CKD

SM-612601-A

INSTRUCTION MANUAL

Electric Actuator

E Tools

EC07, EC63

Controllers can be shared

- Read this manual carefully and thoroughly before using this software.
- Check the use method, precautions, etc. of the product with the attached instruction manual.
- Pay extra attention to the instructions concerning safety.
- After reading this manual, keep it in a safe and convenient place.

CKD Corporation

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Created on Jun.2015
Revised on Dec.2017

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1. Introduction

1.1 Introduction

This is software for setting point data, etc. of the electric actuator (controller).
No assurances are provided including assurances on information provided in this software, descriptions, accuracy, safety, merchantability and conformance to specific use purposes.
CKD Corporation shall not be responsible for any damage resulting from this software.
The contents of this software are subject to change without notice.

1.2 Operation environment

The following environment is required to operate this software.

Operating software	Windows 7 SP1, Windows 8 and Windows 8.1 *Window 8 and Windows 8.1 operate in a desktop environment. *If Japanese fonts cannot be displayed, they may be garbled.
Display	Recommended resolution: 768 x 1366 (Full-Wide-XGA) or higher Minimum resolution: 768 x 1024 (XGA)
USB port	Conforming to USB 1.1/USB 2.0 standards
RS-485 converter	Should be able to regard as Windows standard COM port and perform serial communication.
Others	Microsoft. NET Framework 4 or later Microsoft Access 2010 or Microsoft Access database engine 2010

1.3 Precautions for use

1. When performing communication with the controller, use the RS-485 interface and PC communication cable. For connection, refer to “Wiring of setting tool” (SM-612271) written in the instruction manual of the electric actuator (controller).
2. Do not attach or remove the RS-485 interface or PC communication cable or turn on/off the power of the controller during transmission and reception with the controller. The controller or E Tools may operate wrongly.
   When attaching or removing the connector or turning on/off the power, close the E Tools.
3. Do not set the Windows to the sleep mode (standby) when the E Tools is operating. At the time of a return from the sleep mode, a communication defect may be caused.
4. If a communication error occurs, check whether there is a connection, disconnection, etc. with the RS-485 interface or PC communication cable.
5. The E Tools can be used for the electric actuator (controller) ERL/ESD series and the electric actuator (controller) ERL2/ESD2 series.
6. It cannot be used with other communication software using the RS-485 interface at the same time. When using this software, close other communication software.

--- MEMO ---

2. Installation

The procedure for installing the E Tools is explained.

2.1 Decompression of installation pack

In an environment where Microsoft Access 2010 is installed, perform “simple installation”.
In other environments, perform “complete installation”.

- Simple installation ••• To Paragraph (1)
- Complete installation ••• To Paragraph (2)

(1) Simple installation

Copy the following installation pack “E Tools Pack Light.zip” to any folder and decompress it.

Simple installer pack

File name	Description	Remarks
E Tools Pack Light.zip	Installer package	Compressed file in which E Tools.exe is packaged.
E Tools.exe	E Tools body	-

(2) Complete installation

Copy the following installation pack “E Tools Pack.zip” to any folder and decompress it.

Complete installer pack

File name	Description	Remarks
E Tools Pack.zip	Installer package	Compressed file in which E Tools.bat, E Tools.exe and AccessDatabaseEngine.exe. are packaged.
E Tools.bat	Complete installer	E Tools.exe and AccessDatabaseEngine.exe are executed in order.
E Tools.exe	E Tools body	-
AccessDatabaseEngine.exe	Microsoft Access database engine 2010	Redistributable component

2.2 E Tools

The method to install the E Tools is explained.

- Simple installation ••• To Paragraph (1)
- Complete installation ••• To Paragraph (2)

(1) Simple installation

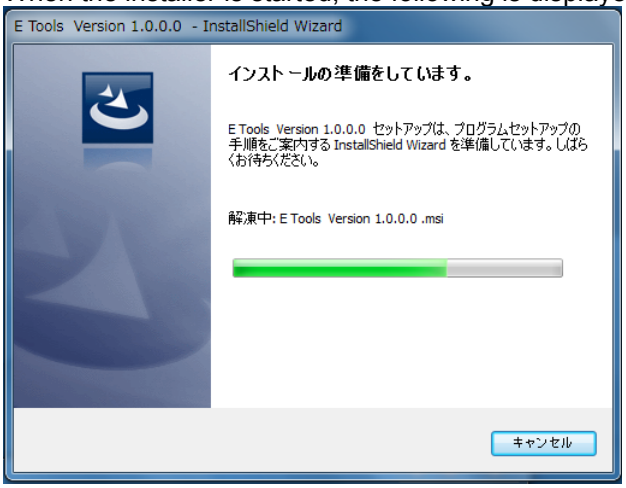
If Microsoft Access 2010 is installed in the E Tools, double-click the decompressed “E Tools.exe” to start the installer. => Continues to Paragraph (3)

(2) Complete installation

If Microsoft Access 2010 is not installed in the E Tools, double-click the decompressed “E Tools.bat” to start the installer. => Continues to Paragraph (3)

(3) Start of installer

When the installer is started, the following is displayed.



