

KOGANEI

**ELEWAVE SERIES
SUPPORT SOFTWARE**

(Windows 7/8.1/10/11 supported)

OWNER'S MANUAL Ver.2.0

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11. Revision History

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

• Instruction Manual Numbers

	Rotaries	Hands	NS Sliders	3 Finger Hand
Point input type	X495025	X435045	X435044	X435310
Pulse train input type	X495049	X435058	X435060	—
CC-Link remote device type	—	—	—	X435310

1. Software Overview

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 ☐
- 3 Finger Electric Hand model: EWHD ☐

■ Operating Environment

- Operating System
Windows 7(SP1), Windows 8.1, Windows 10, Windows 11
- Computer System
 - ☐ Computer: Processor recommended by Microsoft
 - ☐ Memory: Memory capacity recommended by Microsoft
 - ☐ Hard disk space: At least 100 MB available
 - ☐ Display: 1024 × 768 or better
 - ☐ Serial port: RS-232C serial port or a USB port available
 - ☐ Other: .NET Framework 4.8 installed

Note1) A USB-RS232C adapter is necessary.

2. Before You Begin

2-1 Preparation

- If .NET Framework 4.8 is not installed, then install “ndp48-x86-x64-allos-enu.exe”.
(You can also download them from our website.)
- Start up “setup.exe” and follow the installation procedure.
- When installation is complete, shortcuts are added to the Start menu and desktop.

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.

After selecting a language, select the COM port to use.

For the following procedure, see "3-2 Software Startup Flowchart" for the windows that are displayed.

■ 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 for the specific 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 controller type selection window.
- 3) Select the controller type to be used, and press the Set button.
- 4) Moves to the operation window for the specific controller type.

Note 1: Online state (only support software is communicating) indicates that the controller is connected by a communications cable and the controller's power is off; offline state (not connected is selected) indicates the controller is not connected by a communications cable.

Note 2: 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, connections, and connectors.

Note 3: For information about the operating windows for each type of controller, see "4. Basic Operations for Point Input Type/CC-Link remote device type" on page 9 and "5. Basic Operations for Pulse Train Input Type" on page 17.

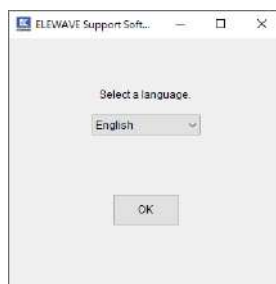
3-2 Software Startup Flowchart

When you start the software the language selection window opens.

When you select a language, the communication port selection window opens.

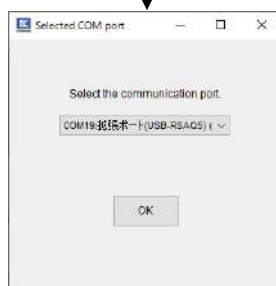
<Online connection (support software is in communication with the controller)>

Language selection window
(initial window in the
software)



Select "English".

Communication port selection
window



Select the communication port.

When communication with the controller is successful, the operating window for the support software, depending on the controller model and controller type, opens automatically. Receives zone data from the controller about 5 seconds after opening.

Operation window



Electric Rotary Point Type



Electric Hands Point Type



NS Sliders Point Type



3 Finger Electric Hand 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.



3 Finger Electric Hand CC-Link
Remote Device Type

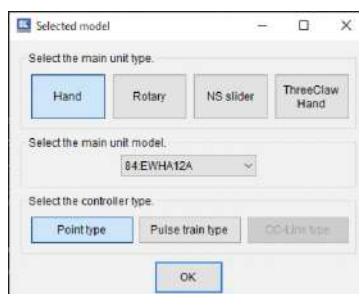
<Online status (only support software is in communication)>

Communication port selection window



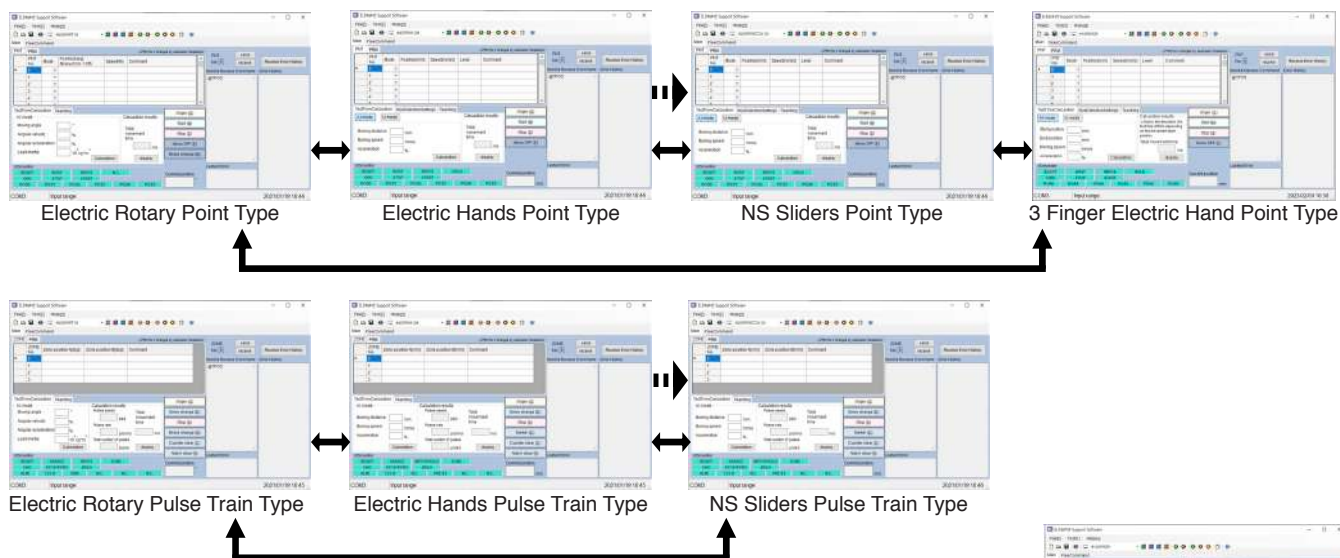
Select the communication port.
If the communication with the controller is lost, the model selection window opens.

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.

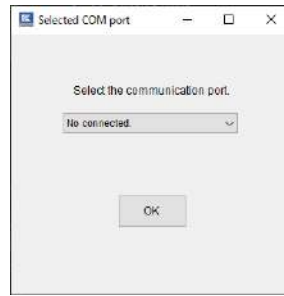
Operation window



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

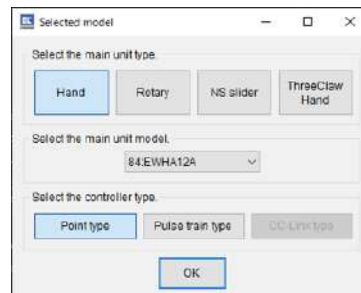
<Offline status (not connected is selected)>

Communication port selection window



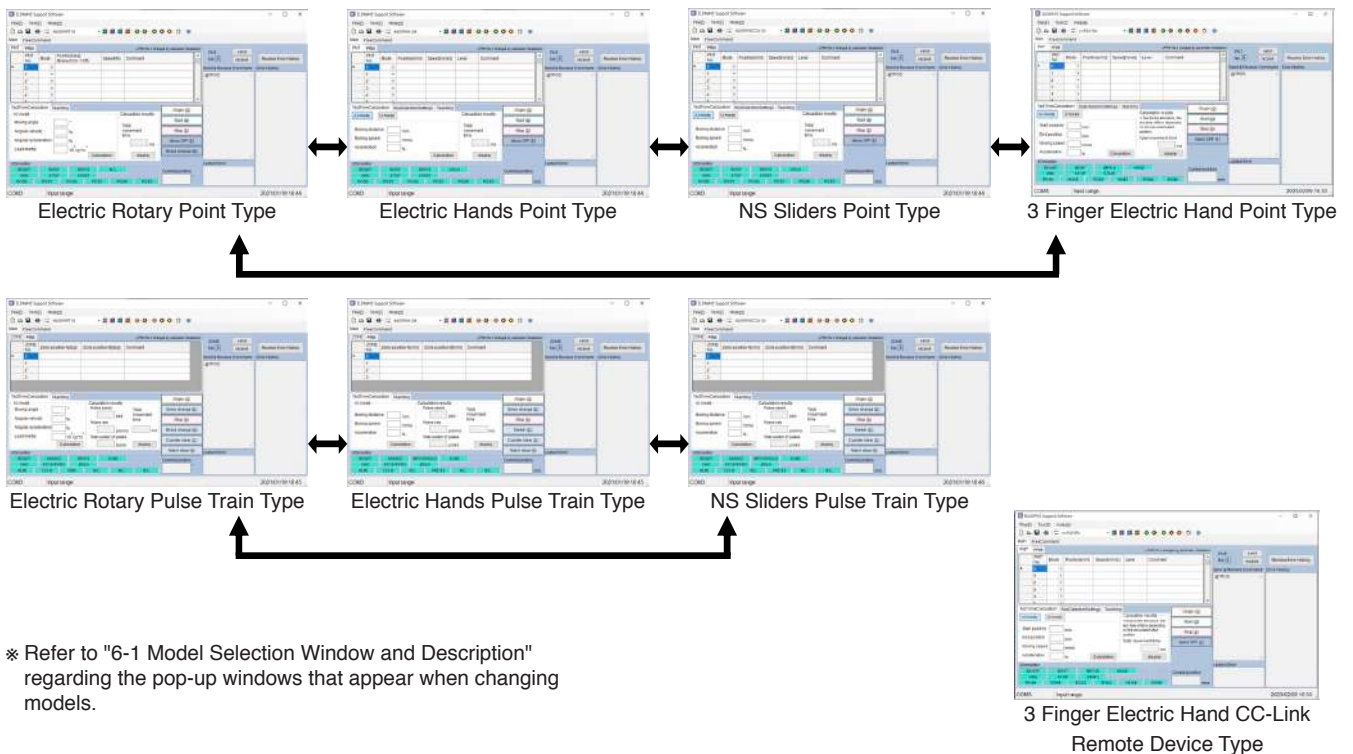
"Not connected" is selected for the communication port.
The model selection window opens.

