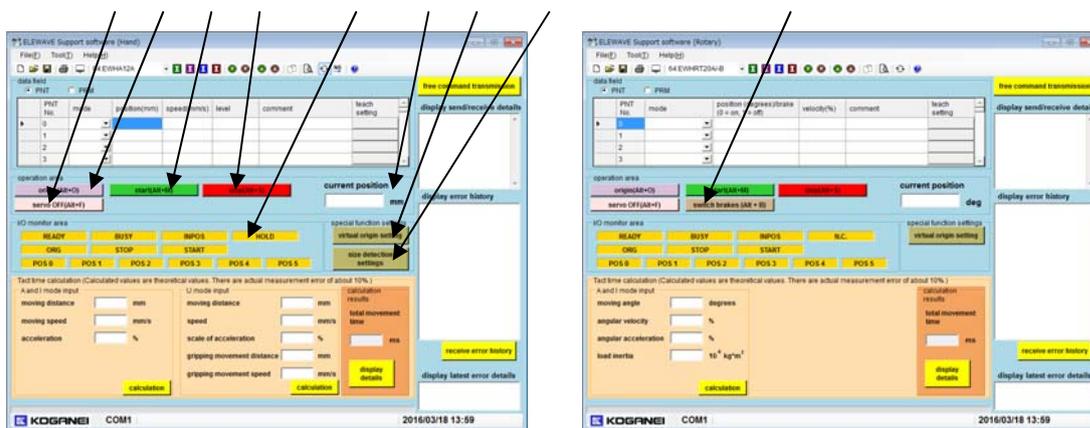
4-3 Operations in Data Area



- : Switch windows
- : Operation mode
- : Position
- : Position/brake
- : Speed
- : Gripping (pressing) level
- : Comment
- : Decide teach position
- : Parameters

No.	Name	Operation method	Remark
	Switch windows	<ul style="list-style-type: none"> Switch from point to parameter display. PNT: Point/PRM: Parameter 	
	Operation mode	<ul style="list-style-type: none"> Select the point data mode. 	<ul style="list-style-type: none"> Refer to "10-2 Range of Point Data Input for Each Model" regarding the input range for point data of each model.
	Position	<ul style="list-style-type: none"> Input the positions of the point data. 	
	Position/brake	<ul style="list-style-type: none"> Input the positions and brakes of the point data. 	
	Speed	<ul style="list-style-type: none"> Input the speeds of the point data. 	
	Gripping (pressing) level	<ul style="list-style-type: none"> Input the gripping (pressing) levels of the point data. 	
	Note	<ul style="list-style-type: none"> Enter a comment for point data. 	<ul style="list-style-type: none"> Kanji can be used in comments. Comments are not sent to the controllers. Comments are deleted when the points are initialized. Do not use single-byte commas.
	Decide teach position	<ul style="list-style-type: none"> Select to set the position of point data by doing teach movements. Pushing the button opens the teach setting window. 	<ul style="list-style-type: none"> Refer to "9. Basic Operations in Teaching Setting Window" for an explanation of the teach setting window.
	Parameters	<ul style="list-style-type: none"> Input parameter data. 	

4-4 Operations in Operation & I/O Monitor Area, and Special Function Settings

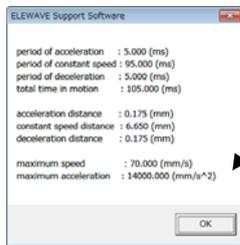
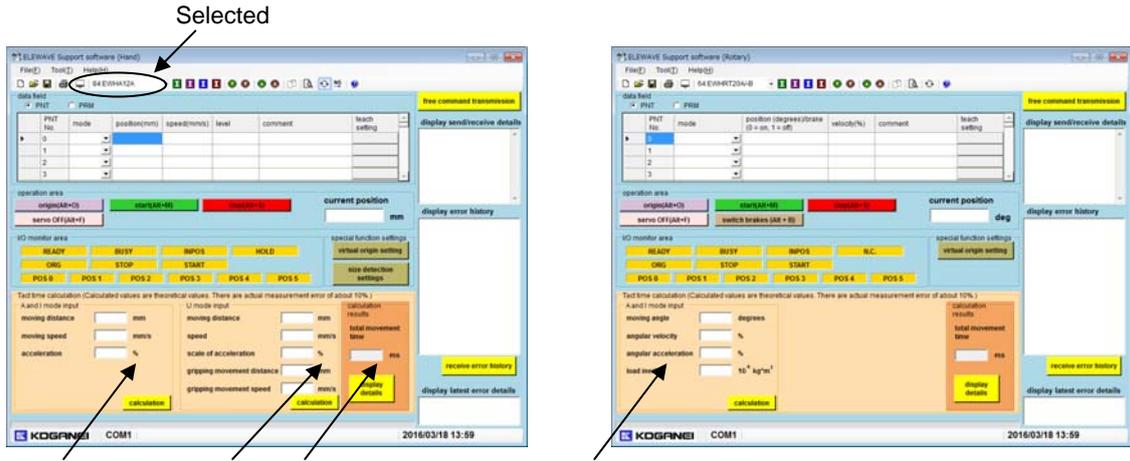


- | | |
|-----------------------|--------------------------------|
| : Org (Origin return) | : Current position display |
| : Start | : I/O monitor |
| : Stop | : Virtual origin point setting |
| : Servo OFF | : Size detection setting |
| : Switch brakes | |

No.	Name	Operation method	Remark
	Org	<ul style="list-style-type: none"> Executes return to origin. 	
	Start	<ul style="list-style-type: none"> Move points. The point numbers are the point numbers selected in the setting areas. 	
	Stop	<ul style="list-style-type: none"> Stops operations. 	
	Servo OFF	<ul style="list-style-type: none"> Puts the motors in a free state. 	
	Switch brakes ^{Note 1)}	<ul style="list-style-type: none"> Switches the brake status (on/off). 	
	Current position display	<ul style="list-style-type: none"> Shows the current position. 	
	I/O monitor	<ul style="list-style-type: none"> Indicates the I/O states. Pink: Signal on Gray: Signal off Orange: Communications off, update off, or communication error 	<ul style="list-style-type: none"> The monitor display is for reference only because it is not a real time display, as it has an update cycle that is about 2 seconds. Updates are not done at startup or at return to origin from the support software.
	Virtual origin point setting	<ul style="list-style-type: none"> Select to set the virtual origin position by doing teach movements. Pushing the button opens the teach setting window. 	<ul style="list-style-type: none"> Refer to "9. Basic Operations in Teaching Setting Window" for an explanation of the teach setting window.
	Size detection setting	<ul style="list-style-type: none"> Select the size detection position while gripping (pressing) the actual target object and setting it. Pushing the button opens the size detection window. 	<ul style="list-style-type: none"> Electric rotary models do not have this. Refer to "8. Basic Operations in Size Detection Function Window" for an explanation of the Size detection setting window.

Note 1) Displayed for electric rotary models only.

4-5 Operations in Tact Time Calculation Area

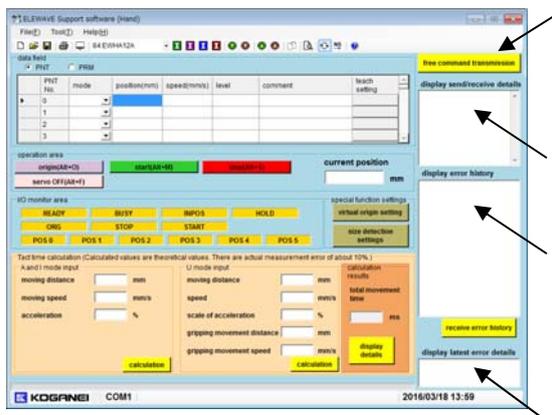


Example of display details

- : Calculations for A and I modes (electric hands/NS sliders)
- : Calculations for A and I modes (electric rotary)
- : U mode calculations
- : Calculation results

No.	Name	Operation method	Remark
	Calculations for A and I modes (electric hands /NS sliders)	<ul style="list-style-type: none"> Input the distance moved, speed moved, and scale of acceleration, and then press the Calculate button to display the total time in motion in the calculation results field. 	<ul style="list-style-type: none"> The input range depends on the input range of the specific model. The selected model becomes the model that is displayed at the top of the support software interface.
	Calculations for A and I modes (electric rotary)	<ul style="list-style-type: none"> Input the angle moved, angular speed ratio, angular scale of acceleration, and load inertia, and then press the Calculate button to display the total time in motion in the calculation results field. 	<ul style="list-style-type: none"> The input range depends on the input range of the specific model. The selected model becomes the model that is displayed at the top of the support software interface.
	U mode calculations	<ul style="list-style-type: none"> Input the distance moved, speed moved, scale of acceleration, gripping movement distance (pressing movement distance), and gripping movement speed (pressing movement speed), and then press the Calculate button to display the total time in motion in the calculation results field. 	<ul style="list-style-type: none"> Electric rotary models do not have this. The input range depends on the input range of the specific model. The selected model becomes the model that is displayed at the top of the support software interface.
	Calculation results	<ul style="list-style-type: none"> Pressing the Calculation button for A and I modes calculations or UI mode calculation, displays the total time in motion. Pressing the Display Details button displays detailed information, such as period of deceleration/acceleration, distance, and pulse rate. 	<ul style="list-style-type: none"> The data from when the Calculation button was pressed for A and I modes calculations and U mode calculation remains unchanged. If you change the model and want to check the calculation results, press the Calculation button for A and I mode calculation and U mode calculation again.

