



# Operation Manual

PRODUCT NAME

## Setting software for e-Actuator (e-Actuator setup tool)

MODEL / Series / Product Number

EQ series



**SMC Corporation**

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# e-Actuator setup tool / Setting software

## 1. Safety precautions

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)<sup>\*)</sup>, and other safety regulations.

\*) 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. SMC products cannot be used beyond their specifications. They are not developed, designed, and manufactured to be used under the following conditions or environments. Use under such conditions or environments is not allowed.**

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, combustion 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.



# e-Actuator setup tool / Setting software

## 1 .Safety precautions



### Caution

**SMC develops, designs, and manufactures products to be used for automatic control equipment, and provides them for peaceful use in manufacturing industries.**

**Use in non-manufacturing industries is not allowed.**

Products SMC manufactures and sells cannot be used for the purpose of transactions or certification specified in the Measurement Act of each country.

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: e-Actuator (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 Products 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

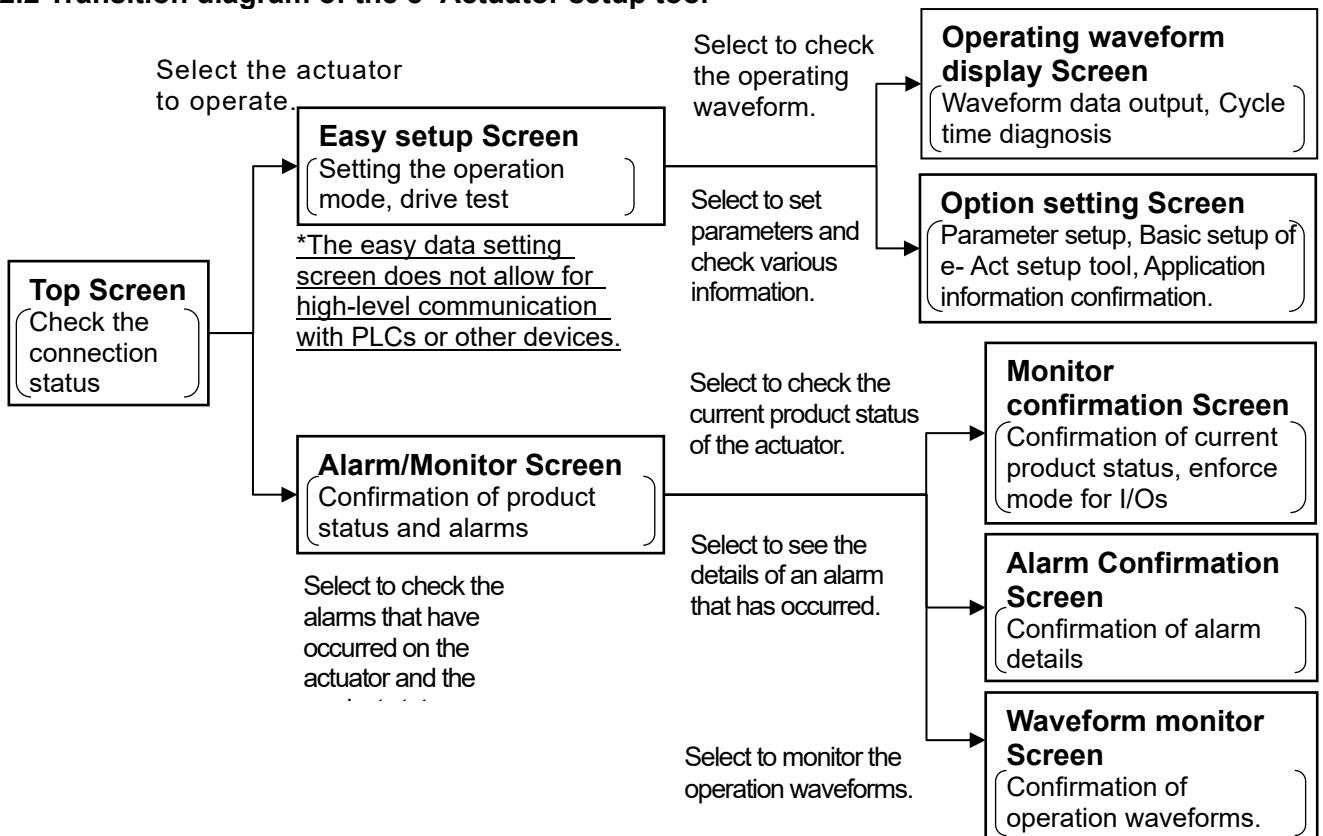
This software is a PC setup software for easy electric EQ series (e-Actuator). This manual provides instructions based on the English version of the software. Hereafter abbreviated as e-Act setup tool.

The setting range and contents vary depending on the specifications of the electric actuator to be used in combination. When making settings, please refer to the operation manual and technical data of your actuator. Regarding the latest information on the operation manuals, technical documents, and e-Act setup tool, you can download from SMC website.

### 2.1 Product Specifications

- e-Act setup tool is supported by the following OS:
  - Windows® 10 (64bit) (Version 1607 or higher) Resolution of 1366 x 768 dpi or higher recommended.
  - Windows® 11 (64bit) Resolution of 1366 x 768 dpi or higher recommended.
- Supported communication cables for e-Act setup tool:
  - JX-C\*-E (Supported interface USB1.1 or USB2.0 port)
- e-Act setup tool can be downloaded from the following:
  - SMC website( <https://www.smcworld.com/> )
- The following controllers/drivers are supported by EQ Series (e-Actuator)
- Main functions of the e- Actuator setup tool
  - Setting of operation data (Speed, Acceleration, Position, Cycle time etc.)
  - Confirmation of product status and alarms

### 2.2 Transition diagram of the e- Actuator setup tool



### Caution

Please do the movement between [Top screen] ⇔ [Easy setup screen] ⇔ [Alarm/Monitor screen] when the actuator is stopped, as this may cause the actuator to malfunction.

## 3. Software and driver installation instructions

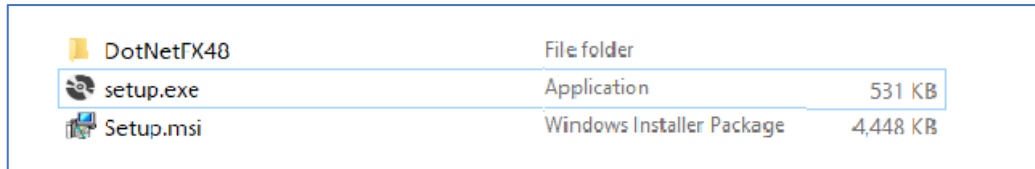
### 3.1 Before installation

Download the installer folder for the e- Actuator setup tool from the SMC website. Extract (unzip) the downloaded installer folder on the computer you will be using.

This installer contains the e-Actuator setup tool, 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 e-Act setup tool will be upgraded to the latest version.

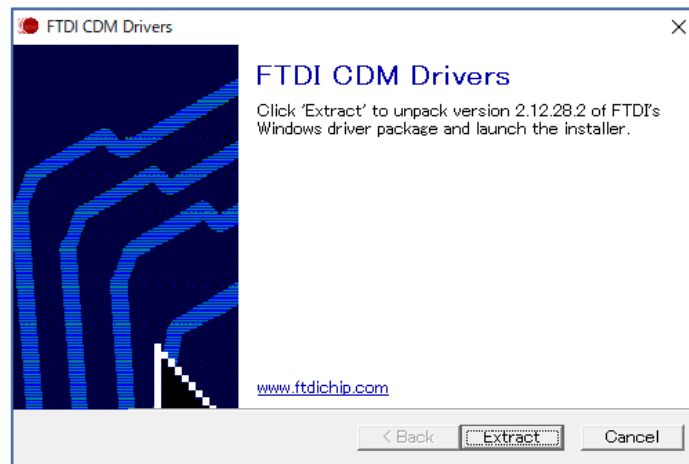
### 3.2 Installation procedure


Step1: Double-click "setup.exe" in the installer folder to start the installation process.

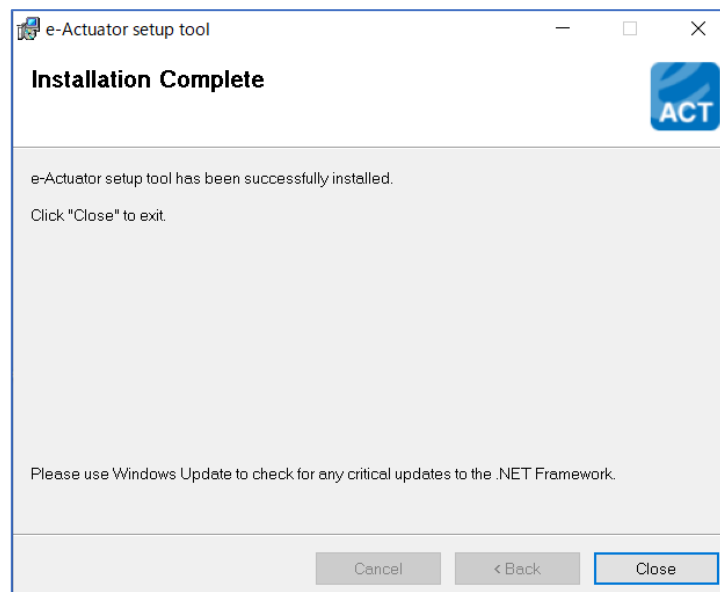


Step2: Follow the instructions on the screen to install the software.

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 JX-C\*-E, so please install it. If the driver has already been installed on your computer, the following procedure will be skipped automatically.



Step3: When the installation is completed correctly, the following message will be displayed. Also, the e-Act setup tool icon  will automatically appear on the desktop.



## 4. Supported models list

Some functions vary depending on the model of the product to be connected.

Connected actuator		Supported functions		
Model	Version	Operation mode	Maintenance information	Enforce mode
EQ□□□-□ e-Actuator Easy to Operate Integrated Controller (Parallel I/O type)	V1.00~ V2.20	Double solenoid mode Closed center mode Single solenoid mode	No support	Support
EQ□□□-□-BL e-Actuator Easy to Operate Integrated Controller (IO-Link type)	V1.00~	Closed center mode	Cumulative instruction count Cumulative distance Electrolytic capacitor warning EEPROM write cycles	No support

### Caution

If the e-Act setup tool is not the latest version, a screen may be displayed indicating that the connected actuator is not supported. In such cases, please download the latest version of the software from the SMC website ( <https://www.smcworld.com/> ) and update the e-Act setup tool to the latest version before use.

#### Connected actuator



EQFS32DHA-1500

This product (actuator) is not supported by this software.  
Please use the latest version of the setting software.

