



No. JXC#-OMZ0004-F

Operation Manual

PRODUCT NAME

Controller setting software (ACT Controller 2)

MODEL / Series / Product Number

JXC#1, JXC#H, JXC#F,
LECA6, LECPA series



SMC Corporation

Contents

1. Safety Instructions	3
2. Product description	5
3. Software and driver installation instructions	6
3.1 Before installation	6
3.2 Installation Procedure	6
(1) Double-click "setup.exe" in the installer folder to start the installation process	6
(2) Follow the instructions on the screen to install the software	6
(3) When the installation is completed correctly, the following message will be displayed	6
4. Easy mode	7
4.1 Overview of easy mode	7
4.2 Menu bar	10
4.3 Teaching method	11
4.3.1 Preparation	11
4.3.2 Jog teaching	11
4.3.3 Direct teaching	11
4.4 Test drive	12
4.5 Inching	12
4.6 Jog	13
4.7 Alarms	13
5. Normal mode	14
5.1 Overview of normal mode	14
5.2 Menu bar	17
5.3 Various windows	19
5.3.1 Data Log viewer	19
5.3.2 Parameter	20
5.3.3 Change of direction for return to origin	22
5.3.4 Status	24
5.3.5 Step Data	26
5.3.6 Teaching	29
5.3.7 Wave Monitor	30
5.3.8 Drive Test	31
5.3.9 Alarm	33
5.4 Teaching method	34
5.4.1 Preparation	34
5.4.2. Jog teaching	34
5.4.3 Direct teaching	34
5.5 Test drive	35
5.6 How to Operate Wave Monitor	37
5.7 Data writing tool for JXC-BC	40

5.8 Setup menus in Option	42
5.9 Version information	45
6.Troubleshooting	46
Attached list 1 (Operation explanation)	47



ACT Controller 2 / Setting software

1. Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “**Caution**,” “**Warning**” or “**Danger**.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)*1, and other safety regulations.

- 1) ISO 4414: Pneumatic fluid power - General rules and safety requirements for systems and their components
ISO 4413: Hydraulic fluid power - General rules and safety requirements for systems and their components
IEC 60204-1: Safety of machinery - Electrical equipment of machines - Part 1: General requirements
ISO 10218-1: Robots and robotic devices - Safety requirements for industrial robots - Part 1: Robots
etc.



Danger

Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.



Warning

Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.



Caution

Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Our products cannot be used beyond their specifications. Our products are not developed, designed, and manufactured to be used under the following conditions or environments. Use under such conditions or environments is not covered.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Use for nuclear power, railways, aviation, space equipment, ships, vehicles, military application, equipment affecting human life, body, and property, fuel equipment, entertainment equipment, emergency shut-off circuits, press clutches, brake circuits, safety equipment, etc., and use for applications that do not conform to standard specifications such as catalogs and operation manuals.
3. Use for interlock circuits, except for use with double interlock such as installing a mechanical protection function in case of failure. Please periodically inspect the product to confirm that the product is operating properly.



ACT Controller 2 / Setting software

1. Safety Instructions

Caution

We develop, design, and manufacture our products to be used for automatic control equipment, and provide them for peaceful use in manufacturing industries.

Use in non-manufacturing industries is not covered.

Products we manufacture and sell cannot be used for the purpose of transactions or certification specified in the Measurement Act.

The new Measurement Act prohibits use of any unit other than SI units in Japan.

Disclaimer

The following "Disclaimer" shall apply when using the configuration software: ACT Controller 2 (hereinafter referred to as "the Software") the following "Disclaimer" shall apply.

Please read and agree to the following terms before using this software.

By storing this software on your computer, you agree to be bound by the following disclaimers.

If you do not agree to the following disclaimer, you may not use or copy this software.

"Disclaimer"

1. License Agreement

- (1) You may use the Software solely for the purpose of writing data to SMC's electric actuator controllers on a non-exclusive basis in accordance with the terms of this Agreement.
- (2) You may record and store the Software in your computer only when you use it for the purpose described in the preceding paragraph.

2. Prohibited items

- (1) You may not reproduce the Software, except in the case of paragraph 1, (2).
- (2) You may not transfer or lend the Software, in whole or in part, to any third party, whether for a fee or free of charge.
- (3) You may not modify, adapt, translate, reverse engineer, or reverse compile the Software.

3. Precautions

- (1) When using a product registered with this software, be sure to read the "Safety Precautions", "Common Precautions", "Product Specific Precautions" and "Product Specifications" described in each catalog of the product concerned.
- (2) SMC reserves the right to change the contents of the Software or the specifications of the registered products without notice.

4. Immunity

SMC shall not be liable for any damages arising from the use of this software.

5. Termination of the contract

- (1) This Agreement will be terminated if you breach this Agreement or if SMC deems it appropriate to terminate this Agreement.
- (2) Upon termination of this Agreement, you must destroy the Software and any copies.

6. Rights related to this software

The copyright and all other rights to this software are owned by SMC and protected by copyright laws and other laws and international treaties.

2. Product description

This software is called the ACT Controller 2 PC configuration software (hereafter referred to as “ACT Controller 2”) for configuration of controllers and drivers the JXC□1, JXC□H, JXC□F, LECA6, LECPA series. This manual provides instructions based on the English version of the software.

The ranges and functions to be set by this software vary depending on the specifications of the electric actuator to be used in combination with the controller. Refer to the instruction manuals and technical documents for the actuator and controller you are using when setting the controller with this software. Refer to our website for the latest information on the instruction manuals, technical documents, and ACT Controller 2.

- ACT Controller 2 is supported by the following OS:
 - Windows® 10 (64bit) (Version 1607 or higher) Resolution of 1366 x 768 dpi or higher recommended.
 - Windows® 11 Resolution of 1366 x 768 dpi or higher recommended.
- ACTController 2 can be downloaded from the following:
It can be downloaded from the SMC website (<https://www.smcworld.com>).
- The following controllers/drivers are supported by ACT Controller 2:
 - JXC□1 Series JXC single-axis Stepping Motor Controller (Servo 24VDC)
 - JXC□H Series JXC stepping motor controller for high performance type (Servo 24VDC)
 - JXC□F Series stepping Motor Controller with JXC Safety Function type (Servo 24VDC)
 - LECA6 Series servo motor controller (24VDC)
 - LECPA Series stepping motor driver (pulse input type)
- ACT Controller 2 offers two setting modes: Easy Mode and Normal Mode. Select either mode to suit the environment and purpose of your use.
 - <Easy mode>
 - Simple setting mode mainly for editing the step data.
 - Allows you to perform a test drive with the edited data.
 - <Normal mode>
 - Detailed setting mode for setting parameters and monitoring inputs/outputs.
 - Allows you to check signals, change parameters, and save various settings.
- The step data can be edited and set in either mode, typically the following:
 - <Positioning operation setting>
This is to set the actuator to move to the target position.
 - <Pushing operation setting>
This is to set the actuator to push the workpiece.

3. Software and driver installation instructions

3.1 Before installation

Download the installer folder for the ACT Controller 2 from the SMC website. Extract (unzip) the downloaded installer folder on the computer you will be using.

This installer contains the ACT Controller 2, Microsoft .NET Framework 4.8, and FTDI CDM Drivers, and can be installed all at once. If your computer has Microsoft .NET Framework 4.8 and/or FTDI CDM Drivers installed already, these will be automatically skipped and not re-installed, and the ACT Controller 2 will be upgraded to the latest version.

3.2 Installation procedure

- (1) Double-click “setup.exe” in the installer folder to start the installation process

DotNetFX48	File folder	
setup.exe	Application	239 KB
Setup.msi	Windows Installer Package	7,247 KB

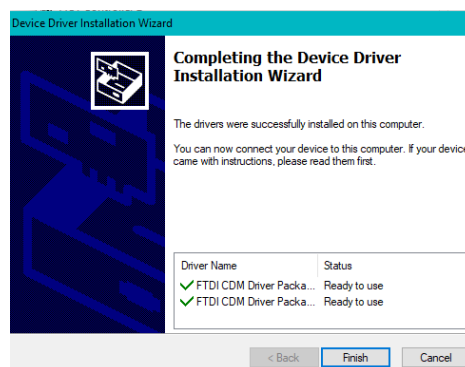
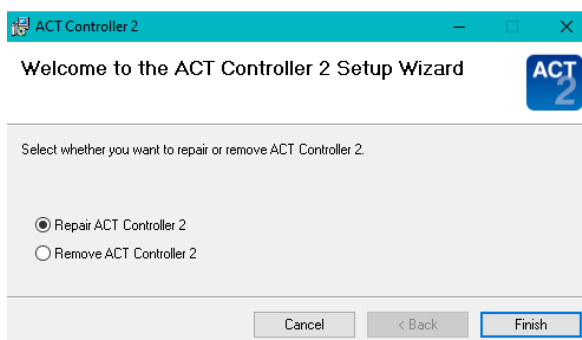
- (2) Follow the instructions on the screen to install the software

Note that during the installation, the following FTDI CDM Drivers confirmation window will appear. The FTDI CDM Driver is the driver for our communication unit JXC-W2A, so please install it. If the driver has already been installed on your computer, the following procedure will be skipped automatically.




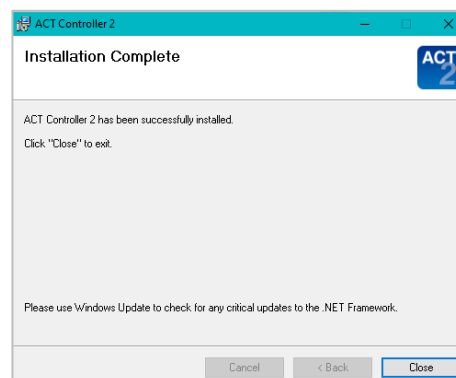
If you canceled FTDICDM Drivers installation, please start “setup.exe” in 3.2.1 again.

Then select “Repair”, and follow the “Welcome to ACT Controller 2 Setup Wizard”. When the driver is correctly installed, the image on the right is displayed.



- (3) When the installation is completed correctly, the following message will be displayed

And , the ACT Controller 2 icon  will automatically appear on the desktop.



4. Easy mode

4.1 Overview of easy mode

The easy mode screen is shown below. When easy mode is launched, the connected controller is confirmed. The parameters and the step data will be automatically uploaded to the connected controller.

The screenshot shows the Easy Mode interface with the following components labeled by callouts:

- ①: Menu bar (File(F), Edit(E), Option(O), Help(H))
- ②: Controller selection dropdown (01 - LEY16A-100)
- ③: Mode tabs (Monitor Mode, Test Mode)
- ④: Operation mode buttons (JOG, DIRECT)
- ⑤: Status panel (SVRE, BUSY, INP, SETON, Show Alarm)
- ⑥: Jog controls (Jog, Move Distance, Move buttons)
- ⑦: Move Speed slider and display (10 mm/s)
- ⑧: Jog buttons (left arrow, right arrow)
- ⑨: Move buttons (minus, plus)
- ⑩: Action buttons (Get Positon, Test drive, Return to Origin, Reset)
- ⑪: Step Data List table

No. (Operations)	Move M	Speed mm/s	Position mm	Accel mm/s ²	Decel mm/s ²	PushingF	TriggerLV	PushingSp	MovingF %	Area1 mm	Area2 mm	In Posn mm	Comment
0 (Push)	Absolute	16	0.00	3000	3000	50	10	16	100	0.00	0.00	0.50	
1 (Push)	Relative	16	0.00	3000	3000	50	10	16	100	0.00	0.00	0.50	
2													
3													
4													
5													
6													
7													
~													

Example of the easy mode screen display



Caution

Easy mode is not available, unless the communication with the controller is established. When the window shown below appears, select “Yes (Y)” to set the communication settings, and “No (N)” to exit the easy mode.

For more information on communication settings, please refer to [5.1 Overview of normal mode](#).

The dialog box titled "Information" contains the following text:

i No communication to the controller.
Do you want to edit communication setting?

Buttons: Yes, No

① **Menu bar**

Provides access to functions of the software, including saving the step data and changing the display items of the step data. For details, please refer to [4.2 Menu bar](#)

② **Connected axis indication**

Indicates the ID number and model name of the controller that is communicating. When multiple axes are connected, press ▼ to display the list and change the axis to communicate with.

③ **Mode selection button**

Switches between monitor mode and test mode. Do not change the setting while the actuator is operating.

Monitor Mode **Monitor Mode** Test Mode Test Mode

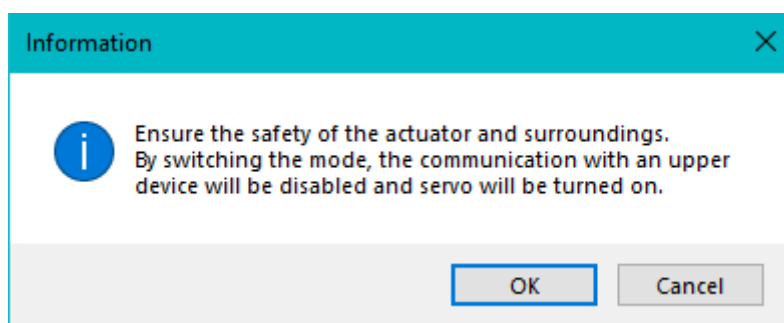
<Monitor mode>

Allows to check the status of the controller when communicating with an upper device. Also, alarm and current status and position can be checked.

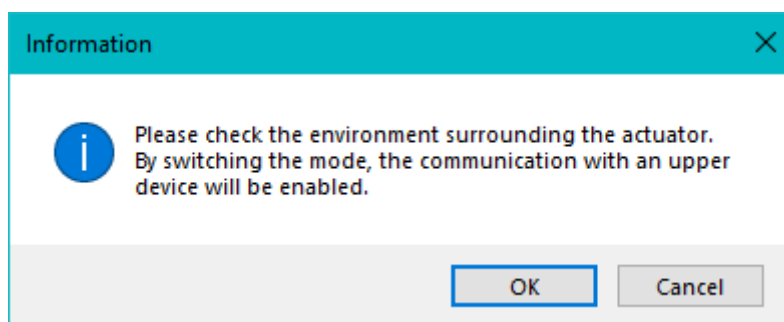
<Test mode>

Allows a test drive to be performed from the PC. In this mode, commands from an upper device are disabled, and the servo is forced to be turned on.

The following message will appear, when the mode is switched from monitor mode to test mode. Communication with the controller's upper device is disabled, and the controller enters the servo-on (hold) state.



The following message will appear, when the mode is switched from test mode to monitor mode. Note that communication with the controller's upper device is enabled.



Caution

- Do not touch the actuator while it is operating.
- Ensure that the stop (EMG) terminal of the controller can be shut off immediately.
- In test mode, commands from the upper device are not accepted.

④ Teaching method selection button

Selects the teaching method between jog teaching (including jog movement, inching, and step data operation) and the direct teaching in test mode. Do not press this button while the actuator is operating. For details of the teaching methods, refer to [4.3 Teaching methods](#).

Jog teaching



Direct teaching

<Jog teaching>

Select this option when performing a jog movement, inching and a test drive using the step data.

<Direct teaching>

Select this option when moving the actuator by hand to teach the position (hence, direct teaching), while the servo is turned off.

⑤ Status display

Shows the status of the controller such as the position and speed. The current step number, position, speed, and thrust are shown on the left, and the IO signal status of ALARM, SVRE, BUSY, INP, and SETON are shown on the right.

ALARM	Flashes when an alarm occurs.
SVRE	Turns blue when the servo is turned on.
BUSY	Turns blue when the motor is running (in operation).
INP	Turns blue when positioning is completed.
SETON	Turns blue when a return to origin is completed.

Click "Show ALARM" to open the alarm window.