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



※ 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/CC-Link Remote Device 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 Main area.
- 3) In the Main area or Teaching page, set the virtual origin point.
(This setting is unnecessary if changing the initial origin point is not necessary.
This cannot be selected for the 3 Finger Electric Hand.)
- 4) In the Main area, enter point data.
- 5) Send the point data and parameter data.
- 6) In the Main area, perform the return to origin operation.
- 7) In the Main area, select the line of the point number that you want to operate.
- 8) In the Main 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 window. The interface includes a menu bar (1), a tool bar (2), and a status bar (3). The main area (4) is divided into several sections: a data table (14) for PNT No., Mode, Position, Speed, Level, and Comment; a TactTimeCalculation section (8) with sub-tabs for AI mode, LI mode, and Teaching; a SizeDetectionSettings section (9); and a Teaching section (10). The I/O monitor section (7) displays status indicators like READY, BUSY, INPOS, HOLD, ORG, STOP, START, POS0, POS1, POS2, POS3, POS4, and POS5. The operation area (6) contains buttons for Origin (O), Start (M), Stop (S), and Servo OFF (E). The transmission display area (11) shows Send & Receive Command and Error History. The error history display area (12) shows the Latest Error. The bottom status bar (13) displays the COM3 port and input range.

①: Menu bar
 ②: Tool bar
 ③: Status bar
 ④: Data area
 ⑤: Individual data send receive area
 ⑥: Operation area
 ⑦: I/O monitoring area
 ⑧: Tact time calculation page
 ⑨: Size detection function page
 ⑩: Teaching page
 ⑪: Transmission display area
 ⑫: Error history display area
 ⑬: Latest error display area
 ⑭: Free command transmission page

No.	Name	Description																		
①	Menu bar	<p>Displays the names of top-level menus. There are 3 pull-down menus, organized by function, on the menu bar.</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. • Close: Quits the program. * Comments can be written in the files, but they will not be stored on the controller. <p>■ Tool</p> <ul style="list-style-type: none"> • Batch send points: Sends point data to the controller. • Batch send parameters: Sends parameter data to the controller. • Batch receive points: Receives point data from the controller. • Batch receive parameters: Receives parameter data from the controller. • Initialize points: Initializes point data. • Initialize parameters: Initializes parameter data. Select an actuator number before initializing parameter data. • Initialize origin: Initializes origin position. • Initialize error history: Initializes error history data. • Receive error history: Displays a history of the last 16 errors. (The entry at the very bottom is the most recent error history.) • Size detection settings^{Note 1)}: Switches to the size detection page so you can detect sizes. • Teaching: Switches to the teaching page so you can set the virtual origin using the teaching moves. • COM port settings: The COM port settings window opens so you can set the COM port. • Match: Compares the settings with the data on the controller. • Change model: 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: Switches to the free command transmission page. <p>■ Help</p> <ul style="list-style-type: none"> • Displays version information 																		
②	Tool bar	<p>Provides useful buttons that function as shortcuts for frequently used menu 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)</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> Receive (error history)</td> <td> Match</td> </tr> <tr> <td> Version information</td> <td></td> <td></td> </tr> </table>	New	Open	Save	Print	COM setting	Initialize (point)	Initialize (parameters)	Initialize (origin)	Initialize (error history)	Send (point)	Send (parameter)	Receive (point)	Receive (parameter)	Receive (error history)	Match	Version information		
New	Open	Save																		
Print	COM setting	Initialize (point)																		
Initialize (parameters)	Initialize (origin)	Initialize (error history)																		
Send (point)	Send (parameter)	Receive (point)																		
Receive (parameter)	Receive (error history)	Match																		
Version information																				
③	Status bar	• Connected port name • Input range • Date • Time																		
④	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 (pushing) level^{Note 3)} as setting data. 																		
⑤	Individual data send receive area	• Individually sends and receives the data in the point entry field or the parameter entry field.																		
⑥	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)}. 																		
⑦	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. 																		
⑧	Tact time calculation page	• The tact time can be calculated by inputting the settings data.																		
⑨	Size detection function page ^{Note 1)}	• Displays a page for doing size detection settings.																		
⑩	Teaching page	• Displays a page for setting a virtual origin position or point data position manually or by teaching.																		
⑪	Transmission display area	• Displays the data transmitted between the computer and the controllers.																		

No.	Name	Description
⑫	Error history display area	• Displays errors in the error history display box.
⑬	Latest error display area	• Displays the errors that have occurred in the Latest error display box. It is overwritten when a new error occurs.
⑭	Free command transmission page	• Moves to the free command transmission page.

Note 1) Not displayed for electric rotary models.

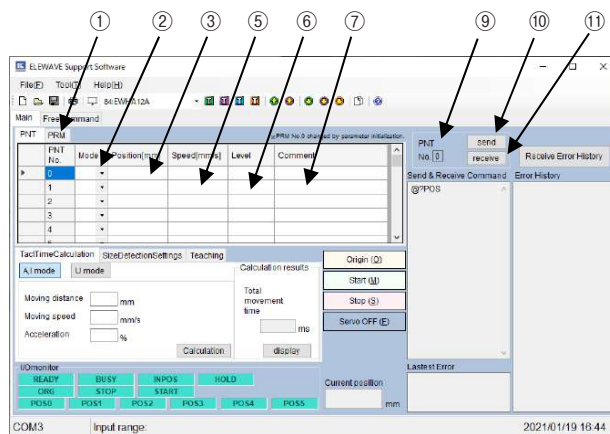
Note 2) Displayed for electric hands models only. (This will not be displayed for the 3 Finger Electric Hand.)

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

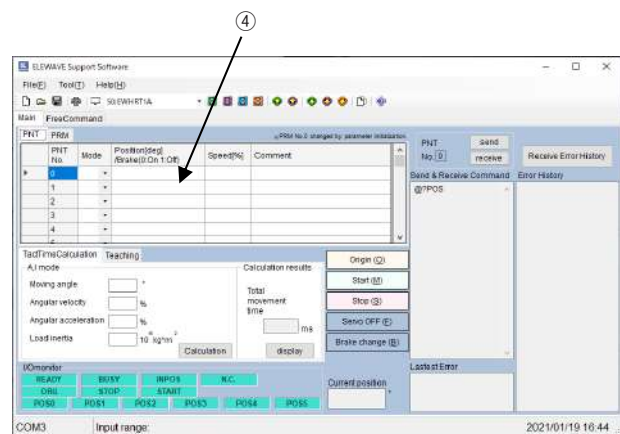
Note 4) Displayed for electric rotary models only.

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

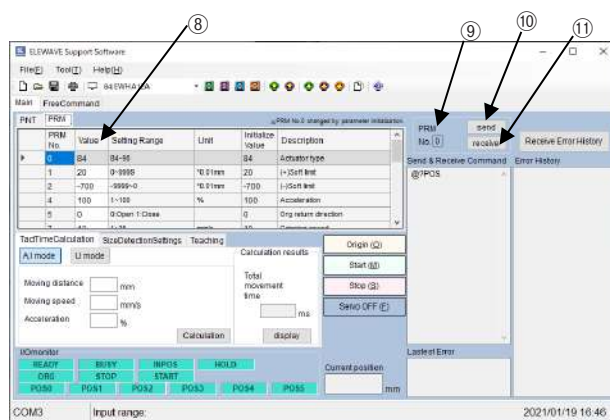
4-3 Operations in Data Area and Individual Data Send/Receive Area



Electric Hands/NS Sliders/
3 Finger Electric Hand Point (PNT) window



Electric Rotary Point (PNT) window

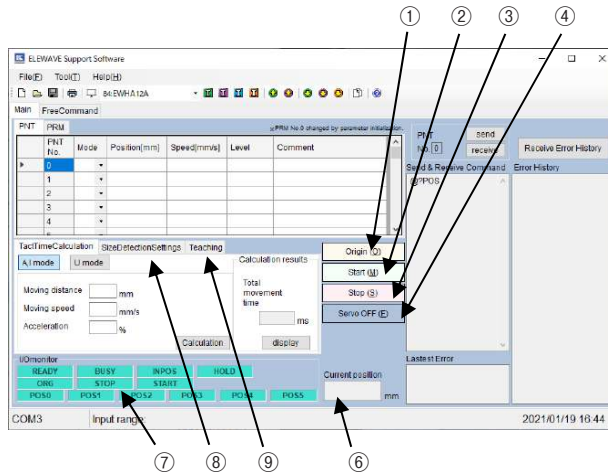


Parameters (PRM) window

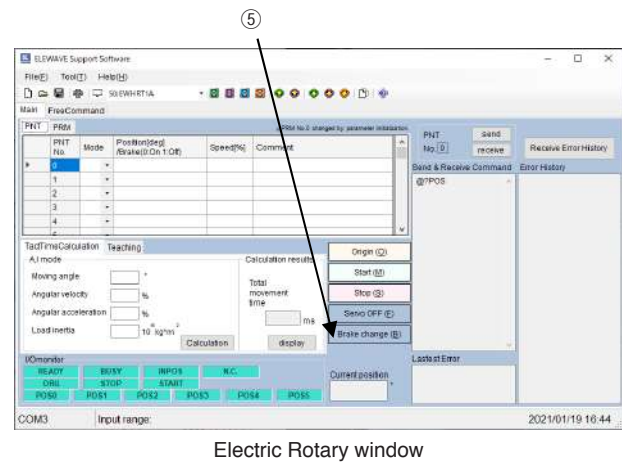
- | | |
|-----------------------------|-------------------------|
| ①: Switch windows | ⑦: Comment |
| ②: Operation mode | ⑧: Parameters |
| ③: Position | ⑨: Selected data No. |
| ④: Position/brake | ⑩: Individually send |
| ⑤: Speed | ⑪: Individually receive |
| ⑥: Gripping (pushing) level | |

No.	Name	Operation method	Remark
①	Switch windows	• Switch from point to parameter display. PNT: Point/PRM: Parameter	
②	Operation mode	• 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 and brake are displayed for electric rotary models only. Gripping (pushing) level is not displayed for electric rotary models.
③	Position	• Input the positions of the point data.	
④	Position/brake	• Input the positions and brakes of the point data.	
⑤	Speed	• Input the speeds of the point data.	
⑥	Gripping (pushing) level	• Input the gripping (pushing) levels of the point data.	
⑦	Comment	• 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 or received. Do not use double quotations.
⑧	Parameters	• Input parameter data.	
⑨	Selected data No.	• Displays the point No. or parameter No. selected in the data area.	
⑩	Individually send	• Sends the selected data No.	
⑪	Individually receive	• Receives the selected data No.	