Name EQ



Easy setup

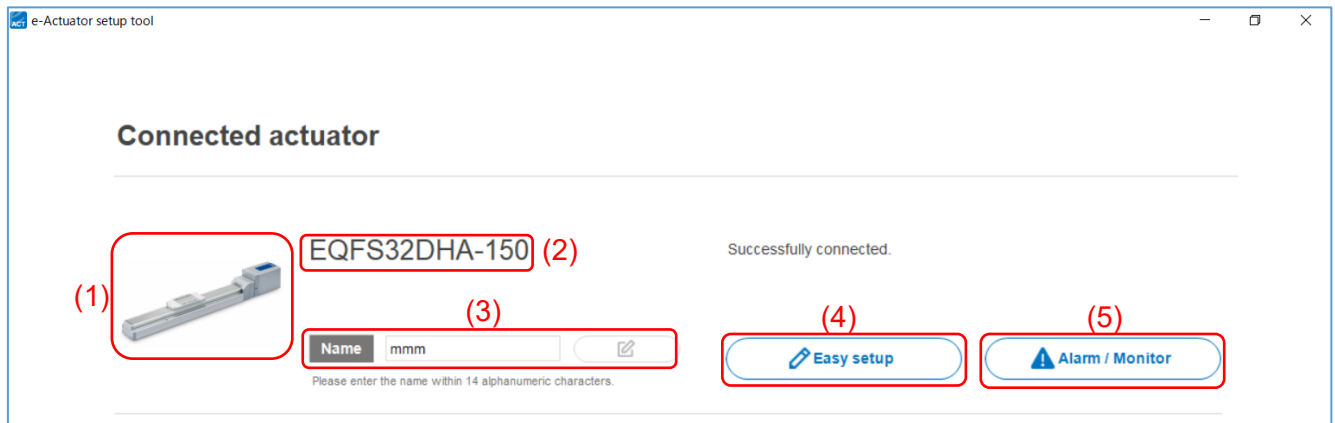
Alarm / Monitor

Please enter the name within 14 alphanumeric characters.



## 5. Connection Confirmation

### 5.1 Confirmation of communication connection

When the e- Actuator setup tool is launched and a communication connection with the EQ Series (e-Actuator) is established, the following screen will appear on the Top Screen. The product image and part number of the connected actuator is automatically displayed.

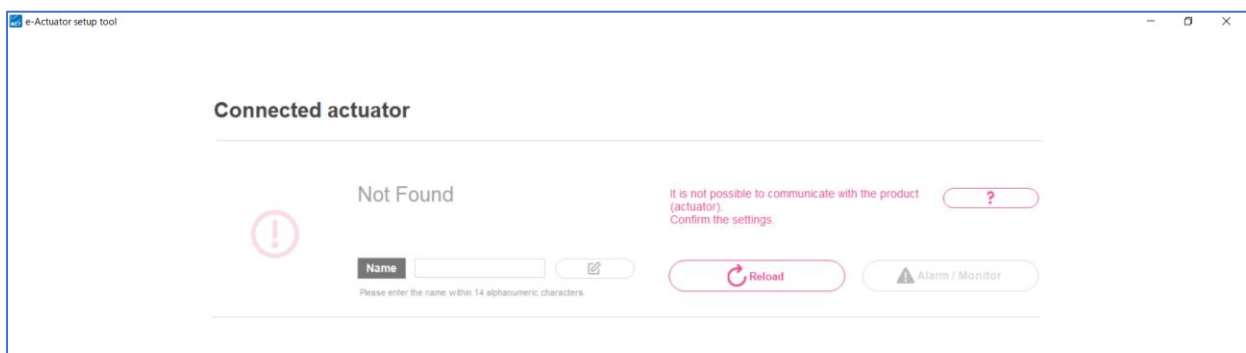


#### -Top Screen Explanation

- (1) Product Image: An image of the connected actuator is displayed
- (2) Product part number: The part number of the connected actuator is displayed.
- (3) Name setting: You can set any name you like for the connected actuator. (Within 14 alphanumeric characters)
- (4)  button: Go to the Easy setup screen.
- (5)  button: Go to the Alarm/Monitor screen.  
When an alarm is detected, the button turns pink and flashes.


### 5.2 Communication failure


When the communication connection cannot be established, the following screen will be displayed.



### Caution

If communication with the product is not possible, the e-Act setup tool cannot be used.

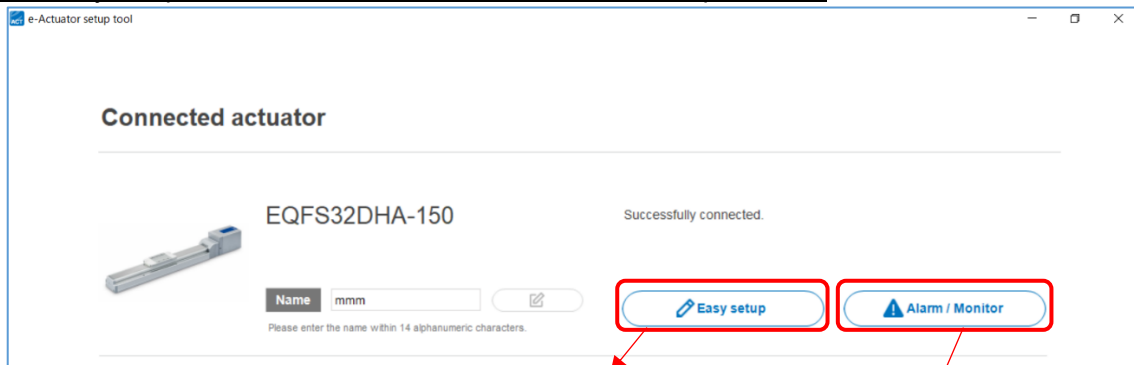
Please select the  button to reestablish the communication connection.

If communication is not established, please select the  Connection Hints button and check the hints for countermeasures in the connection.

## 6. How to switch screens

The e-Actuator setup tool consists of three main screens: "Top Screen", "Easy setup Screen" and "Alarm/Monitor Screen". See below for instructions on how to navigate to each screen.

-Go to "Easy setup Screen" or "Alarm/Monitor Screen" from "Top Screen".

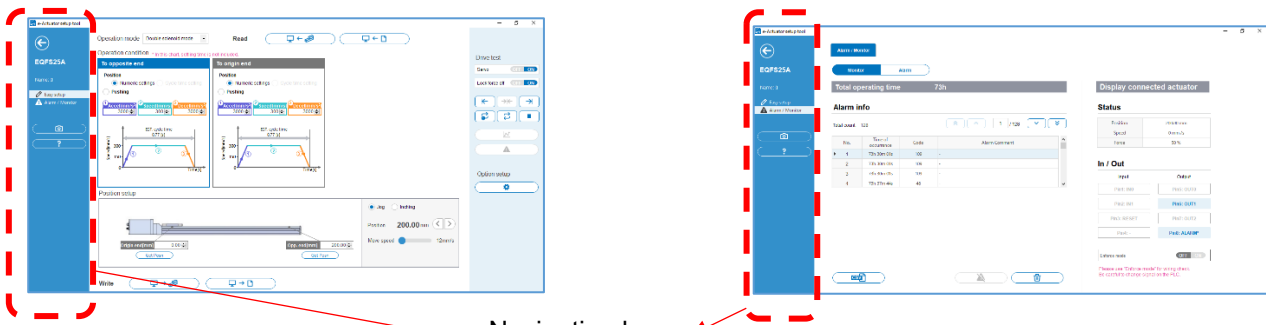


Go to "Easy setup Screen"

Go to "Alarm/Monitor Screen"

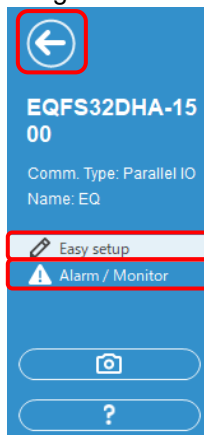
-Move to another screen from "Easy setup Screen" or "Alarm/Monitor Screen".

In the "Easy setup Screen" and "Alarm/Monitor Screen", there is a navigation bar on the left side. It is easy to move to each screen from the navigation bar.



Navigation bar

Button to go to the "Top Screen".



Button to go to "Easy setup Screen"

Button to go to "Alarm/Monitor Screen"

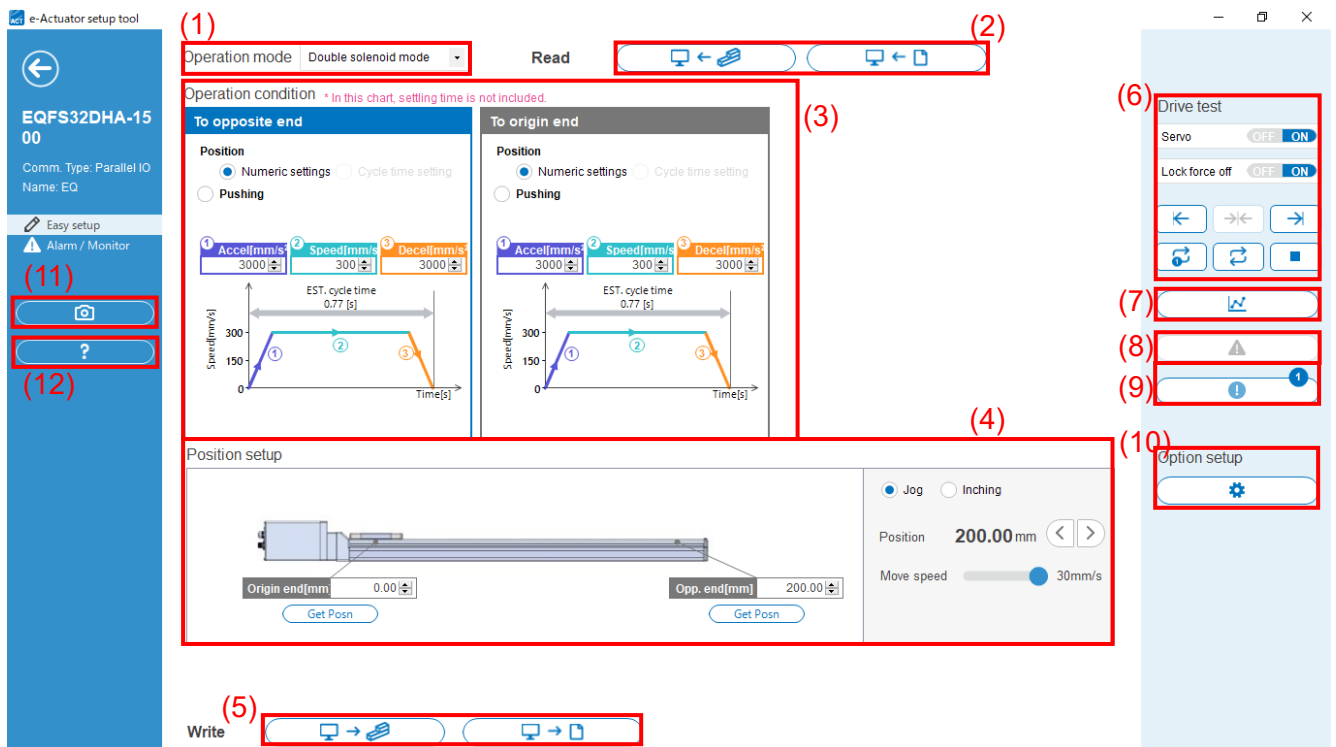
### Caution

Please do the movement between [Top screen] ⇔ [Easy setup screen] ⇔ [Alarm/Monitor screen] when the actuator is stopped, as this may cause the actuator to malfunction.