⑥ Jog

Moves the actuator at the speed specified by the jog speed, while the button is pressed. Jogging stops when the button is released. For details, please refer to [4.6 Jog](#)

⑦ Speed

Sets the jog speed and inching speed. The speed can be changed by dragging the bar. For details of jog and inching, please refer to [4.6 Jog](#) and [4.5 Inching](#)

⑧ Inching distance

Set a distance to move the actuator when inching. The distance can be changed by using the ▲ and ▼ buttons or by entering the required value directly. For details, please refer to [4.5 Inching](#)

⑨ Inching

Moves the actuator for the distance and at the speed specified at the respective fields above. The actuator moves forward when "+" is clicked, and backwards when "-" is clicked. For details, please refer to [4.5 Inching](#)

⑩ Function buttons (Get Position, Test drive, Return to Origin and Reset)

Buttons for the functions when a test drive is conducted.

- Get Position (position reading)
Stores the current position in the "Position" of the selected step data.
- Test drive (available only in test mode)
Starts a test drive with the selected step data.
Refer to [4.4 Test drive](#) for how to conduct a test drive .
- Return to Origin (available only in test mode)
Performs a return to origin.
- Reset
Resets the alarms. Pressing this button during operation will interrupt (cancel) the operation.

⑪ Step data

Shows the step data in the controller. When the data is edited, the new data is automatically sent to the controller and rewritten. For details of data to be set, refer to the controller's instruction manual.

4.2 Menu bar

The menu bar provides access to the functions below.

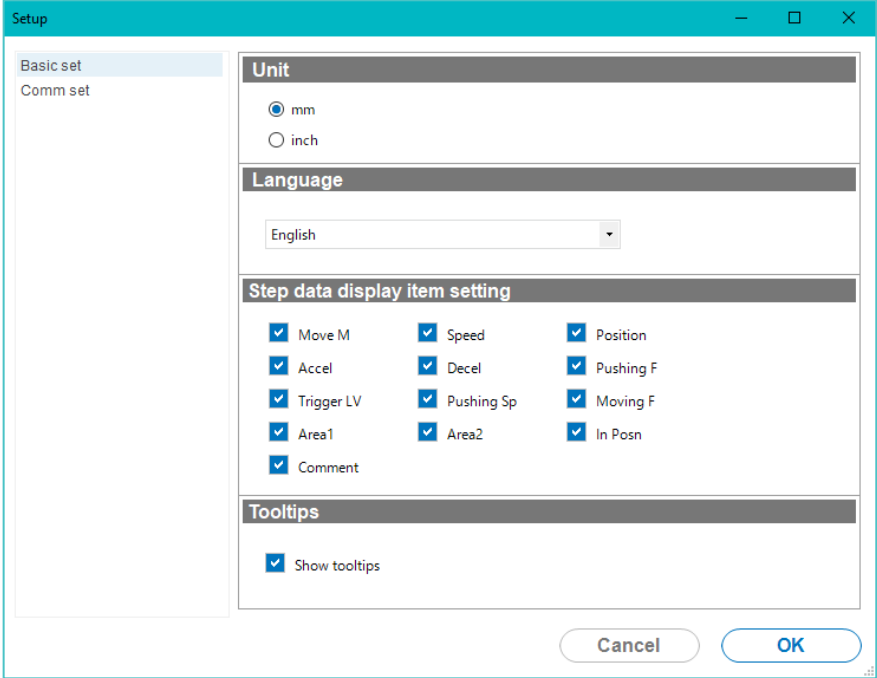
• File (F)

Function	Details
Open	Opens the step data saved in the file. When the step data is opened, the data is loaded into the controller.
Save	Saves the step data to a file.
End	Exits easy mode.

• Edit (E)

Function	Details
Cut	Removes the selected step data.
Copy	Copies the selected step data to the clipboard.
Paste	Pastes the cut or copied data to the selected step data.
Delete	Deletes the selected step data.

• Option (O)

Function	Details
Reconnection	Confirms the controller that has been connected and reloads the step data.
Setup	<p>Sets the unit, language, actions to be configured, and tool tips. Select the parameters that you want to display in the step data parameter list (see below).</p> 
	Comm settings
Speed limit	Sets the communication speed and the controller ID.
	Sets the speed limit for the actuator in test drive, jogging, or inching.

• Help (H)

Function	Details
Version	Displays the easy mode version information.
Help	Moves to the Help window (access to the SMC homepage).

4.3 Teaching methods

Teaching means to set a position by moving the actuator. There are two teaching methods: jog teaching and direct teaching (by hand).



Caution

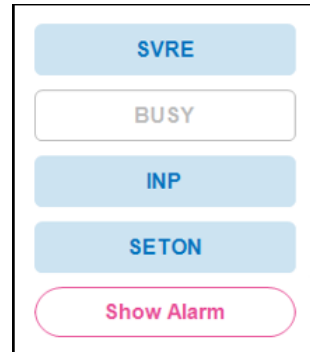
. When the actuator is operating during jog teaching, do not touch the moving parts of the actuator and take other safety measures to ensure safety.

4.3.1 Preparation

Before the start of teaching, make sure to:

- (1) Select the test mode using the mode selection button.
- (2) Check that the status display is as shown below:

ALARM	No active alarms
SVRE	Servo is on (Blue)
BUSY	Not applicable
INP	Not applicable
SETON	Return to origin has been completed. (Blue)



If "SETON" is not illuminated in blue, perform a return to origin after making sure that "SVRE" is blue. A return to origin starts once the "Return to Origin" button is clicked.

4.3.2 Jog teaching

Jog teaching means to acquire and store a position in the step data by moving the actuator using the configuration software.

- (1) Move the actuator to the target position using the Jog or Inching button.
- (2) Select the step data to store the position.
- (3) Click the "Get Position" button, and the current position is stored in the "Position" of the step data.

4.3.3 Direct teaching

Direct teaching means to acquire and store a position in the step data by moving the actuator manually (by hand) with the motor power shut off (servo-off).

- (1) Select "Direct" with the teaching method switch button and ensure that the motor is in the servo-off state.
- (2) Manually move the actuator to the target position.
- (3) Select the step data to store the position.
- (4) Click the "Get Position" button, and the current position is stored in the "Position" of the step data.

After completion, select monitor mode using the mode selection button. Note that the upper level communication of the controller is enabled when monitor mode is selected.

4.4 Test drive

To start a test drive, select the step data number that you want to test.

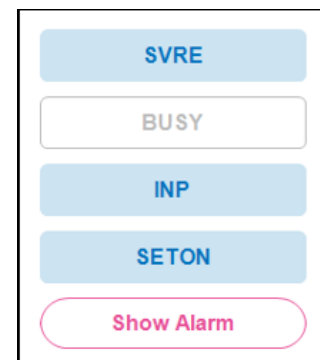
<div> <div>Get Positon</div> <div>Test drive</div> <div>Return to Origin</div> <div>Reset</div> <div>Show Alarm</div> </div>													
<div> <div>Step Data List</div> <div>Item setting</div> </div>													
No. Operations	Move M	Speed mm/s	Position mm	Accel mm/s ²	Decel mm/s ²	PushingF %	TriggerLV %	PushingSp mm/s	MovingF %	Area1 mm	Area2 mm	In Posn mm	
0 (Push)	Absolute	100	10.00	3000	3000	100	100	12	100	0.00	0.00	0.50	
1 (Push)	Absolute	50	0.00	3000	3000	60	60	12	100	0.00	0.00	22.00	
2 (Push)	Relative	175	0.00	2000	2000	60	30	30	100	0.00	0.00	0.50	
3 (Posn)	Relative	175	0.00	2000	2000	0			100	0.00	0.00	0.50	
4													

Example of step data window

<Before the start of the test drive>

Select test mode using the mode selection button. Also, make sure that the status display is as shown below:

ALARM	No active alarms
SVRE	Servo on (Blue)
BUSY	Not applicable
INP	Not applicable
SETON	Return to origin has been completed. (Blue)



If "SETON" is not illuminated in blue, perform a return to origin after making sure that "SVRE" is blue. A return to origin starts once the "Return to Origin" button is clicked.

< JXC51/JXC61 controllers with LECP2 mode >

• Stroke Study :

When a JXC51# or JXC61# controller with the actuator parameters for LECP2 mode is connected, the [Stroke Study] button is visible on the screen.

For details of the function, please refer to [5.3.5 Step Data](#).



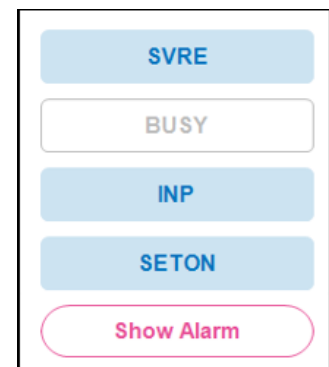
4.5 Inching

Inching means the movement of the actuator for the distance and at the speed set in the distance and speed fields respectively. The actuator moves forward when "+" is clicked, and backwards when "-" is clicked.

<Before the start of inching>

Select test mode using the mode selection button. Also, make sure that the status display is as shown below:

ALARM	No active alarms
SVRE	Servo on (Blue)
BUSY	Not applicable
INP	Not applicable
SETON	Return to origin has been completed. (Blue)



If "SETON" is not illuminated in blue, perform a return to origin after making sure that "SVRE" is blue.

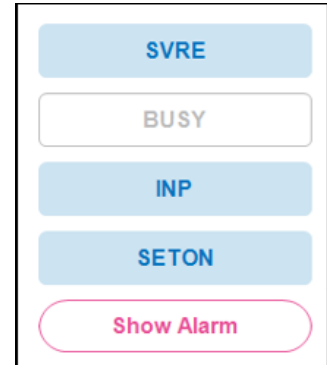
4.6 Jog

Jog describes the movement of the actuator at the speed specified by jog speed. The actuator moves while the button is pressed and stops when the button is released. The “>” button on the right is to move forwards and “<” on the left is to move backwards.

<Before the start of jog>

Select test mode using the mode selection button. Also, make sure that the status display is as shown below:

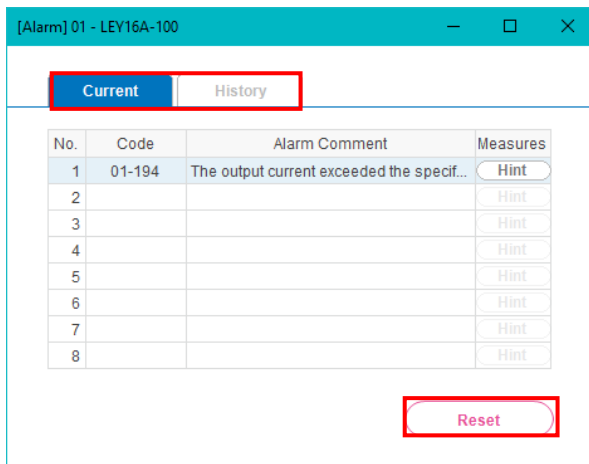
ALARM	No active alarms
SVRE	Servo on (Blue)
BUSY	Not applicable
INP	Not applicable
SETON	Return to origin has been completed. (Blue)



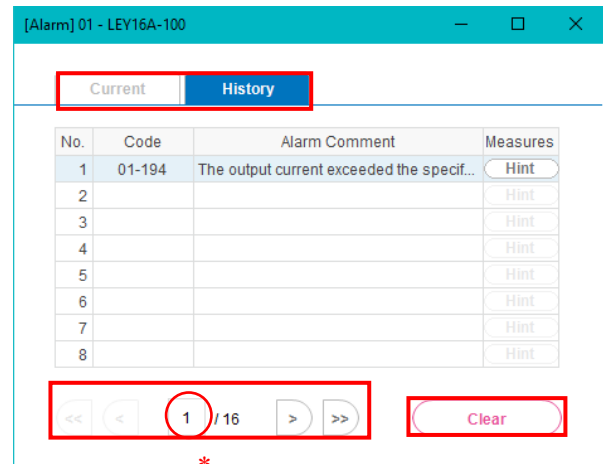
If “SETON” is not illuminated in blue, perform a return to origin after making sure that “SVRE” is blue.

4.7 Alarms

The current alarms and the alarm history can be viewed up to the previous 16 alarms. Select a tab to change the display.



Current alarms



Alarm history

• Function of the buttons :

Current tab : You can check the current alarm.

Reset button : Resets an active alarm.

(The alarm groups B to D can be reset. For details of the alarms, refer to the operation manual of the connected controller).

History tab : The history of alarm occurrences can be checked.

“<<” button : Moves back to the first page of the alarm history (the latest alarm).

“<” button : Moves back to the previous page of the alarm history (new alarm).

“>>” button : Moves to the last page of the alarm history (oldest alarm).

“>” button : Moves to the next page of the alarm history (old alarm).

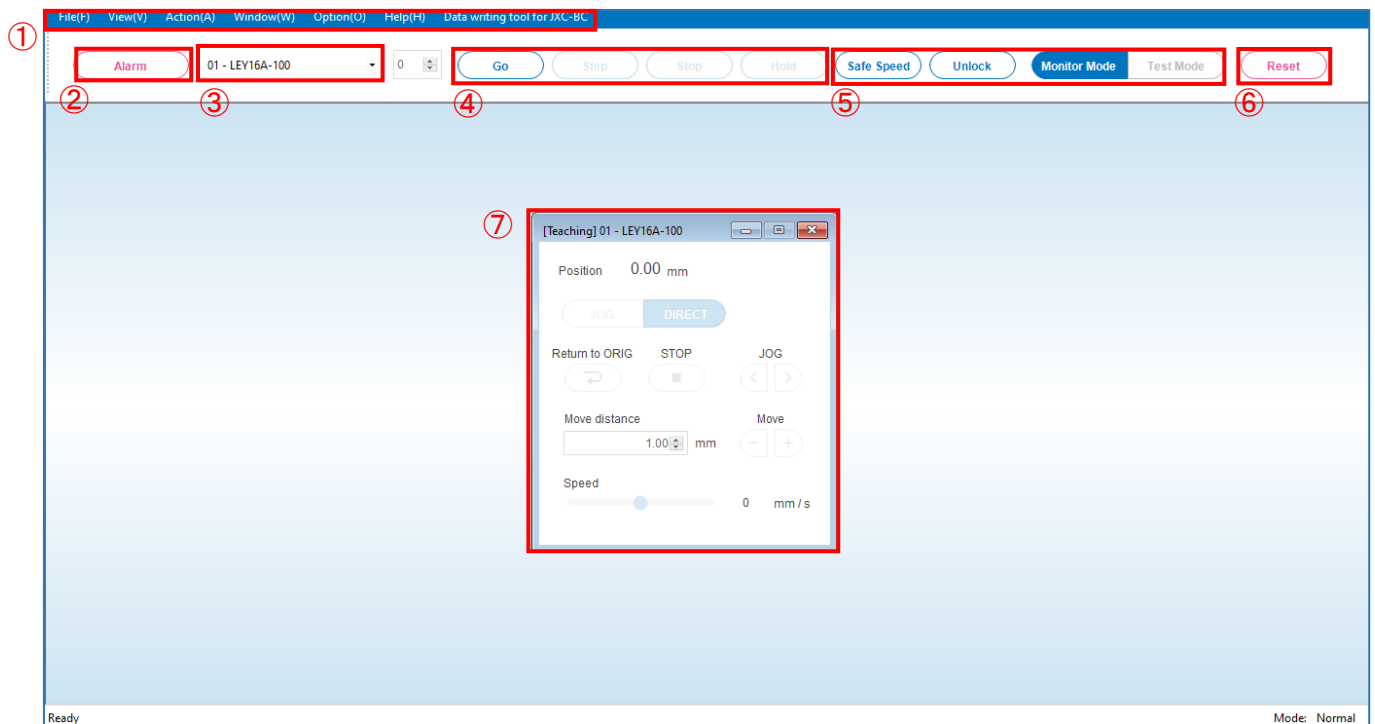
Clear button : Will delete all of the alarm history.