4-6 Description of Free Command Transmission Buttons, Display Send/Receive Details, and Error Display Area



- : Free command transmission button
- : Display send/receive details
- : Error history display
- : Display latest error details

No.	Name	Operation method	Remark
	Free command transmission button	<ul style="list-style-type: none"> Pressing the button opens the free command transmission window. 	<ul style="list-style-type: none"> Refer to "9. Basic Operations in Teaching Setting Window" for an explanation of the teach setting window.
	Display send/receive details	<ul style="list-style-type: none"> Displays the transmissions sent by the support software and those received from the controller. 	
	Error history display	<ul style="list-style-type: none"> The error history is displayed when the error history display is received by pressing the Error history button or on the tool bar. Only OK is displayed if there is no error history. 	<ul style="list-style-type: none"> Displays the last 16 errors. The entry at the very bottom is the most recent error.
	Display latest error details	<ul style="list-style-type: none"> If an error or alarm occurs, and if stop is input or a stop command is input, this information and the time on the computer that it occurred are displayed. 	<ul style="list-style-type: none"> Information is not displayed if it occurs while offline.

5. Basic Operations for Pulse Train Input Type

5-1 Operation Procedure

This section describes the operation procedure.

- 1) Align with the specified actuator number and initialize the parameters.
(Be sure to do this if you purchased a standalone controller.)
- 2) Set the use conditions and so on using the parameters in the Data area.
- 3) In the Data area, set the virtual origin point shift.
(This setting is unnecessary if it is the same as the normal origin.)
- 4) In the Data area, enter zone data.
(Not needed if zone data is not used.)
- 5) Send the zone data and parameter data.
- 6) In the Operation area, perform the return to origin operation.

Caution:

When operating the main unit in an operation mode, always provide an emergency stop or stop function externally.

The program's own stop function may not work if a communication error or some other problem occurs.

5-2 Support Software Operation Window

The screenshot shows the ELEWAVE Support software interface. The window title is "ELEWAVE Support software (Hand)". The menu bar includes "File(E)", "Tool(T)", and "Help(H)". The status bar shows "04:EWHA12A".

The interface is divided into several sections:

- data field:** A table with columns: ZONE No., zone position A(mm), zone position B(mm), comment, zone A teach settings, and zone B teach settings. The table has 4 rows, with the first row containing the number 0.
- operation area:** Contains buttons for "origin(Alt+O)", "switch servo(Alt+E)", "stop(Alt+S)", "switch", "counter clear(Alt+C)", and "alarm clear(Alt+A)". It also displays "current position" in mm.
- I/O monitor area:** Contains status indicators for READY, ENABLE, INPOS/HOLD, ZONE, ORG, STOP/PPRO, SRVO, ALM, CCLR, N.C., PRESS, N.C., and N.C.
- special function settings:** Includes a "virtual origin setting" button.
- tact time calculation:** A section for calculating movement parameters. It includes input fields for "moving distance" (mm), "moving speed" (mm/s), and "acceleration" (%). It also displays "calculation results" for "total movement time" (ms), "pulses speed" (pps), "pulses rate" (p/s/ms), and "total number of pulses" (pulse). A "calculation" button is present.

On the right side, a legend lists the components with arrows pointing to their locations in the software window:

- : Menu bar
- : Tool bar
- : Status bar
- : Data area
- : Operation area
- : I/O monitoring area
- : Special function settings area
- : Free command transmission button
- : Transmission display area
- : Error history display area
- : Latest error display area
- : Tact time calculation area

No.	Name	Description																					
	Menu bar	<p>Displays the names of top-level menus. There are 3 pull-down menus organized by function.</p> <p>■ File</p> <ul style="list-style-type: none"> • New: Deletes existing settings then initializes new file settings in the window. • Open: Reads settings from a saved file and displays them on screen. • Save: Saves settings. • Print: Prints settings. • Exit: Quits the program. <p>Comments can be written in the files, but they will not be stored on the controller.</p> <hr/> <p>■ Tool</p> <ul style="list-style-type: none"> • Batch send (parameters): Sends parameter data to the controller. • Batch send (zone): Sends zone data to the controller. • Batch receive (parameters): Receives parameter data from the controller. • Batch receive (zone): Receives zone data from the controller. • Initialize (parameters): Initializes parameter data. Select an actuator number before initializing parameter data. • Initialize (zone): Initializes zone data. • Initialization (origin position): Initializes origin position. • Initialization (error history): Initializes error history data. • Error history display: Displays the last 16 errors. (The entry at the very bottom is the most recent error.) • Virtual origin setting: The teaching settings window opens and you can set the virtual origin using the teaching moves. • Change COM port: The COM port settings window opens and you can set the COM port. • Compare: Compares the settings with the data on the controller. • Change models: You can change the model selected in the support software. • Switch NS slider model^{Note 1)}: You can switch models from a hand controller to an NS slider controller. You can also change to an NS slider in the support software window. • Free command transmission: The free command transmission screen opens. <hr/> <p>■ Help</p> <ul style="list-style-type: none"> • Version Information: Displays version information of NS Sliders support software. 																					
	Tool bar	<p>Provides buttons that function as shortcuts for frequently used commands.</p> <table border="0" style="width: 100%;"> <tr> <td> New</td> <td> Open</td> <td> Save</td> </tr> <tr> <td> Print</td> <td> COM setting</td> <td> Initialize (parameters)</td> </tr> <tr> <td> Initialize (zone)</td> <td> Initialize (origin position)</td> <td> Initialize (error history)</td> </tr> <tr> <td> Send (parameters)</td> <td> Send (zone)</td> <td> Receive (parameter)</td> </tr> <tr> <td> Receive (zone)</td> <td> Match</td> <td> Receive error history</td> </tr> <tr> <td> Change model</td> <td> Switch NS slider model^{Note 1)}</td> <td></td> </tr> <tr> <td> Acquire version information</td> <td></td> <td></td> </tr> </table>	 New	 Open	 Save	 Print	 COM setting	 Initialize (parameters)	 Initialize (zone)	 Initialize (origin position)	 Initialize (error history)	 Send (parameters)	 Send (zone)	 Receive (parameter)	 Receive (zone)	 Match	 Receive error history	 Change model	 Switch NS slider model ^{Note 1)}		 Acquire version information		
 New	 Open	 Save																					
 Print	 COM setting	 Initialize (parameters)																					
 Initialize (zone)	 Initialize (origin position)	 Initialize (error history)																					
 Send (parameters)	 Send (zone)	 Receive (parameter)																					
 Receive (zone)	 Match	 Receive error history																					
 Change model	 Switch NS slider model ^{Note 1)}																						
 Acquire version information																							
	Status bar	<ul style="list-style-type: none"> • Connected port name • Date • Time 																					
	Data area	<ul style="list-style-type: none"> • Switches between the parameter entry field and zone entry field by switching the display. • Input the zone output range as the setting data. 																					