# 7. How to set up operation data

## 7.1 Easy setup Screen

Easy setup includes actuator Operation mode, Operation condition, Position setup and Drive test. Also, please note that communication with the upper level is not possible when using the easy setup screen.



### -Easy setup Screen Explanation

- (1) Operation mode:                    The operation mode can be selected. For details, please refer to [7.2.1 Operation mode setting](#).
- (2) Read button:                       Reads operation data from the connected actuator.  
 Reads operation data from a designated file.  
 \* It is not possible to read files created with different applications.  
 But it is possible to read files created with different specification (products with matching part numbers except stroke). In this case, the operation conditions are automatically modified to match the stroke of the connected product.
- (3) Operation condition:            Speed, acceleration and deceleration, cycle time, and force can be set for Positioning or Pushing.
- (4) Position setup:                    The position of the origin end, the opposite end, and the midpoint can be set. For details, please refer to [7.2.5 How to set jog and inching in position setting](#).
- (5) Write button:                       Writes the operation data set for the connected actuator.  
 Saves the data (parameter and operation data) of the connected actuator to a file. Please note that the data edited (blue text) will not be saved.
- (6) Drive test:                         Drive test can be performed at the origin end, the opposite end, 1 round trip and continuous round trip. For details, please refer to [7.3 Drive test](#).
- (7) Operating waveform display button:     Displays the waveform data of the drive test performed immediately before. It also diagnoses whether the cycle time setting is valid.  
 For details, please refer to [7.4 Confirmation of Operating waveform display](#).

(8) Alarm Confirmation button:



This is selectable when an alarm occurs. The number on the button shows the number of alarms that occurred. Click the button to display the alarm confirmation screen. Please note that communication with the PLC or other devices will be resumed.

(9) Warning Confirmation button:



\* Displayed only when connected to a maintenance-supporting model.

This is selectable when a warning occurs. The number on the button shows the number of warnings that occurred. Click the button to display the Maintenance/Information screen.

(10) Option setup button:



Parameter setup, Basic setup of e-Act setup tool and Information can be checked. For details, please refer to [8. Option](#) setup.

(11) Capture button:



You can take a capture of the screen you are viewing.

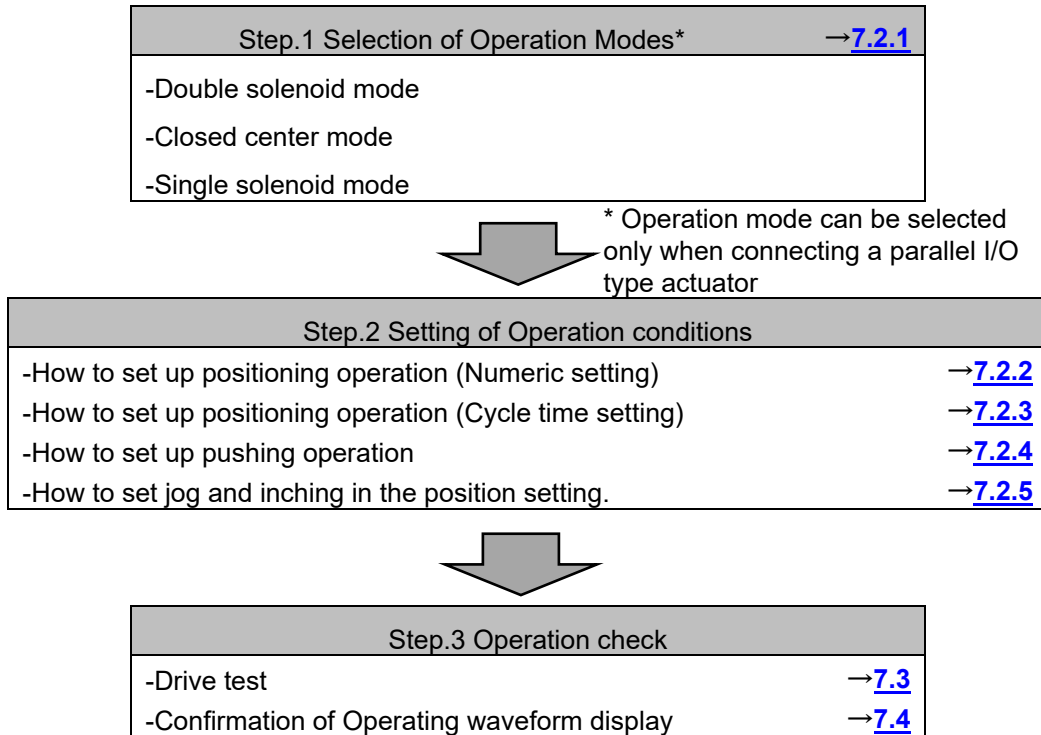
(12) Help button:



This operation manual can be displayed.

## 7.2 How to setup data

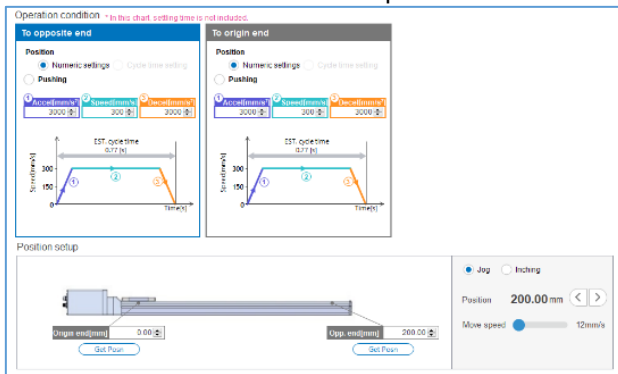
The e-Act setup tool provides two types of data setting methods: positioning operation and pushing operation. In positioning operation, there are two ways to set positioning operation: numeric setting and cycle time setting.



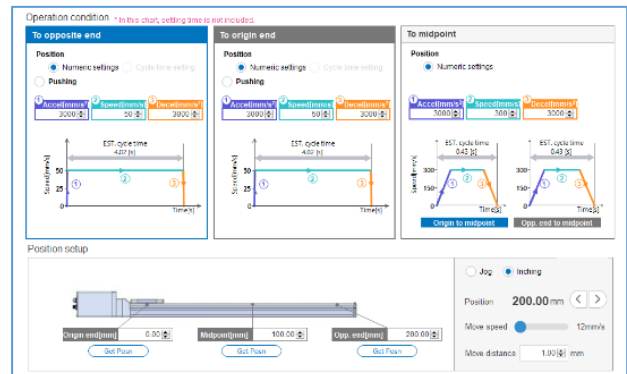
### 7.2.1 Operation mode setting (Available only when connecting a parallel I/O type actuator)

The EQ Series (e-Actuator) offer a choice of three different operation modes.

- Double solenoid mode: Two input signals can be used to indicate movement to the origin end and the opposite end.
- Single solenoid mode: A single input signal can be used to indicate movement to the origin end and the opposite end.
- Closed center mode: Two input signals can be used to indicate movement to the origin end, opposite end, and midpoint.



Example of screen in double/single solenoid mode  
When two points are fixed at the origin end and the opposite end.



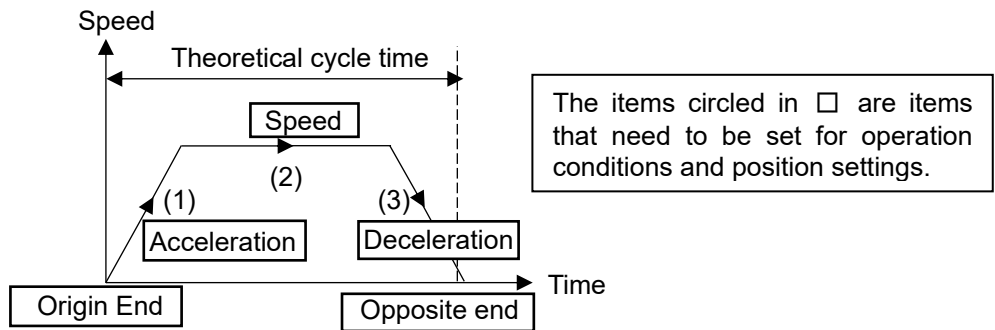
Example of screen in closed center mode  
When 3 points stop at origin end, opposite end, and midpoint.

## **Caution**

- When the operation mode is changed, the power must be cycled after writing to the actuator.
- Please refer to the EQ Series (e - Actuator) operation manual for detail.

## 7.2.2 How to set up positioning operation (Numeric setting)

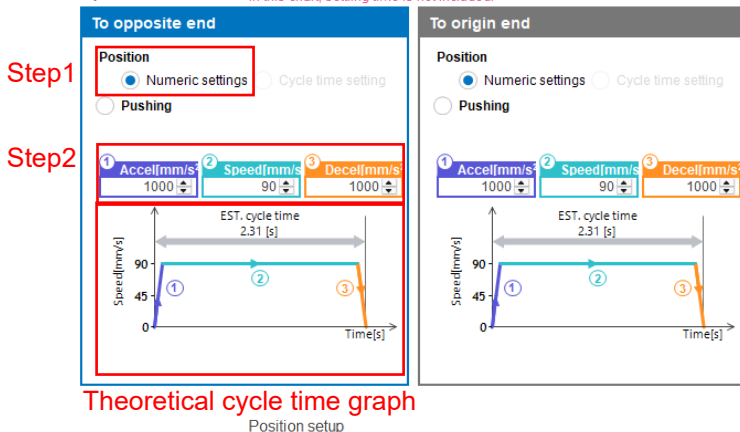
Positioning operation moves towards the target position and stops at the target position. There are two types of setting methods for positioning operation: the numeric settings and the cycle time setting. See [7.2.3 How to set in-position operation \(at cycle time setting\)](#) for the setting method in cycle time setting. The diagram below shows the setting items and operation.