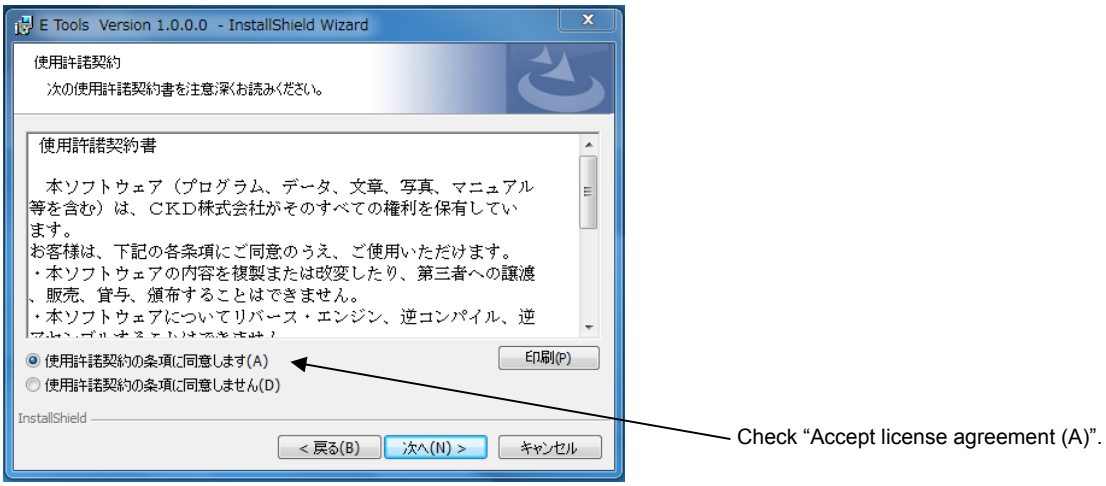
(4) E Tools installation preparation

When the installer of the E Tools is started, click [Next (N) >].

(5) Check the license agreement.

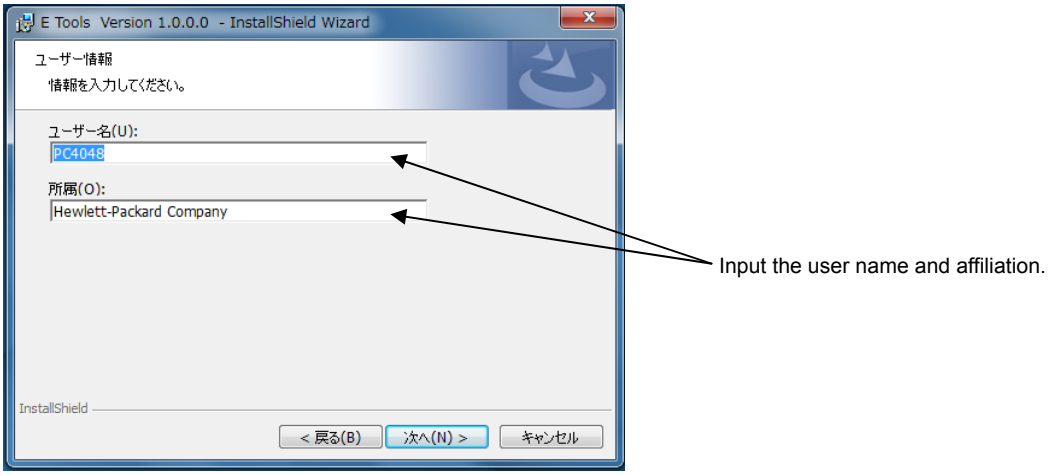
Read the license agreement. If you accept the license agreement, check “Accept license agreement (A)” and click [Next (N) >].

If you do not accept the license agreement, the E Tools cannot be used.



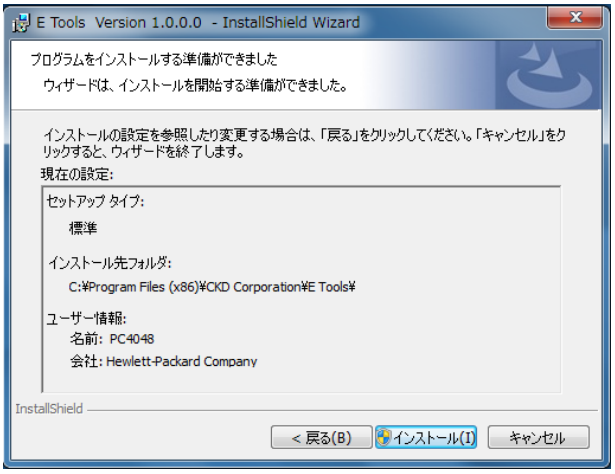
(6) Register user information.

Input the user name and affiliation and click [Next (N) >].

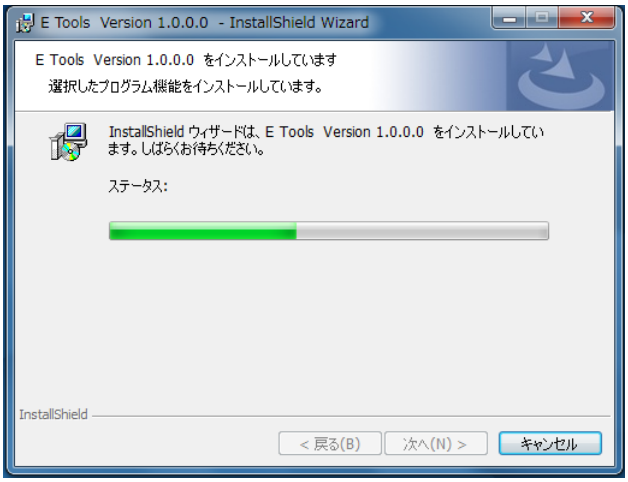


(7) Start the installation of the E Tools.

Click [Install (I)] to start the installation of the E Tools.