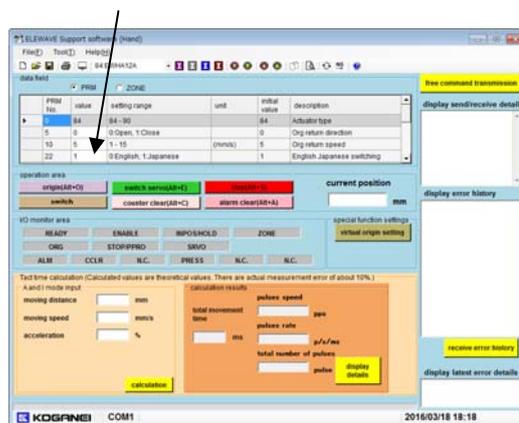
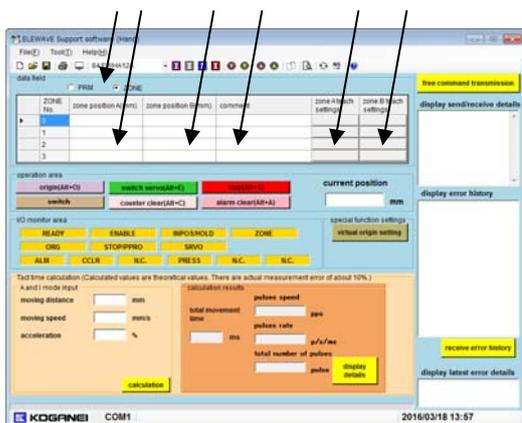
No.	Name	Description
	Operation area	<p>Can use all button functions. In addition, the current position will be displayed in the current position display box.</p> <ul style="list-style-type: none"> • Org: Executes return to origin. • Stop: Stops the operation. • Switch servo: Switches the servos on and off. • Switch brake ^{Note 2)}: Switches the brakes on and off. • Clear count: Clears the count and puts the current position at 0.00. • Switch operation ^{Note 3)}: Switches the positioning operations and the pressing operation. • Canceling alarm: Clears an alarm that has been set off.
	I/O monitoring area	<ul style="list-style-type: none"> • Displays the output status of the READY, ENABLE, INPOS/HOLD, and ZONE signals. • Displays the output state of the ORG, STOP/PPRO, and SRVO signals. • Displays the output state of the ALM, CCLR, BRK ^{Note 2)}, PRESS ^{Note 3)} signals.
	Special function settings area	<ul style="list-style-type: none"> • Virtual origin setting: Opens a window for setting the position of the virtual origin position setting manually.
	Free command transmission button	<ul style="list-style-type: none"> • Opens the free command transmission window.
	Transmission display area	<ul style="list-style-type: none"> • Displays the data transmitted between the computer and the controllers.
	Error history display area	<ul style="list-style-type: none"> • Displays errors in the error history display box.
	Latest error display area	<ul style="list-style-type: none"> • Displays the errors that have occurred in the Latest error display box. It is overwritten when a new error occurs.
	Tact time calculation area	<ul style="list-style-type: none"> • The tact time can be calculated by inputting the settings data.

Note 1) Displayed for electric hands models only.

Note 2) Displayed for electric rotary models only.

Note 3) Displayed for electric hands and NS slider models only.

5-3 Operations in Data Area

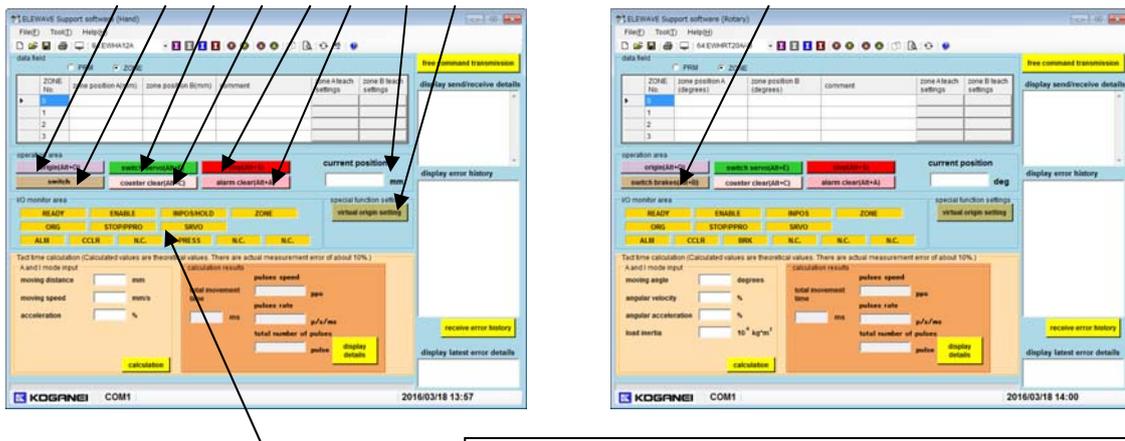


- : Switch windows
- : Zone position A
- : Zone position B
- : Note
- : Zone position A teach settings
- : Zone position B teach settings
- : Parameters

No.	Name	Operation method	Remark
	Switch windows	<ul style="list-style-type: none"> • Switch from parameter to zone display. PRM: parameter/ZON: zone 	
	Zone position A	<ul style="list-style-type: none"> • Input the positions for zone position A. 	<ul style="list-style-type: none"> • Refer to "10-3 Range of Zone Position Data Input for Each Model" regarding the input range of the zone position data. • Set zone position A so that it has a smaller value than zone position B. • Input ranges must not include 0. ^{Note 1)}
	Zone position B	<ul style="list-style-type: none"> • Input the positions for zone position B. 	
	Note	<ul style="list-style-type: none"> • Enter a comment for zone data. 	<ul style="list-style-type: none"> • Kanji can be used in comments. • Comments are not sent to the controllers. • Comments are deleted when the zones are initialized. • Do not use single-byte commas.
	Zone position A teach settings	<ul style="list-style-type: none"> • Select to set the position of zone position A by doing teach movements. Pushing the button opens the teach setting window. 	<ul style="list-style-type: none"> • Refer to "9. Basic Operations in Teaching Setting Window" for an explanation of the teach setting window. • Teach settings are only the settings for direct teaching.
	Zone position B teach settings	<ul style="list-style-type: none"> • Select to set the position of zone position B by doing teach movements. Pushing the button opens the teach setting window. 	
	Parameters	<ul style="list-style-type: none"> • Input parameter data. 	

Note 1) Displayed for electric hands models only.

5-4 Operations in Operation & I/O Monitor Area, and Special Function Settings



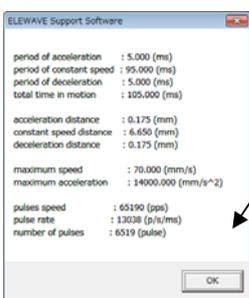
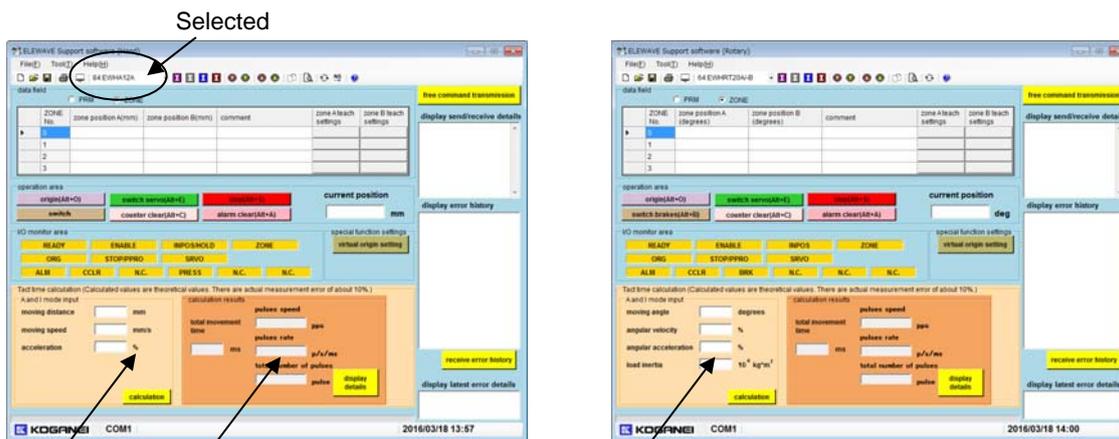
: Org (Origin return)	: Clear counter
: Switch servo	: Clear alarm
: Stop	: Current position display
: Switch operation	: I/O monitor
: Switch brakes	: Virtual origin point setting

No.	Name	Operation method	Remark
	Org	<ul style="list-style-type: none"> Executes return to origin. 	
	Switch servo	<ul style="list-style-type: none"> Switches the servo status (on/off). 	
	Stop	<ul style="list-style-type: none"> Stops return to origin operation. 	
	Switch operation ^{Note 1)}	<ul style="list-style-type: none"> Switches the gripping operation (pressing operation) Positioning operation. 	
	Switch brakes ^{Note 2)}	<ul style="list-style-type: none"> Switches the brake status (on/off). 	
	Clear counter	<ul style="list-style-type: none"> Puts the current position at 0.00. 	
	Clear alarm	<ul style="list-style-type: none"> Clears the alarm status. 	
	Current position display	<ul style="list-style-type: none"> Shows the current position. 	
	I/O monitor	<ul style="list-style-type: none"> Indicates the I/O states. Pink: Signal on Gray: Signal off Orange: Communications off, update off, or communication error 	<ul style="list-style-type: none"> The monitor display is for reference only because it is not a real time display, as it has an update cycle that is about 2 seconds. Updates are not done at startup or at return to origin from the support software.
	Virtual origin point setting	<ul style="list-style-type: none"> Select to set the virtual origin position by doing teach movements. Pushing the button opens the teach setting window. 	<ul style="list-style-type: none"> Refer to "9. Basic Operations in Teaching Setting Window" for an explanation of the teach setting window. Teach settings are only the settings for direct teaching.