-About setting items:

Setting items	Content details
Speed	The speed of movement to the target position.
Acceleration	This item is used to set whether to increase the speed slowly or abruptly at the start of an operation. The higher the value, the steeper the acceleration.
Deceleration	This item is used to set whether to stop abruptly or slowly. The higher the value, the steeper the stop.
Origin end	Target position of the origin end of the actuator.
Opposite end	Target position of the opposite end of the actuator.

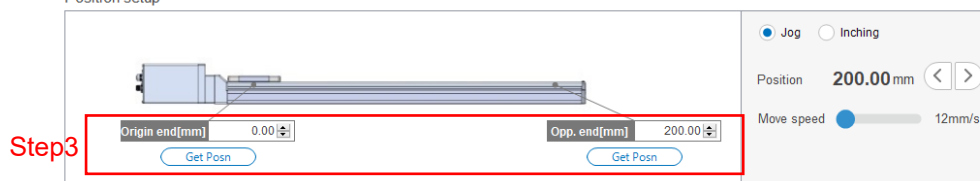
Operation condition \* In this chart, setting time is not included.



-Process:

- Step 1: Select "Numeric settings" within the positioning operation.
- Step 2: Set the speed, acceleration, and deceleration.

\* Theoretical cycle time waveforms are displayed for the settings. However, the graph does not include the settling time. Theoretical cycle time waveforms may vary depending on the mass being conveyed and the actuator installation.



Step 3: Set the origin end and the opposite end in the position setup. The position can be adjusted by jog and inching when setting the position to fit the device. For details, please refer to [7.2.5 How to set jog and inching in position setting](#).

Step 4: After completing the setting of operation conditions and positions, write the set data to the actuator with the button. The value set will change from blue to black text. If a value outside the specification range is entered, a message box will be shown. Follow the instructions and set the appropriate values.

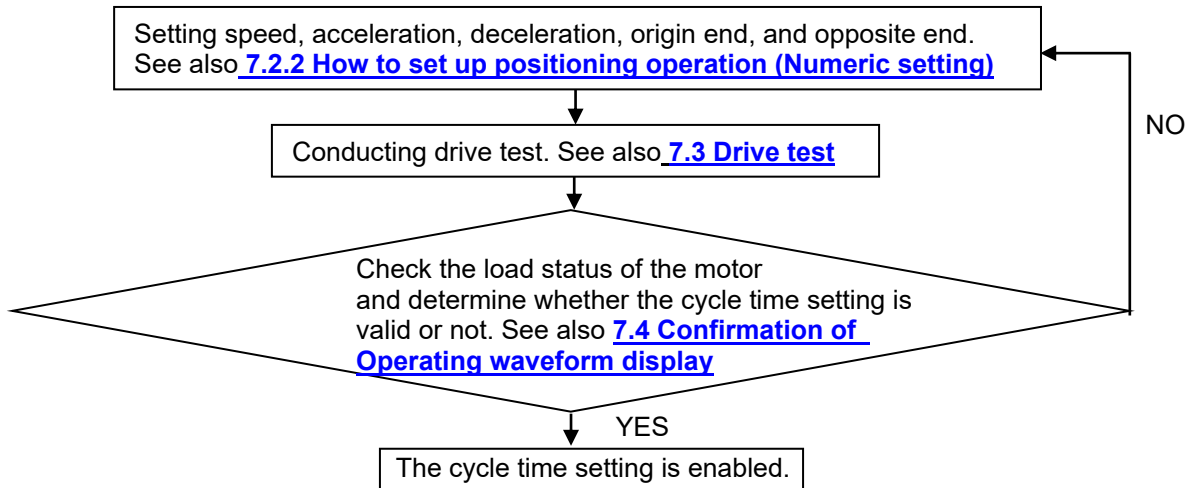
This completes the process.

### Caution

-The lower input limits for "Speed" can be adjusted in "Speed lower limit" in [8.1 Parameter setup](#).


### 7.2.3 How to set in-position operation (at cycle time setting)

For positioning operation with cycle time setting, the theoretical cycle time can be set to automatically calculate the values of acceleration and deceleration. The follow chart to activate the cycle time setting is below.




**-Process:**

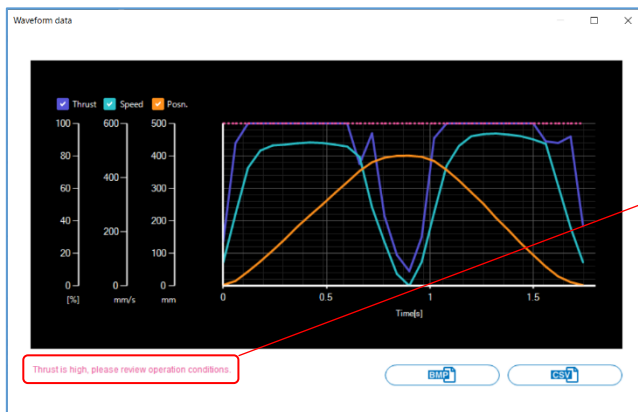
Step1: Execute Step 1 to Step 4 of "[7.2.2 How to set up positioning operation \(Numeric setting\)](#)"

Step2: Select the  button in drive test and confirm the operation of 1 round trip.

See [7.3 Drive test](#) for detailed instructions on how to use the drive test.

Step3: After 1 round-trip operation is completed, the Operating waveform display button is enabled.

 Button to confirm the waveform. If the review operation condition message is not displayed, close the Operation waveform Check and enable the Cycle Time setting. For details, please refer to [6.4 Confirmation of Operating waveform display](#).

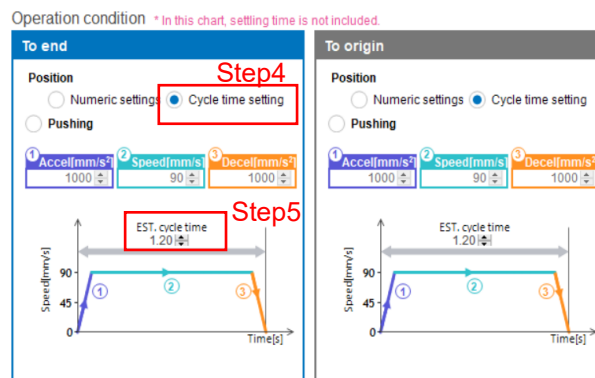


Expanded display messages:

**Thrust is high, please review operation conditions.**

Example of review message display screen

Step4: Make sure that "Cycle time setting" is selected in the operation condition.



Step5: The theoretical cycle time setting can be changed. However, it cannot be set shorter than the theoretical time when the cycle time setting is enabled.

Step6: After completing the cycle time setting, write the set data to the actuator with the



button. The set value will change from blue to black text. If a value outside the specification range is entered, the value is automatically changed to the upper or lower limit. The acceleration and deceleration are automatically updated in accordance with the theoretical cycle time.

This the process.



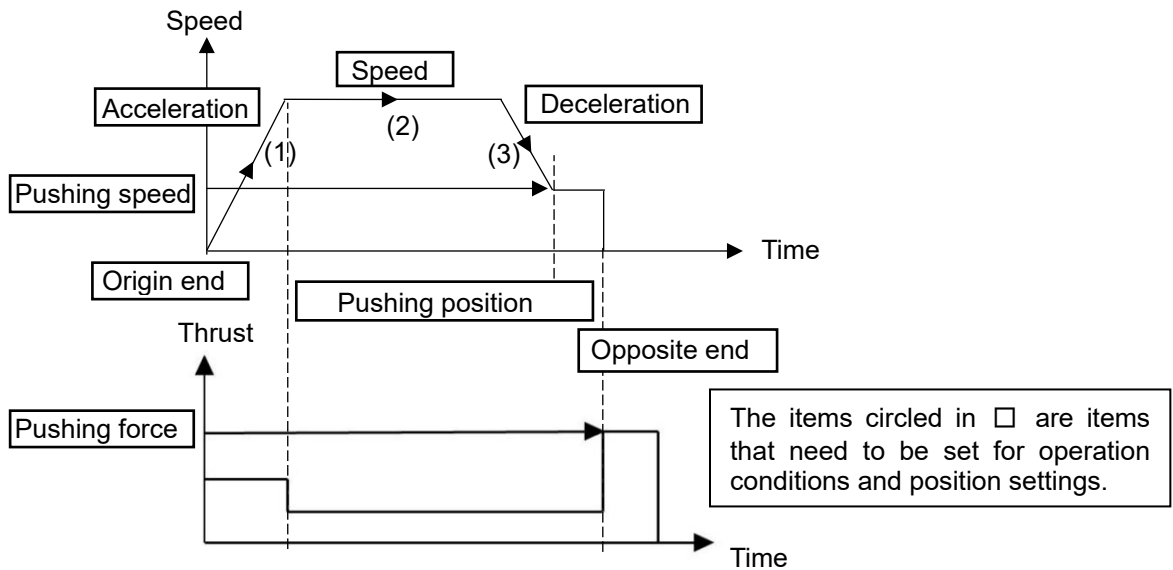
## Caution

- The cycle time setting specifies a theoretical cycle time and does not include the settling time, so the actual cycle time may be longer than the theoretical cycle time value set.
- Cycle time setting is not available for pushing operation.

### 7.2.4 How to set up pushing operation

The pushing operation moves toward the target position and performs pushing thrust at less than the set thrust from the target position. The diagram below shows the setting items and operation.

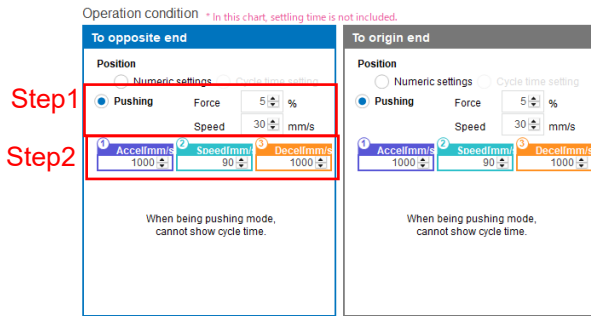
The pushing operation is performed by numeric setting. (The cycle time setting cannot be used.)



-About setting items:

Setting items	Content details
Speed	The speed of movement to the target position.
Acceleration	This item is used to set whether to increase the speed slowly or abruptly at the start of an operation. The higher the value, the steeper the acceleration.
Deceleration	This item is used to set whether to stop abruptly or slowly. The higher the value, the steeper the deceleration.
Speed (pushing speed)	This is the speed during a pushing operation. If a large value is set, the actuator or workpiece may be damaged by an impact, so please set a small value at the beginning. The setting range varies depending on the type of electric actuator, so please check the documentation for the electric actuator to be used.
Force (pushing force)	Specifies the thrust proportion at the time of pushing. The setting range varies depending on the type of electric actuator, so please check the documentation for your electric actuator.
Origin end	Target position of the origin end of the actuator. Or the stop position in pushing operation.
Opposite end	Target position of the opposite end of the actuator. Or the stop position in pushing operation.
Pushing position	Specifies the position at which the pushing operation starts.