*A specific alarm can be checked by entering its number.

5. Normal mode

5.1 Overview of normal mode

The normal mode screen is shown below. When normal mode is launched, the connected controller is confirmed. The parameters and step data will be automatically uploaded to the connected controller.



Example of the normal mode screen display



Caution

The data for the controller cannot be configured in the controller unless communication has been established. If the “Connected axis” (3) in the above figure indicates “Offline”, a different communication setting may have been selected. In this case, go to “Option” in the menu bar and select “Setup” and then “Comm settings” where you can amend the communication settings.

For details, refer to [5.8 Setup menus in Option](#).

① **Menu bar**

Provides access to windows and files. For details, please refer to [5.2 Menu bar](#)

② **Alarm button**

The button color indicates the presence or absence of an alarm. Click this button to open the alarm window. For details, please refer to [5.3.9 Alarm](#)

Normal (pink):	No alarm is present.
Flashing:	An alarm is present.

③ **Connected axis**

Indicates the ID number and model name of the controller with which the communication has been established. When multiple axes are connected, press ▼ to display the list and select the axes to communicate with.

④ **Test drive**

This button is used to perform a test drive. For details, please refer to [5.5 Test drive](#)

⑤ **Function buttons (Safe speed, Lock, Test/Monitor mode)**

Buttons for the functions used when a test drive is conducted.

Safe speed: limits the speed of a test drive.

Lock: Lock / unlock the motor.

Test/monitor mode: switches between test mode and monitor mode. Do not click this button while the actuator is operating.

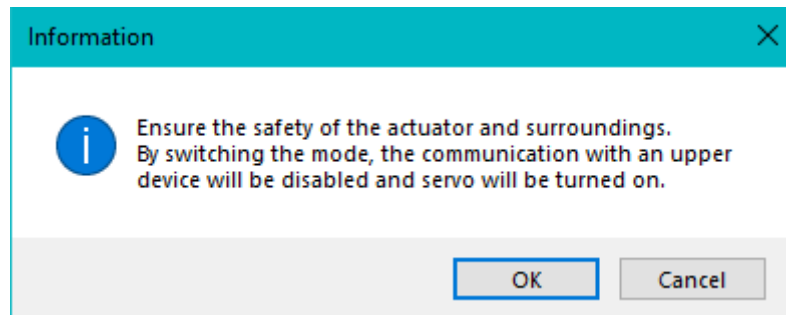
<Monitor mode>

Enables to check the status of the controller as well as alarms and current position.

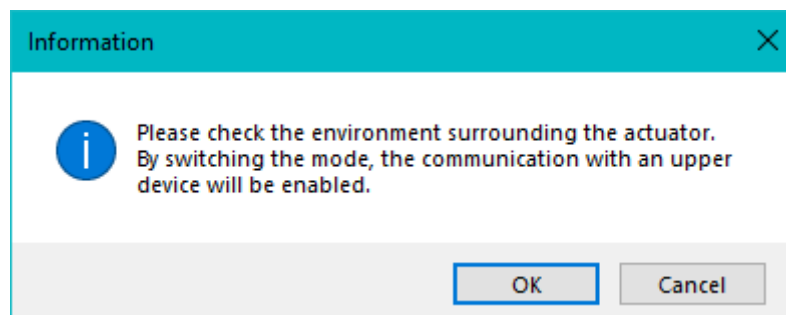
<Test mode>

Enables to perform a test drive from the PC. In this mode, the servo is forced to be turned on.

The following message will appear when the mode is switched from monitor mode to test mode. Communication with the controller's upper device is disabled, and the controller enters the servo-on (hold) state.



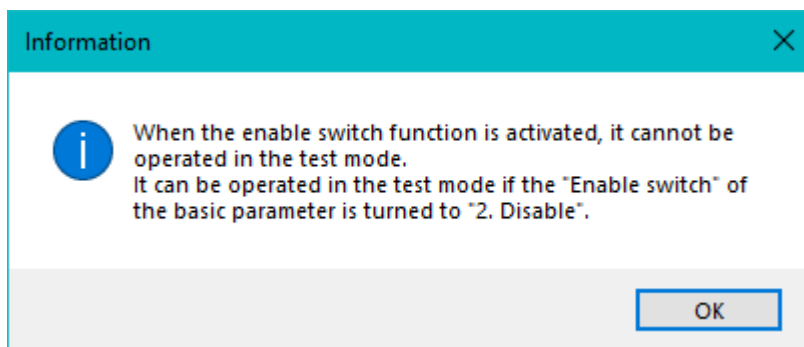
The following will appear when the mode is switched from test mode to monitor mode. Note that communication with the controller's upper device is enabled.





Caution

- Do not touch the actuator while it is operating.
- Ensure that the stop (EMG) terminal of the controller can be shut off immediately.
- In test mode, commands from the upper device are not accepted.
- When the mode is switched to test mode with "Enable SW" in the basic parameters set to "1.Enable", the message below will appear.



⑥ Reset

Resets alarms. Pressing this button during operation will interrupt (cancel) the operation.

⑦ View

Provides access to the following windows to edit data:

- Data Log viewer (For details, please refer to [5.3.1 Data Log viewer](#))
- Parameter (For details, please refer to [5.3.2 Parameter](#))
- Status (For details, please refer to [5.3.4 Status](#))
- Step Data (For details, please refer to [5.3.5 Step Data](#))
- Teaching (For details, please refer to [5.3.6 Teaching](#))
- Wave Monitor (For details, please refer to [5.3.7 Wave monitor](#))
- Drive Test (For details, please refer to [5.3.8 Drive test](#))
- Alarm (For details, please refer to [5.3.9 Alarm](#))

Select the view required to open and edit from the drop-down menus.

5.2 Menu bar

The following actions can be selected from the menu bar.

• File

Function	Details
Open	Reads the parameter, step data and wave monitor setting file.
Save	Saves alarms, backup files, data logs and wave monitors to files.
Capture	Saves the selected capture data to the clipboard.
Print	Prints the contents of the window, parameters, and step data.
Software Exit	Exits normal mode.

• View

Alternatives Article	Details
Data Log viewer	Displays the data log window.
Parameter	Basic Extended function parameters
Status	Displays the status window.
Step Data	Displays the step data window.
Teaching	Displays the teaching window.
Wave Monitor	Display the Wave Monitor window.
Drive Test	Displays the test operation window.
Alarm	Displays the Alarm window.

• Action

Target Windows	Alternatives Article	Details
Wave monitor	Color	Displays the foreground and background colors of the wave monitor in the default colors.
	Monochrome	Displays the foreground and background colors of the wave monitor in monochrome colors.
	Pattern 1	The foreground and background colors of the wave monitor can be customized
	Pattern 2	
	Setup initialize	Initialize the setting.
Data Log viewer	Get log data	Opens the data log window to acquire a data log.
Parameter	Write PC -> JXC	Writes the parameters to the controller.
	Read JXC -> PC	Reads the parameters from the controller.
Step data	Write PC -> JXC	Write the step data to the controller.
	Read JXC -> PC	Reads the step data from the controller.
I/O	Enable	Enables forced output of the parallel output pins. (Output instructions are given in the status window).
Teaching	JOG	Sets to jog teaching mode.
	Direct	Sets to direct teaching mode.

• Windows

Function	Details
Cascade Windows	Arranges windows in cascade.
Tile vertical	Arranges windows side by side.
All Close	Closes all open windows.

• Options

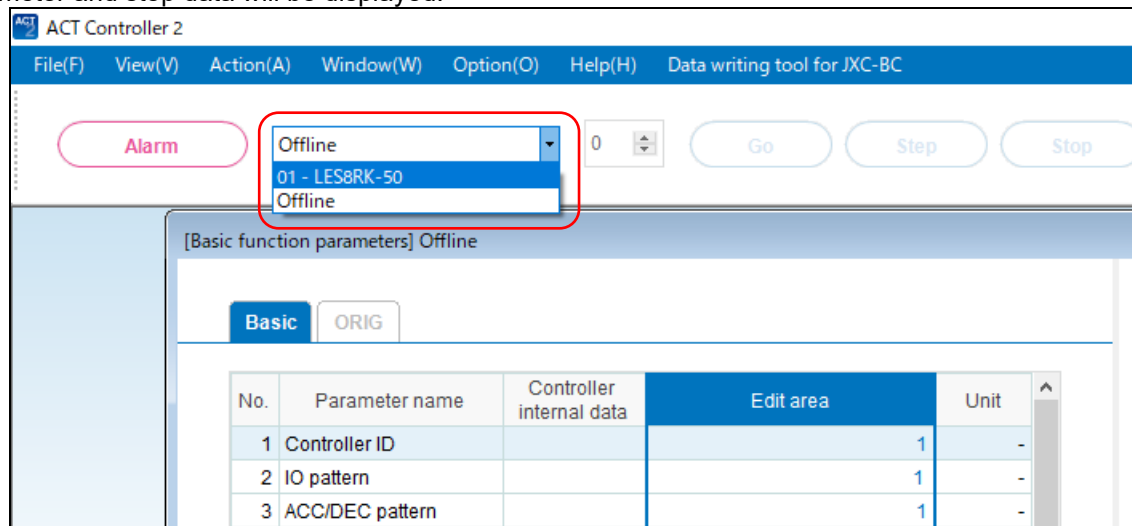
Function	Details
Reconnection	Confirms the connected controller and reloads the parameters and step data. (The editing data will be updated to the internal data of the connected controller.)
Port disconnect	Disconnects the connected COM port.
Setup	Opens the setup window. Refer to 5.8 Setup menus in Option for details.



Caution

- Please note that if you perform the 'Reconnection' when editing parameters or step data, the editing data will be turned to the internal data of connected controllers

Example: When the connection to the controller is lost during parameter or step data editing.
If communication is lost, the ACT Controller 2 software will be offline. When you want to connect with the controller again, please select the connected actuator from the “Connected axis”, the editing data of the parameter and step data will be displayed.



• Help

Function	Details
Version	Displays the version of this software.
Password	Requests to enter the password to log in as the administrator.
Help	Moves to the Help window (access to the SMC homepage).

• Data writing tool for JXC-BC

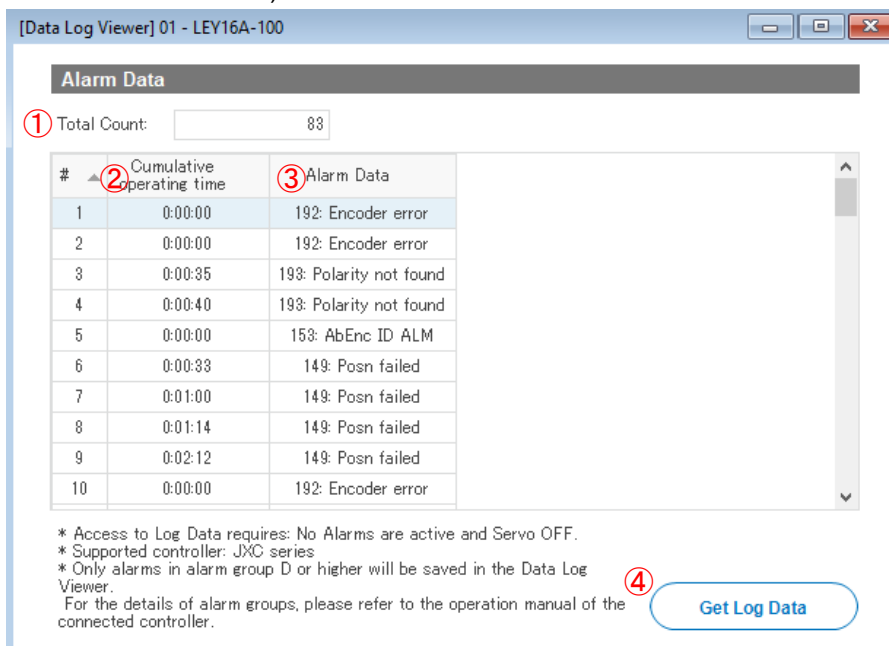
Parameter configuration tool for a blank controller.

For details of replacement of actuators, refer to [5.7 Data writing tool for JXC-BC](#).

5.3 Various windows

5.3.1 Data Log viewer

The data log viewer displays a log of alarms. This function is only available for the JXC# series controllers. (JXC91, JXCP1, JXCE1 and JXCD1 controllers are supported with version 2.2 or higher. All other JXC controller series are supported with all versions.)



• Information shown by the data log viewer

- ① Total Count : Total number of stored alarms in the connected controller. (Up to 127 alarms are available to view).
- ② Cumulative operating time : Cumulative time from power-on of the controller to the start of the alarm.
 *The time may not be cumulative If the controller is powered for less than one hour.
- ③ Alarm Data : Alarm codes of the alarms generated.
 *Only alarms in alarm group D or higher will be saved in the Data Log Viewer. For details of the alarm groups, refer to the operation manual of the connected controller.
- ④ Get Log Data button : Start to acquire log information.

• How to use the data log viewer :

1. Set the actuator to the servo-off state and click the “Get Log Data” button.
2. The alarm code and the cumulative operating time are displayed.

*Note that the maximum number of alarms to be displayed is 127, starting with the oldest alarm first. The log cannot be acquired during an alarm or when the servo motor is turned on.

• How to check the cumulative operating time :

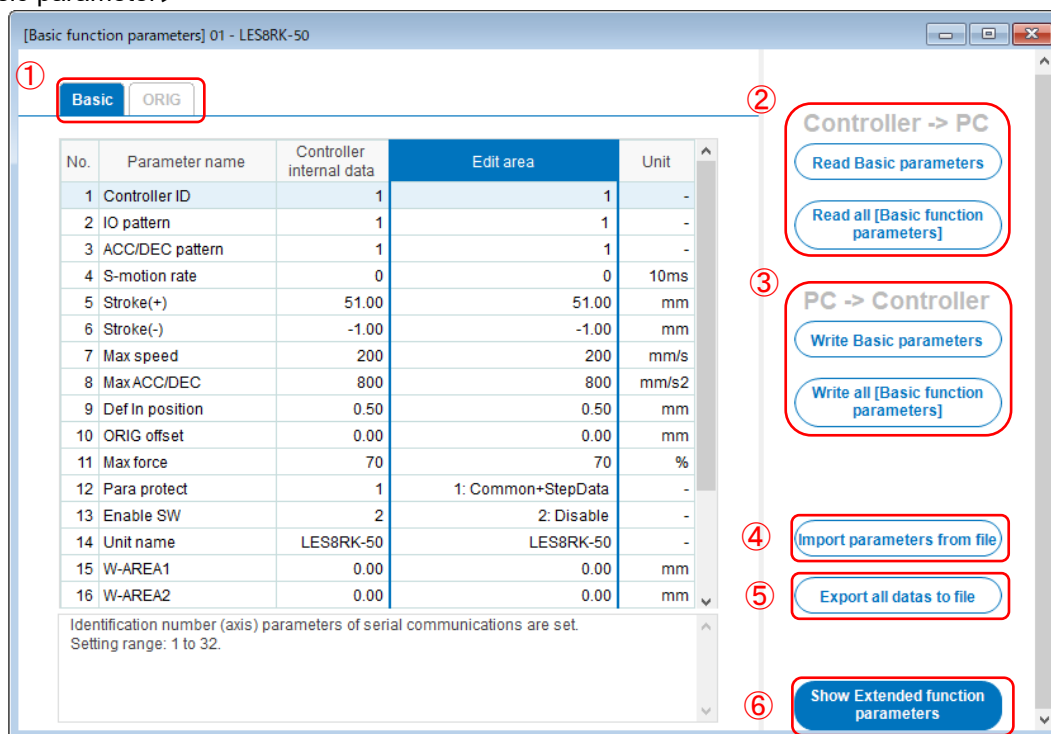
#	Cumulative operating time	Alarm Data
1	0:00:00	192: Encoder error
2	0:20:31	192: Encoder error
3	01:10:00	192: Encoder error
4	01:31:09	192: Encoder error
5	01:00:03	192: Encoder error
6	03:20:00	192: Encoder error
7	03:10:00	192: Encoder error
8	31:00:00	192: Encoder error

“Hour” “Minute” “Second”

- The alarm occurred the moment the power was turned on; cumulative operating time is zero.
- The alarm occurred 20 minutes and 31 seconds after power-on.
- The alarm occurred 10 minutes after the power was turned on.
- The alarm occurred 1 hour, 31 minutes and 9 seconds after power was turned on.
- The alarm occurred three seconds after power was turned on. Up until the previous alarm, the controller has operated more than one hour -the “Hour” column keeps showing “1”.
- The alarm occurred 2 hours and 20 minutes after power was turned on; subtract one hour from the cumulative operating time.
- The alarm occurred 10 minutes after power was turned on.
- The alarm occurred 28 hours after power was turned on.