Note 1) Displayed for electric hands and NS slider models only.

Note 2) Displayed for electric rotary models only.

5-5 Operations in Tact Time Calculation Area

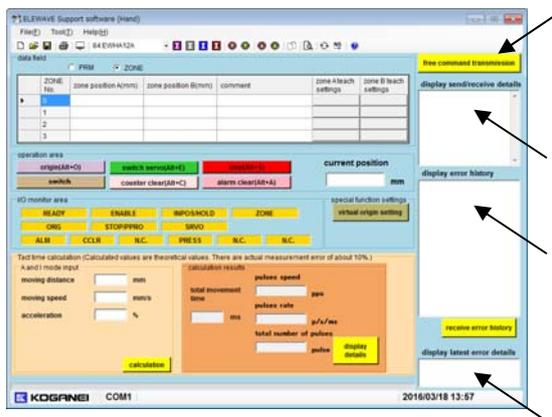


Example of display details

: Calculations for A and I modes (electric hands/NS sliders)
 : Calculations for A and I modes (electric rotary)
 : Calculation results

No.	Name	Operation method	Remark
	Calculations for A and I modes (electric hands /NS sliders)	<ul style="list-style-type: none"> Input the distance moved, speed moved, and scale of acceleration, and then press the Calculate button to display the total time in motion in the calculation results field. 	<ul style="list-style-type: none"> The input range depends on the input range of the specific model. The selected model becomes the model that is displayed at the top of the support software interface.
	Calculations for A and I modes (electric rotary)	<ul style="list-style-type: none"> Input the angle moved, angular speed ratio, angular scale of acceleration, and load inertia, and then press the Calculate button to display the total time in motion in the calculation results field. 	<ul style="list-style-type: none"> The input range depends on the input range of the specific model. The selected model becomes the model that is displayed at the top of the support software interface.
	Calculation results	<ul style="list-style-type: none"> Pressing the Calculation button for A and I modes calculations or U mode calculation, displays the total time in motion. Pressing the Display Details button displays detailed information, such as period of deceleration/acceleration, and distance. 	<ul style="list-style-type: none"> The data from when the Calculation button was pressed for A and I modes calculation remains unchanged. If you change the model and want to check the calculation results, press the Calculation button for A and I modes calculations again.

5-6 Description of Free Command Transmission Buttons, Display Send/Receive Details, and Error Display Area

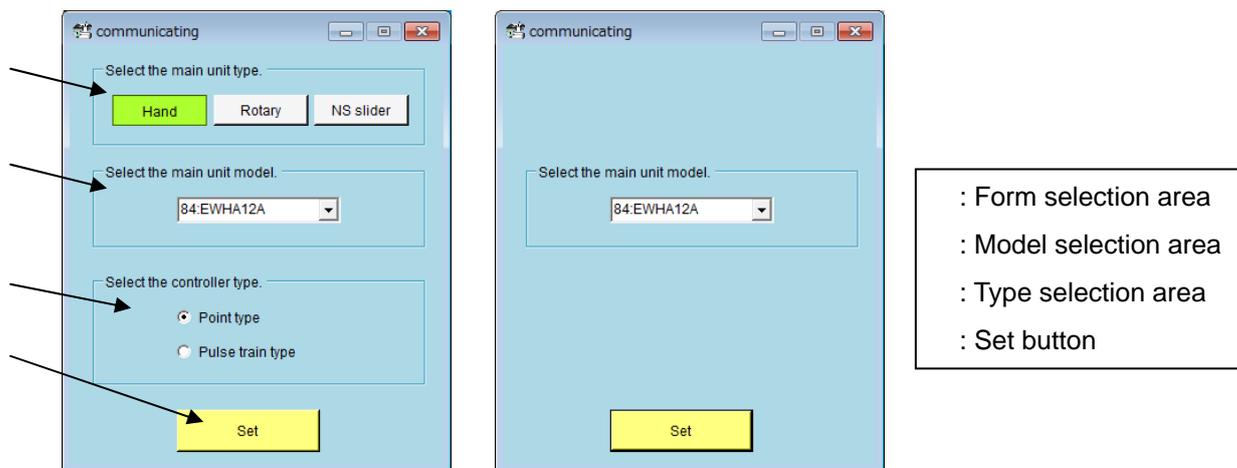


- : Free command transmission button
- : Display send/receive details
- : Error history display
- : Display latest error details

No.	Name	Operation method	Remark
	Free command transmission button	<ul style="list-style-type: none"> Pressing the button opens the free command transmission window. 	<ul style="list-style-type: none"> Refer to "9. Basic Operations in Teaching Setting Window" for an explanation of the teach setting window.
	Display send/receive details	<ul style="list-style-type: none"> Displays the transmissions sent by the support software and those received from the controller. 	
	Error history display	<ul style="list-style-type: none"> The error history is displayed when the error history display is received by pressing the Error history button or on the tool bar. Only OK is displayed if there is no error history. 	<ul style="list-style-type: none"> Displays the last 16 errors. The entry at the very bottom is the most recent error.
	Display latest error details	<ul style="list-style-type: none"> If an error or alarm occurs, and if stop is input or a stop command is displayed, this information and the time on the computer that it occurred are displayed. 	<ul style="list-style-type: none"> Information is not displayed if it occurs while offline.

6. Basic Operations in Model Selection Window

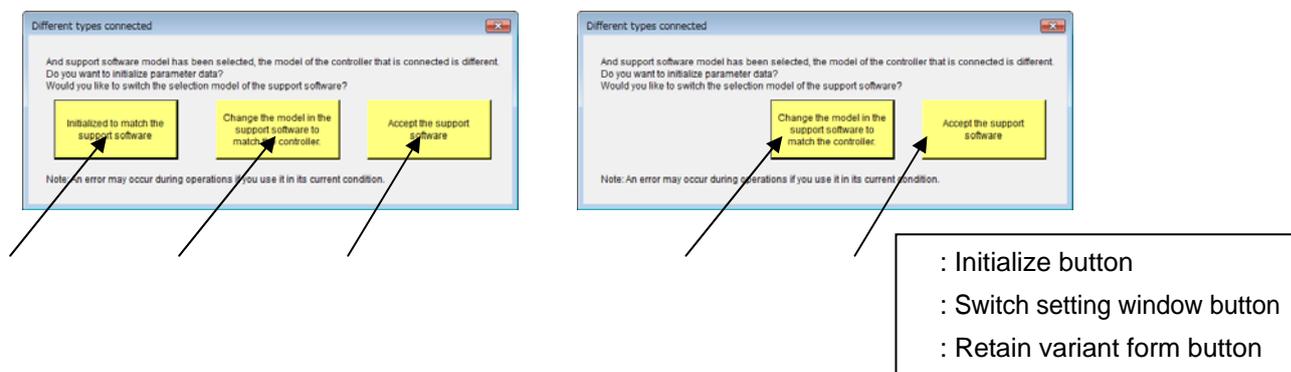
6-1 Model Selection Window and Description



No.	Name	Description
	Form selection area	Select the form of the main unit and controller that are connected.
	Model selection area	Select the model of the main unit you are using; you can select the model of the main unit according to the form selected in the form selection area.
	Type selection area	Select the type of controller that is connected.
	Set button	Displays the setting window according to the selected type and the selected form.

6-2 Variant Model Connection Window and Description

The variant form connected window opens if the form of the controller that is connected is different from the form selected in the support software.

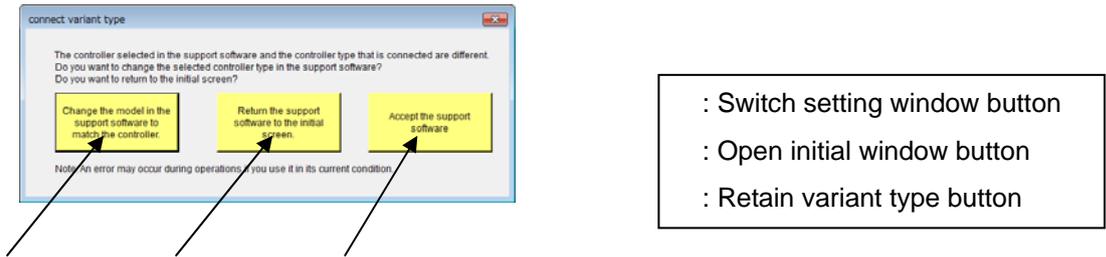


No.	Name	Operation method	Remark
	Initialize button	<ul style="list-style-type: none"> Initialize the controller according to the form of the support software. 	<ul style="list-style-type: none"> For electric rotary, the form initialization button is not appeared.
	Switch setting window button	<ul style="list-style-type: none"> Switch the setting window of the software according to the form of controller that is received. 	
	Retain variant form button	<ul style="list-style-type: none"> Allows you to use the selected window without changing it, even though the form is a variant. (not recommended) 	<ul style="list-style-type: none"> An error may occur, for reasons such as a command not existing, if you use it in its current condition. Once retain is selected, it is retained as is unless the form or something is changed.