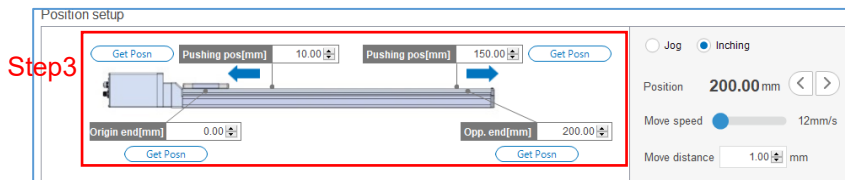
**-Process:**




Step1: Select "pushing " within the operation condition. Also, please set the pushing force and the pushing speed.

Step2: Set the Speed, Acceleration, and Position settings.


\*Theoretical cycle time waveform display is not supported in pushing operation.



Step3: In the position setup, set the origin end, the opposite end, and the start position of the pushing position. In the position setup, the user can choose between jog and inching to adjust the position setup to fit the equipment. For details, please refer to [7.2.5 How to set jog and inching in position setting](#).

Step4: After completing the operation condition and position setup, write the setting data in the position setup to the actuator with the  button. The set value will change from blue to black text. If a value outside the specification range is entered, a message box will be shown. Follow the instructions and set the appropriate values.

This completes the process.

 **Caution**

-It is impossible to change directly from the cycle time setting to the push operation. Once a numeric setting has been selected, it can be changed by selecting the pushing operation button.

**To opposite end**

Position

Numeric settings  Cycle time setting

Pushing

① Accel[mm/s<sup>2</sup>] 3000

② Speed[mm/s] 100

③ Decel[mm/s<sup>2</sup>] 3000

→

**To opposite end**

Position

Numeric settings  Cycle time setting

Pushing

① Accel[mm/s<sup>2</sup>] 3000

② Speed[mm/s] 100

③ Decel[mm/s<sup>2</sup>] 3000

→

**To opposite end**

Position

Numeric settings  Cycle time setting

Pushing

Force 5 %

Speed 30 mm/s

① Accel[mm/s<sup>2</sup>] 3000

② Speed[mm/s] 100

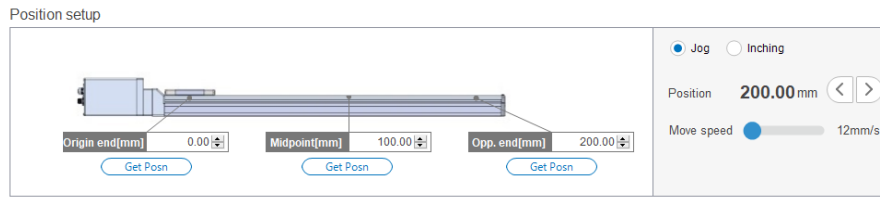
③ Decel[mm/s<sup>2</sup>] 3000

-In the closed center mode, pushing operation to the midpoint cannot be set.

-The lower input limits for "Speed" and "Pushing speed" can be adjusted in "Speed lower limit" in [8.1 Parameter setup](#).

-In a pushing operation, be sure to set "Pushing speed" <= "Speed".

## 7.2.5 How to set jog and inching in position setting



### Jog teaching

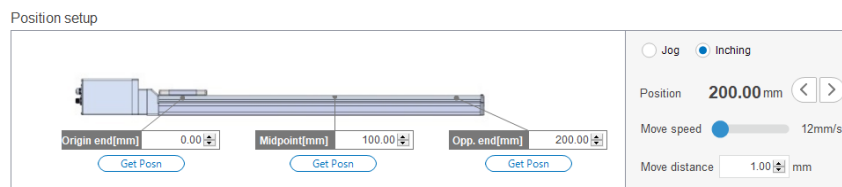
The method is to move the actuator using the setting e-Act setup tool and store the current position in the step data. When Jog is selected, the actuator moves at the speed specified by the jog speed, while the button is pressed. The [>] button on the right is to move forwards and [<] button on the left is to move backwards.

### Process:

Step1: Select the [<] [>] button on the teaching window.

Step2: Select the position you wish to set.

Step3: Click the [Get Position] button to display the current position on the screen.



### Inching teaching

The method is to move the actuator using the e-Act setup tool and store the current position in the step data. 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 [>] button is clicked, and backwards when [<] button is clicked.

### Process:

Step1: Select the [<] [>] button on the teaching window.

Step2: Select the position you wish to set.

Step3: Click the [Get Position] button to display the current position on the screen.

## ⚠ Caution

- The Jog and Inching operates within the setting range from the origin end to the opposite end. If you want to perform Jog or Inching outside the setting range of the origin end or the opposite end, please change the setting values of the origin end and the reverse end (write to the product) first.
- If the current position is outside the setting range of the Origin end and Opposite end, the alarm (code 52) will be occurred. After the alarm reset, Jog and Inching operation will operate as follows.

### [Jog teaching]

- If the current position is on the backwards side of the Origin end, press the [<] button to jog to the Origin end.
- If the current position is on the backwards side of the Origin end, press the [>] button to move forwards.
- If the current position is on the forwards side than the Opposite end, press the [>] button to jog to the Opposite end.
- If the current position is on the forwards side than the Opposite end, press the [<] button to move backwards.

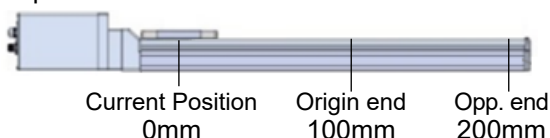
### [Inching teaching]

If inching operation is performed outside the setting range on the backwards side from the Origin end, the actuator will move to the Origin end.

If inching operation is performed outside the setting range on the forwards side from the Opposite end, the actuator will move to the Opposite end.

If inching operation is performed within the setting range between the Origin end and the Opposite end, the actuator moves as the set move distance.

### Example:

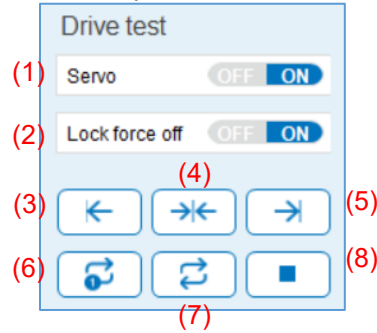


### When the "move distance" setting as 150 mm.

- if > is pressed, the actuator moves to 150 mm position.
- if < is pressed, the actuator moves to the Origin end(100mm).

### 7.3 Drive test

It is possible to do the drive test in the e-Act setup tool.



#### -Button Explanation

- (1) Servo: Turn the motor servo ON or OFF.  
\*Note that if chose Servo OFF, the unit will drop under its own weight when installed vertically.
- (2) Lock force off: The lock can be released.  
\*For the EQ series actuators with lock, when chose Servo OFF, the Lock force off will be also turned off.
- (3) Origin end: Move to the origin end.
- (4) Midpoint: Move to the midpoint. (Valid only in closed center mode.)
- (5) Opposite end: Move to the opposite end.
- (6) 1 round trip: In all modes, performs 1 round trip operation from origin end to opposite end to origin end, or opposite end to origin end to opposite end.  
The actuator automatically stops after one round trip operation is completed. To stop the actuator in the middle of the process, select the (8) stop button.  
However, 1 round trip operation is not possible when the operation instruction to the origin end or opposite end is for a pushing operation. Please confirm the operation using the round trip operation.
- (7) Round trip: In all modes, continuous reciprocating operation between origin end and opposite end. To stop, select the (8) stop button.
- (8) Stop: Operation can be stopped during drive test.

### ⚠ Caution

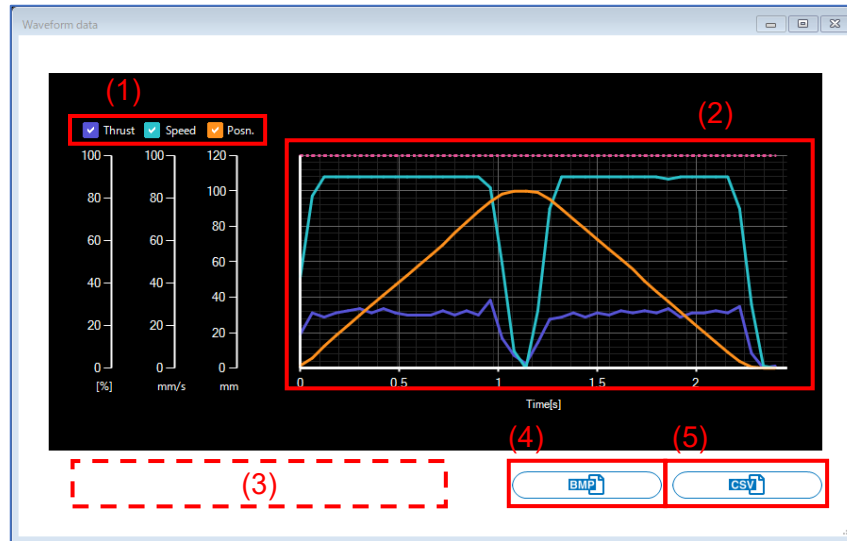
- In all modes, when 1 round trip operation or round trip operation is ordered at a position other than the origin end or the opposite end , the connecting actuator returns to the origin end once and then performs 1 round trip operation from the origin end to the opposite end.
- When closed center mode is selected, the actuator does not stop at the midpoint when a 1 round trip or round trip operation is ordered.
- There is no button to indicate homing in e- Act setup tool. When power is turned on for the first time or alarms that cannot be cleared by the reset button are cleared by power interruption, the following buttons in the drive test are instructed to automatically return to the origin and perform the indicated operation.



- If an alarm occurs during test operation, the test operation is aborted. If you wish to resume the test operation, please give the test operation instruction again after the alarm is cleared.
- When the actuator strikes out during pushing operation, the operation is incomplete. Please click the "Stop" button to stop the operation, and then give the next operation instruction.

## 7.4 Confirmation of Operating waveform display

The e-Act setup tool allows you to view drive test data as waveforms and .csv data. It also works as a diagnostic function to enable/disable cycle time setting. However, the Operating waveform display is not supported for the Round trip operation.



### -Screen Explanation

(1) The display box: You can choose to show or hide "Current Thrust", "Current Speed", and "Current Position".