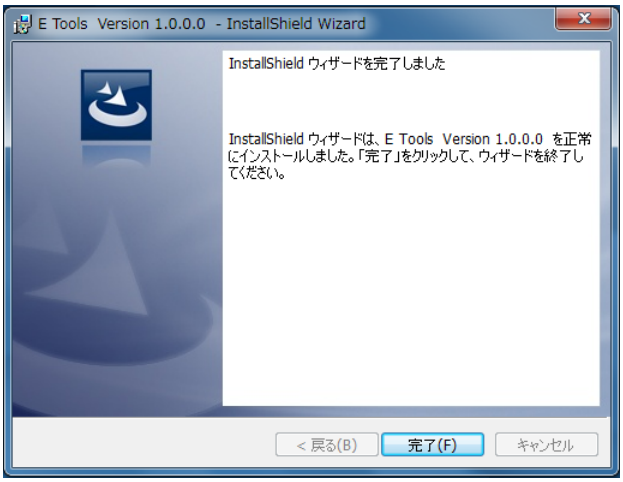
During installation, the following is displayed.



If a message for checking the installation of a program from an unknown publisher is displayed at the start of the installation, click [Yes (Y)] to continue the installation.

(8) Completion of installation of E Tools

When the E Tools has been installed, the following will be displayed. Click [Finish (F)] to complete the installation of the E Tools.

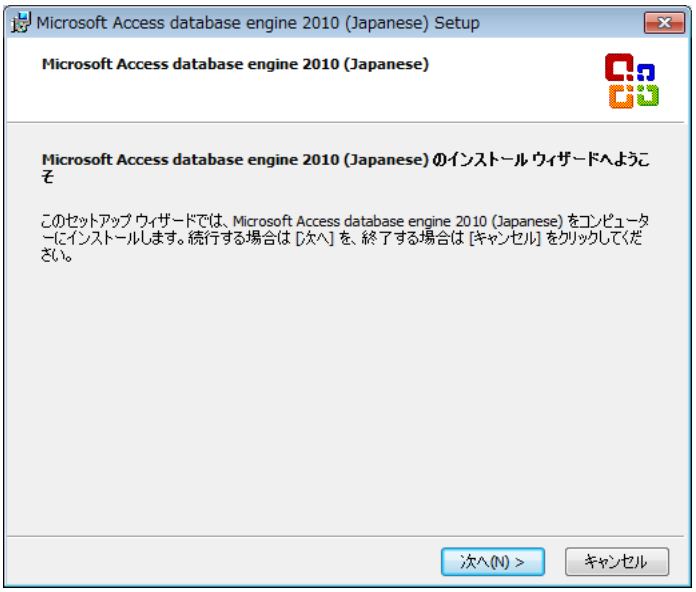


2.3 Microsoft Access database/engine 2010

The method to install Microsoft Access database/engine 2010 is explained.

(1) Installation

If the complete installation of the E Tools is finished normally, the installation of Microsoft Access database/engine 2010 will be started continuously. Install Microsoft Access database/engine 2010 in accordance with the displayed procedure.



2.4 RS-485 interface

The RS-485 interface is required for the functions performed by connecting the E Tools and controller (such as monitor and manual operations).

(1) RS-485 interface specifications

Prepare an RS-485 interface conforming to the following specifications.

Item	Specifications	Remarks
Interface	RS-485	Half duplex double wire system Transmission and reception change by RTS (on: transmission, off: reception) or automatic transmission and reception determination.
Synchro system	Asynchronous	-
Communication speed	19,200 bps	-
Data length	8 bits	-
Parity	Even number (EVEN)	-
Stop bit	1 bit	-
Flow control	Not provided	-
Termination resistance	Provided	100 Ω
Control method	Windows standard COM	Should be able to regard RS-485 interface as standard COM port and perform serial communication.

(2) Recommended products

The following RS-485 interfaces are recommended products. We have prepared PC communication cables connecting the controllers and RS-485 interfaces.

Model	Manufacturer	Remarks
COM-1PD(USB)H	Contec Co. Ltd.	PC communication cable, Model: EC-CBLPC1 * For details, refer to “Wiring of setting tool” of the electric actuator (controller). (SM-612271)
PCCM-COM-1PDUSBH-R	Seller: Misumi Manufacturer: Contec Co. Ltd.	

* When using the recommended product, adjust its setting to conform to “(1) RS-485 interface specifications”.

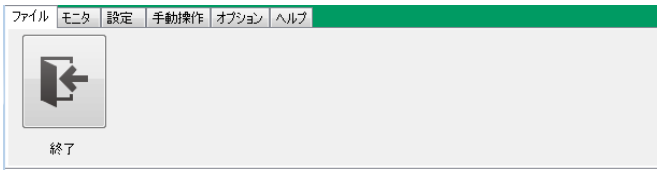
3. Start/Close

3.1 Start

Start the E Tools from CKD Corporation in the Start menu of the Windows.

3.2 Close

Close the E Tools from Close under the File in the menu.



CAUTION	When adjusting the electric actuator using this software, be sure to read the instruction manual of the electric actuator to use it correctly. When adjusted, the actuator may perform an unexpected operation. Prevent interference of the machine and keep away from the movable part.

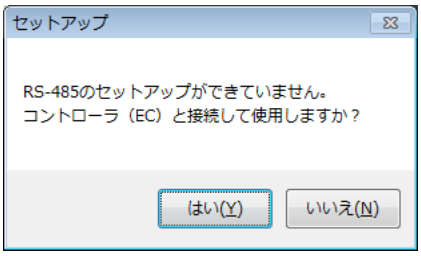
3.3 When E Tools is started for the first time

When the E Tools is started for the first time, a warning message checking the installation of the RS-485 interface will be displayed.

[Yes (Y)] : Started in the online mode.

[No (N)] : Started in the offline mode.

*For the online mode and offline mode, refer to “4.3 Operation modes of E Tools”.