4-4 Operations in Operation & I/O Monitor Area, Size Detection Function, and Teaching Page



Electric Hands/NS sliders/3 Finger Electric Hand window



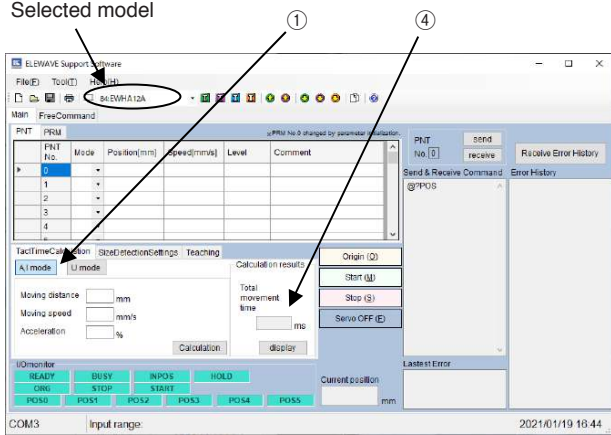
Electric Rotary window

- | | |
|---------------------|---------------------------------|
| ①: Return to origin | ⑥: Current position display |
| ②: Start | ⑦: I/O monitor |
| ③: Stop | ⑧: Size detection function page |
| ④: Servo OFF | ⑨: Teaching page |
| ⑤: Switch brake | |

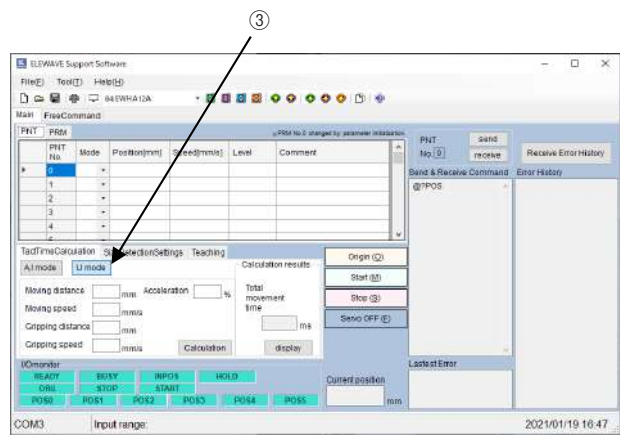
No.	Name	Operation method	Remark
①	Return to origin	• Executes return to origin.	
②	Start	• Moves points. The point numbers are the point numbers selected in the data area.	
③	Stop	• Stops operations.	
④	Servo OFF	• Puts the motors in a free state.	
⑤	Switch brake	• Switches the brake status (on/off).	• Displayed for electric rotary models only.
⑥	Current position display	• Shows the current position.	
⑦	I/O monitor	• Indicates the I/O states. Pink: Signal on Gray: Signal off Light blue: Communications off, update off, or communication error	• The monitor display is for reference only because it is not a real time display, as it has an update cycle that is about 5 seconds. Updates are not done at startup or at return to origin from the support software.
⑧	Size detection function page	• Select the size detection position while gripping (pushing) the actual target object and setting it. Pushing the button opens the size detection function page.	• Electric rotary models do not have this. • Refer to "8. Basic Operations in Size Detection Function Page" for an explanation of the Size detection setting page.
⑨	Teaching page	• Select to set the virtual return to origin and the position of point data by doing teach movements. Pushing the button opens the teach setting page.	• Refer to "9. Basic Operations in Teaching Setting Page" for an explanation of the teach setting page.

4-5 Operations in Tact Time Calculation Area

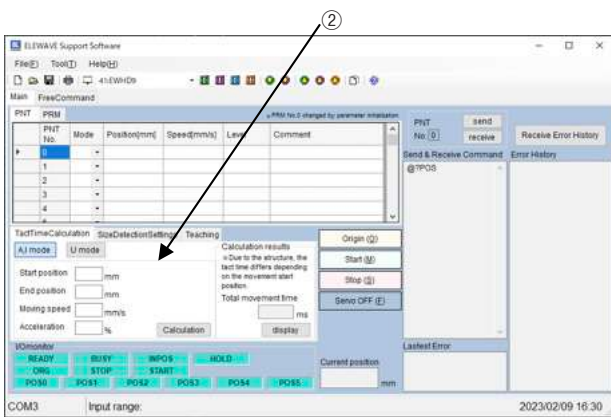
Selected model



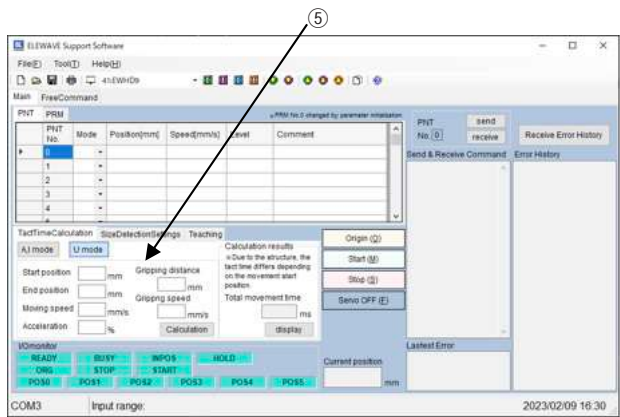
Electric Hands/NS sliders window



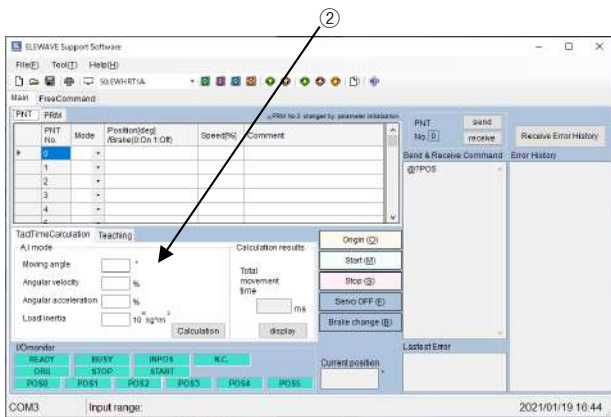
Electric Hands/NS sliders window



3 Finger Electric Hand window

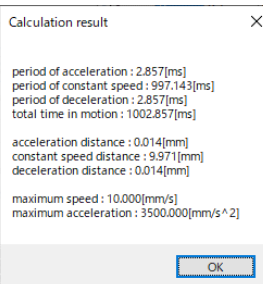


3 Finger Electric Hand window



Electric Rotary window

Example of display details

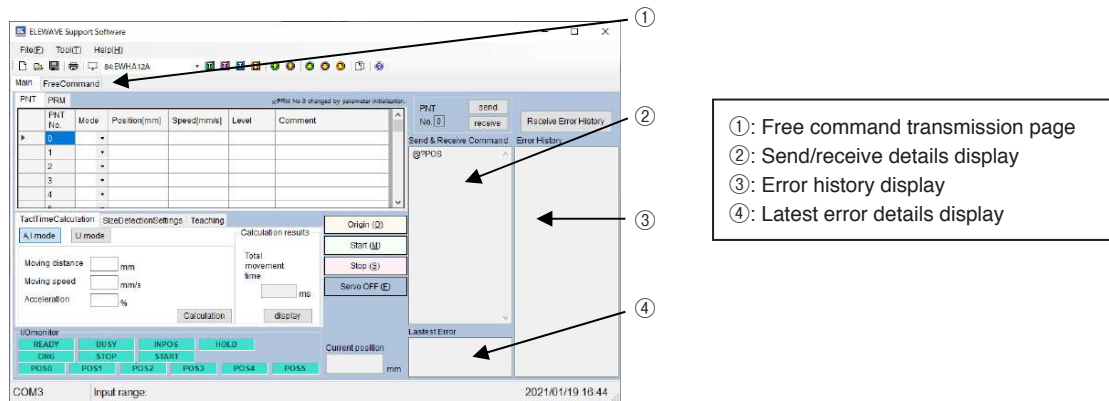


- ①: Calculations for A and I modes (Electric hands/NS sliders)
- ②: Calculations for A and I modes (3 Finger Electric Hand)
- ③: Calculations for A and I modes (Electric rotary)
- ④: U mode calculations (Electric Hand/NS sliders)
- ⑤: U mode calculations (3 Finger Electric Hand)
- ⑥: Calculation results

No.	Name	Operation method	Remark
①	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 Calculation 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.
②	Calculations for A and I modes (3 Finger Electric Hand)	<ul style="list-style-type: none"> Input the start position, end position, travel speed, and acceleration rate, then push calculation button to display the total travel time^{Note1} in the calculation result area. 	<ul style="list-style-type: none"> The input range follows the input range specification of each model. The selected model is the model displayed on the upper area of the support software.
③	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 Calculation 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.
④	U mode calculations	<ul style="list-style-type: none"> Input the distance moved, speed moved, scale of acceleration, gripping movement distance (pushing movement distance), and gripping movement speed (pushing movement speed), and then press the Calculation 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.
⑤	U mode calculations (3 Finger Electric Hand)	<ul style="list-style-type: none"> Input the start position, end position, travel speed, acceleration rate, grip travel distance, and grip travel speed, then push calculation button to display the total travel time^{Note1} in the calculation result area. 	<ul style="list-style-type: none"> The input range follows the input range specification of each model. The selected model is the model displayed on the upper area of the support software.
⑥	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, and distance. 	<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.

Note 1) Due to the 3 Finger Electric Hand structure, even if travel distance is the same, start position and end position will differ depending on the takt time.

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



No.	Name	Operation method	Remark
①	Free command transmission page	<ul style="list-style-type: none"> Moves to the free command transmission page. 	<ul style="list-style-type: none"> Refer to “7. Basic Operations in Free Command Transmission Page” for an explanation of the free command transmission page.
②	Send/receive details display	<ul style="list-style-type: none"> Displays the transmissions sent by the support software and those received from the controller. 	
③	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 a history of the last 16 errors. The entry at the very bottom is the most recent error history.
④	Latest error details display	<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.