(2) Operation Waveform Graph: You can check the operating waveforms.

(3) Message display area: In one side operation and pushing operation, " Could not be diagnosed.


Please operate 1 round trip between the origin end and opposite end in numerical setting mode."

If the thrust is high, the review operation condition message "Thrust over 100%, please check setting data " will be displayed.

(4) BMP button  : The operation waveform graph can be saved as an image.

(5) CSV button  : Data can be saved in an operation waveform graph.

### -Process:

Step1: Click the  button in the drive test to confirm the operation of 1 round trip.

Step2: Operating waveform display button is enabled after the operation is completed. Click on the

 button.

Step3: Waveform confirmation is now available, and the above is an example of waveform data. In the display box, you can choose to show or hide "Current Thrust", "Current Speed", and "Current Position.

Step4: Save waveform data in BMP (save image) or CSV (save data) as needed. After confirming the waveform, close the waveform data.


## Caution

-The cycle time setting is not valid if the thrust is currently high or if the operation is other than a 1 round trip operation.

-If the thrust is currently high, the message "Thrust is high, please review operation conditions." is displayed, please review the operation conditions.

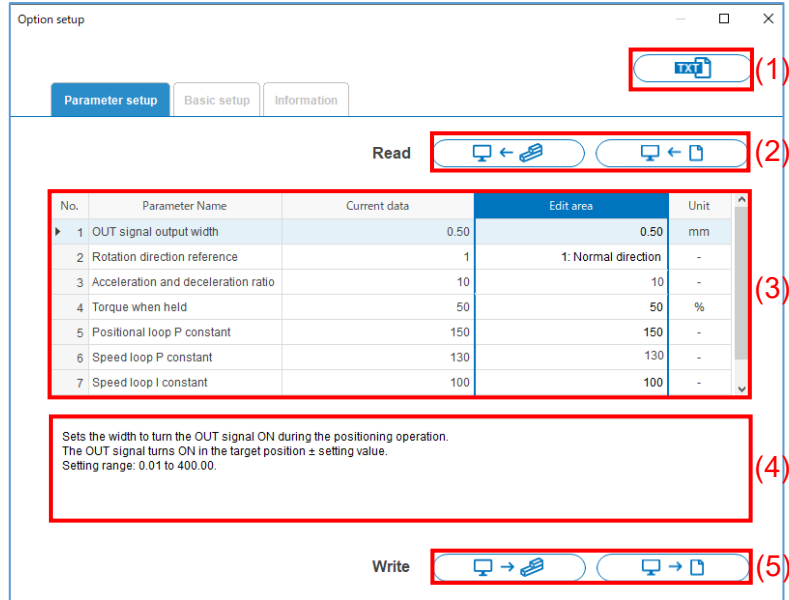
-Cycle time setting is not available for pushing operation.

## 8. Option setup

The optional setup (  button) has three functions: parameter setup, basic setup and application information confirmation.

### 8.1 Parameter setup

You can check and change the parameters of the connected actuator. Note that when parameters are changed, some parameters become effective when the product power is turned on again.



(1) TXT button:



Outputs all data in the option settings as text data.

(2) Load button:



Reads parameter data from the connected actuator.




Reads parameter data from a specified file.

(3) Parameter setup:

Current parameters can be checked and parameters can be edited.

\*Please change the parameters in the "Edit area". If a numeric setting outside the setting range is entered, it will be displayed in pink, so please change the setting.

\*Please write  after changing the parameters. Note that some parameters become effective after the power of the actuator is turned on again.

\* For details and initial values of each parameter, refer to the actuator instruction manual.

(4) Parameter summary description field:

You can check the details of the selected parameters.

(5) Write button:



Writes the parameters set for the connected actuator.

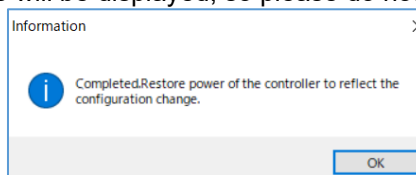


The data (parameters and operating data) set can be saved in a file. The data (parameter and operation data) of the connected actuator can be saved to a file. Please note that the data being edited will not be saved.

### Caution

-When parameters are changed, some parameters become effective when the product power supply is cycled from ON to OFF to ON.

In this case, the following message will be displayed, so please do not forget to cycle the power.



-When changing the data for operating conditions and position settings on the Easy setup screen, be sure to change the parameters after writing them to the actuator.



### Cation

-When changing the display of units from [mm] to [inch], the colors of some characters in the data after the unit change may be blue and red due to the unit conversion and the number of digits that can be set. For data where the text display colors are blue and red, please reconfigure the data based on the units displayed after the change.

If the text display color is black after changing the display unit, the data does not need to be re-set.

Example:

Set value of speed 1 mm/s → [Change display to inch] → 0.0 inch/s

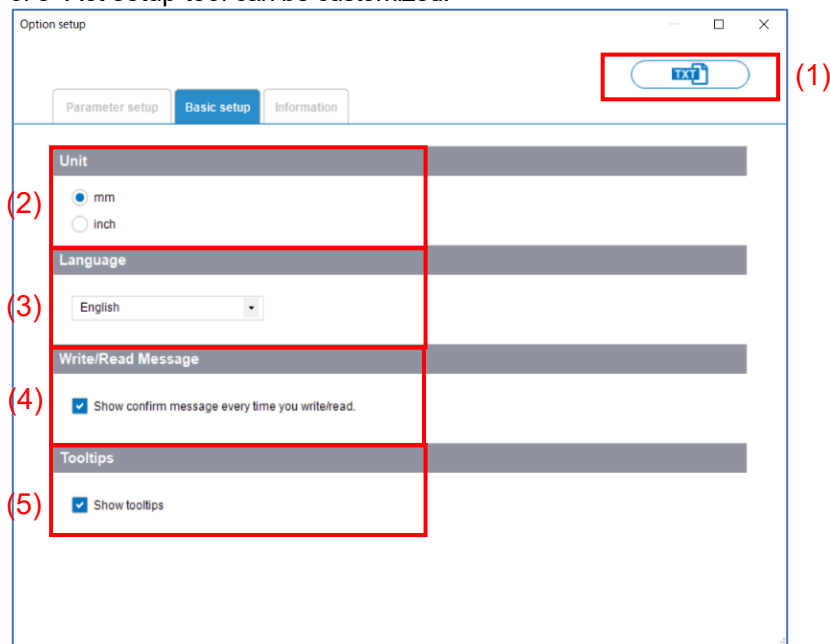
The value 0.0inch/s is displayed in red because it is outside the setting range; reset the value to 0.1inch/s.

-The “Speed lower limit” should be set to a value less than or equal to the “speed” in Section [7.1 Easy setup Screen](#).

-In pushing operation, be sure to set “Speed lower limit <= pushing speed <= speed”.

## 8.2 Basic setup

The basic specifications of e- Act setup tool can be customized.



- |                        |   |
|------------------------|---|
| (1) TXT button         | : Outputs all data in the option settings as text data.       |
| (2) Unit               | : You can choose “mm” or “inch” notation.                     |
| (3) Language           | : You can choose English or Japanese.                         |
| (4) Write/Read Message | : You can choose to display a message confirmation each time. |
| (5) Tooltips           | : You can choose to display tool tips.                        |

### 8.3 Information

You can view information about e-Act setup tool and connected products as needed. The screen configuration differs depending on whether the connected actuator supports the maintenance function.

< When connecting an actuator that does not support the maintenance function >



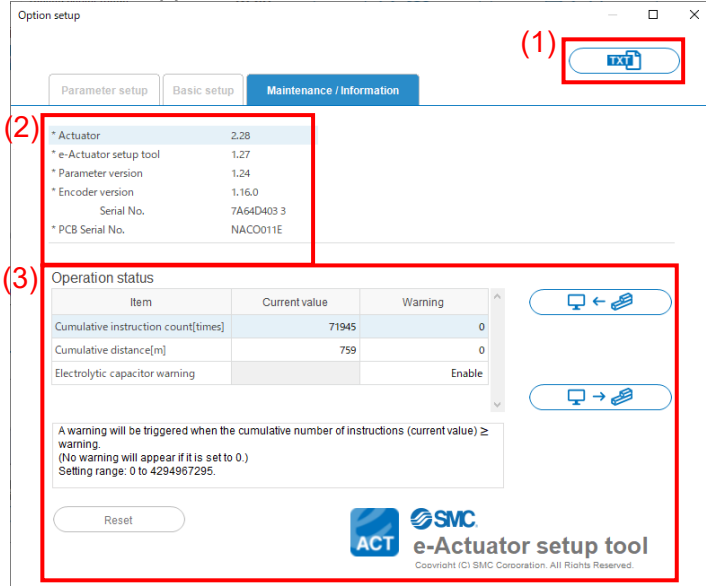
(1) TXT button:

(2) Information:

Outputs all data in the option settings as text data.

- Actuator: Displays the actuator version.
- e-Actuator setup tool: Displays the version of e-Actuator setup tool.
- Parameter version: Displays the parameter version.
- Encoder version: Displays the encoder version.
- Serial No.: Displays the serial number of the encoder.
- PCB Serial No.: Displays the serial number of the circuit board.
- Total I/O count: Displays the cumulative number of times the operation has been ordered and the number of times it has been turned around.
- Total Traveled distance: Displays the cumulative distance travelled.

< When connecting an actuator that supports the maintenance function >





(1) TXT button:  
 (2) Information:

Outputs all data in the option settings as text data.

- Actuator: Displays the actuator version.
- e-Actuator setup tool: Displays the version of e-Actuator setup tool.
- Parameter version: Displays the parameter version.
- Encoder version: Displays the encoder version.
- Serial No.: Displays the serial number of the encoder.
- PCB Serial No.: Displays the serial number of the circuit board.

(3) Operation status

- Item: The items can be checked as maintenance information. For details on each item, please refer to the controller operation manual.
- Current value: The status of the connected devices can be checked.
- Warning: The output thresholds for the warnings set for each item are displayed.  
 The threshold for outputting warnings can be set and changed for each item.
- Meaning of number/letter display colors:
  - Black: Indicates data is already stored in the controller.
  - Blue : Indicates data that has not yet been written to the controller when the data is changed. After changing the data, please carry out a download 
  - Red : Indicates that the data is outside the setting range. If the value is displayed in red, please change the value to within the correct range.