5.3.2 Parameter

The parameter window consists of two sub-windows: Basic and Extended function parameters
<Basic parameter>



• Buttons :

① Parameter type tabs: Allows the selection of a tab to edit parameters.

② Controller → PC

Read XX parameters

: Reads only the information of the selected tab from the controller to the PC.

Read all [Basic function parameters]

: Reads all of the parameters displayed in the Basic Function Parameters window.

③ PC → Controller

Write XX parameters

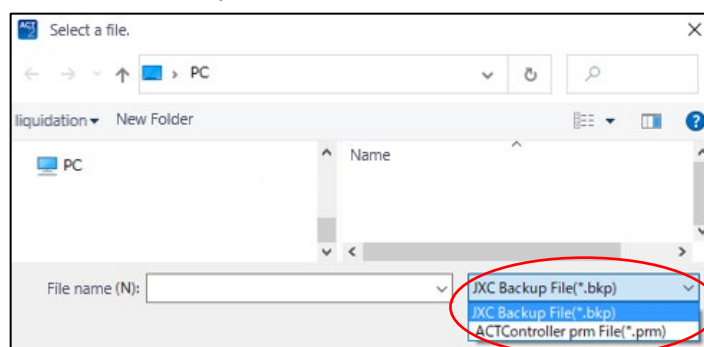
: Writes only the information of the selected tab from the PC to the controller.

Write all [Basic function parameters]

: Writes all of the parameters displayed in the Basic Function Parameters window.

④ Import parameters from file:

Reads all parameters (basic and extended function parameters) from a file.
Both bkp and .prm formats are available for import.



⑤ Export all data to file :

All data (all parameters and step data) are written to a file. And the export format is .bkp only.

*The exported data is the controller internal data. If you want to export the editing data, please do it after writing to the controller. Files cannot be exported when ACT Controller 2 is offline.

⑥ Show Extended function parameters : Displays the extended function parameters.

<Extended function parameters>

[Extended function parameters] 01 - LES8RK-50

ORIG2 Extended

No.	Parameter name	Controller internal data	Edit area	Unit
1	ORIG direction(Coordi...	2	2	-

This parameter is used to change the coordinate system to a reverse origin specification. It is not necessary to change the "ORIG direction" parameter in the [ORIG]Tab. The following is an example of the setting for the LEY actuator (the same concept applies to the LEFS actuator series).

For motor in-line mounting type
 * The Factory default value is "ORIG direction"=2
 "ORIG direction(Coordinate system changed)"=1

1.CW

① Controller -> PC
 Read ORIG2 parameters
 Read all [Extended function parameters]

② PC -> Controller
 Write ORIG2 parameters
 Write all [Extended function parameters]

- How to display the extended function parameters (Choose either of the following:)
 - Click "View", then "Parameter" and then "Extended Function parameters".
 - Click the "Show Extended Function Parameters" button in the basic parameters window.

Buttons :

① Controller → PC

Read XX parameters

: Reads only the information of the selected tab from the controller to the PC.

Read all [Extended function parameters]

: Reads all of the parameters displayed in the Extended Function Parameters window.

② PC → Controller

Write XX parameters

: Writes only the information of the selected tab from the PC to the controller.

Write all [Extended function parameters]

: Writes all of the parameters displayed in the Extended Function Parameters window.

- Initial values for the Extended Function parameters :
 Refer to the initial parameter values in the attached document 1

<How to change parameters>

The 'Basic Function' and 'Extended Function' parameter windows follow the same procedure.

- Open the Basic Function Parameters window or the Extended Function Parameters window.
- Select the tab of the parameter to be changed.
- Click the Edit area of the parameter and enter the value.
- Check the value entered is shown in blue. (If the value entered is shown in pink, it means the value is outside of the setting range. In this case, amend the value to meet the range).
- Select the ② "Write" button to write the changed parameter to the controller.
- Check that the value in the Edit area is black text if it is written correctly.



Caution

Be careful when edit parameters with 'Basic Function' and 'Extended Function' windows open.

When you have finished editing one of the windows, please write the parameters to the controller once. After the writing of one window has been completed, then please start to edit the other window.

If two parameter windows are edited at the same time and a write instruction is issued for one of them, the edited data in the other window will be turned to the controller internal data.

5.3.3 Change of direction for return to origin

The actuator's return to origin direction can be changed. There are two methods: change the co-ordinates as well as the return to origin direction or change the return to origin direction only.


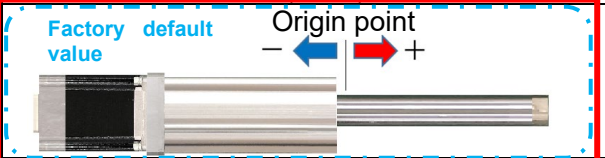


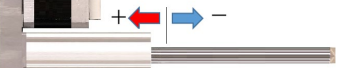


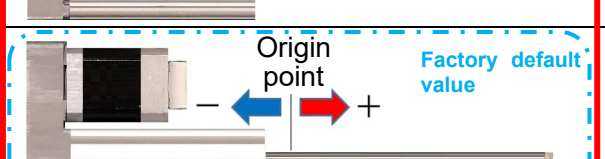
<To change the return to origin direction and coordinates together>

Parameter to change : Only "ORIG direction (coordinate system change)" in the extended function parameters.

How to change :
 • If the default value of the "ORIG direction (coordinate system change)" parameter is "1", change it to "2".
 • If the default value of the "ORIG direction (coordinate system change)" parameter is "2", change it to "1".

The following shows an example of the LEY series (also applicable to the LEFS series).

*Do not change the "ORIG direction" parameter in the basic parameters.

For motor in-line mounting type		"ORIG direction" parameter		Change image
		1 (CW)	2 (CCW)	
ORIG direction "Coordinate system changed" parameter	1			
	2			
For motor parallel mounting type		"ORIG direction" parameter		Change image
		1 (CW)	2 (CCW)	
ORIG direction "Coordinate system changed" parameter	1			
	2			

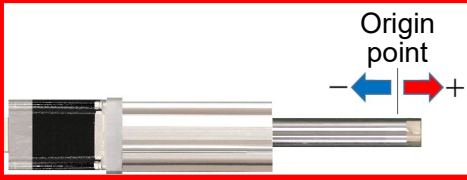
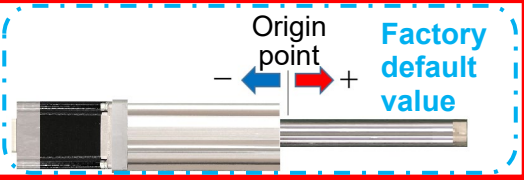
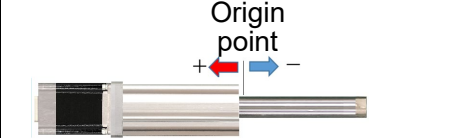
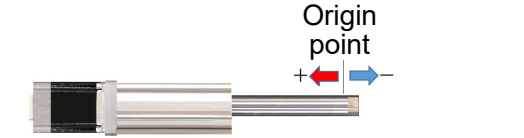
<To change only the return to origin direction>

Parameter to change : Only "ORIG direction" in the basic parameters.

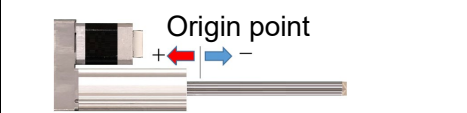
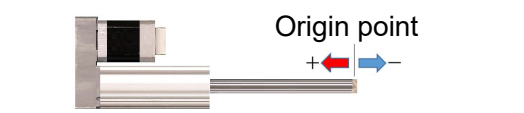

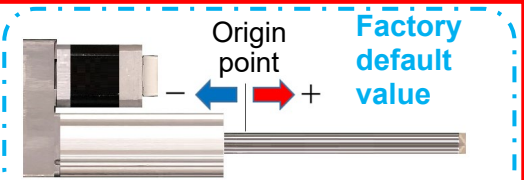
How to change : • If the default value of the "ORIG direction" parameter is "1", change it to "2".
• If the default value of the "ORIG direction" parameter is "2", change it to "1".

The following shows an example of the LEY series (also applicable to the LEFS series).

*Do not change the "ORIG direction (coordinate system change)" parameter in the extended function parameters.

For motor in-line mounting type		" ORIG direction " parameter	
		1 (CW)	2 (CCW)
ORIG direction (Coordinate system changed) parameter	1		
	2		

Change image

For motor parallel mounting type		" ORIG direction " parameter	
		1 (CW)	2 (CCW)
ORIG direction (Coordinate system changed) parameter	1		
	2		

Change image

5.3.4 Status

The status window displays the status of the controller and the status of the parallel I/O.

[Status] 01 - LEY16A-100

① **Controller Status**

Item	Monitor
Controller type	LECP6
Unit name	LEY16A-100
Step No.	0
Position	0.00
Speed	0
Force	0
Target Position	0.00
Counts of input pul...	0

②

E-STOP
SETON
BUSY
ALARM
SVRE
INP

In/Out

③

Input		Output	
IN0	DRIVE	OUT0	SETON
IN1	RESET	OUT1	INP
IN2	SVON	OUT2	SVRE
IN3		OUT3	ESTOP*
IN4		OUT4	ALARM*
IN5		OUT5	
SETUP		BUSY	
HOLD		AREA	

④ Enforce Mode OFF ON

Example of the Status window

① Controller status display contents :

- Controller type : Displays the type of the connected controller.
- Unit name : Displays the part number in the parameters.
- Step No. : Displays the particulars of the step data.
- Position : Displays the current position.
- Speed : Displays the current speed.
- Force : Displays the current thrust force
- Target Position : Displays the target position when moving.

Caution

<For Made in JAPAN controllers>
The "Controller type" is displayed as "LECP6" when a JXC# series controller with batch code "AR" (April 2022) or earlier is connected.

<For Made in CZECH controllers>
The "Controller type" is displayed as "LECP6" when a JXC# series controller, irrespective of the batch code.

Example of controller part number label

The country of manufacture can be identified on the controller part number label.

② Controller status display :

The status of the controller is displayed. The contents of the display are as follows.

E-Stop	: The emergency stop input condition is shown. It is blue during emergency stop.
SETON	: It is blue if 'return to origin position' is completed.
BUSY	: It shows the motor operating condition. It is in blue while the motor is operating.
ALARM	: It shows the alarm condition. It is red when an alarm occurs.
SVRE	: It shows the servo-on condition. It is blue while the servo is turned on.
INP	: It shows if the conditions shown below are satisfied for each operation. It turns blue when the conditions are satisfied.

- When returning to the origin

The actuator stops and the position is within the range of the home position \pm basic parameter "initial positioning range".

- During a positioning operation

The position is within the range of step data "position" \pm step data "positioning width".

- During a pushing operation

Thrust is above the step data "threshold".

③ I/O signal status :

The actual ON/OFF status of IO signals is displayed. For details of the signals and their meanings, refer to the instruction manual of the connected controller.

④ Enforce mode :

This is a function to force an output signal.

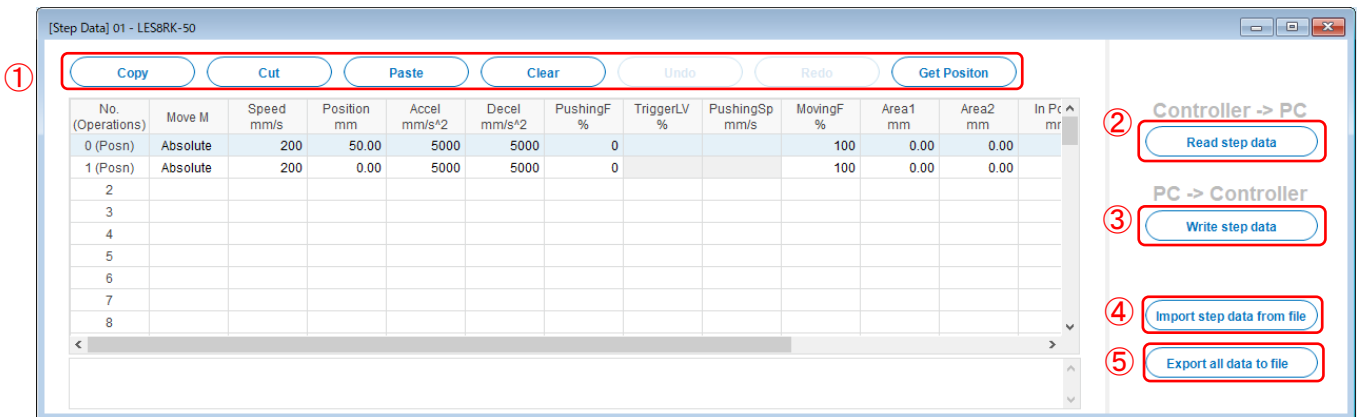
This button is only available when in monitor mode. When the force mode button is turned on, the output signals shown on the right hand side of ③ are ready to select and force an output signal to send.

***Note that out of the JXC# controllers, the fieldbus network compatible models do not support the force mode.**

For the fieldbus network compatible models, please check the operation by a forced output from a PLC or other upper level communication device.

5.3.5 Step Data

The step data window displays the step data and allows the values to be edited.



Example of the step data window

• Function of the control buttons :

① Step data operation area :

- Copy (Ctrl+C) : The selected step data is copied to the clip board.
- Cut (Ctrl+X) : The selected step data is cut.
- Paste (Ctrl+V) : The selected step data is pasted.
- Clear (Delete) : The selected step data is deleted.
- Undo (Ctrl+Z) : The step data is restored to the condition before the action.
- Redo (Ctrl+Y) : The step data is reverted to the condition after the action.
- Get Position : The current position is taken from the selected step data.

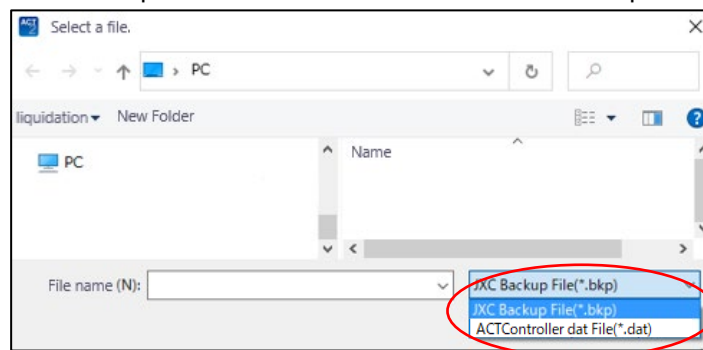
*Jog teaching and direct teaching are available by using with the teaching window.

② Read step data : The step data is loaded from the controller.

③ Write step data : The step data is written to the controller.

④ Import step data from file : Reads the step data from a file.

Both bkp and .dat file formats are available for import.



⑤ Export all data to file :

All data (all parameters and step data) are written to a file. And the export format is.bkp only.