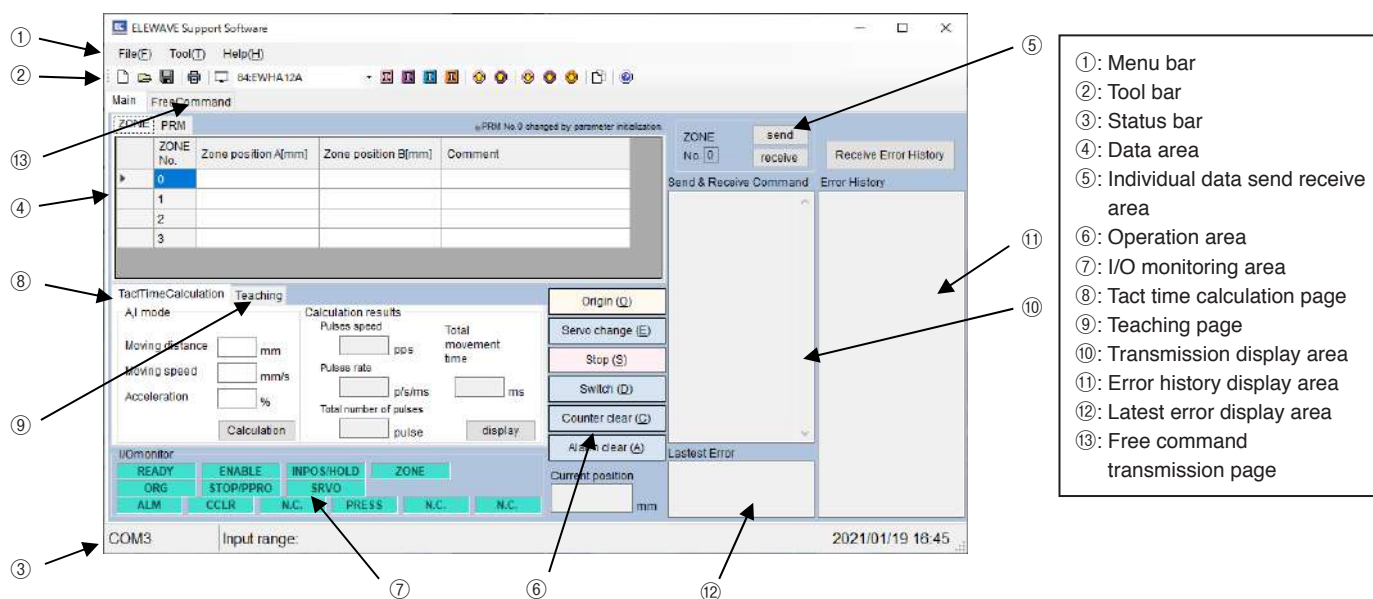
- 1) Align with the specified actuator number and initialize the parameters.
(Be sure to do this if you purchased a standalone controller.)
- 2) Set the use conditions and so on using the parameters in the Main area.
- 3) In the Main area or Teaching page, set the virtual origin point.
(This setting is unnecessary if changing the initial origin point is not necessary.)
- 4) In the Main area, enter zone data.
(Not needed if zone data is not used.)
- 5) Send the zone data and parameter data.
- 6) In the Main 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



No.	Name	Description
①	Menu bar	<p>Displays the names of top-level menus. There are 3 pull-down menus, organized by function, on the menu bar.</p> <ul style="list-style-type: none"> ■ File <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.

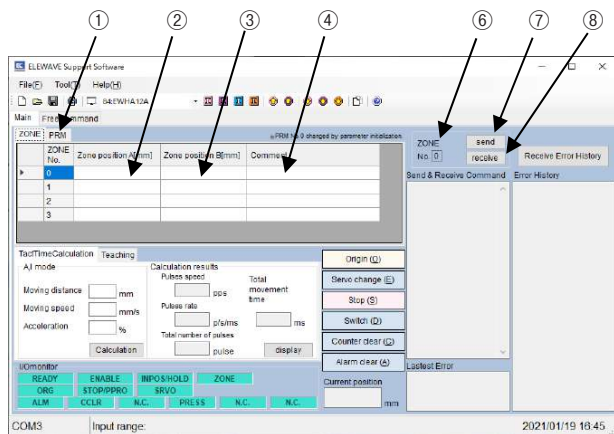
No.	Name	Description
①	Menu bar	<ul style="list-style-type: none"> • Print: Prints settings. • Close: Quits the program. * Comments can be written in the files, but they will not be stored on the controller. <div> <div> ■ Tool <ul style="list-style-type: none"> • Batch send parameters: Sends parameter data to the controller. • Batch send zones: Sends zone data to the controller. • Batch receive parameters: Receives parameter data from the controller. • Batch receive zones: Receives zone data from the controller. • Initialize parameters: Initializes parameter data. • Initialize zone: Select an actuator number before initializing parameter data. • Initialize origin: Initializes zone data. • Initialize error history: Initializes origin position. • Receive error history: Initializes error history data. • Teaching: Displays a history of the last 16 errors. (The entry at the very bottom is the most recent error history.) • COM port settings: Switches to the teaching page so you can set the virtual origin using the teaching moves. • Match: The COM port settings window opens so you can set the COM port. • Change model: Compares the settings with the data on the controller. • Switch NS slider model^{Note 1)}: You can change the model selected in the support software. • Free command transmission: 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. </div> <div> ■ Help <ul style="list-style-type: none"> • Displays version information </div> </div>
②	Tool bar	<p>Provides useful buttons that function as shortcuts for frequently used menu commands.</p> <div> <div> New Open Save </div> <div> Print COM setting Initialize (zone) </div> <div> Initialize (parameters) Initialize (origin) Initialize (error history) </div> <div> Send (zone) Send (parameter) Receive (zone) </div> <div> Receive (parameter) Receive (error history) Match </div> <div> Version information </div> </div>
③	Status bar	• Connected port name • Input range • Date • Time
④	Data area	<ul style="list-style-type: none"> • Switches between the zone entry field and parameter entry field by switching the display. • Input the zone output range as the setting data.
⑤	Individual data send receive area	• Individually sends and receives the data in the zone entry field or the parameter entry field.
⑥	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"> • Return to origin: 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 operation and the pressing operation. • Cancel alarm: Clears an alarm that has been set off.
⑦	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.
⑧	Tact time calculation page	• The tact time can be calculated by inputting the settings data.
⑨	Teaching page	• Moves to window for setting a virtual origin position or point data position manually or by teaching.
⑩	Transmission display area	• Displays the data transmitted between the computer and the controllers.
⑪	Error history display area	• Displays errors in the error history display box.
⑫	Latest error display area	• Displays the errors that have occurred in the Latest error display box. It is overwritten when a new error occurs.
⑬	Free command transmission page	• Moves to the free command transmission page.

Note 1) Displayed for electric hands models only.

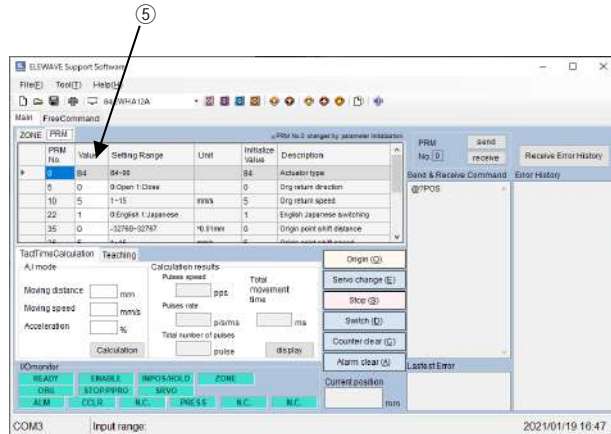
Note 2) Displayed for electric rotary models only.

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

5-3 Operations in Data Area and Individual Data Send/Receive Area



Zone (ZONE) window

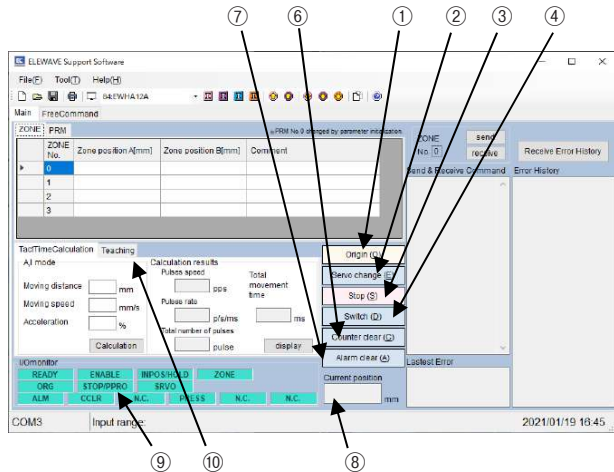


Parameters (PRM) window

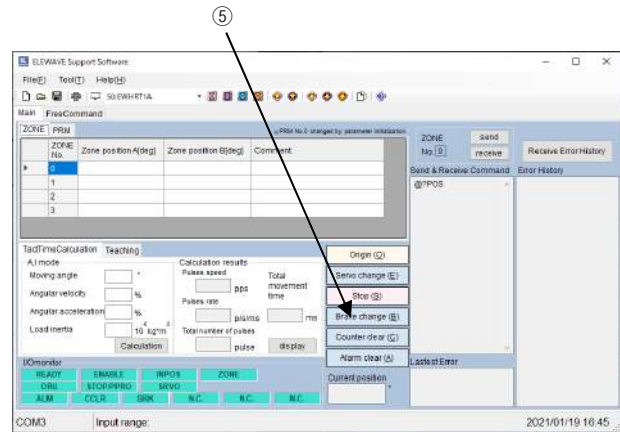
- | | |
|--------------------|-------------------------|
| ①: Switch windows | ⑤: Parameters |
| ②: Zone position A | ⑥: Selected data No. |
| ③: Zone position B | ⑦: Individually send |
| ④: Comment | ⑧: Individually receive |

No.	Name	Operation method	Remark
①	Switch windows	• Switch from zone to operation parameter display. ZONE: Zone/PRM: Parameter	
②	Zone position A	• 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 mm.
③	Zone position B	• Input the positions for zone position B.	
④	Comment	• Enter a comment for zone data.	
⑤	Parameters	• Input parameter data.	
⑥	Selected data No.	• Displays the zone No. or parameter No. selected in the data area.	
⑦	Individually send	• Sends the selected data No.	
⑧	Individually receive	• Receives the selected data No.	