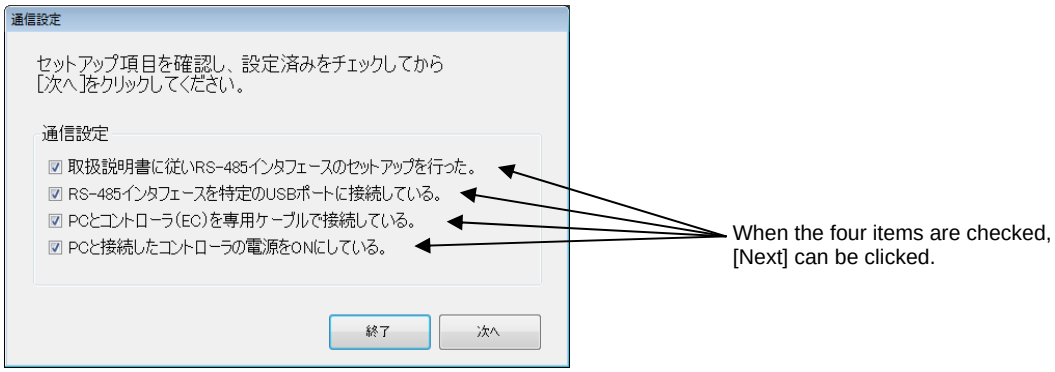


When the online mode is selected, a message checking that the RS-485 interface has been installed correctly will be displayed.

Read the items of the communication setting and check them if they have been performed.

[Close] : Closes the E Tools.

[Next] : Starts the E Tools. Unless all the four items are checked, [Next] cannot be clicked.



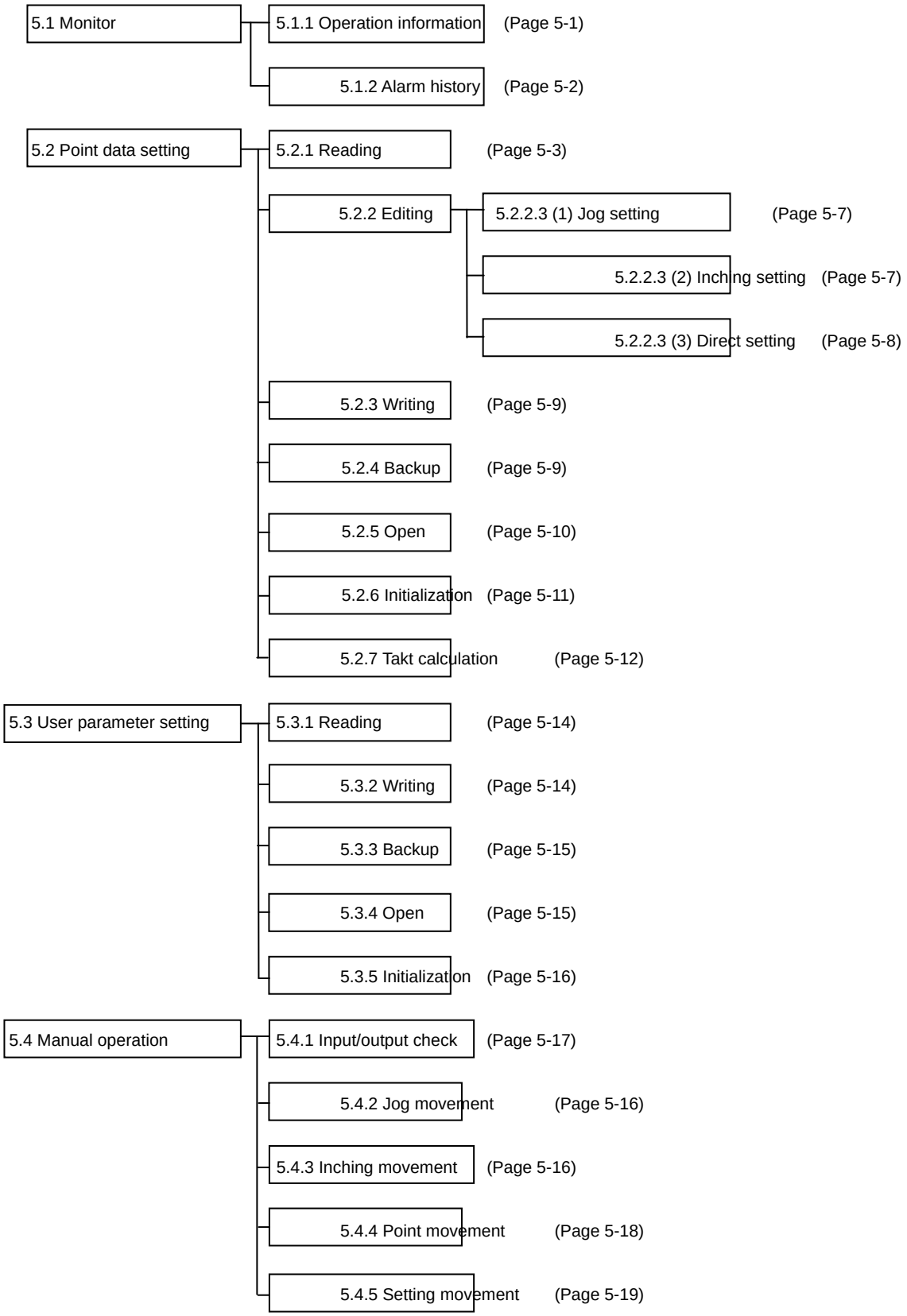
3.4 When E Tools is started for the first time

When the E Tools is started for the first time, a warning message checking the installation of the RS-485 interface will be displayed.