Pressing the close button (x button) is the same function as the retain variant form button.

6-3 Variant Type Connection Window and Description

The variant type connected window opens if the type of the controller that is connected is different from the type selected in the support software.

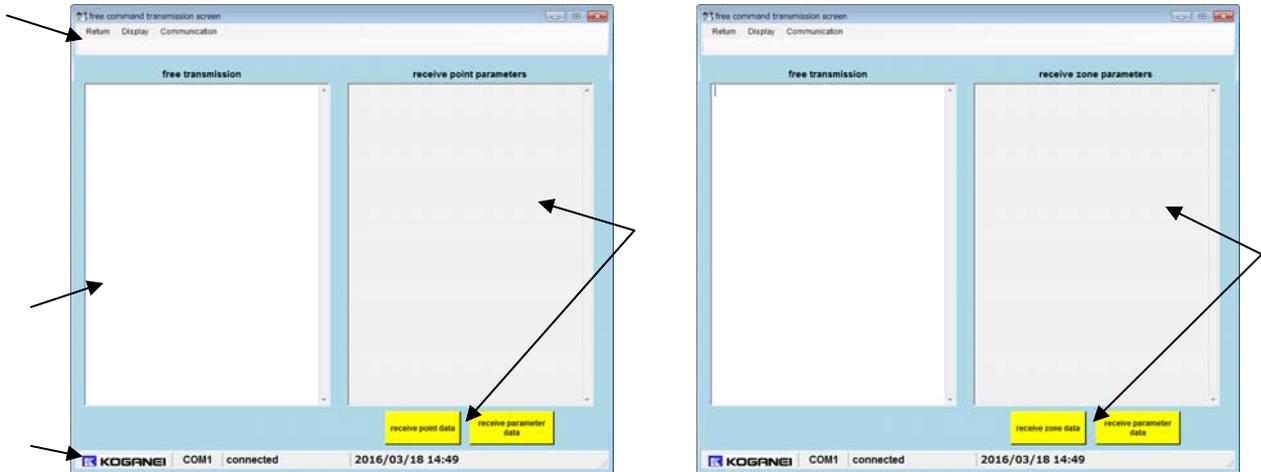


No.	Name	Operation method	Remark
	Switch setting window button	<ul style="list-style-type: none"> Switch the setting window of the software according to the form of controller that is received. 	
	Open initial window button	<ul style="list-style-type: none"> Opens the software's initial window (communication port selection window). 	
	Retain variant type button	<ul style="list-style-type: none"> Allows you to use the selected window without changing it, even though the type is a variant. (not recommended) 	<ul style="list-style-type: none"> An error may occur, for reasons such as a command not existing, if you use it in its current condition. Once retain is selected, it is retained as is unless the form or something is changed.

Pressing the close button (x button) is the same function as the open initial window button.

7. Basic Operations in Free Command Transmission Window

7-1 Free Command Transmission Window and Description



- : Menu bar
- : Status bar
- : Free transmission area
- : Receive point parameters area/receive zone parameters area

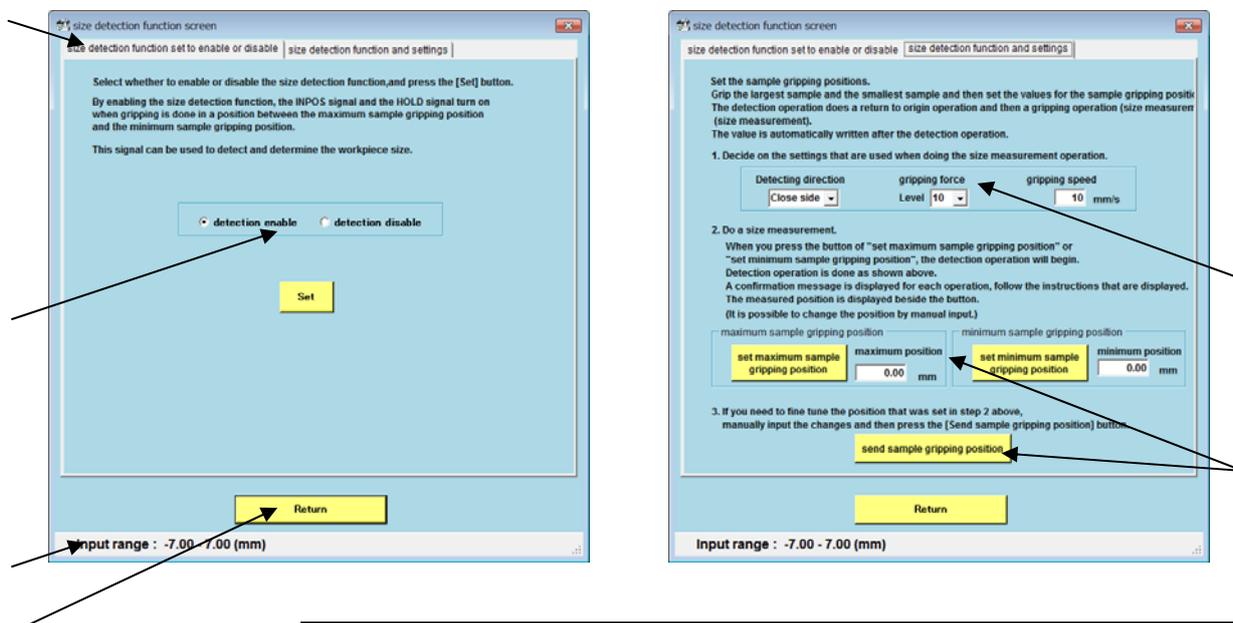
No.	Name	Description
	Menu bar	<p>Displays the names of top-level menus. There are 2 pull-down menus and 1 set menu organized by function.</p> <ul style="list-style-type: none"> ■ Return Return to operation window. The COM port opens when you return, regardless if the circuit is on or off. ■ Display <ul style="list-style-type: none"> • Clear display: Deletes all the free transmission displays, receive point parameters displays ^{Note 1)}, and receive zone parameters displays ^{Note 2)}. ■ Communications <ul style="list-style-type: none"> • Circuit on: Opens the specified COM port. • Circuit off: Closes the specified COM port.
	Status bar	<ul style="list-style-type: none"> • Connected port name • Connection status • Date • Time
	Free transmission area	<ul style="list-style-type: none"> • You can input commands directly, similar to hyper terminals. For details about the commands, refer to the instruction manuals for each controller. Free transmission area is a maximum of 25 lines. The oldest lines are deleted if the number exceeds 25.
	Receive point parameters area ^{Note 1)} Receive zone parameters area ^{Note 2)}	<ul style="list-style-type: none"> • Press the following buttons: "Receive point data ^{Note 1)}", "Receive parameters", or "Receive zone data ^{Note 2)}" to receive and display the data from each controller. When you press the button, everything that is currently displayed is deleted and then the data is received.

Note 1) Only point type is displayed.

Note 2) Only pulse train type is displayed.

8. Basic Operations in Size Detection Function Window

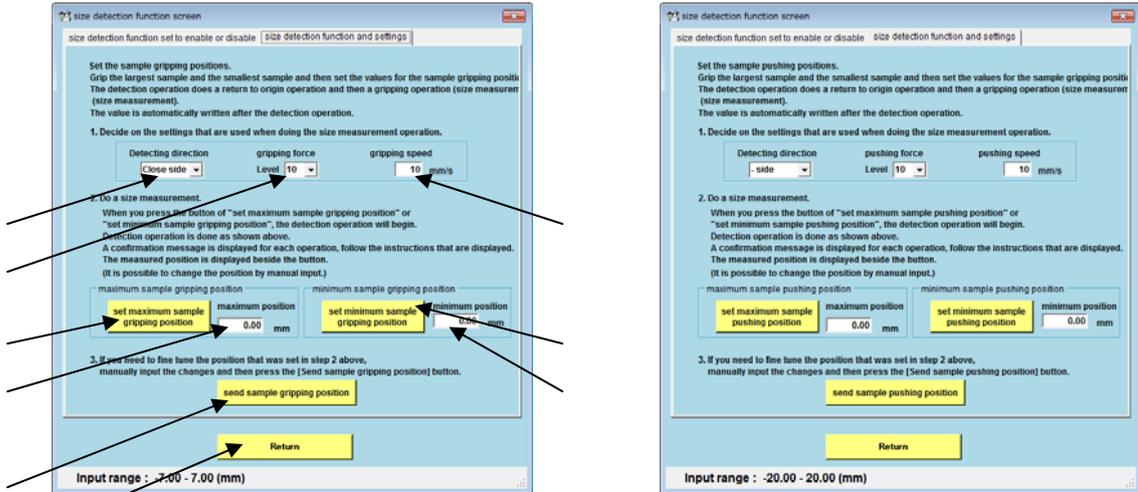
8-1 Size Detection Function Window



- : Switch display tab
- : Size detection enabled selection area
- : Size detection operation selection area
- : Send sample gripping position (pressing position) detection instruction execution area
- : Input range display area
- : Return button

No.	Name	Description
	Switch display tab	<ul style="list-style-type: none"> • Switch window display. • Set to enable or disable the size detection function: Set this to enable or disable the size detection function. • Size detection function and settings: Do size position detection. Direct settings are also possible.
	Size detection enabled selection area	Switch whether to enable or disable the size detection function. Press the SET button to set the settings.
	Size detection operation selection area	When detecting sample gripping position (pressing position), set the direction, operation speed, and force level.
	Send sample gripping position (pressing position) detection instruction execution area	Position detection is done when actually gripping (pressing). Fine adjustments can also be done by typing in values directly after detection.
	Input range display area	Displays the input range of the detected position.
	Return button	Return to operation window.