*The exported data is the controller internal data. If you want to export the editing data, please do it after writing to the controller. Files cannot be exported when ACT Controller 2 is offline.

• Step data registration procedure :

1. Select "Absolute" or "Relative" from "Move M" of the step data number to be registered.
2. After selecting either movement, the values will be automatically entered for the other items. Amend as necessary by selecting the field to amend. *
3. After completing the settings, click the download button to confirm that the color of all the values has changed to black.

*The value is shown in blue when changed, which means that it is not yet written to the controller. If the set value is shown in red, it means that the value is outside of the setting range. In this case, amend the value so that it is within the setting range.



Caution

“Comment” can be saved in a backup file (.bkp). Use it as a note to check the contents when you read the backup file into the ACT Controller 2 software.

Note that comments are not saved into the controller. (Comments are cleared when the ACT Controller 2 software is started or when the “Read step data” button is clicked.)

< JXC51/JXC61 controllers with LECP2 mode >

- Stroke Study :

This function makes it possible to automatically detect the opposite end and origin end of an electric actuator and register them into the controller.

The following controllers can be used the LECP2 mode when connected to this setting software.

< Supported Versions >

ACT Controller 2

Version 1.5.0.0 or higher

JXC51# or JXC61# controller (product mode: LECP2 mode*)

Version 3.60 or higher

*) Please refer to [5.7 Data writing tool for JXC-BC](#) to change the product mode.

- Stroke study procedure:

Before executing stroke study, please make the following preparations.

(1) Click the [Mode selection button] to enable the test mode.

(2) Confirm that no alarm has occurred ([ALARM] is white) in the controller status in the [Status window].

(3) Confirm that the servo is ON ([SVRE] is blue) in the controller state in the [Status window].

Controller Status

Item	Monitor	
Controller type	JXC51/61(Mode: LECP2)	E-STOP
Unit name	LEMH25T-50	SETON
Step No.	0	BUSY
Position	0.01	ALARM
Speed	0	SVRE
Force	40	INP
Target Position	0.00	STUDY_OUT

(4) Click the [Stroke study] button in the [Step data window].

Undo

Redo

Get Positon

Stroke study

TriggerLV %

PushingSp mm/s

MovingF %

Area1 mm

Area2 mm

In Posn mm

40	5	100	0.00	0.00	1.00
		100	0.00	0.00	1.00

Stroke study

The stroke study is performed.

Contro

Read

PC -> C

- (5) The actuator automatically detects the stroke end. When the stroke study is completed, the positions of step No. 1 and 2 are updated to the end position. Also, confirm that stroke study is completed ([STUDY_OUT] is blue) in the controller status in the [Status window].

Step Data] 01 - LEMH25T-50

Copy Cut Paste

No. (Operations)	Move M	Speed mm/s	Position mm	Accel mm/s^2
0				
1 (Push)	Absolute+	50	50.30	2000
2 (Posn)	Absolute-	5	1.00	2000

Step data window

Controller Status

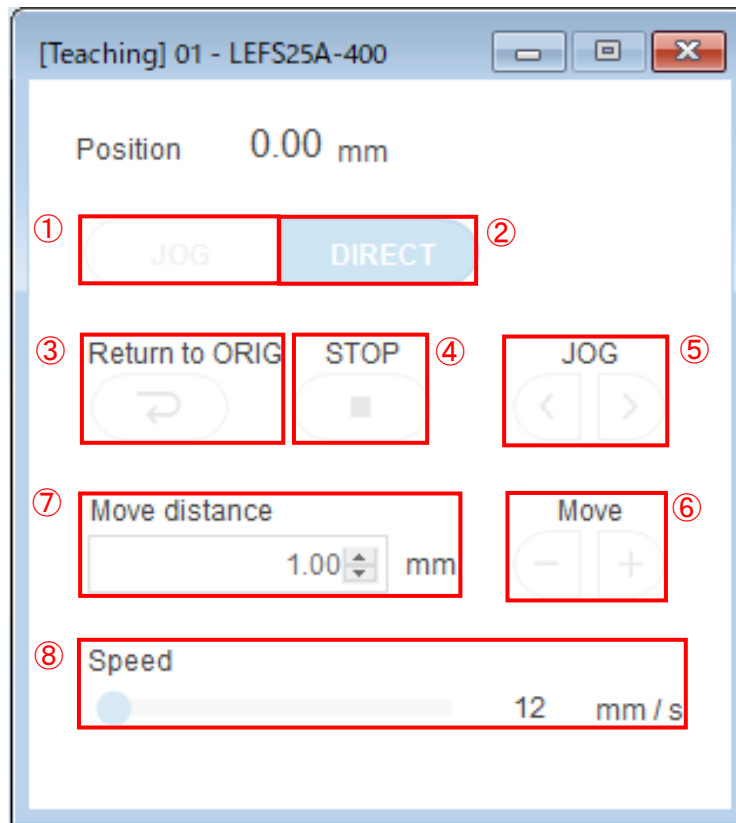
Item	Monitor
Controller type	JXC51/61(Mode: LECP2)
Unit name	LEMH25T-50
Step No.	15
Position	50.30
Speed	0
Force	50
Target Position	50.30

E-STOP
SETON
BUSY
ALARM
SVRE
INP
STUDY_OUT

Status window

5.3.6 Teaching

This is a window to support teaching. It is only available in test mode.
Window for jog teaching and direct teaching.



Example of teaching window display

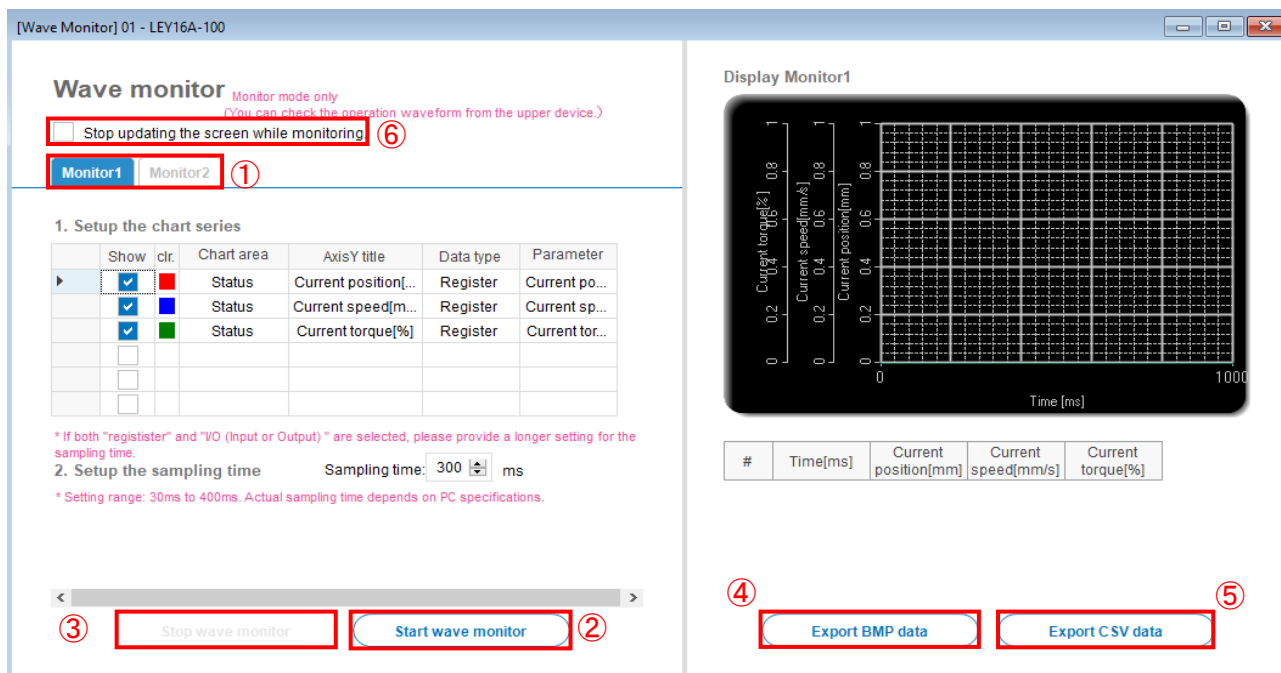
• Function of the operation button :

- ①Jog : Select when performing jog movement or constant dimension movement.
- ②Direct : Select this option to move the actuator directly by hand. The motor is turned off by the servo.
- ③Return to ORIG (↶) : Return to origin position.
- ④Stop (■) : The operation is stopped.
- ⑤JOG (<) : The actuator moves in + direction while it is pressed.
- JOG (>) : The actuator moves in - direction while it is pressed.
- ⑥Move (-) : The actuator moves the specified move distance in – direction when it is clicked.
- Move (+) : The actuator moves the specified move distance in + direction when it is clicked.
- ⑦Move distance : Enter a distance for inching.
- ⑧Speed : The moving speed for jogging and inching is specified.

*For more details about teaching, refer to [5.4 Teaching Method](#).

5.3.7 Wave Monitor

This function monitors the data and I/O signals of the connected actuator. However, this function cannot be used in test mode. This function can only be used when the actuator is operated with an operation instruction via host communication.



• Function of the buttons :

- ①Monitor : This is the tab for setting the measurement contents. In the initial state, the tabs are "Monitor 1" and "Monitor 2". However, it is possible to increase or decrease the number of monitor tabs and change the monitor tab names.
- ②Start wave monitor : Start the measurement.
- ③Stop wave monitor : Stop the measurement.
- ④Export BMP data : Save the image as bmp format.
- ⑤Export CSV data : Save the measurement data in CSV format.

• Measurable data and I/O signal types:

Data type	Data content
Register	Current speed, current position, current thrust, target position, operation data No.
Input	IN0 to 5, SETUP, HOLD, SVON, DRIVE, RESET
Output	OUT1 to 5, BUSY, AREA, WAREA, SETON, SVRE, ESTOP, ALARM, INP

*For the meaning of each Input and Output signal, refer to the operation manual of the connected controller.

• Optional Features :

⑥Stop updating the screen while monitoring :

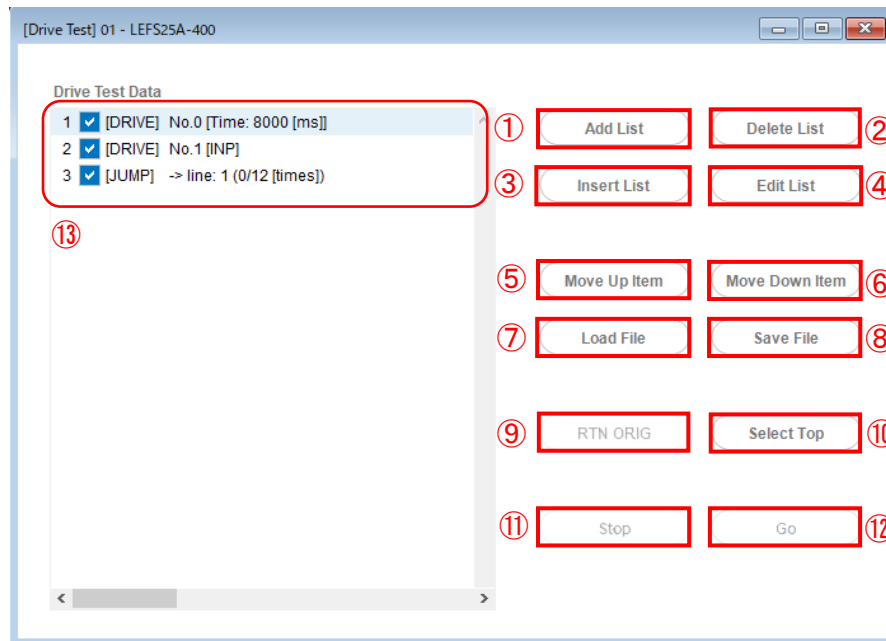
When checked, the monitor screen will not be updated during monitoring. When the wave measurement is stopped, the monitoring data will be displayed on the display screen.

*For the operation method, refer to [5.6 How to Operate Wave Monitor](#).

For the first time to use the wave monitor with ACT Controller 2 software version 1.1.0.0 or earlier, please download the "Wave Monitor Initial Settings File" from our website and set it. For the setting method, refer to [5.6 How to Operate Wave Monitor](#). (The initial settings file is included in the .zip folder of the ACT Controller 2 software)

5.3.8 Drive Test

This is a simple program function to perform a test operation.



- Contents of the ⑬ “Drive Test Data” :

There are three types of test operation commands as shown below. The commands will be executed in order from the top.

 - [DRIVE] No.□ [*] : Indicates the step No. to be operated. The [*] indicates the condition for moving to the next step.
 - [WAIT] □ (msec) : Indicates the waiting time to move to the next step.
 - [JUMP] ->line□(*) : Return to the specified line location and repeat the operation.
(*) indicates the number of repetitions.
- Function of the control buttons :
 - ① Add List : This button is used to add a new operation command to the test operation list. The command will also be added to the bottom of the list.
 - ② Delete List : The selected command in the test drive list is deleted.
 - ③ Insert List : A new command is added in the test drive list (after the selected command).
 - ④ Edit List : The selected command in the test drive list is edited.
 - ⑤ Move up item : The selected command in the test drive list is moved up by one line.
 - ⑥ Move down item : The selected command in the test drive list is moved down by one line.
 - ⑦ Load File : A test drive list is loaded from a file.
 - ⑧ Save File : A test drive list is saved in a file.
 - ⑨ RTN ORIG : Return to the origin position is performed.
 - ⑩ Select Top : The first line is selected.
 - ⑪ Stop : The executing test drive is stopped.
 - ⑫ Go : The test drive list is executed.
The commands are executed in sequential order from the selected command.



Caution

The maximum number of test operation list entries is 20, and the maximum continuous operation is 10 minutes or less. Please use this according to the operating conditions of your PC.

- How to set the test operation commands :

When the (1)“Add List” button is selected, (3)“Insert List” button, or (4)“Edit List” button, the following Drive Test Data Edit window will automatically appear.

- Setting items for step operation

(a) : Register for step data driving

(b) : Enter the step data number to be performed.

(c) : Select conditions for transition to next step.

• INP : Shift to next step with INP signal ON

• BUSY : Shift to next step with BUSY signal ON

• Operation time : Move to the next step after the specified time elapses (The maximum value will be 1000ms).

- How to set up

1) Select (a) “Drive”.

2) Enter the number of the step data to indicate directly in the (b) field, or use the ▲/▼ buttons to set it.

3) After selecting the transition conditions for the step, press the “Register” button.

- Wait command setting items

(e) : Register for the wait command.

(f) : Input field for the wait time .
(The maximum value will be 1000ms).

- How to set up

1) Select (e) “Wait” .

2) Enter the wait time to indicate directly in the (f) field, or use the ▲/▼ buttons to set it.

3) Click the “Register” button to complete

- Setting items for jump command

(g) : Register for jumps.

(h) : The field to specify where to start the repetitive operation.

(i) : Setting the number of cycles

• cycle continuously : Repeat operation until the “Stop” button is pressed.

• Number of cycles : Repeats the operation for the specified number of times.

- How to set

1) Select (g) “Jump”.

2) Enter the number of the place to start repeated operation in the (h) field, or use the ▲/▼ buttons to set it.

3) After setting the number of repetitions, click the (d) “Register” button to complete adding the jump.

<Check before test drive>

If the test drive is not ready, [RTN ORIG], [Go] and [Stop] buttons are not shown. If the buttons are not shown, check the following.

(1) The mode should be switched to “Test mode” with the mode selection button for test drive.