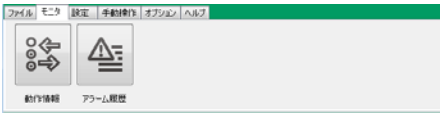
4. Basic functions

4.1 Basic functions

The following figure shows the functions which can be used in the E Tools.



(1) Monitor



[Operation information]

The status of the general-purpose input/output and the present position and movement velocity of the actuator can be checked.

[Alarm history]

Alarms which occurred in the past recorded in the controller can be checked.

(2) Setting

[Point data]

Perform the display and editing of point data and setting to the controller.

[User parameter]

Perform the display and editing of a user parameter and setting to the controller.

(3) Manual operation

[Input/output check]

Check the general-purpose output.

[Jog]

Check the movement of the actuator by the jog operation.

[Inching]

Check the movement of the actuator by the inching operation.

[Point movement]

Check the movement of the actuator to the registered point data.

[Setting movement]

Check the continuous movement of the actuator to the registered point data.

(4) Option

[Communication setting (RS485)]

Set the COM port.

(5) Help

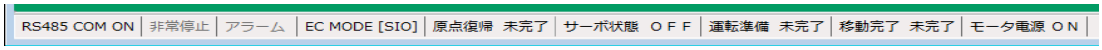
[Version information]

The software version of the E Tools is displayed.

4.2 Communication status

The operation status of the controller is displayed on the status bar.

When the COM port is started normally, the mode will be the online mode and the status bar will display the status of the communication with the controller.



(1) RS485 COM

The status of the RS485 interface or the status of the communication with the controller is displayed.

◇RS485 COM OFF

Indicates that an operation is being performed in the offline mode.

A function performing communication with the controller cannot be selected.

◇RS485 COM ON

Indicates that an operation is being performed in the online mode.

Performs the communication with the controller and indicates the status of the controller.

◇RS485 COM IDLE

Indicates that no communication is performed with the controller while the mode is the online mode.

◇RS485 COM ERROR

Indicates that a communication error occurred during communication with the controller in the online mode.

(2) Emergency stop

If an emergency stop of the controller occurs, “Emergency stop” is displayed in red.

* In the case of a function not performing communication with the controller, even if an emergency stop occurs, it will not be displayed.

(3) Alarm

If an alarm of the controller occurs, an alarm number display such as “Alarm 69” will be displayed in red.

* In the case of a function not performing communication with the controller, even if an alarm occurs, it will not be displayed.

(4) EC MODE

Indicates the function mode of the controller.

◇EC MODE [PIO]

Indicates that an operation is being performed in the normal mode controlling the actuator using the general-purpose input/output.

◇EC MODE [SIO]

Indicates that an operation is being performed in the SIO mode.

Note: It is a mode controlling the actuator using the E Tools. Control using the general-purpose input/output cannot be performed.

(5) Origin return

◇Origin return completion

It is a status in which the actuator can be controlled.

* If it is not completed, the actuator cannot be moved except for the jog operation by a manual operation.

(6) Servo status

Indicates that the servo status is on or off.

(7) Operation preparation

Indicates the status of the operation preparation.

(8) Movement completion

Indicates the status of the movement completion.

(9) Motor power

Indicates the on or off status of the motor power.

4.3 Operation modes of E Tools

The following shows the functions which can be used by the operation mode of the E Tools.

Functions		Operation modes		Remarks
		Online	Offline	
Monitor	Operation information	○	×	If no communication can be done with the controller, a warning message will be displayed and the operation information will be closed.
	Alarm history	○	○	-
Setting	Point data	○	△	Reading, writing, initialization and point registration position setting cannot be selected in the offline.
	User parameter	○	△	Reading, writing, initialization and point registration position setting cannot be selected in the offline.
Manual operation	Input/output check	○	×	If no communication can be done with the controller, a warning message will be displayed and the input/output check will be closed.
	Jog	○	×	If no communication can be done with the controller, a warning message will be displayed and the jog will be closed.
	Inching	○	×	If no communication can be done with the controller, a warning message will be displayed and the inching will be closed.
	Point movement	○	×	If no communication can be done with the controller, a warning message will be displayed and the point movement will be closed.
	Setting movement	○	×	If no communication can be done with the controller, a warning message will be displayed and the setting movement will be closed.
Option	Communication setting	○	○	-
Help	Version information	○	○	-

5. Basic operations

5.1 Monitor

Operation information and an alarm history are displayed.

5.1.1 Operation information

When the controller operates in the PIO mode, the general-purpose input/output status, present position of the actuator and movement velocity are displayed.

Status of general-purpose input/output During ON: ● During OFF: ○

(1) Present position

The present position of the actuator is displayed.

If no origin return is performed, "*****" is displayed.

(2) Movement velocity

The movement velocity of the actuator is displayed.

In the case of movement from the motor side to the opposite motor side, a positive value is displayed and in the case of movement from the opposite motor side to the motor side, a negative value is displayed.

(3) General-purpose input

The status of an input signal is displayed.

The port name of the general-purpose input will vary depending on the setting of the PIO mode of the user parameter and type of the controller.

* For the initial value, refer to the instruction manual (SM-612271) of the electric actuator (controller).

(4) General-purpose output

The status of an output signal is displayed.

The port name of the general-purpose output will vary depending on the setting of the PIO mode of the user parameter and type of the controller.

* For the initial value, refer to the instruction manual (SM-612271) of the electric actuator (controller).

5.1.2 Alarm history

An alarm history recorded in the controller is loaded and displayed.

(1) History acquisition

When [History acquisition] is clicked, alarms which occurred in the past will be displayed.

(2) History display

Ten items are displayed in order from one whose alarm occurrence timing is newer.