5-4 Operations in Operation & I/O Monitor Area and Teaching Page



Electric Hands/NS sliders window

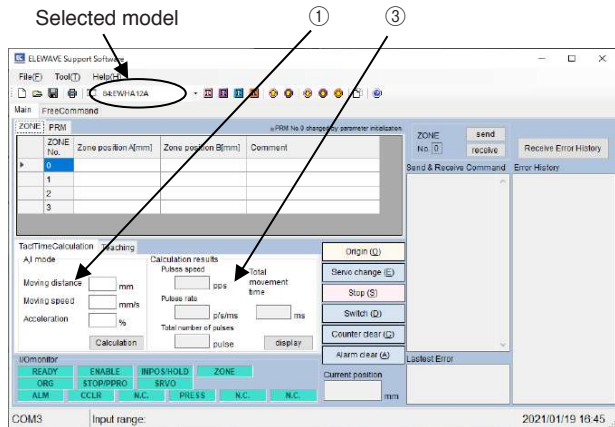


Electric Rotary window

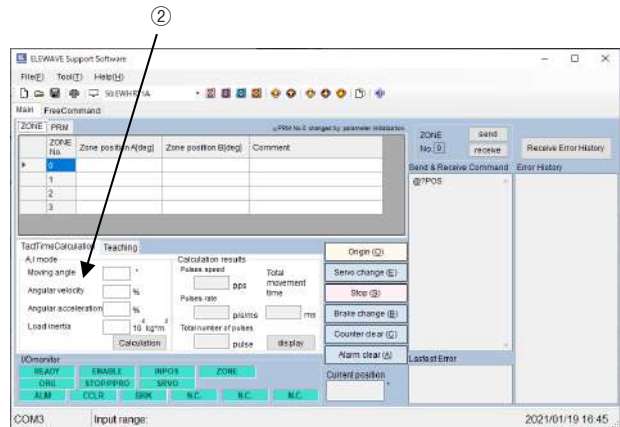
- | | |
|---------------------|-----------------------------|
| ①: Return to origin | ⑥: Clear counter |
| ②: Switch servo | ⑦: Clear alarm |
| ③: Stop | ⑧: Current position display |
| ④: Switch operation | ⑨: I/O monitor |
| ⑤: Switch brake | ⑩: Teaching page |

No.	Name	Operation method	Remark
①	Return to origin	• Executes return to origin.	
②	Switch servo	• Switches the servo status (on/off).	
③	Stop	• Stops return to origin operation.	
④	Switch operation	• Switches the gripping operation (pushing operation) ⇔ Positioning operation.	• Displayed for electric hands and NS slider models only.
⑤	Switch brake	• Switches the brake status (on/off).	• Displayed for electric rotary models only.
⑥	Clear counter	• Puts the current position at 0.00.	
⑦	Clear alarm	• Clears the alarm status.	
⑧	Current position display	• Shows the current position.	
⑨	I/O monitor	• Indicates the I/O states. Pink: Signal on Gray: Signal off Light blue: Communications off, update off, or communication error	• The monitor display is for reference only because it is not a real time display, as it has an update cycle that is about 5 seconds. Updates are not done at startup or at return to origin from the support software.
⑩	Teaching page	• Select to set the virtual origin position and zone position by doing teach movements. Pushing the button opens the teach setting page.	• Refer to “9. Basic Operations in Teaching Setting Page” for an explanation of the teach setting page. • Teach settings are only the settings for direct teaching.

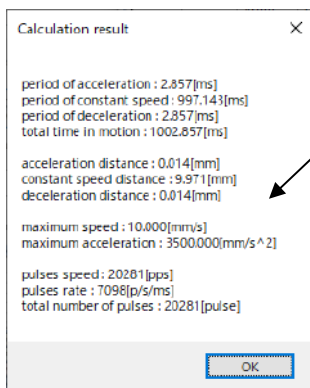
5-5 Operations in Tact Time Calculation Area



Electric Hands/NS sliders window



Electric Rotary window

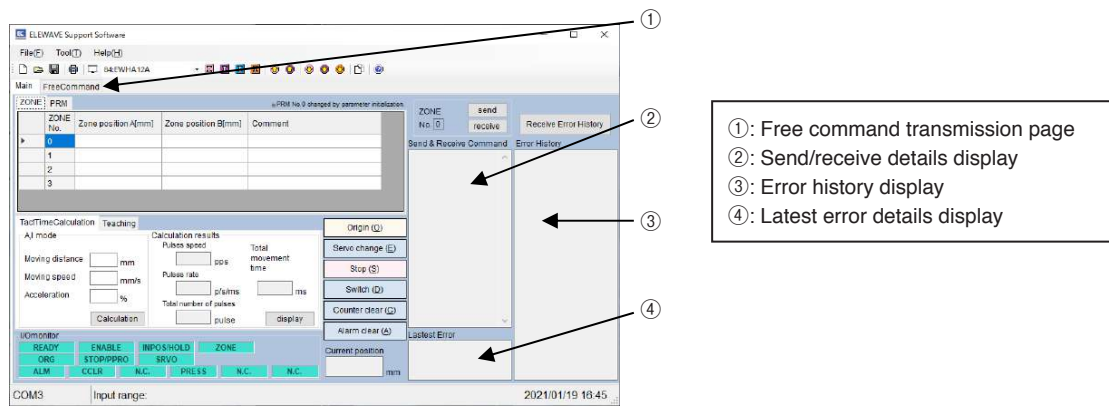


Example of display details

- ①: Calculations for A and I modes (Electric hands/NS sliders)
- ②: Calculations for A and I modes (Electric rotary)
- ③: Calculation results

No.	Name	Operation method	Remark
①	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 Calculation 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.
②	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 Calculation 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.
③	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.

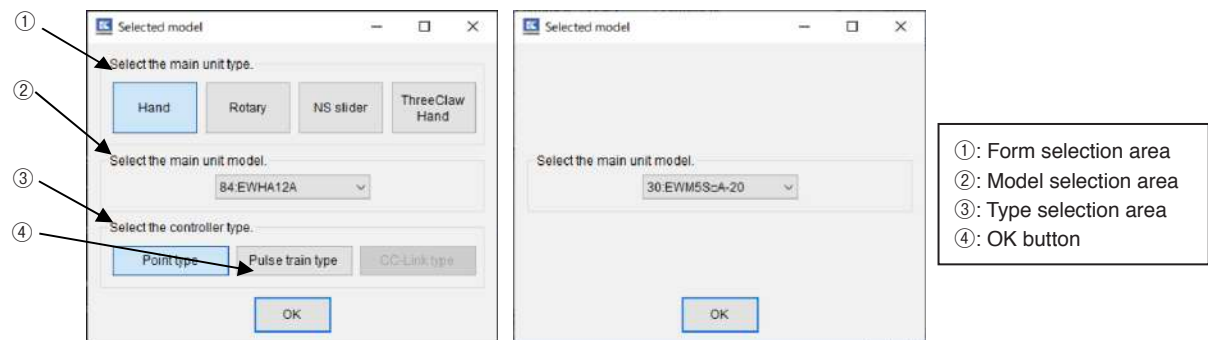
5-6 Description of Free Command Transmission Buttons, Display Send/Receive Details, and Error Display Area



No.	Name	Operation method	Remark
①	Free command transmission page	<ul style="list-style-type: none"> Moves to the free command transmission page. 	<ul style="list-style-type: none"> Refer to “7. Basic Operations in Free Command Transmission Page” for an explanation of the free command transmission page.
②	Send/receive details display	<ul style="list-style-type: none"> Displays the transmissions sent by the support software and those received from the controller. 	
③	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 a history of the last 16 errors. The entry at the very bottom is the most recent error history.
④	Latest error details display	<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

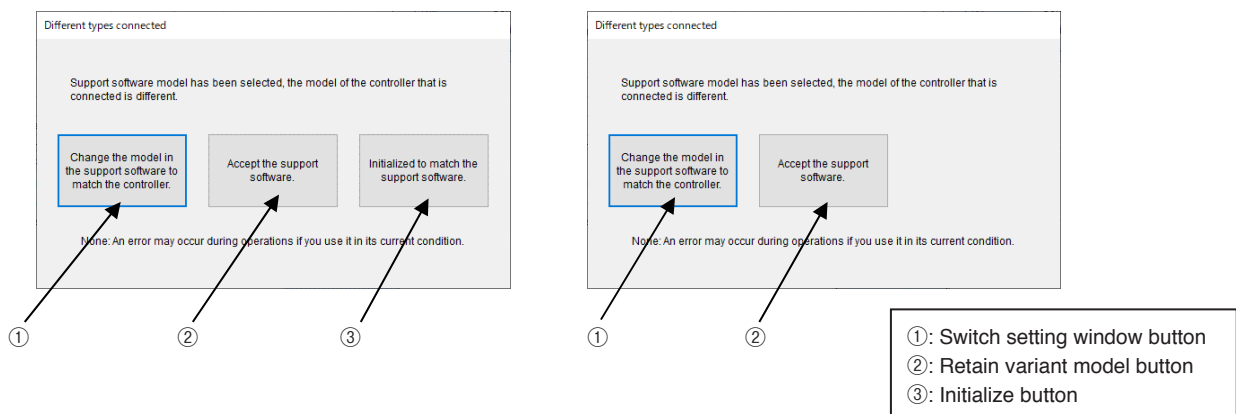
6-1 Model Selection Window and Description



No.	Name	Description
①	Form selection area	Select the model of the main unit and controller that are connected.
②	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 type selected in the type selection area.
③	Type selection area	Select the type of controller that is connected.
④	OK button	Displays the setting window according to the selected type and the selected form.