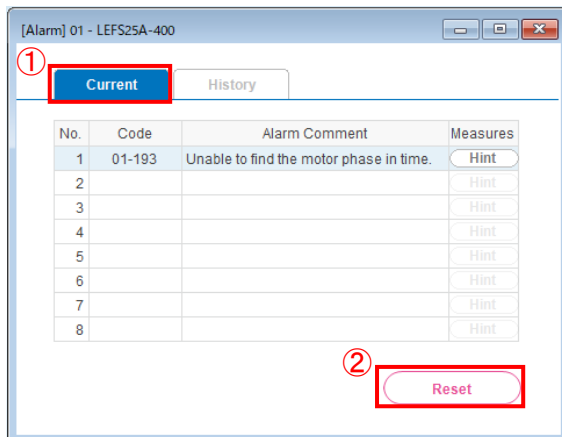
(2) Check that the [SVRE] of the controller status in the status window is blue.

(3) The [SETON] of the controller status in the status window is blue, “Return to the origin position” is not completed. Return to the origin position. “Return to the origin position” can be done using the [RTN ORIG] button.

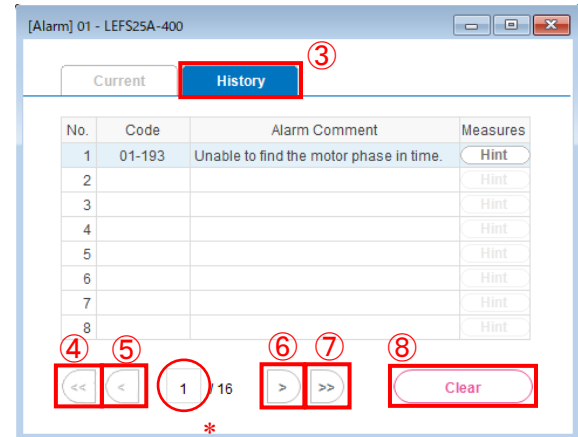
- For an example of test operation settings, refer to [5.5 Test drive](#).

5.3.9 Alarm

The current alarms and the alarm history can be viewed up to 16 previous alarms. Select a tab to change the display.



Current alarms



Alarm history

• Function of the operation button :

1. Current tab : The current alarm can be checked.
2. Reset button : Resets an active alarm.
(The alarm groups B to D can be reset. For details of the alarms, refer to the operation manual of the connected controller).
3. History tab : The history of alarm occurrences can be checked.
4. "<<" button : Moves back to the first page of the alarm history (the latest alarm).
5. "<" button : Moves back to the previous page of the alarm history (new alarm).
6. ">>" button : Moves to the last page of the alarm history (oldest alarm).
7. ">" button : Moves to the next page of the alarm history (old alarm).
8. Clear button : All of the alarm history can be deleted.

*A specific alarm can be viewed by entering its number.

5.4 Teaching method

Teaching is a method to set the position by operating the actuator.
Teaching method has “Jog teaching” and “Direct teaching”.



Caution

The actuator is operated during teaching. Take safety measures such as keeping hands away from the actuator's moving parts while operating the actuator.

5.4.1 Preparation

Prepare the following for teaching.

- (1) Click the mode selection button to select test mode.
- (2) Wait until the [SVRE] on the controller status window turns blue.
- (3) Confirm that the [SET-ON] on the controller status window is blue. If not, return to the origin position on the teaching window.

Controller Status		
Item	Monitor	
Type No.	LECP6	E-STOP
Unit name	LEFS25A-400	SETON
Step No.	1	BUSY
Position	22.22	ALARM
Speed	0	SVRE
Force	0	INP
Target Position	22.22	

Example of the controller status window (at the ready)



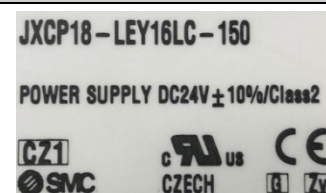
Caution

<For Made in JAPAN controllers>

The "Controller type" is displayed as "LECP6" when a JXC# series controller with batch code "AR" (April 2022) or earlier is connected.

<For Made in CZECH controllers>

The "Controller type" is displayed as "LECP6" when a JXC# series controller, irrespective of the batch code.



Example of controller part number label

The country of manufacture can be identified on the controller part number label.

5.4.2 Jog teaching

The method is to move the actuator using the setting software and store the current position in the step data.

- (1) Select the [JOG] button on the teaching window.
- (2) Move the actuator to the target position using the jog operation.
- (3) Select the step data to be set in the Step Data window.
- (4) Click the [Get Position] button in the Step Data window, and the current position will be written in the "Position" item of the step data.

5.4.3 Direct teaching

This is a method to store the position to which the actuator is moved manually without the motor's drive force (servo off) in the step data.

- (1) Select the [DIRECT] button on the teaching window.
- (2) The servo is then turned off and the actuator moved to the target position manually.
*The [SVRE] on the status window is turned off when the servo is turned off.
- (3) Select the "position" of the step data to be set on the step data window.
- (4) The current position is written in the step data after pressing the [Get Posn] button on the step data window.

After completing the settings, return to monitor mode.

5.5 Test drive

In ACT Controller 2, there are two types of test driving instructions.

- 1) Test operation of the step data can be carried out easily using the test drive bar. However, only one specified step data can be operated via the test drive bar.



Test drive bar

▪ Function of the buttons :

- ① Step data indication column : Indicates the step data number on which to perform the test drive.
- ② Go : Displays the test drive window with a single click.
- ③ Step : Test drive the specified step data.
- ④ Stop : Interrupts the test drive from the test drive bar.
- ⑤ Hold : Pauses the test operation from the test drive bar.

* “Step”, “Stop” and “Hold” are not available when a test operation is being performed in the Drive Test window.

< Check before a test drive >

The [Step], [Stop], and [Hold] buttons are not shown unless the test drive is ready.

If the buttons are not shown, check the following.

- (1) The mode should be switched to “test mode” using the mode selection button for test drive.
- (2) Check that the [SVRE] of the controller status in the status window is blue.
- (3) The [SET-ON] of the controller status in the status window is blue.

If it is not blue, “return to the origin position” is not completed. Return to the origin position.

“Return to the origin position” can be done using the [Return to ORIG] button in the teaching window.

2) Create a test drive program using the Drive Test window. This window can be used for multiple step data instructions, timer and repeat operations. Refer to [5.3.8 Drive Test](#) for details.

<Example of 3 times repetition operation of step data No.0 and No.1 >

(Assuming the condition of transition to the next step is INP).

(1) ①Click the “Go” button to display the Drive Test window.

(2) ⑥Click “Add list button” in the Drive Test window.

(3) Input “0” (step data No.0) in the ⑨Step data No. field. Select INP for the step transition condition and press the ⑫“Register” button.

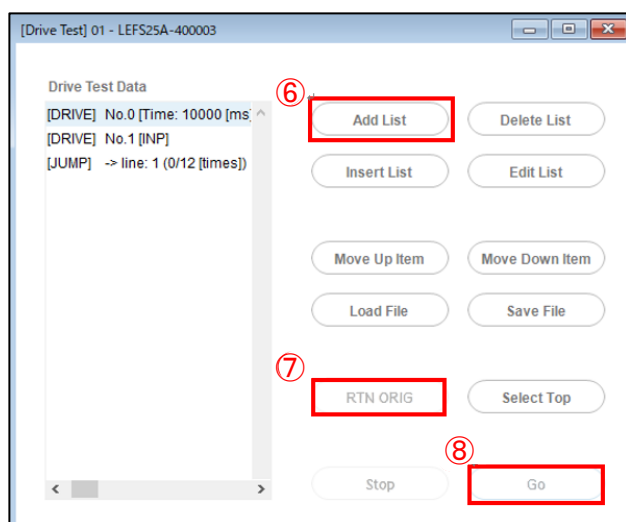
(4) Input “1” (step data No.1) in the ⑨Step data No. field. Select INP for the step transition condition and press the ⑫“Register” button.

(5)Select ⑩Jump Registration and set the start position for repeated operation. This time it is the first line, so enter “ 1 ” and press the ⑫“Register” button.

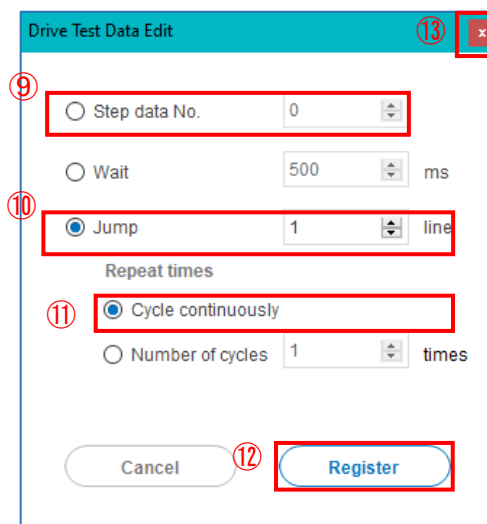
(6) After registration is complete, close the Drive Test Data Edit window by clicking the ⑬ Close button.

(7) Set the mode to Test mode by clicking the Mode selection button, and perform a return to original by clicking the ⑦“RTN ORIG” button after the servo is turned on.

(8) After the return to original is completed, click the ⑧“Execute” button to check if it works normally.



Example of test operation window

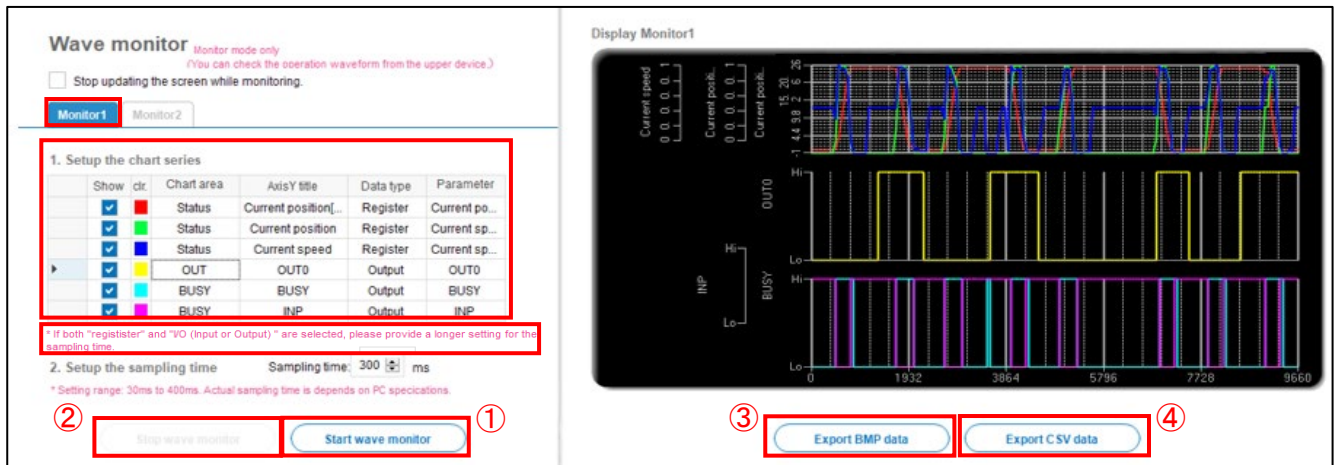


Example of test drive data registration

5.6 How to Operate Wave Monitor

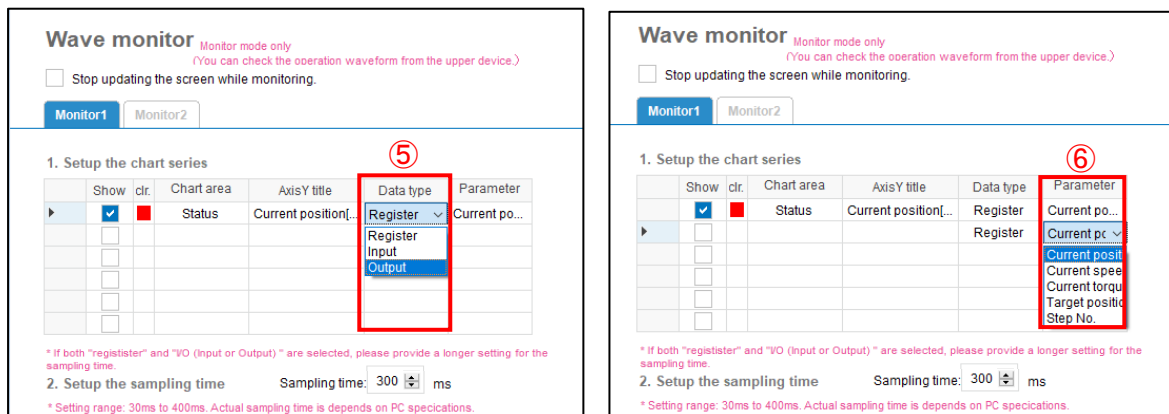
<Check before measurement>

To use the wave monitor, select “Monitor mode” using the mode selection button.

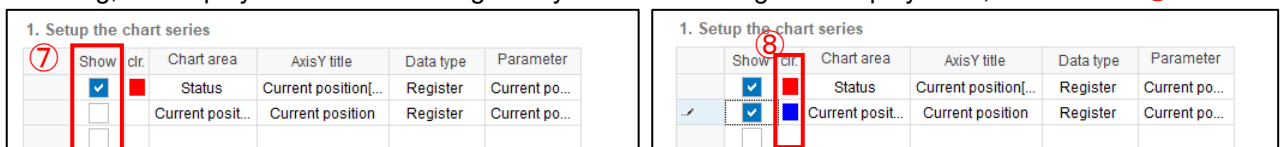


<How to use : >


- (1) Select Monitor 1 or Monitor 2.
- (2) To add a measurement series, first select “Register”, “Input” or “Output” from ⑤ “Data Type”. (“Register” is data, and “Input” and “Output” are I/O signals.)

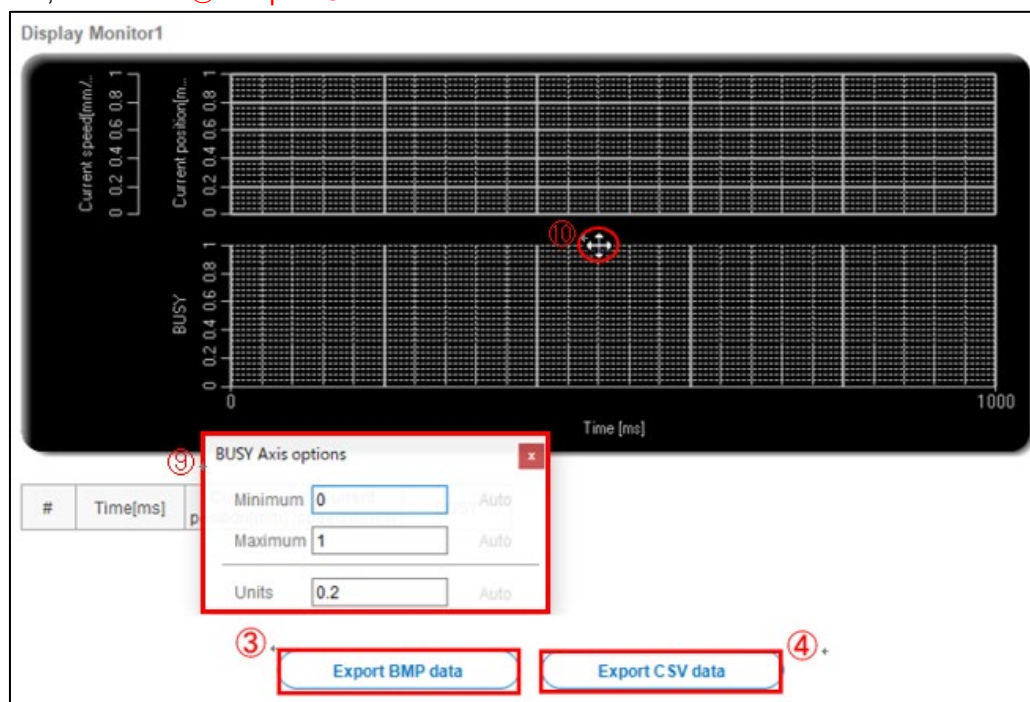


- (3) After completing the selection of data type, select ⑥ “Parameter”. After selection, the Chart area and Axis Y title will be automatically entered.
- (4) To display the measurement data in the same graph, set the Chart area name to the same. To change the Data type or Parameter, change the Chart area and Axis Y title manually, or delete the data and create a new one.
- (5) After setting the data contents, check “✓” in ⑦ “Show” to make it effective as a measurement target. After checking, the display color can be changed. If you want to change the display color, left-click on ⑧ clr.