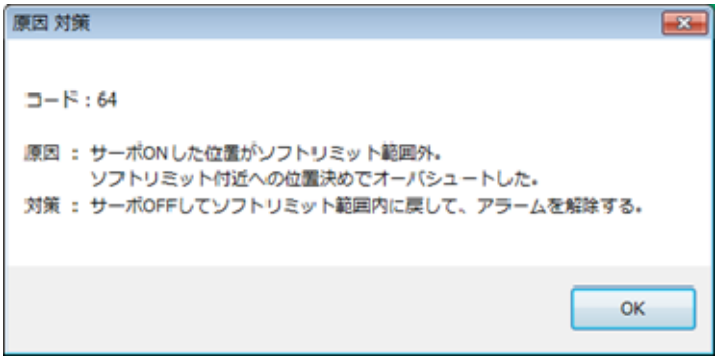
[Code]: Indicates an alarm number.

[Item]: Indicates the category of an alarm.

[Phenomenon]: Indicates an occurrence status.

[Causes/Measures]: When [Hint] is clicked, causes and measures will be displayed.

[Hint]



5.2 Point data setting

- Reading from controller
- Display and editing of data
- Writing of data into controller
- Backup of data into file
- Open file
- Data initialization
- Takt calculation

5.2.1 Reading

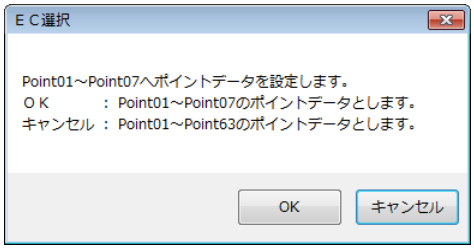
Read point data in the controller.

(1) Reading

When reading the point data from the controller, click [Read (EC => PC)].

* During reading, a warning message overwriting the data being edited is displayed.

When reading the point data of the controller of EC or EC07 during EC63 editing, read the point data of 1 to 7.
In relation to point data of 8 to 63
In the case of OK on the screen of EC selection, the data of 8 to 63 will be disposed of.
In the case of a cancel on the screen of EC selection, the data of 8 to 63 will be retained.



5.2.2 Editing

5.2.2.1 Controller selection

(1) Select a type of a controller to be edited from the list of EC selection.
When EC or EC07 is selected, the editing sheet of Point 01 to Point 07 will be displayed.
When EC63 is selected, the editing sheet of Point 01 to Point 63 will be displayed.

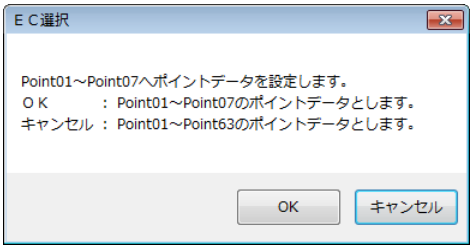
Reference value: A set value before editing is displayed.
Explanation: The input description and set range of the cursor position are displayed.

Controller type and software version

Initial value: Data being edited and the reference value are set to initial values.

Return:
A set value pointed by the cursor is set to a reference value.

(2) In the case of a change from EC63 to EC or from EC63 to EC07, the EC selection screen is displayed.
Check the point data of the selected EC and click the OK or cancel button.
In the case of OK on the screen of EC selection, the data of 8 to 63 will be disposed of.
In the case of a cancel on the screen of EC selection, the data of 8 to 63 will be retained.



5.2.2.2 Point data editing

The position designation, movement mode, position, positioning width, velocity, acceleration, deceleration, pressing current, pressing velocity and pressing distance can be displayed and edited.

The takt calculated by setting point data is displayed.

(1) Position designation

Select the reference of a position from the absolute position designation or relative position designation. (Initial value: Absolute position designation)

[Absolute position designation] Set the reference of a position as a motor origin.

[Relative position designation] Set a position (movement distance) based on the present position.

(2) Movement mode

Set movement when the actuator is stopped.

Select the positioning mode, pressing mode movement 1 or pressing mode movement 2. (Initial value: Positioning mode)

[Positioning mode]

Movement mode for the purpose of general transfer

When only the positioning width of the final target position reaches the front, a completion signal will be output.

[Pressing mode movement 1]

Movement mode for continuously pressing a workpiece to the pressing distance

When the pressing current reaches the set value of point data, a completion signal will be output.

[Pressing mode movement 2]

Movement mode for continuously pressing a workpiece.

When only the positioning width of the final target position reaches the front, a completion signal will be output.

* Even if the pressing is stopped halfway, no alarm will be detected.

(3) Position

When set to the positioning mode, it will be the setting of the final target position.
When set to pressing mode movement 1 or pressing mode movement 2, it will be the setting of the movement start position. The position can be set using the actuator and an actual product. For the operation method, refer to “5.2.2.3 Position setting for which actuator is used”.
(Position setting range: -999.99 to 999.99 [mm], initial value: 0.00 mm)
[Absolute position designation] Set a distance from the origin.
In the case of a position in the opposite motor direction from the origin, set a positive distance.
In the case of a position in the motor direction from the origin, set a negative distance.
[Relative position designation] Set a movement distance from the present position.
In the case of a position in the opposite motor direction from the present position, set a positive distance.
In the case of a position in the motor direction from the present position, set a negative distance.
When the final target position reaches the set value of point data, a completion signal will be output.

(4) Positioning width

Set a width for starting the output of completion in a range of 0.00 to 9.99 [mm] for the final target position.
If 0.00 is set, the operation is performed in the common positioning width. (Initial value: 0.00 mm)
When the present position of the actuator becomes within the positioning width setting range, completion will be output.