8-2 Operations for Size Detection Function and Settings



- : Size detection gripping (pressing) direction
- : Size detection gripping (pressing) force
- : Size detection gripping (pressing) speed
- : Start operation to detect maximum sample gripping (pressing) button
- : Maximum sample gripping (pressing) detected measurement display
- : Start operation to detect minimum sample gripping (pressing) button
- : Minimum sample gripping (pressing) detected measurement display
- : Size detection position direct input send button
- : Return button

No.	Name	Operation method	Remark
	Size detection gripping (pressing) direction	<ul style="list-style-type: none"> Select the direction when detecting the size. 	
	Size detection gripping (pressing) force	<ul style="list-style-type: none"> Select the gripping force (pressing force) when detecting the size. 	
	Size detection gripping (pressing) speed	<ul style="list-style-type: none"> Select the speed when detecting the size. 	
	Start operation to detect maximum sample gripping (pressing) button	<p>Prepare a sample that is the maximum size and set it in the gripping (pressing) position. Pressing the start operation button does the gripping (pressing) operations according to the set data.</p> <p>The position data is displayed in the maximum sample gripping (pressing) detected measurement display field.</p>	<p>The controller automatically writes the position in which the sample is detected when doing detection operations.</p> <p>Because of this, after the detection operation, the value displayed in the maximum sample gripping (pressing) detected measurement display field is the value that has already been written to the controller.</p>

No.	Name	Operation method	Remark
	Maximum sample gripping (pressing) detected measurement display	<ul style="list-style-type: none"> Displays the position of the sample that was the maximum size detected. <p>To make fine adjustments to the position, manually edit the displayed data and then press the size detection position direct input send button.</p>	
	Start operation to detect minimum sample gripping (pressing) button	<p>Prepare a sample that is the minimum size and set it in the gripping (pressing) position. Pressing the start operation button does the gripping (pressing) operations according to the set data.</p> <p>The position data is displayed in the minimum sample gripping (pressing) detected measurement display field.</p>	<p>The controller automatically writes the position in which the sample is detected when doing detection operations.</p> <p>Because of this, after the detection operation, the value displayed in the minimum sample gripping (pressing) detected measurement display field is the value that has already been written to the controller.</p>
	Minimum sample gripping (pressing) detected measurement display	<ul style="list-style-type: none"> Displays the position of the sample that was the minimum size detected. <p>To make fine adjustments to the position, manually edit the displayed data and then press the size detection position direct input send button.</p>	
	Size detection position direct input send button	<ul style="list-style-type: none"> Send the value that was input manually in the gripping (pressing) detection measurement display to the controller. 	
	Return button	Return to operation window.	

9. Basic Operations in Teaching Setting Window

9-1 Operation Procedure for Teaching Setting Function

- 1) Select the teaching setting method from "Direct teaching" or "Teaching playback".

However, if you select "Teaching playback", you can only select point type.

Direct teaching: This method turns excitation to the main unit off, and then you set the position manually.

Teaching playback: This method sets the positions by moving each distance that was set to be moved.

(You can also do teach movements while the button is pressed.)

- 2) Does return to origin according to the messages.

■ For direct teaching

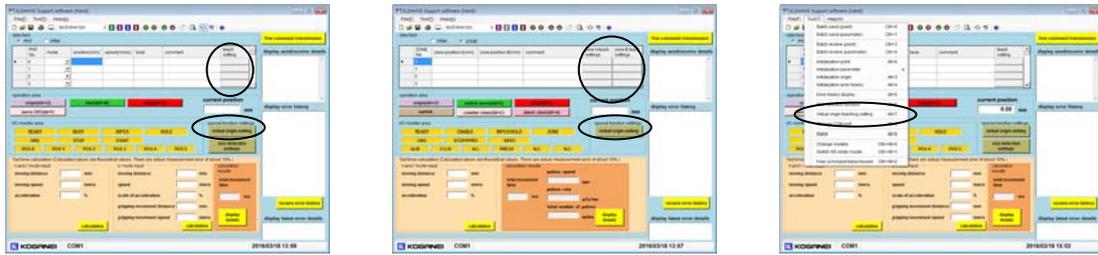
- 3) After return to origin is complete, align the position manually, and press the SET button.
- 4) Press the return button to open the operations window.

■ For teaching playback

- 3) After return to origin is complete, align the position by pressing the teach position button and then press the SET button.
- 4) Press the return button to open the operations window.

9-2 Workflow for Teaching Setting Function

Pressing the various buttons while you are setting the point data position, zone data position, or the virtual origin position, displays the teaching setting window. Direct teaching is the only teaching method available for pulse train types.



Point type

Pulse train type

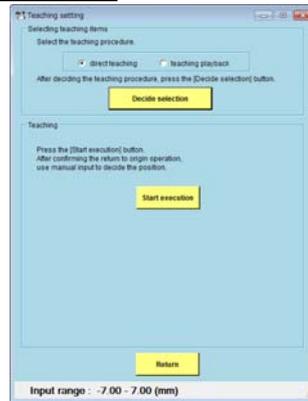
Select from menu bar

Teaching setting window

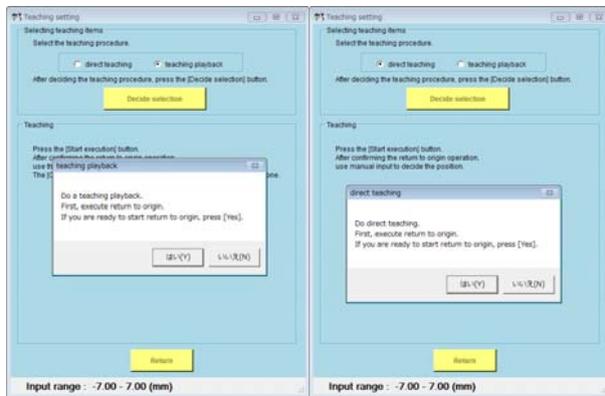
Switches to the teaching setting window.



Select a teaching method and press the set selection button.



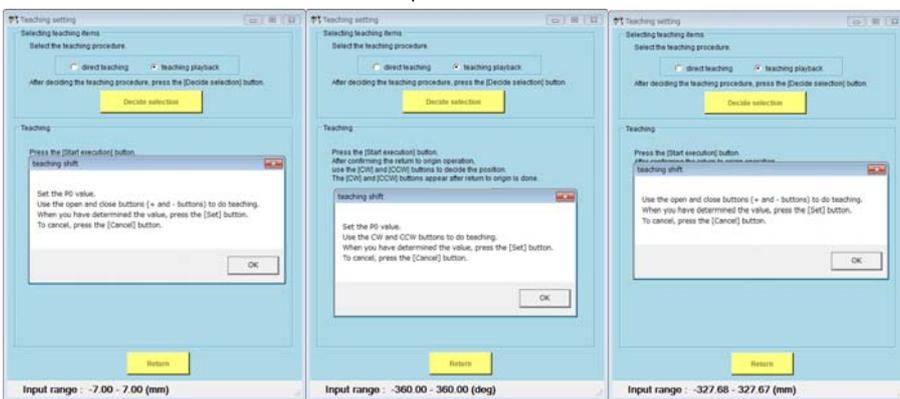
Teaching start window



The return to origin confirmation appears when you press the start execution button. If there are no problems, press "Yes". You cannot continue unless you do a return to origin.