- (6) Set the sampling time. The minimum setting is 30 ms.
- (7) Make sure that ⑦ “Show” of the series to be measure is checked, and then click the ① “Start Wave Monitor” button to start measurement.
- (8) To end the measurement, click the ② “Stop Wave Monitor” button.

- (9) The maximum and minimum values of the axis memory can be changed by double-clicking on the horizontal/vertical axis of the graph. As shown in ⑨. If the cursor is moved to the top of the second or later graph, when the cursor turns into “” mark as shown in ⑩ below, left-click the mouse to zoom in and out of the graph.
- (10) To save the measured data as an image, select the ③ “Export BMP data” button. To save the data in CSV format, select the ④ “Export CSV data” button.



! Caution

Up to 6 signals (total data and I/O signals) can be measured simultaneously on one monitor tab.

<Other functions of the waveform monitor>

- Add/delete 'Monitor' tabs and rename tabs.

The “Monitor” tab can be added or deleted, and the tab name can be changed.

Add or delete tabs by right-clicking on the “Monitor” tab. To rename a tab, double-click on it.

Wave monitor Monitor mode only
(You can check the operation waveform from the upper device.)

☐ Stop updating the screen while monitoring.

Monitor1 Monitor2

Right-click to add or delete.

Add
Remove

1. Setup the chart series

	Show	clr.	Chart area	AxisY title	Data type	Parameter
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Status	Current position[...]	Register	Current po...

Wave monitor Monitor mode only
(You can check the operation waveform from the upper device.)

☐ Stop updating the screen while monitoring.

Monitor1 Monitor2

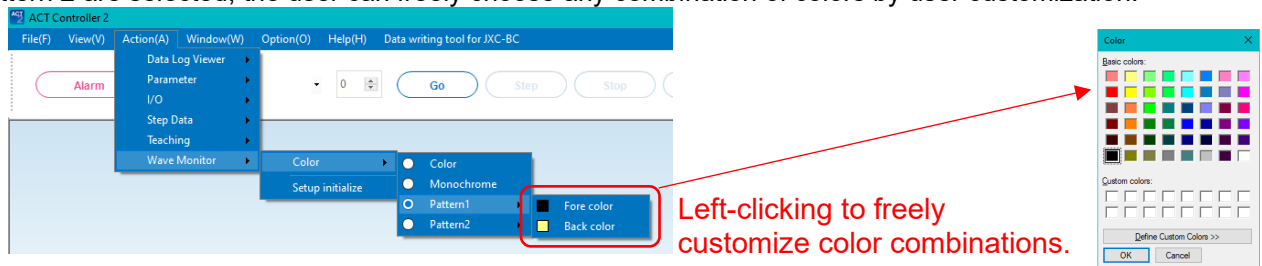
Double-click to change the name.

1. Setup the chart series

	Show	clr.	Chart area	AxisY title	Data type	Parameter
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				

- Changing the Fore and Back colors of the wave monitor

The colors can be changed from the menu bar "Action" -> "Wave Monitor" -> "Colors". When Pattern 1 and Pattern 2 are selected, the user can freely choose any combination of colors by user customization.



- Initialization of the wave monitor settings

To initialize the wave monitor settings, select [Action] → [Wave Monitor] → [Setup Initialize] from the menu bar. However, if you have done the "Setup Initialize" with ACT Controller 2 software version 1.1.0.0 or earlier, please be sure to re-set the "Wave Monitor Initial Settings File".

- Saving settings file for wave monitor

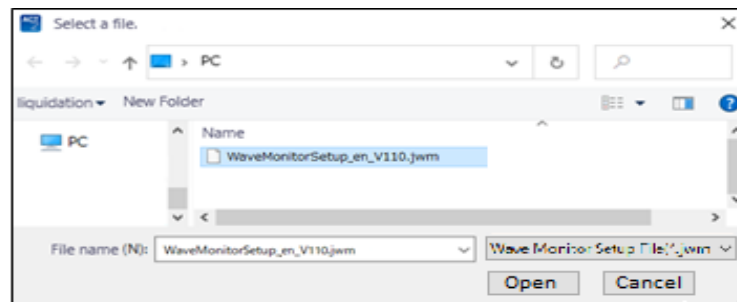
The configured settings of the wave monitor can be saved in a settings file (.jwm).

To save a settings file, select [File] → [Save] → [Waveform monitor Settings file] from the menu bar.

- Importing setting files for wave monitor

The saved settings files (.jwm) can be imported into the wave monitor and reflected in the settings.

To import a settings file, select [File] → [Open] → [Wave Monitor Setup] from the menu bar. Then select a settings file as shown in the screen below, and click the "Open" button. The settings will be reflected in the wave monitor.



*The settings are retained in the ACT Controller 2 software once they have been set (it is not necessary to set the above settings file each time the ACT Controller 2 software is started).

*For customers using ACT Controller 2 software Ver 1.1.0.0 or earlier, be sure to download the "Wave Monitor Initial Settings File" from SMC website and import it for the first time to use. (The initial settings file is included in the .zip folder of the ACT Controller 2 software)

5.7 Data writing tool for JXC-BC

This function is only available for the JXC-BC controller. It is possible to write the parameters and step data of the specified actuator to the JXC-BC controller. *Please check the SMC website for the latest version of the Data writing tool for JXC-BC. Please refer to [5.8 Setup menus in Option](#) for how to update the plugin version.

<How to change parameters>

- (1) Click the "Data writing tool for JXC-BC" button.
- (2) Follow the instructions on the screen to select the controller to be written.

Select	ID	Controller name	Unit name
<input checked="" type="checkbox"/>	1	JXC*1	LEFS25A-400

- (3) Select a suitable model, body size, etc. along with the part number of the actuator to change.
(The model number can also be entered directly using 'Input by text').

Controller Type	Model	Body Size	Motor	Motor Type	Lead	Stroke
JXC*1	LEY	25			A	200

- (4) Select and confirm the writing contents, and click "Next" to start writing.

- (5) Turn the power back on after writing is complete.

Caution

The following controller version or higher is required to use the data writing tool for JXC-BC.

JXC#H	S1.0 or higher
JXC51/61/MJ	S3.4 or higher
JXC Controllers other than the above	S3.5 or higher

*The LECA6/LECPA controllers are not supported.

< For JXC51/JXC61 controllers with LECP1 and LECP2 modes >

The following procedure describes how to use the JXC51/61 controller as a replacement for LECP1 and LECP2 (discontinued products).

< Supported Versions >

ACT Controller 2	Version 1.5.0.0 or higher
JXC51# or JXC61# controller	Version 3.60 or higher

< How to change LECP1 mode / LECP2 mode >

- (1) Refer to the operation manual for [5.7 Data writing tool for JXC-BC](#) and select the controller and actuator part number for which you want to write the parameters.
- (2) Select the product mode you want to use from the product mode list and click the [Next] button ("-" means JXC51/61 standard mode)

- (3) When the transmission of write data is completed, the following window will be displayed. Follow the instructions on the screen to confirm that be sure to check that the PWR (green) on the controller LED has changed from blinking to lit before restore power of the controller to reflect the configuration change. Also, after closing the window, please confirm that the product mode currently applied is correct from the [Connected axis list] at the top of the main window.

Completed

Completed!



Completed.
Be sure to check that the PWR (green) on the controller LED has changed from blinking to lit before restore power of the controller to reflect the configuration change.

Write the "LEMH25T-50" to the actuator label before proceeding.

OK

01 - LEMH25T-50
(JXC51/61)

01 - LEMH25T-50
(JXC51/61(Mode: LECP1))

01 - LEMH25T-50
(JXC51/61(Mode: LECP2))

[Data writing tool for JXC-BC] Completed window [Connected axis list] Example of product mode display

5.8 Setup menus in Option

The following items can be set from the option Setup.

○Basic Settings

- ① Unit: “mm” or “inch” notation display can be selected.
- ② Language: English or Japanese language can be selected.
- ③ Write/Read Message: Select to display the confirmation message when writing or reading.
- ④ Backup/Overwrite Message: Select to display the confirmation message when writing or reading.
- ⑤ Tooltips: Select to display tooltips.

The screenshot shows the 'Setup' dialog box with the 'Basic settings' tab selected. The settings are as follows:

- Unit:** ☒ mm, ☐ inch (indicated by ①)
- Language:** English (indicated by ②)
- Write/Read Message:** ☒ Show confirm message every time you write/read. (indicated by ③)
- Backup/Overwrite Message:** ☒ Show confirm message every time when you close the software or change the connected axis (indicated by ④)
- Tooltips:** ☒ Show tooltips (indicated by ⑤)

Buttons: Cancel, OK

Basic setting example

○Comms settings

① Comms

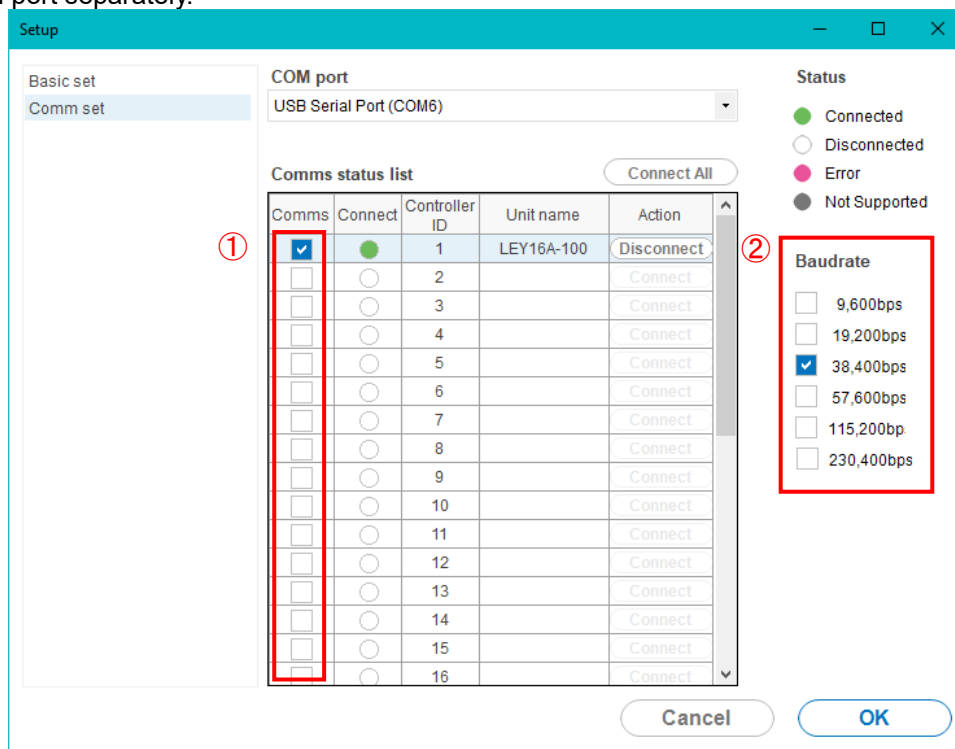
Set the controller ID to be searched when checking the connection with the PC.

When checked, the controller ID will be the target of the search.

② Baud rate

Set the communication speed to be used during the connection checking. The controller default value is 38,400 bps.

*This software automatically recognizes the COM port number of the connected PC, so there is no need to set the COM port separately.

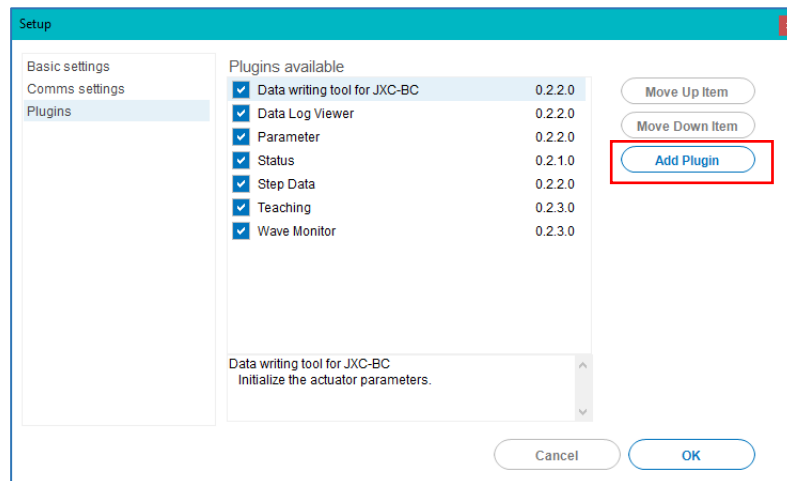


Example of communication settings

○Plugins

This function allows the user to customize the plugin menus, including selecting display items and their order.

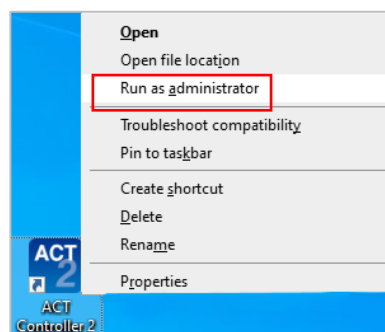
*The Drive Test and Alarm windows are fixed, so it is not possible to change.



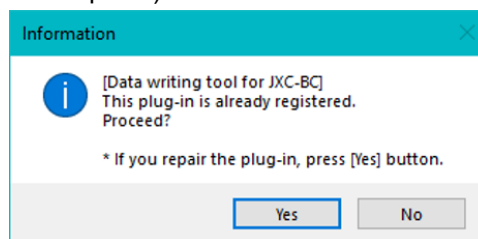
Examples of Plug-in

<How to change the version of the plugin and how to add a new one>

- 1) To update existing plugins or add new plugins, please download the corresponding zip file from the SMC website. (<https://www.smcworld.com>)
- 2) Shift + right-click the ACT Controller 2 icon and select "Run as administrator" to start the ACT Controller 2.

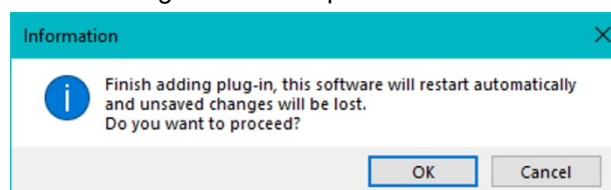


- 3) Go to "Options" -> "Settings" -> "Plugins" on the menu bar. To change the version of a plugin, select the plugin menu which you want to update and click the "Add Plugin" button. If you want to add a new plugin, click the "Add Plugin" button only.
- 4) When an information message appears, select "Yes", and then select the corresponding zip file.
(There is no need to extract the zip file.)



Example of information message for confirmation

- 5) After selecting the file, the following information message will be displayed. Please check and select "Yes" if there is no problem. When the file has been updated successfully, the system will restart automatically and the version change will be completed.