(5) Velocity

Set a movement velocity in the constant velocity range in a range of 0 to 999 [mm/s].
If 0 is set, the operation is performed at the common velocity. (Initial value: 0 mm/s)

(6) Acceleration

Set acceleration in the acceleration range in a range of 0.0 to 9.9 [m/s^2].
If 0.0 is set, the operation is performed at the common acceleration. (Initial value: 0.0 m/s^2)

(7) Deceleration

Set deceleration in the deceleration range in a range of 0.0 to 9.9 [m/s^2].
If 0.0 is set, the operation is performed at the common deceleration. (Initial value: 0.0 m/s^2)

(8) Pressing current

After the movement start position is reached in the pressing mode, set a current value in a range of 0 to 100 [%].
No pressing current is used in the positioning mode.
If 0 is set, the operation is performed at the common pressing current. (Initial value: 0%)

(9) Pressing velocity

After the movement start position is reached in the pressing mode, set a movement velocity in a range of 0 to 99 [mm/s].
No pressing velocity is used in the positioning mode.
If 0 is set, the operation is performed at the common pressing velocity. (Initial value: 0 mm/s)

(10) Pressing distance

After the movement start position is reached in the pressing mode, set a distance in a range of -999.99 to 999.99 [mm].
No pressing distance is used in the positioning mode.
If 0.00 is set, the operation is performed at the common pressing distance. (Initial value: 0.00 mm)

(11) Takt

The takt calculation result is displayed.

(12) Takt start point

Select a start point when a takt calculation is performed.
In the case of EC or EC07, a start point can be selected from Point 01 to Point 07, and in the case of EC63, a start point can be selected from Point 01 to Point 63. Calculate the takt with the origin as a start point at the time of relative position designation.

5.2.2.3 Position setting for which actuator is used

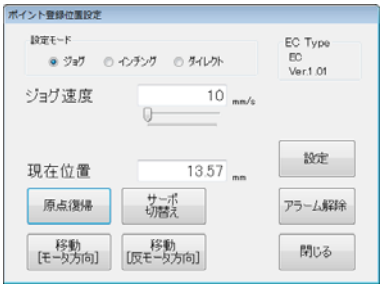
The position of a point can be set by operating the actuator connected to the controller. There are three setting methods: jog, inching and direct.

(1) Jog setting

Double-click the [Position] cell of a point which you want to set.

* When the controller is in the PIO mode, a message of a change to the SIO mode will be displayed.

- In the case of jog setting, the actuator moves to the motor direction or the opposite motor direction depending on the jog velocity when [Move] is dragged. Set the present position of the stop as “position”.
- For the present position when no origin return is performed, “*****” is displayed. Perform an origin return.
- The jog velocity can be set in a range of 10 to 100 mm/s.



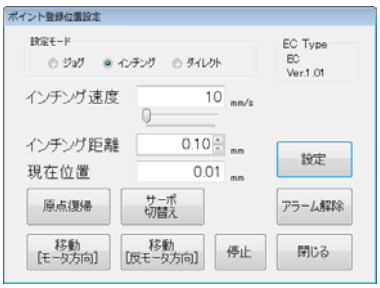
* The servo on check screen is displayed when the servo is off.

(2) Inching setting

Double-click the [Position] cell of a point which you want to set.
Change the setting mode to “Inching”.

* When the controller is in the PIO mode, a message of a change to the SIO mode will be displayed.

- Move the inching distance at the inching velocity to the direction for which [Move] is clicked. Set the present position of the stop as “position”.
- For the present position when no origin return is performed, “*****” is displayed. Perform an origin return.
- The inching velocity can be set in a range of 10 to 100 mm/s.
- The inching distance can be set in a range of 0.10 to 20.00 mm.



* The servo on check screen is displayed when the servo is off.

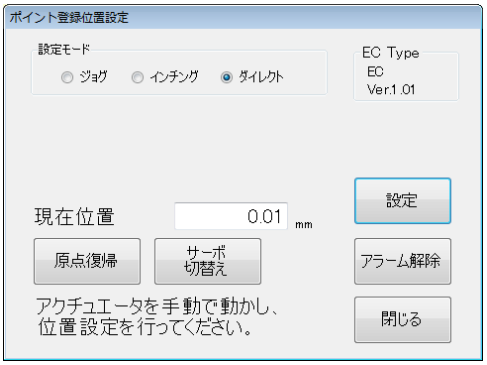
[SM-612601]

(3) Direct setting

Double-click the [Position] cell of a point which you want to set.

Change the setting mode to “Direct”.

- In the case of direct setting, manually move the slider or rod of the actuator with the servo status off and set the present position as “position”.
- For the present position when no origin return is performed, “*****” is displayed. Perform an origin return.



* The servo off check screen is displayed when the servo is on.

(4) Others

Operation common in jog, inching and direct setting.

[Origin return]

Perform an origin return.

If “****” is displayed at the present position, perform an origin return.

[Servo change]

Change the servo status from on to off or from off to on.

[Alarm release]

Release an alarm.

[Setting]

After closing the position setting for which the actuator is used, set the present position in the position cell.

[Close]

After closing the position setting for which the actuator is used, retain the position cell.

5.2.3 Writing

Write the edited point data into the controller.

(1) Writing selection

When writing the point data into the controller, click [Write (PC => EC)].

* During writing, a warning message overwriting the data of the controller is displayed.
* Writing cannot be performed if the controller types are different. A warning message is displayed.
* If all the point data cannot be written, a warning message will be displayed and the writing will be stopped.

5.2.4 Backup

Data can be backed up into a file.