For teaching playback

For direct teaching

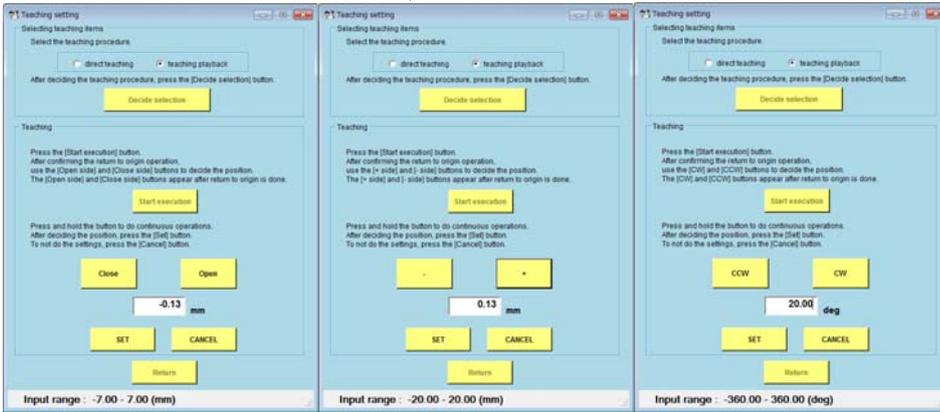


To teaching playback operation window (P. 31)

To direct teaching operation window (P. 31)

From teaching playback operation window (P. 30)

Teaching playback operation window



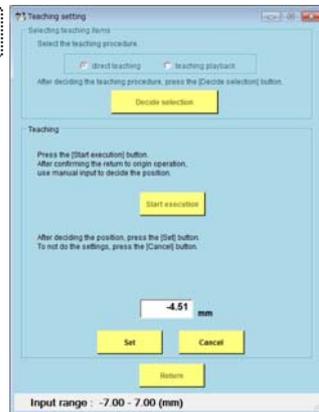
- Open and close buttons
 - + and - buttons
 - CW and CCW buttons
- Moves just the set distance each time the button is pressed.
- By pressing and holding the button down, you can move the teach distance until you release the button.

To set it at the position you moved it, press "SET".
To stop without setting, press "Cancel".

To teaching operation complete window (P. 32)

From "To direct teaching operation window" (P. 30)

Direct teaching operation window



To turn the servos off, manually move the moving parts and set the position.

To set it at the position you moved it, press "SET".
To stop without setting, press "Cancel".

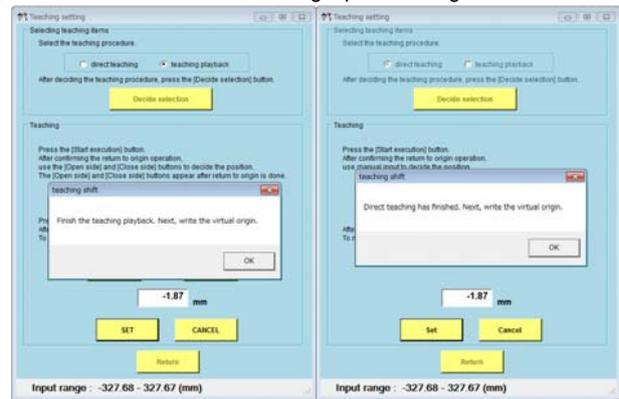
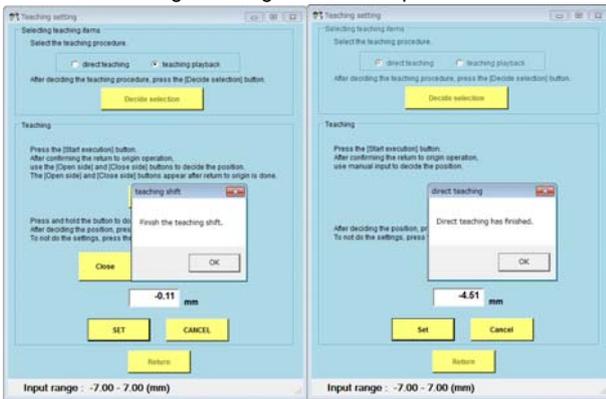
To teaching operation complete window (P. 32)

From "To teaching operation complete window" (P. 31)

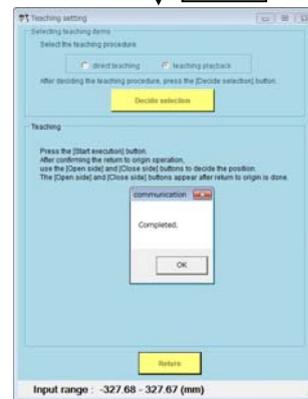
Teaching operation complete window

For setting/selecting CANCEL for position data

For virtual origin point setting

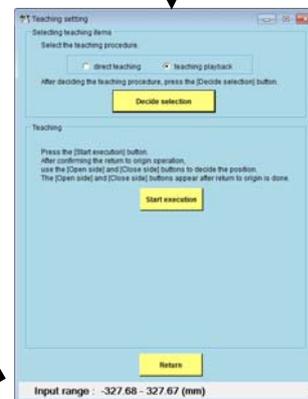


Send



When changing the teaching procedure, press "Set selection" after selecting. To continue setting, press "Start execution". To finish, press "Return".

Set selection/Start execution

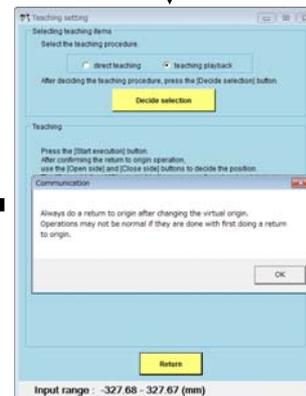


Return

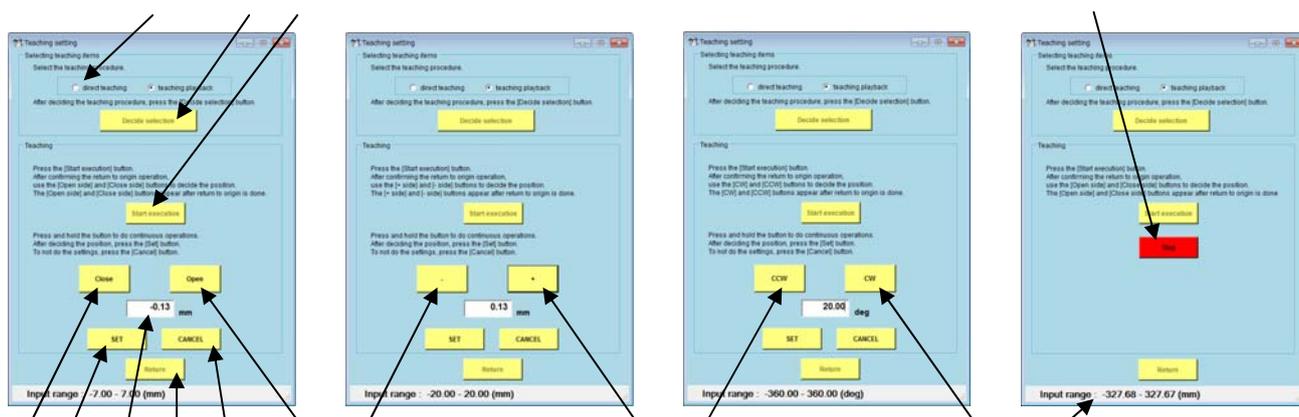
Return

To setting window (Teaching complete)

To teaching start window (P. 30)



9-3 Operations in Teaching Setting Window



- : Switch teaching procedures
- : Setting button to select teaching procedure
- : Start execution of teaching button
- : Stop return to origin button
- : Close button/- button/CCW button
- : Open button/+ button/CW button
- : Display field for teach position
- : SET settings button
- : CANCEL settings button
- : Return button
- : Input range display area

No.	Name	Operation method	Remark
	Switch teaching procedures	Switch window display. Direct teaching: This method turns excitation to the main unit off, and then you set the position manually. Teaching playback: This method sets the positions by moving each distance that was set to be moved.	• If you select teaching playback, you can only select point type.
	Setting button to select teaching procedure	• Set teaching for the teaching procedure you selected in switch teaching procedure. The start execution of teaching button is displayed when you set the settings.	
	Start execution of teaching	• Starts the teaching settings.	
	Stop return to origin button	Stops return to origin.	• Only displayed during return to origin.
	Close button /- button /CCW button	• Move the teach to closed, in the - direction, or toward CCW. By pressing and holding the button down, you can move the teach distance until you release the button.	
	Open button /+ button /CW button	• Move the teach to open, in the + direction, or toward CW. By pressing and holding the button down, you can move the teach distance until you release the button.	
	Display field for teach position	• Display the position to which the teach was moved through Direct teaching and Teaching playback.	
	SET settings button	Set the data for the teach position display field. Point data position: Set the point grid. Zone data position: Set the zone grid. Virtual origin position: Set the parameter grid. You can also send data to the controller.	

No.	Name	Operation method	Remark
	CANCEL settings button	This cancels the teach setup.	
	Return button	Return to operation window.	
	Input range display area	Display the input range for the teaching position.	