6-2 Variant Model Connection Window and Description

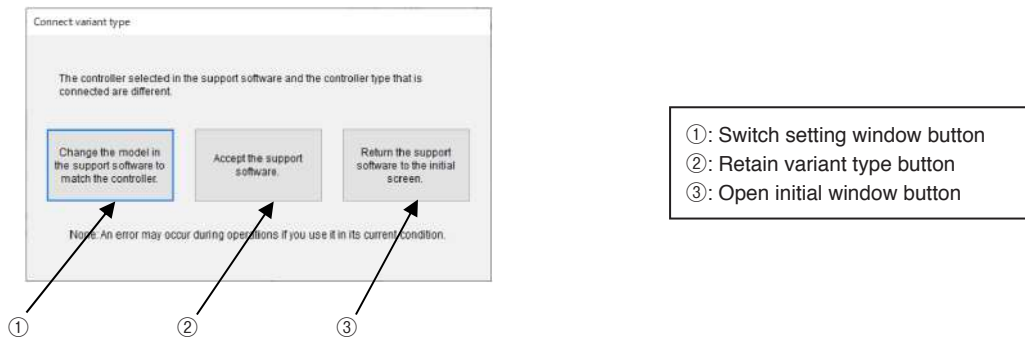
The Variant model connection window opens if the model of the controller that is connected is different from the model selected in the support software.



No.	Name	Operation method	Remark
①	Switch setting window button	• Switch the setting window of the software according to the model of controller that was received.	
②	Retain variant model button	• Allows you to use the controller without changing the selection window, even though the model is a variant. (not recommended)	• 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 model or something is changed.
③	Initialize button	• Initialize the controller according to the model in the support software.	• For electric rotary, the form initialization button is not displayed.

6-3 Variant Type Connection Window and Description

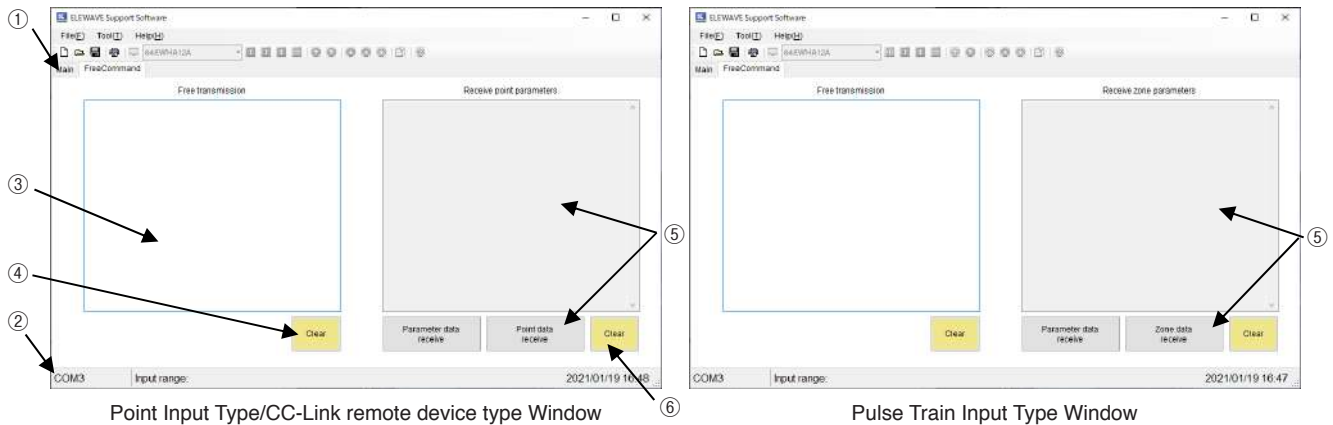
The variant type connected window opens if the type of the controller that is connected is different from the type selected in the support software.



No.	Name	Operation method	Remark
①	Switch setting window button	• Switch the setting window of the software according to the model of controller that was received.	
②	Retain variant type button	• Allows you to use the controller without changing the selection window, 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 model or something is changed.
③	Open initial window button	• Opens the communication port selection window.	

7. Basic Operations in Free Command Transmission Page

7-1 Free Command Transmission Page and Description



- | | |
|---|---|
| ①: Main page | ⑤: Receive point parameters area / Receive zone parameters area |
| ②: Status bar | ⑥: Receive point parameters display clear button / Receive zone parameters display clear button |
| ③: Free transmission area | |
| ④: Free transmission display clear button | |

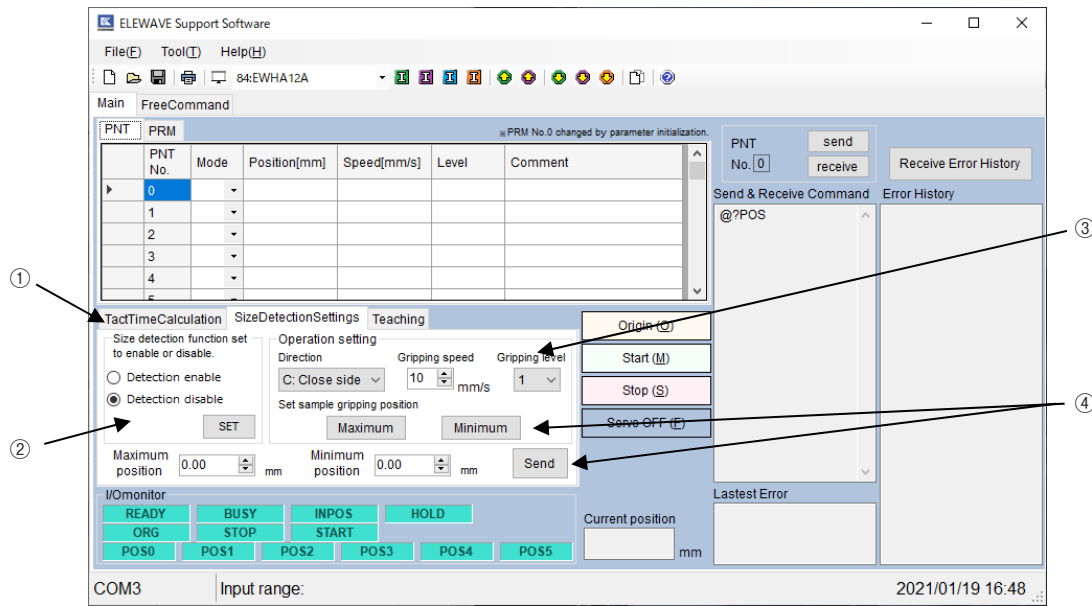
No.	Name	Description
①	Main page	• Return to Main page.
②	Status bar	• Connected port name • Date • Time
③	Free transmission area	• You can input commands directly, similar to hyper terminals. For details about the commands, refer to the instruction manuals for each controller. ※ Free transmission area is a maximum of 17 lines. The oldest lines are deleted if the number exceeds 17.
④	Free transmission display clear button	• Deletes everything in the free transmission display.
⑤	Receive point parameters area ^{Note 1)} Receive zone parameters area ^{Note 2)}	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.
⑥	Receive point parameters display clear button ^{Note 1)} Receive zone parameters display clear button ^{Note 2)}	• Delete everything in receive point parameters display ^{Note 1)} , and receive zone parameters display ^{Note 2)} .

Note 1) Displayed for point input type/CC-Link remote device type only.

Note 2) Displayed for pulse train input type only.

8. Basic Operations in Size Detection Function Page

8-1 Size Detection Function Page



- ①: Switch display tab
- ②: Size detection enabled selection area
- ③: Size detection operation selection area
- ④: Sample gripping position (pressing position) detection execution area

No.	Name	Description
①	Switch display tab	Switch window display. <ul style="list-style-type: none"> • Tact time calculation page • Size detection function page (this page) • Teaching page
②	Size detection enabled selection area	Switch whether to enable or disable the size detection function. Press the SET button to set the settings.
③	Size detection operation selection area	When detecting sample gripping position (pushing position), set the direction, operation speed, and force level.
④	Sample gripping position (pressing position) detection execution area	Position is detected while actually gripping (pushing). Fine adjustments can also be done by directly typing in values after detection.

8-2 Operations for Size Detection Function and Settings

The screenshot shows the ELEWAVE Support Software interface with the 'SizeDetectionSettings' tab selected. The interface includes a table for PNT (Position Number) settings, a 'SizeDetectionSettings' section with various controls, and an 'I/Omonitor' section. Numbered callouts 1 through 8 point to specific elements:

- ①: Size detection gripping (pushing) direction
- ②: Size detection gripping (pushing) speed
- ③: Size detection gripping (pushing) level
- ④: Start operation to detect maximum sample gripping (pushing) button
- ⑤: Maximum sample gripping (pushing) detected measurement display
- ⑥: Start operation to detect minimum sample gripping (pushing) button
- ⑦: Minimum sample gripping (pushing) detected measurement display
- ⑧: Size detection position direct input send button

No.	Name	Operation method	Remark
①	Size detection gripping (pushing) direction	• Select the direction when detecting the size.	
②	Size detection gripping (pushing) speed	• Input the speed when detecting the size.	
③	Size detection gripping (pushing) level	• Select the gripping level (pushing level) when detecting the size.	
④	Start operation to detect maximum sample gripping (pushing) button	Prepare a sample that is the maximum size and set it in the gripping (pushing) position. Pressing the start operation button does the gripping (pushing) operations according to the set data. The position data is displayed in the maximum sample gripping (pushing) detected measurement display field.	The controller automatically writes the position in which the sample is detected when doing detection operations. The position data is displayed in the maximum sample gripping (pushing) detected measurement display field.
⑤	Maximum sample gripping (pushing) detected measurement display	• Displays the position that the maximum size sample was detected. To make fine adjustments to the position, manually edit the displayed data and then press the size detection position direct input send button.	

No.	Name	Operation method	Remark
⑥	Start operation to detect minimum sample gripping (pushing) button	<p>Prepare a sample that is the minimum size and set it in the gripping (pushing) position.</p> <p>Pressing the start operation button does the gripping (pushing) operations according to the set data.</p> <p>The position data is displayed in the minimum sample gripping (pushing) 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 (pushing) detected measurement display field is the value that has already been written to the controller.</p>
⑦	Minimum sample gripping (pushing) detected measurement display	<ul style="list-style-type: none"> Displays the position that the minimum size sample was 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>	
⑧	Size detection position direct input send button	<ul style="list-style-type: none"> Send the value that was input manually in the gripping (pushing) detection measurement display to the controller. 	