 <b>Caution</b>
<p>Records relating to the maintenance functions of this actuator are saved at 30-minute intervals. If the actuator input power supply is cut off or actuator reboot is done within 30 minutes after the last record of the maintenance function to the actuator, the maintenance record will not be saved between the last record and the power supply cut off or reboot.</p> <p>Therefore, if the actuator input power supply is cut off or actuator reboot is done within 30 minutes after a warning (WARN) has occurred, the warning (WARN) may be switched off at the next start-up.</p>

# 9. How to check Alarm/Monitor

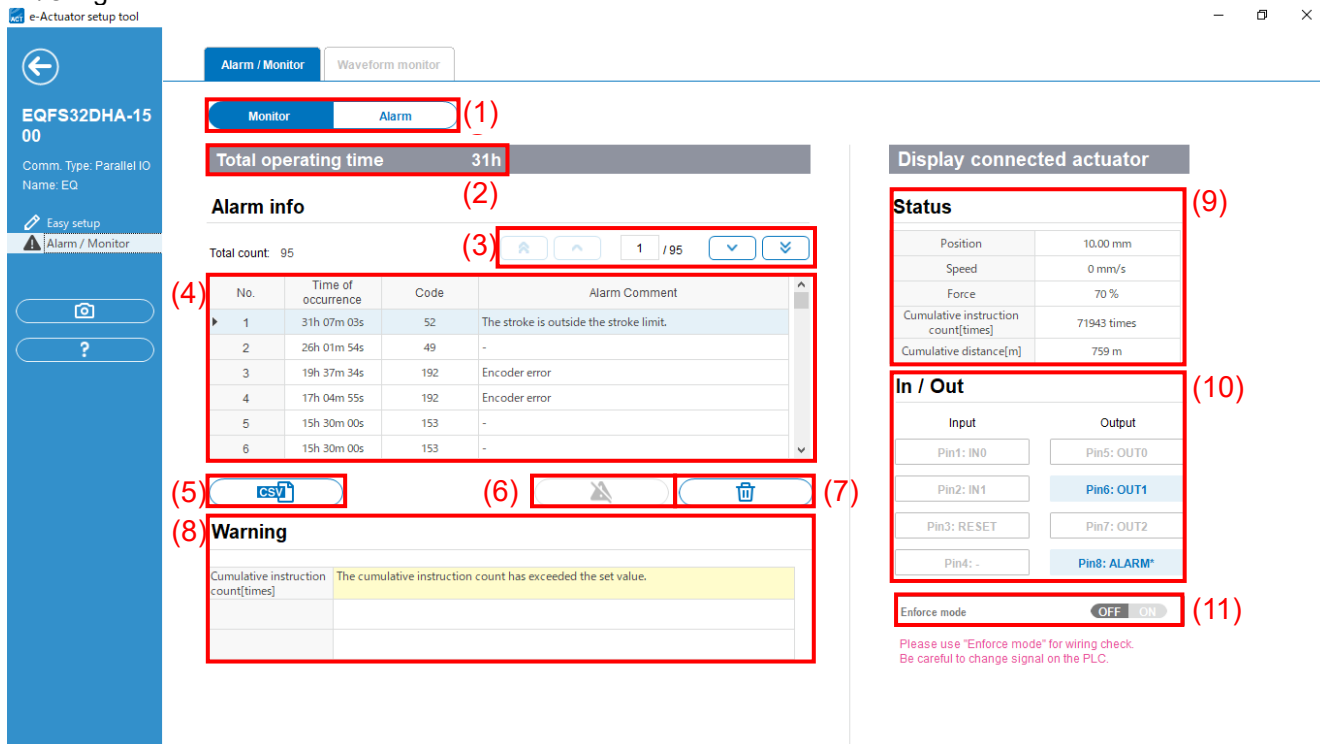
In the Alarm/Monitor confirmation screen, you can check the current product status and alarm details of the connected actuator using the switching buttons. If the number of alarm data is zero, switching to the Alarm /Monitor tab is not possible.

## 9.1 Confirmation of current product status (Monitor confirmation)


Start the Alarm/Monitor screen and select "Monitor" using the (1) Switch button.

It is possible to alarm history, check the product status of the connected actuator, and I/O signals\*. For details on the alarms that occur, please refer to the operation manual for EQ series (e-Actuator).

\* When a parallel I/O type actuator is connected, the output signal can be forced, in addition to checking the I/O signal.

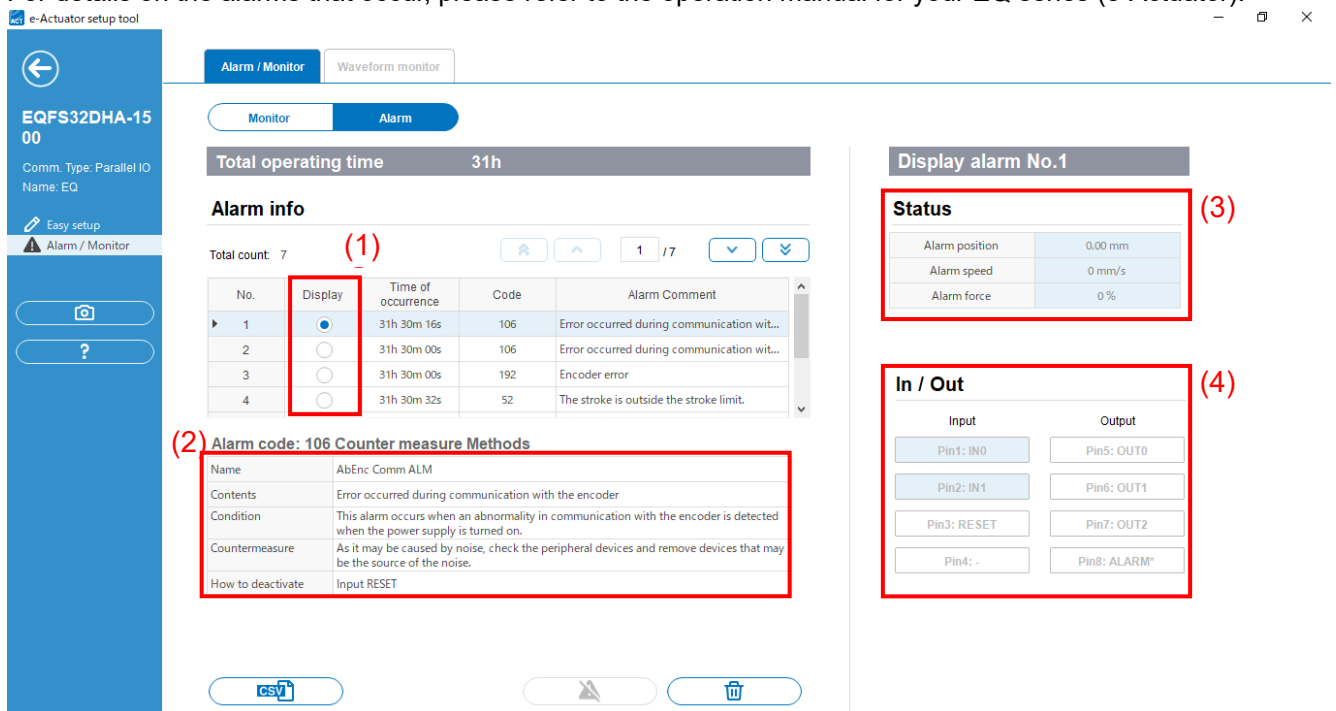


- (1) Switching tabs:
  - “Monitor”: Current product status can be checked, alarm history can be checked, and output signals can be forced.
  - “Alarm”: Detailed information on alarms that have occurred can be viewed.
- (2) Actuator total operation time:
  - The total operation time of the actuator is displayed.
  - \* If the operation time is less than 30, it is not counted.
- (3) Operation buttons for alarm confirmation:
  - : Go to the latest alarm in the alarm history.
  - : Go to the previous alarm in the alarm history.
  - / : Input the number.
  - : Go to the next alarm in the alarm history.
  - : Go to the oldest alarm in the alarm history.
- (4) Alarm history:
  - The alarms history that have occurred can be checked. A total of 128 alarms can be saved.
  - \* The latest alarm will be No. 1.
- (5) Text output button:
  - The contents of the alarm history can be output to a text file.
- (6) Reset button:
  - Reset (release) can be performed for alarms that have occurred.
  - \*Some alarms cannot be reset depending on the type of alarm.
  - \*When an alarm that cannot be cleared by the reset button is cleared by power off, the unit automatically returns to the origin and performs the indicated operation when a drive test is instructed.
- (7) Delete history button:
  - You can delete the entire contents of the alarm history.

- (8) Warning: \* Displayed only when connected to a maintenance-supporting model. The warnings that are occurring at the connected actuator can be checked.
- (9) Status: The current status of the connected actuator can be checked.
- (10) In/Out: The current I/O signal status of the connected actuator can be checked. For details of each I/O signal, please refer to the operation manual for your EQ series (e-Actuator).
- (11) Enforce mode button: \* This is displayed only when a parallel I/O type actuator is connected.  The output signal can be forced to output (ON). \*Cannot be used when alarm occurs.

## 9.2 Confirmation of alarm details (Alarm Confirmation)

Start the Alarm/Monitor Confirmation screen and select "Alarm Confirmation" by switching tabs. You can find detailed information about the alarms of the connected actuator. The contents of alarms, countermeasures, and product status (position, speed, force, and I/O signals) at the time of alarms can also be confirmed. If the number of alarm data is zero, it is not possible to switch to the Alarm tab. For details on the alarms that occur, please refer to the operation manual for your EQ series (e-Actuator).



The screenshot shows the 'Alarm / Monitor' screen for an EQFS32DHA-15 00 actuator. The 'Alarm' tab is active, showing a table of alarm events. The first alarm is selected, and its details are shown in a pop-up window. The details include the alarm name, contents, condition, countermeasure, and how to deactivate it. The 'In / Out' section shows the status of various pins at the time of the alarm.

No.	Display	Time of occurrence	Code	Alarm Comment
1	<input checked="" type="radio"/>	31h 30m 16s	106	Error occurred during communication wit...
2	<input type="radio"/>	31h 30m 00s	106	Error occurred during communication wit...
3	<input type="radio"/>	31h 30m 00s	192	Encoder error
4	<input type="radio"/>	31h 30m 32s	52	The stroke is outside the stroke limit.

Status	
Alarm position	0.00 mm
Alarm speed	0 mm/s
Alarm force	0 %

In / Out	
Input	Output
Pin1: IN0	Pin5: OUT0
Pin2: IN1	Pin6: OUT1
Pin3: RESET	Pin7: OUT2
Pin4: -	Pin8: ALARM*

- (1) Alarm select : Select the alarms you wish to view in detail.
- (2) Alarm countermeasures : For the selected alarm, the contents of the alarm and the countermeasure are displayed.
- (3) State when alarm occurs : For selected alarms, the product status of the connected actuator at the time of the alarm can be checked.
- (4) I/O signal state when alarm occurs : For selected alarms, I/O signal status at the time of the alarm can be checked. For the contents of each display item, please refer to the operation manual for your EQ series (e-Actuator).