10. Appendix

10-1 Actuator and Actuator Numbers for Each Controller

Controller model	Model	Actuator model	Actuator number
EWHC(P)-NH	Electric hand	EWHA12A	84
		EWHA24A	85
		EWHA36A	86
		EWHA6H	87
		EWHA12H	88
		EWHA24H	89
		EWHA36H	90
	NS Sliders	EWM5S□A-20	30
		EWM5S□A-40	31
		EWM5H□A-20	32
		EWM5H□A-40	33
EWHC(P)-RA	Electric Rotary	EWHRT3A(-B)	61
		EWHRT5A(-B)	62
		EWHRT10A(-B)	63
		EWHRT20A(-B)	64
		EWHRT40A(-B)	65
		EWHRT60A(-B)	66
EWHC(P)-RS	Electric Rotary	EWHRT1A	50

10-2 Range of Point Data Input for Each Model

<Electric Hands>

Mode	Actuator Model	Position (mm) Possible in PRM21	Speed (mm/s)	Gripping force level (Only for U mode)
A, I, U	EWHA12A	-7 ~ 7	1 ~ 70	1 ~ 10
	EWHA24A	-10 ~ 10	1 ~ 35	1 ~ 10
	EWHA36A	-10 ~ 10	1 ~ 24	1 ~ 10
	EWHA6H	-7 ~ 7	1 ~ 140	1 ~ 10
	EWHA12H	-11 ~ 11	1 ~ 180	1 ~ 10
	EWHA24H	-13 ~ 13	1 ~ 120	1 ~ 10
	EWHA36H	-13 ~ 13	1 ~ 100	1 ~ 10

Input for gripping force level is not required in A and I modes.

Mode	Actuator Model	Speed (mm/s)	Gripping force level
O, C	EWHA12A	1 ~ 35	1 ~ 10
	EWHA24A	1 ~ 10	1 ~ 10
	EWHA36A	1 ~ 10	1 ~ 10
	EWHA6H	1 ~ 50	1 ~ 10
	EWHA12H	1 ~ 10	1 ~ 5
		1 ~ 35	6 ~ 10
	EWHA24H	1 ~ 20	1 ~ 10
	EWHA36H	1 ~ 10	1 ~ 10

Input for position is not required for O and C modes.

For EWHA12H, the range of input speed differs depending on the gripping force level.

<NS Sliders>

Mode	Actuator Model	Position (mm) Possible in PRM21	Speed (mm/s)	Gripping force level (Only for U mode)
A, I, U	EWM5S□A-20	-20 ~ 20	1 ~ 50	1 ~ 10
	EWM5S□A-40	-40 ~ 40	1 ~ 50	1 ~ 10
	EWM5H□A-20	-20 ~ 20	1 ~ 120	1 ~ 10
	EWM5H□A-40	-40 ~ 40	1 ~ 120	1 ~ 10

Input for gripping force level is not required in A and I modes.

Mode	Actuator Model	Speed (mm/s)	Gripping force level
O, C	All models	1 ~ 10	1 ~ 10

Input for position is not required for O and C modes.

<Electric Rotary>

Mode	Actuator Model	Position (deg) Possible in PRM21	Speed (%)
A, I	All models	-360 ~ 360	1 ~ 100

Mode	Actuator Model	Brake (0:OFF/1:ON)
B	All models	0 ~ 1

There is no B mode in EWHC-RS.

Input for speed is not required for B mode.

10-3 Range of Zone Position Data Input for Each Model

<Electric Hands>

Actuator Model	Zone position A (mm)	Zone position B (mm)
EWHA12A	-7 ~ 7	-7 ~ 7
EWHA24A	-10 ~ 10	-10 ~ 10
EWHA36A	-10 ~ 10	-10 ~ 10
EWHA6H	-7 ~ 7	-7 ~ 7
EWHA12H	-11 ~ 11	-11 ~ 11
EWHA24H	-13 ~ 13	-13 ~ 13
EWHA36H	-13 ~ 13	-13 ~ 13

Set zone position A so that it has a smaller value than zone position B.

Input ranges must not include 0.

<NS Sliders>

Actuator Model	Zone position A (mm)	Zone position B (mm)
EWM5S□A-20	-20 ~ 20	-20 ~ 20
EWM5S□A-40	-40 ~ 40	-40 ~ 40
EWM5H□A-20	-20 ~ 20	-20 ~ 20
EWM5H□A-40	-40 ~ 40	-40 ~ 40

Set zone position A so that it has a smaller value than zone position B.

Input ranges must not include 0.

<Electric Rotary>

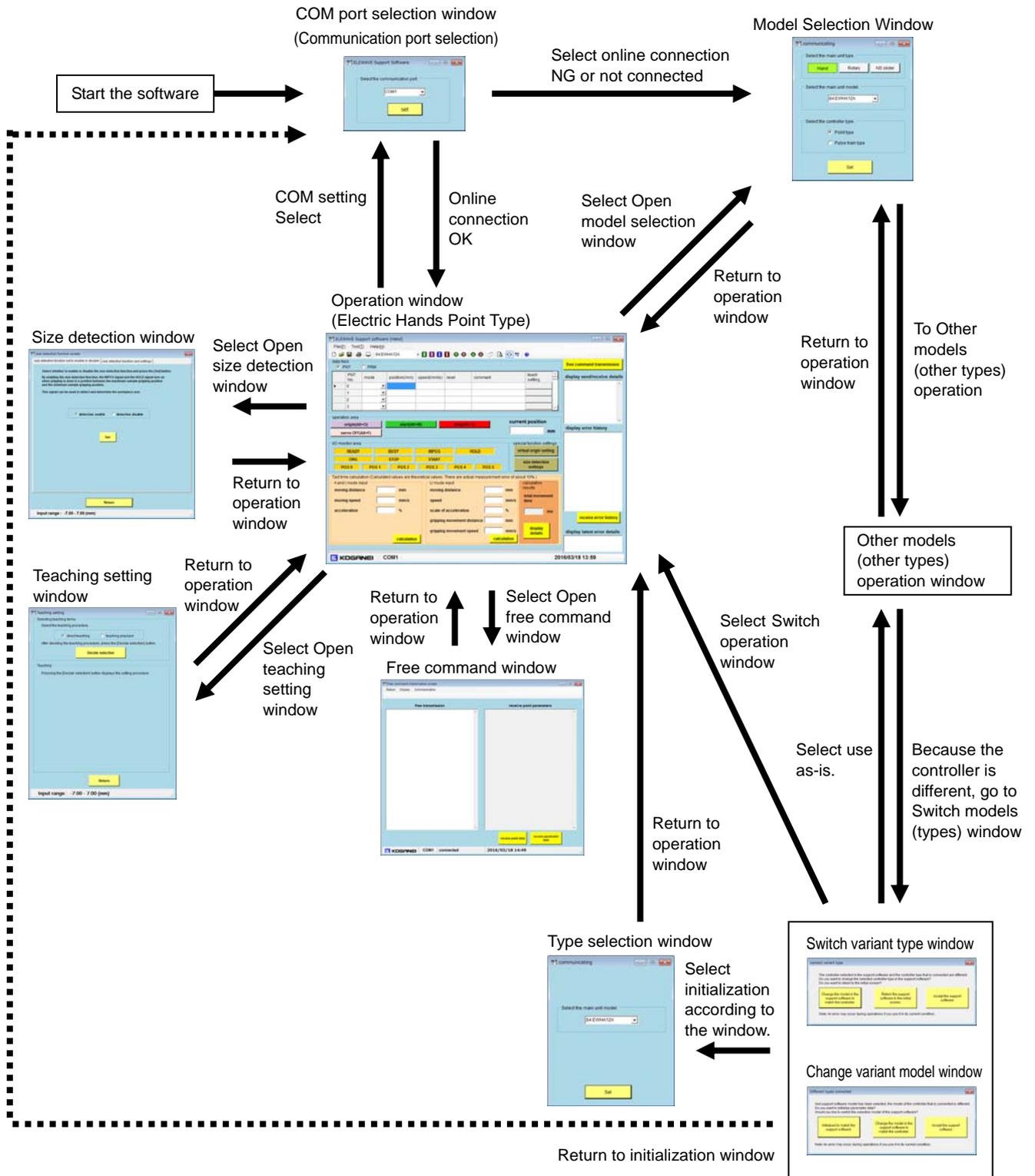
Actuator Model	Zone position A (deg)	Zone position B (deg)
All models	0 ~ 360	0 ~ 360

Set zone position A so that it has a smaller value than zone position B.

10-4 Image of Overall Workflow of Support Software

The Electric Hands Point Type is described here as an example of the overall workflow.

(Controller connection for Electric Hands Point Type)



If you have any problems with the content of this publication or technical questions, please contact the Koganei Overseas Department below.

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