9. Basic Operations in Teaching Page

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 stops excitation of the motor in the main unit, and then you set the position manually. Direct teaching is not available for 3 Finger Electric Hand.

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.)

Teaching playback is not available for pulse train type.

- 2) Select teaching setting items from "Virtual Origin ^{Note 1)}" and "Target Position".

Target Position ^{Note 2)}: Position of point data selected in the setting area

Target Position A ^{Note 3)}: Zone position A of zone data selected in the setting area

Target Position B ^{Note 3)}: Zone position B of zone data selected in the setting area

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

■ For direct teaching

- 4) After return to origin is complete, align the position manually, and press the SET button.

- 5) Press the return button to move to the operations window.

■ For teaching playback

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

- 5) Press the return button to move to the operations window.

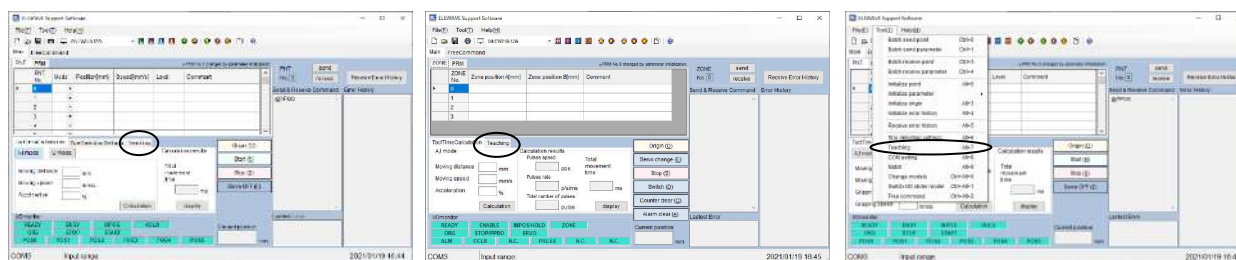
Note 1) This will not be displayed when 3 Finger Electric Hand is selected.

Note 2) Displayed for point input type/CC-Link remote device type only.

Note 3) Displayed for pulse train input type only.

9-2 Workflow for Teaching Setting Function

Pressing the various tab pages or buttons while you are setting the point data position, zone data position, or the virtual origin position, displays the teaching setting window.



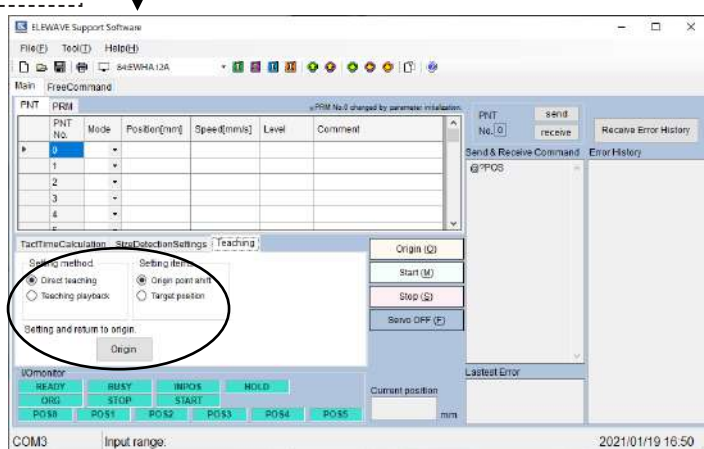
Point type, CC-Link remote device type

Pulse train type

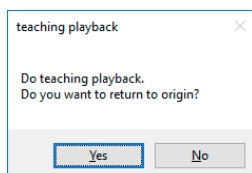
Select from menu bar

Teaching start window

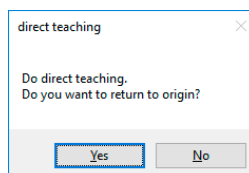
Switches to the teaching page



Select a teaching setting method and setting items, and then press the return to origin button.

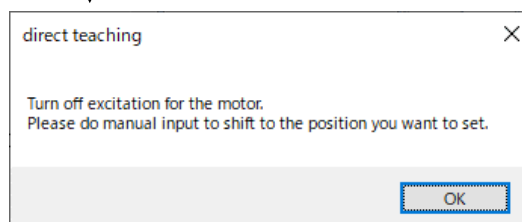
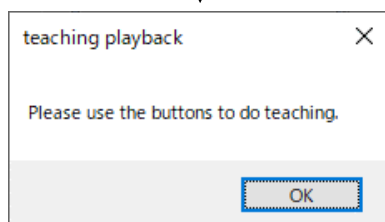


For teaching playback



For direct teaching

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

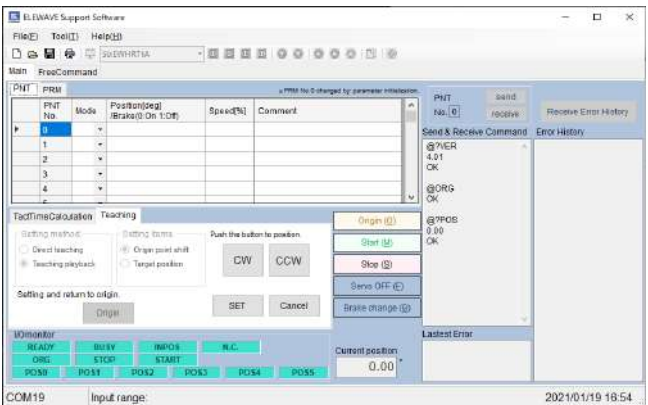
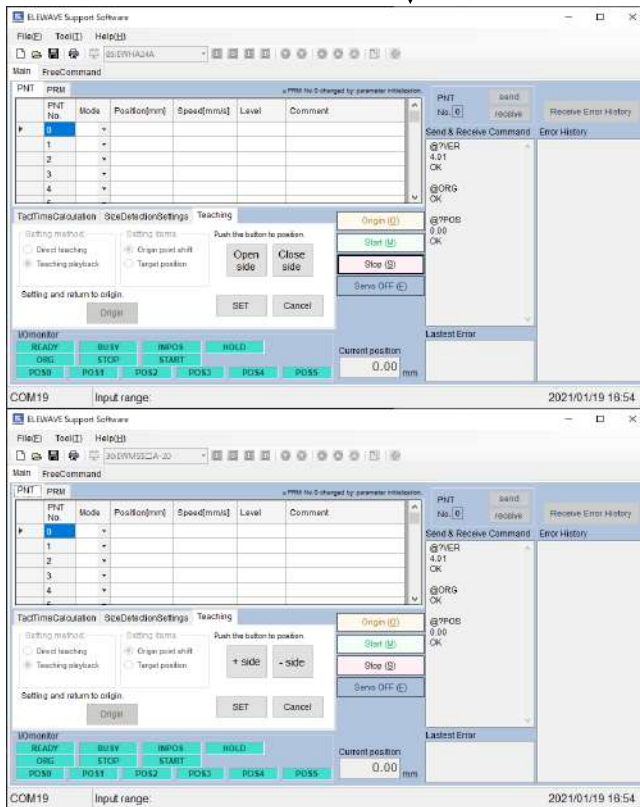


To teaching playback operation window (P. 31)

To direct teaching operation window (P. 31)

From teaching playback operation window (P. 30)

Teaching playback operation window



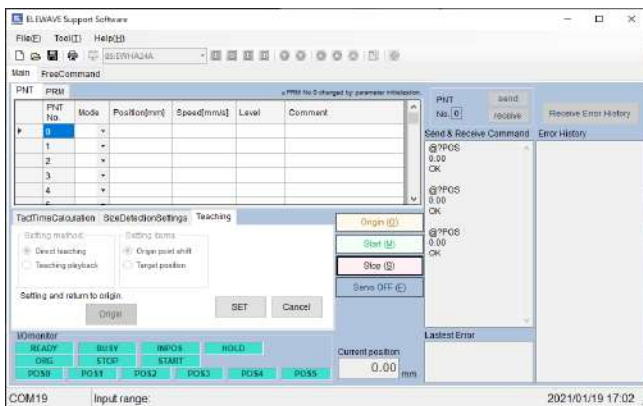
- Open and close buttons
 - + and - buttons
 - CW and CCW buttons
Moves just the set distance each time the button is pressed.
By pressing and holding the button down, you can do a teach movement until you release the button.
 - Teach movement speed: PRM24
 - Teach movement distance: PRM25
- The above parameters can be used to change the speed and distance of teach movements.

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



The servos are off, so 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)

Popup when teaching operations are complete

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

When CANCEL is selected

teaching

Do you want to finish teaching?

When target position is set

teaching

Do you want to set the PNT No.0?

When virtual origin point is set

teaching

Do you want to write the virtual origin.