## 10. How to check Waveform monitor

This function monitors the current “Thrust”, “Speed” and “Position” of the connected actuator. This function can only be used during an operation set by an upper device (PLC).

The screenshot shows the 'Waveform monitor' interface. It includes a 'Sampling time' field set to 50 ms, a 'Start/Stop' button, and 'BMP' and 'CSV' save buttons. A display box shows 'Thrust', 'Speed', and 'Posn.' with checkboxes. A legend lists various inputs and outputs. Two graphs are shown: the top one displays Thrust, Speed, and Position over time, and the bottom one displays digital signals over time.

- (1) Sampling time: Sets the sampling time for the waveform monitor. The smaller the value set, the more detailed data can be obtained, but the limits vary depending on your PC specifications and operating environment. Please use it as you try it out. (Data that was not received in time for the sampling cycle will not be displayed).
- (2) Start / Stop: Select to start/stop the monitor.
- (3) BMP button: The operation waveform graph can be saved as an image.
- (4) CSV button: Data can be saved in an operation waveform graph.
- (5) The display box: Select to show or hide the "Current Thrust", "Current Speed", and "Current Position". The measurement data can be checked.
- (6) Waveform monitor: Select whether to show or hide the graphs in the 'Current thrust', 'Current speed' and 'Current position'. The minimum/maximum value of the memory display can be changed by double-clicking the memory part of the 'Present thrust', 'Present speed' and 'Present position'.

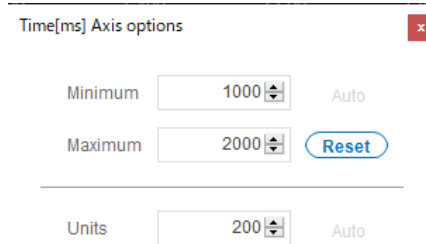
### ⚠ 注意

- The waveform monitor cannot be moved to another screen while it is measuring. When moving to another screen, please stop the monitor.
- The measurement time should not exceed 10 minutes at a time. When monitoring for a long time, data display may not be possible.
- There is a limit to the number of data that can be acquired (up to 40,000 points). When the maximum number of data is reached, monitoring will stop automatically.

▪ How to change the memory display:

Step1 : Double-click on the memory section of 'Current thrust', 'Current speed' or 'Current position'.  
The Axis options window appears as follows.

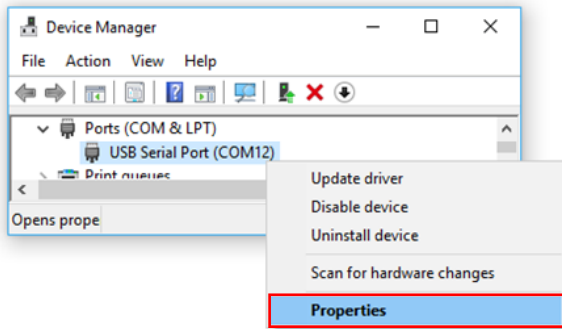
Step2 : Enter a value or click the up/down button to change the Minimum / Maximum / Units value.  
To discard the changes, click the “Reset” button. After changing the value, close the window by clicking the “X” button.



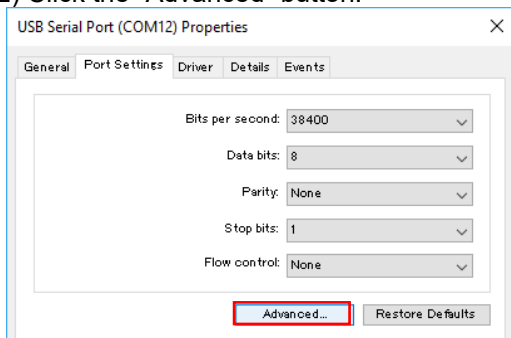
< If the monitor data is too rough >

Changing the settings of the serial communication cable may improve the communication speed.  
Please change it in the following way.

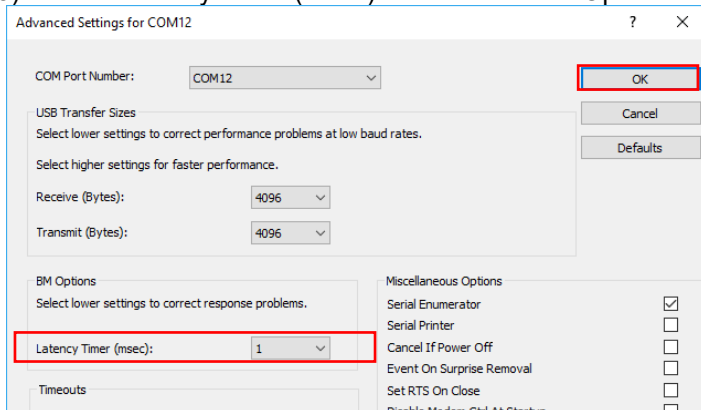
(1) Start Device Manager with administrator privileges, right-click the USB Serial Port currently connected to the product from the devices listed in “Port (COM & LPT)” and select “Properties” from the context menu.



(2) Click the “Advanced” button.



(3) Set the Latency Timer (msec) to “1” in the “BM Options” and click the “OK” button.


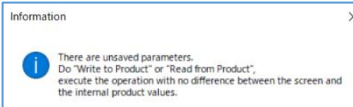
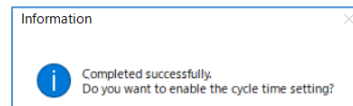
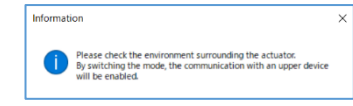
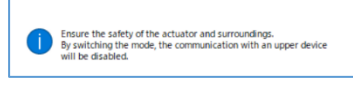
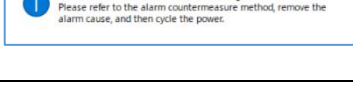

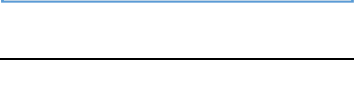


# 11. Troubleshooting

If an operation failure occurs, check the cause of the failure and the measures to be taken according to the information message that pops up and the trouble phenomenon.

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

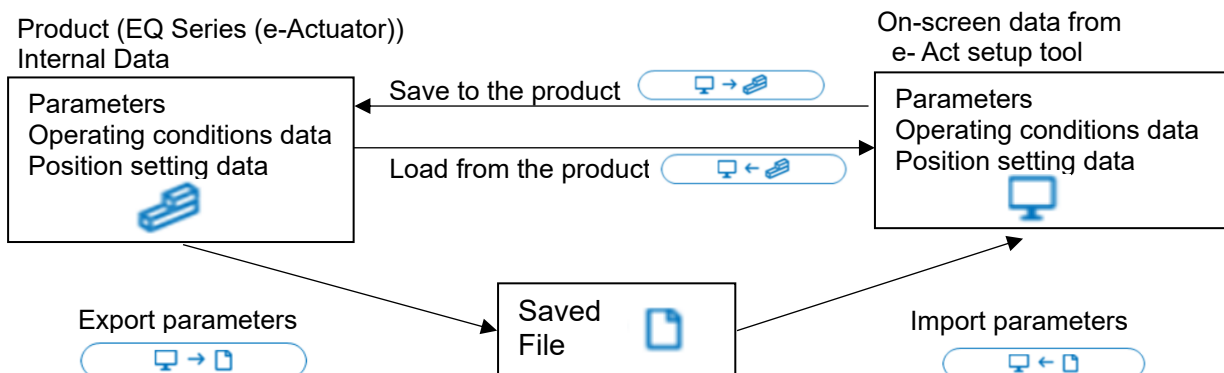
Information:

No.	Information	Cause of information occurrence	Countermeasures
1		This message is displayed when the operation mode is changed in the easy setup screen or when the product parameters are changed.	Please cycle the power to the product.
2		This message is displayed when the operation data has not been written to the product after being changed on the easy setup screen.	Press the "Write to Product" or "Read from Product" button. Please note that test operation is not possible unless the internal data of the product and the data on the PC screen match. For details, please refer to the state transition diagram of the setting data and parameters in the e- Act setup tool.
3		This message is displayed when cycle time setting is available on the operating waveform display screen after completion of 1 round trip operation.	Select "Yes" to enable the cycle time setting or "No" to disable it.
4		This message is displayed when moving from the easy setup screen to the Alarm/Monitor screen. Please note that communication with the upper level device is enabled.	Select "OK" to enable communication with the upper level device or "Cancel" to disable it.
5		This message is displayed when moving from the Alarm/Monitor screen to the easy setup screen. Please note that communication with the upper level device will be disabled.	Select "OK" to disable communication with the upper level device, or "Cancel" to not enable it.
6		This message is displayed when an alarm that has occurred on the Alarm/Monitor screen cannot be reset.	Please check the operation manual of EQ Series (e - Actuator) for details.
7		This message is displayed when the rotation direction reference is changed in the parameter setting of the option setting screen in closed center mode.	Please reconnect power to the product. Also, please review the midpoint.
8		This message is displayed when loading a file created by a product with a different specification (products with matching part numbers except stroke).	If a read file contains values outside the specification range of the connected product, the data in "speed, acceleration, deceleration, and position" are automatically changed to the upper or lower limit values of the currently connected actuator.

Troubleshooting:

No.	Problem	Possible causes	Investigation method and location of possible causes	Countermeasures
1	Communication fault	The USB driver is not installed. (JX-C*-E)	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 <a href="#">3.2 Installation procedure</a>
		Connection failure	Please confirm the connection status.	Please ensure that the connection is made correctly. For example, communication cannot be established if the connector has been damaged. Please confirm the power supply of actuator 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 to the PC, disconnect and check. (There is a possibility that the communication with other equipment in the PC is interfering.)
2	Incorrect data saved in file	"Save to File" before writing settings data to the product.	Verify that the setting data and parameters have been written to the actuator.	When saving to a file on the easy setup screen and the option setup screen, if there is data displayed in blue on the screen, please do the "Save to the product" first, then do the "Export parameters". Only data that has been written to the product will be saved to a file.
3	Backup file cannot be read	Mismatch between connected product model and backup file model	Check that the connected product model matches the model of the backup file.	Files cannot be read unless the model of the connected product and the model of the backup file match. Make sure that the models match. If a value outside the specification range is entered, the value is automatically changed to the upper or lower limit.

-State transition diagram of setting data and parameters of e- Act setup tool.



#### Revision history

- A: First edition [December 2022]
- B: Contents revised in several places. [January 2023]
- C: Contents revised in several places. [May 2024]
- D: Contents revised in several places. [June 2025]

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