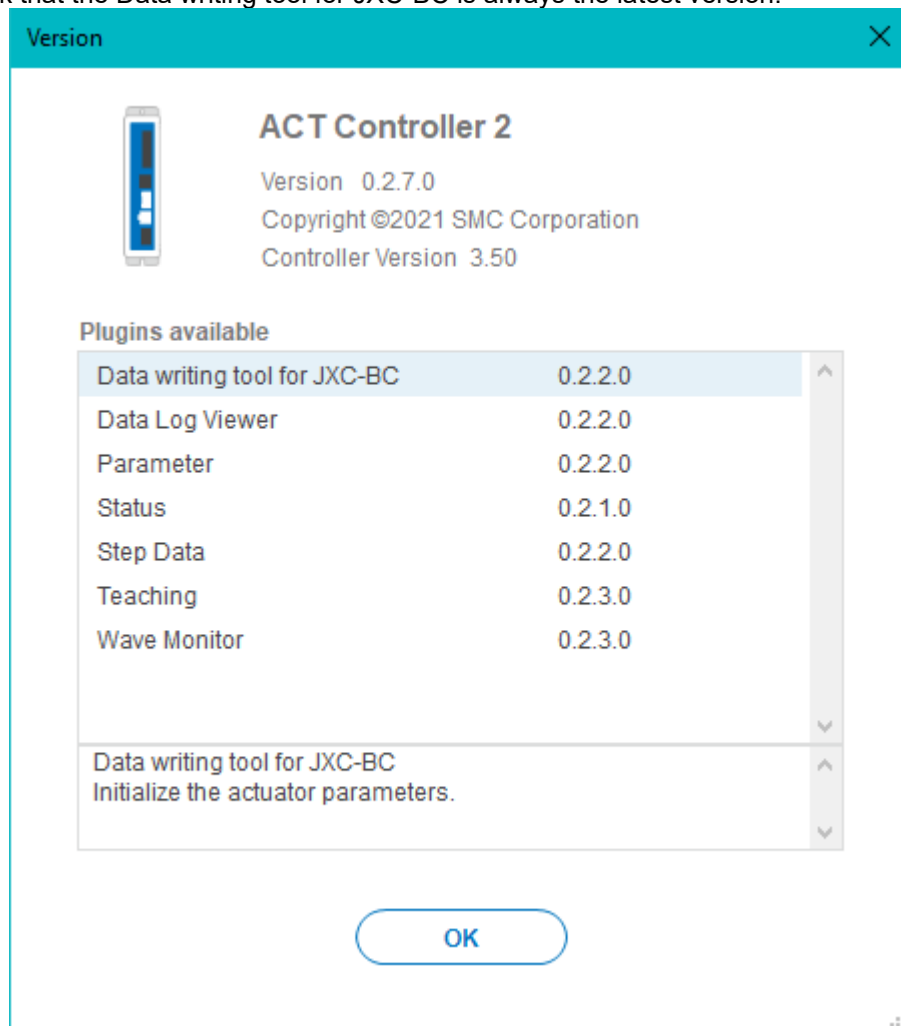


Example of information message for confirmation

5.9 Version information

Check all version information for each function from here.

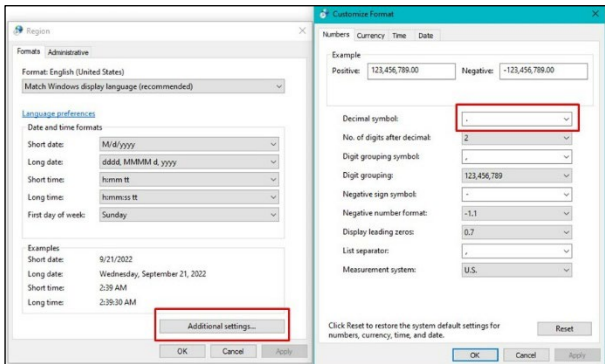
Periodically check that the Data writing tool for JXC-BC is always the latest version.



6. Troubleshooting

If operation failure occurs, please refer to the countermeasures according to the trouble phenomenon.

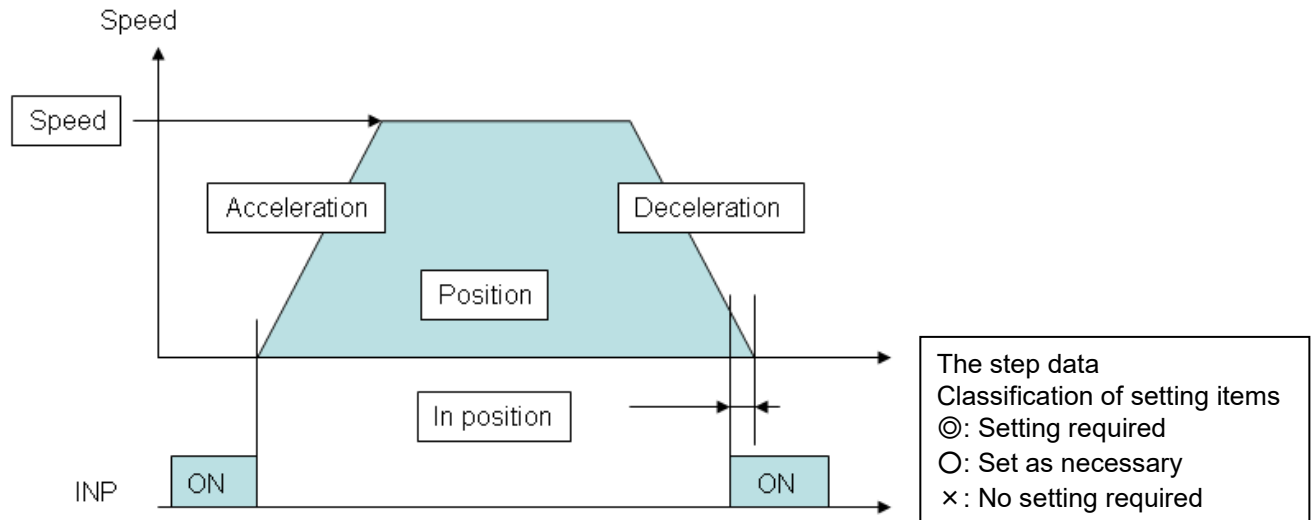
If the cause corresponding to the trouble phenomenon is not confirmed, please contact us.

No.	Problem	Possible causes	Investigation method and location of possible causes	Countermeasures
1	Communication fault	The USB driver is not installed. (JXC-W2A-C)	Please check that the USB driver for the conversion unit is installed.	Please install the USB driver of the communication unit. For details, please refer to 3.2 Installation procedure
		Connection failure	Please confirm the connection status.	Please confirm motor controller = communications cable = communication unit = USB cable = PC is connected. For example, communication cannot be established if the connector has been damaged. Please confirm the power supply of motor controller has been turned ON. Communication cannot be established if the power supply is OFF. If equipment other than the motor controller (PLC and measurement equipment) is connected with PC, remove these before checking. (There is a possibility that the communication with other equipment interferes in PC.)
2	File export fault (Error message occurs in the software)	Mismatch in PC settings	<p>Please check that the first time you start this setting software, the decimal point symbol in "Customize Format" under "Region" in the control panel is set to a period ".".</p> <p><Checking points on the PC></p> 	<p>Please set the display language once to another language in the optional settings in this software and then re-set the desired language. (Example: If you already set to English, please change it to "Japanese" and then set it to "English" again.)</p>

Attached list 1 (Operation explanation)

Positioning operation

The positioning operation is to move toward and stop at the target position. The figure below is an image that shows the setting items and step data operations. The setting items and setting values for each step data are described below.

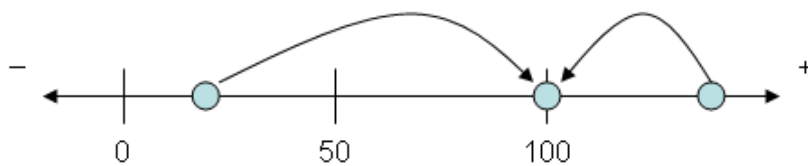


<◎How it works>

Two types of movement methods are available. Set ABS (abs movement) for absolute position movement and INC (increment movement) for relative position movement.

ABS (Absolute movement)

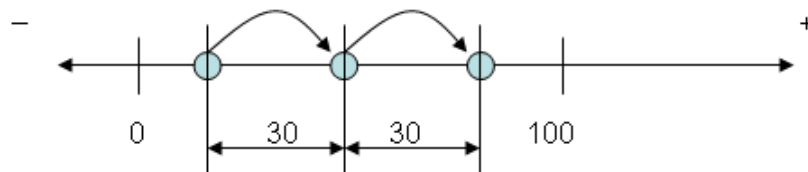
Specify the target position based on the “**origin**”. An example is shown below.



In this example, the position is 100 mm in absolute position movement. No matter where the table is now, it will move towards the 100 mm position.

INC (incremental movement)

This function specifies the target position based on the “**current position**”. An example is shown below.



In this example, the movement will be 30 mm from the current position. The target position is not the 30 mm position from the origin reference.

<◎Speed>

The speed of movement to the target position.

<◎Location>

Indicates the target position.

<OAcceleration>

This parameter sets whether to speed up slowly or rapidly at start-up. The higher the value, the more rapid the acceleration.

<ODeceleration>

This parameter is used to set whether to stop suddenly or slowly when stopping. The higher the value, the more rapid the stop.

<⓪Pushing force>

Set the value to 0 (zero). (Setting any value other than 0 will result in a pushing operation).

<×Threshold>

No configuration required.

<×Pushing speed>

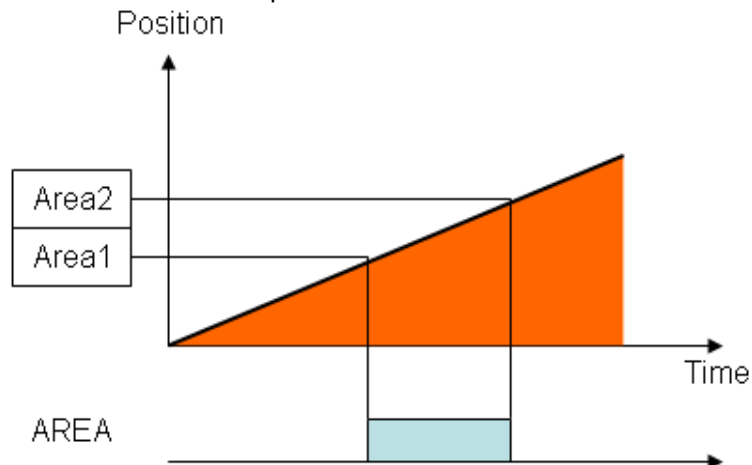
No configuration required.

<OPositioning force>

This is the maximum force during a positioning operation. (There is no need to change it specifically).

<OArea 1, Area 2>

This is the condition to turn on the AREA output.



The area (AREA) output is a signal that is output when the device enters a specified range during operation. Area 1 and Area 2 in the setting item represent this output position range.

The two input conditions are as follows.

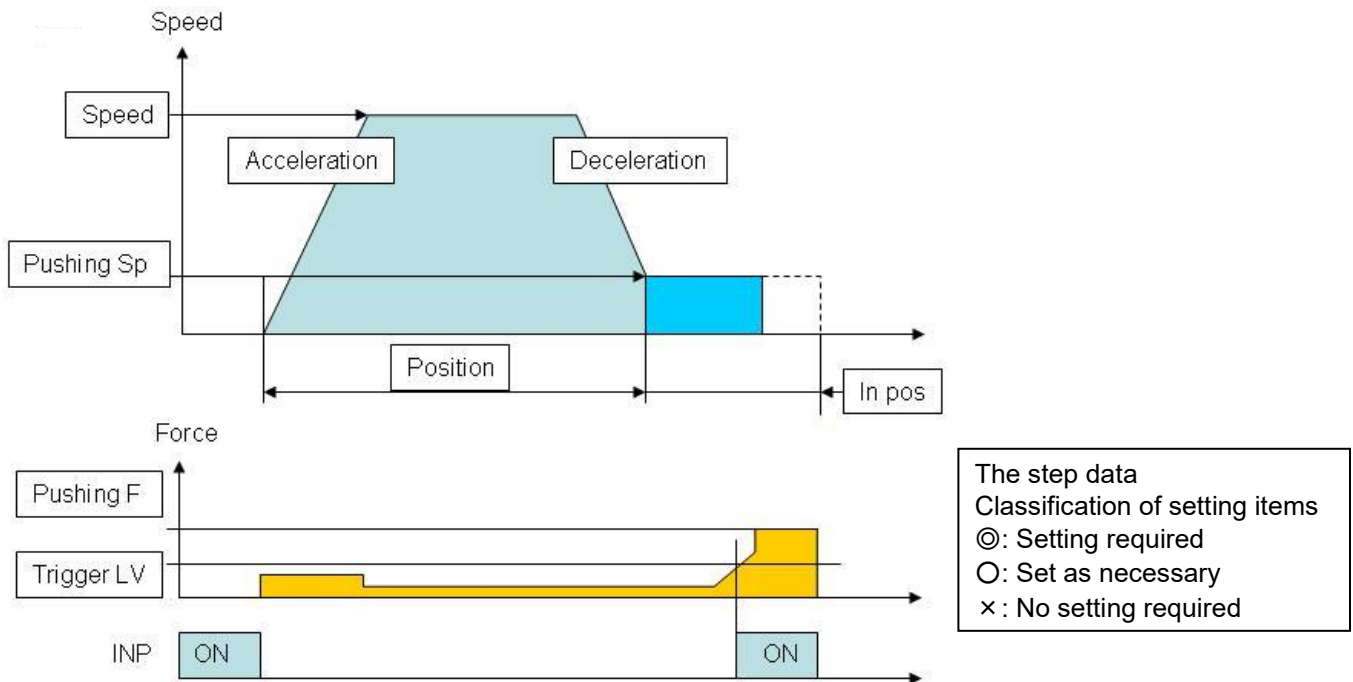
- Both Area 1 and Area 2 are within the operating range of the actuator.
- Area 1 < Area 2

<OLocation Position Range>

This is the condition for turning ON the INP (in-position) output. The INP (in-position) output is turned ON when the target position is within the range of this positioning range (There is no need to change the default value). To get an arrival signal before the completion of the operation, increase the value.

Pushing action

The pushing operation moves toward the target position and pushes with less than the set force from the target position. The figure below shows the setting items of the step data and the operation. The setting items and setting values for each step data are described below.



<◎How it works>

Set "ABS" for absolute positioning and "INC" for relative positioning. For details, refer to [Positioning Operation](#).

<◎Speed>

This is the movement speed to the target position.

<◎Location>

Indicates the target position.

<○Acceleration>

This parameter sets whether to speed up slowly or rapidly at start-up. The higher the value, the more rapid the acceleration.

<○Deceleration>

This parameter is used to set whether the speed should be reduced suddenly or slowly when switching to the pushing speed. The higher the value, the more rapid the deceleration.

<◎Pushing force>

Specify the force ratio when pushing. The setting range varies depending on the type of actuator.

<◎Threshold>

This is the condition to turn on the INP output. The INP output turns ON when a thrust force greater than this value is generated. Set the value to a value less than or equal to the applied force.

<◎Pushing speed>

This is the speed at which the actuator is pressed. If a high speed is set, the actuator or workpiece may be damaged by the impact when it is hit, so set a small value. Check the instruction manual of the actuator you are using for the approximate setting value.

<○Positioning force>

This is the maximum force during a positioning operation (There is no need to change it specifically).

<○Area 1, Area 2.>

This is the condition to turn on the AREA output.

<◎Location-Position Range>

This is the amount of movement when pushing. When this travel amount is exceeded, the machine stops even if it is not pushing.

The INP output does not turn ON when stopping when the travel distance is exceeded.

Revision history
A: Contents revised in several places. [February 2022]
B: Contents revised in several places. [April 2022]
C: Contents revised in several places. [September 2022]
D: Contents revised in several places. [February 2023]
E: Contents revised in several places. [May 2024]
F: Contents revised in several places. [Sep 2024]

SMC Corporation

Tel: + 81 3 5207 8249 Fax: +81 3 5298 5362

URL <https://www.smcworld.com>

Note: Specifications are subject to change without prior notice and any obligation on the part of the manufacturer.
Windows® 10 and Windows® 11 are registered trademarks of Microsoft Corporation in the United States.
© SMC Corporation All Rights Reserved



No. JXC#-OMZ0004-F