Send

teaching

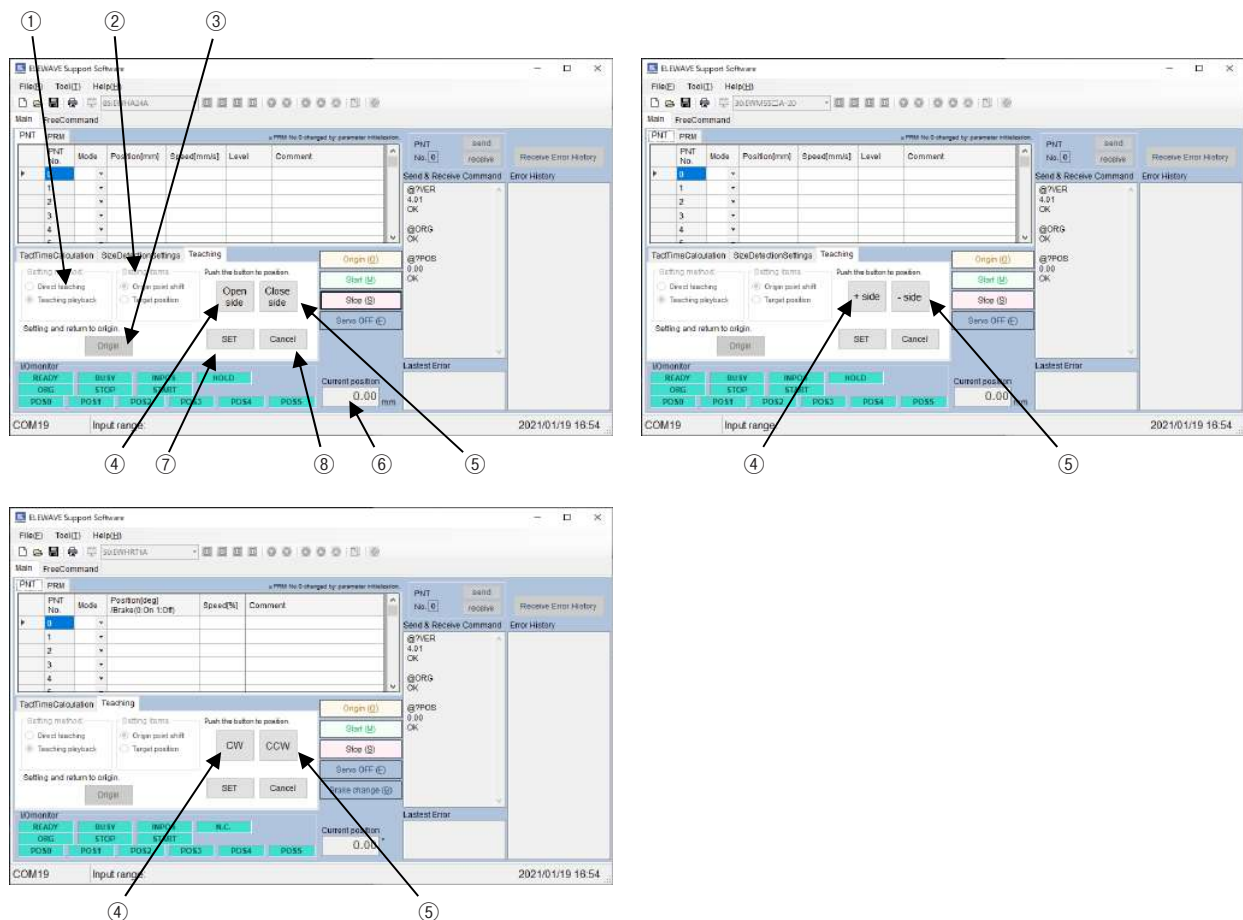
Completed.

teaching

Completed.
Always do a return to origin after changing the virtual origin.
Operations may not be normal if they are done with first doing a return origin.

To teaching start window
(Teaching complete)

9-3 Operations in Teaching Page



- | | |
|---------------------------------------|--------------------------------------|
| ①: Switch teaching procedures | ⑤: Close button/- button /CCW button |
| ②: Switches the teaching items | ⑥: Teach position display field |
| ③: Start execution of teaching button | ⑦: SET settings button |
| ④: Open button/+ button/CW button | ⑧: Cancel settings button |

No.	Name	Operation method	Remark
①	Switch teaching procedures	<ul style="list-style-type: none"> Switches the teaching method. <p>Direct teaching: This method stops excitation of the motor in the main unit, and then you set the position manually.</p> <p>Teaching playback: This method sets the positions by moving each distance that was set to be moved.</p>	<ul style="list-style-type: none"> Teaching playback is not available for pulse train type. Direct teaching is not available for 3 Finger Electric Hand.
②	Setting button to select teaching procedure	<ul style="list-style-type: none"> Switches the teaching items. 	
③	Start execution of teaching button	<ul style="list-style-type: none"> Starts the teaching settings and does return to origin. <p>Return to origin is stopped by the Stop button in the Operation area.</p>	
④	Open button/+ button/CW button	<ul style="list-style-type: none"> Do teaching movements toward the open side, in the + direction, or toward CW. <p>By pressing and holding the button down, you can do a teach movement until you release the button.</p>	

No.	Name	Operation method	Remark
⑤	Close button/- button /CCW button	<ul style="list-style-type: none"> Do teaching movements toward the closed side, in the - direction, or toward CCW. By pressing and holding the button down, you can do a teach movement until you release the button.	
⑥	Teach position (current position) display field	<ul style="list-style-type: none"> Displays the position of teaching movements done by Direct teaching and Teaching playback. 	
⑦	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.	
⑧	Cancel settings button	Cancels the teaching settings.	

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
EWHC(C)-TH	3 Finger Electric Hand	EWHD9	41
		EWHD30	42
		EWHD60	43
		EWHD100	44

10-2 Range of Point Data Input for Each Model

<Electric Hands>

Mode	Actuator model	Position (mm) ※Changeable at 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) ※Changeable at 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) ※Changeable at 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.

<3 Finger Electric Hand>

Mode	Actuator model	Position (mm) ※Changeable at PRM21	Speed (mm/s)	Gripping force level (Only for U mode)
A, I, U	EWHD9	-3 – 3	1 – 50	1 – 10
	EWHD30	-6 – 6	1 – 50	1 – 10
	EWHD60	-10 – 10	1 – 50	1 – 10
	EWHD100	-15 – 15	1 – 50	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	EWHD9	1 – 3	1 – 2
		1 – 5	3 – 4
		1 – 10	5 – 7
		1 – 15	8
		1 – 20	9 – 10
	EWHD30	1 – 3	1 – 2
		1 – 5	3 – 4
		1 – 10	5 – 7
		1 – 15	8 – 10
	EWHD60	1 – 5	1 – 4
		1 – 10	5 – 6
		1 – 15	7 – 10
	EWHD100	1	1 – 3
		1 – 5	4 – 6
		1 – 10	7 – 8
		1 – 15	9 – 10

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

※ For 3 Finger Electric Hand, the range of input speed differs depending on the gripping force level.

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 mm.

<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 mm.

<Electric Rotary>

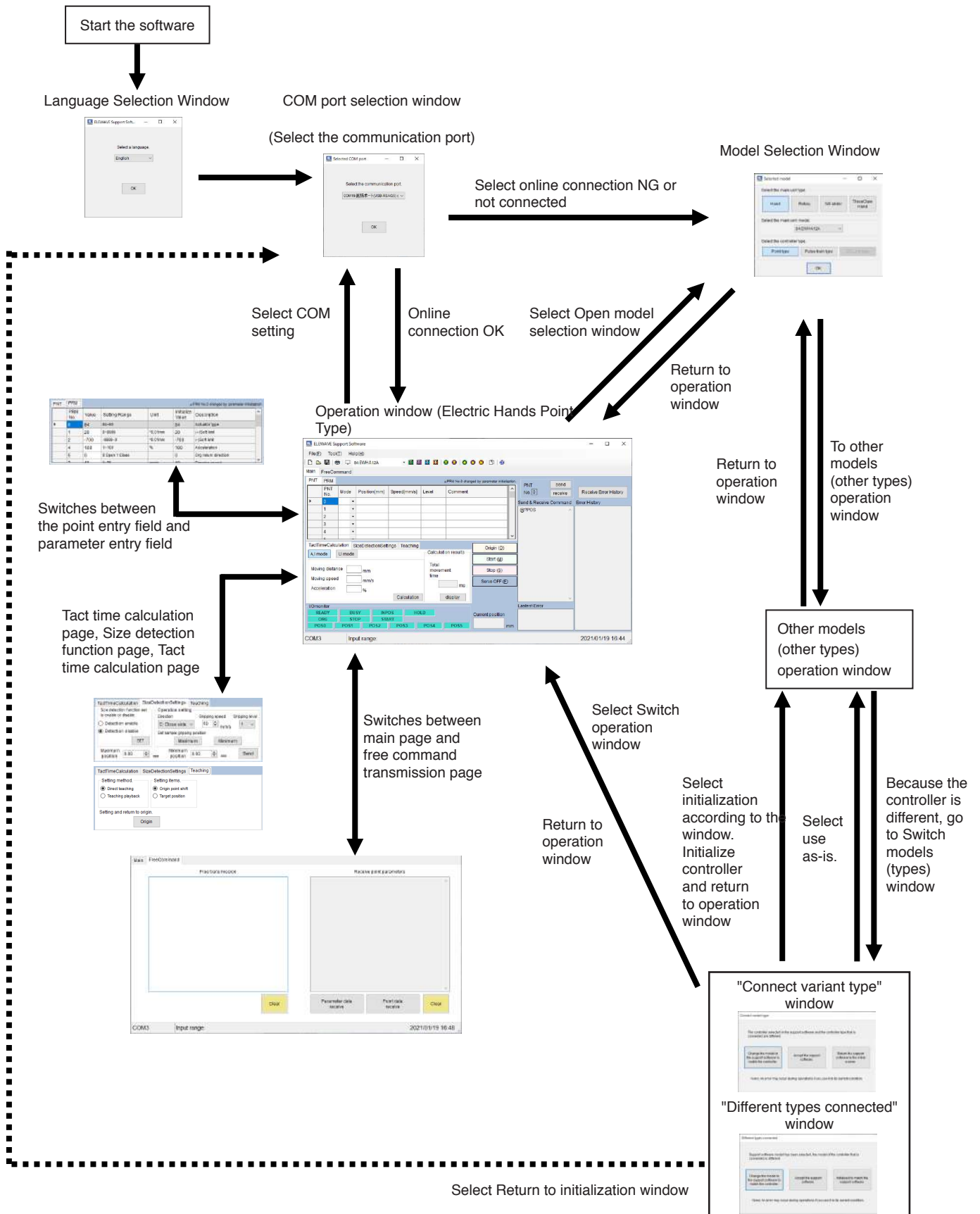
Actuator model	Zone position A (deg)			Zone position B (deg)		
All models	0	–	360	0	–	360

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

10-4 Image of Overall Workflow of Support Software

An example using electric hands point type is described here as typical of the overall workflow.

(Controller Connection for Electric Hands Point Type)



11. Revision History

Ver1.0 Newly issued

Ver2.0 Explanation added due to additional Actuator and Controller models.

For general precautions for the Elewave series,
refer to "Safety Precautions" and "Handling Instructions
and Precautions" on our website or product catalog before use.

Contact the Technical Service Center below
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**ELEWAVE SERIES
SUPPORT SOFTWARE
Windows 7/8.1/10/11 supported
OWNER'S MANUAL**

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