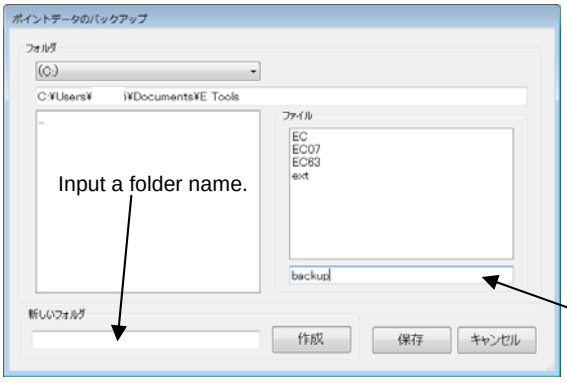
(1) Backup

When performing a backup, click [Backup (PC => File)].

(2) Input a file name.

The storage area for a backup file is the “E Tools” folder in My Document (default).

The extension is “pod”.



Input the file name of point data backed up and click [Save].

When creating a new folder, input a folder name under New Folder and click [Create].

* If the backup file for writing is used in application other than the E Tools, the writing cannot be performed. Close the backup file and perform the backup again.

[SM-612601]

5.2.5 Open

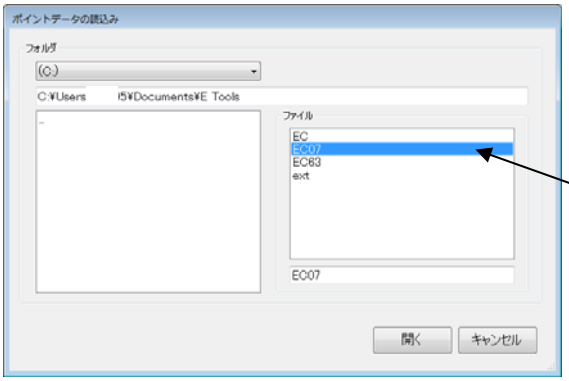
Load the backup data.

(1) Open the data.

When loading the point data, click [Open (File => PC)].

(2) Select a backup file.

Select a file and click [Open].



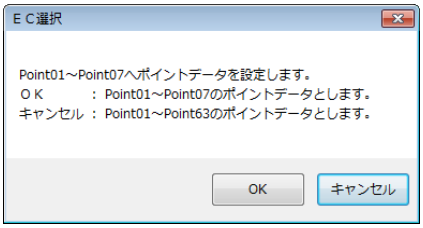
* During loading, a warning message overwriting the data being edited is displayed.

(3) Load the point data of EC or EC07 during EC63 editing.

When loading the point data of EC or EC07 during EC63 editing, a warning message will be displayed, so check the handling of the point data.

In the case of OK on the screen of EC selection, the data of 8 to 63 will be disposed of.

In the case of a cancel on the screen of EC selection, the data of 8 to 63 will be retained.



(4) Display of EC selection

The display of EC selection changes the display depending on the data in which the point data were loaded.

5.2.6 Initialization

Initialize the point data.

(1) Initialization

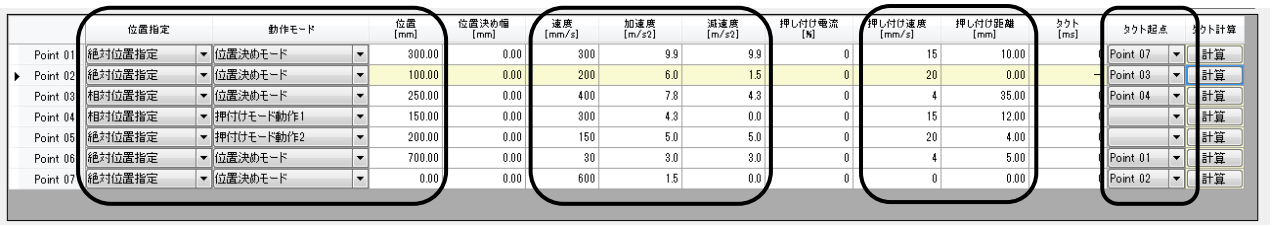
When initializing the point data of the controller, click [Initialize (EC)].

* A warning message for the check of EC initialization (the point data are returned to the values when shipped from the plant) is displayed.
* If the end of the initialization cannot be checked, a warning message will be displayed and the initialization will be stopped.

5.2.7 Takt calculation

Perform the takt calculation of the displayed point data.

Input a required set value into a point, which is an end point, and calculate the takt from the start point (theoretical value).



	位置指定	動作モード	位置 [mm]	位置決め幅 [mm]	速度 [mm/s]	加速度 [m/s2]	減速度 [m/s2]	押し付け電流 [%]	押し付け速度 [mm/s]	押し付け距離 [mm]	タクト [ms]	タクト起点	タクト計算
Point 01	絶対位置指定	位置決めモード	300.00	0.00	300	9.9	9.9	0	15	10.00		Point 07	計算
Point 02	絶対位置指定	位置決めモード	100.00	0.00	200	6.0	1.5	0	20	0.00		Point 03	計算
Point 03	相対位置指定	位置決めモード	250.00	0.00	400	7.8	4.3	0	4	35.00		Point 04	計算
Point 04	相対位置指定	押付けモード動作1	150.00	0.00	300	4.3	0.0	0	15	12.00			計算
Point 05	絶対位置指定	押付けモード動作2	200.00	0.00	150	5.0	5.0	0	20	4.00			計算
Point 06	絶対位置指定	位置決めモード	700.00	0.00	30	3.0	3.0	0	4	5.00		Point 01	計算
Point 07	絶対位置指定	位置決めモード	0.00	0.00	600	1.5	0.0	0	0	0.00		Point 02	計算

(1) Setting of point data

When performing a takt calculation, set the following items into point data.

[Velocity] Movement velocity in constant velocity range

[Acceleration] Acceleration in acceleration range

[Deceleration] Deceleration in deceleration range

[Position designation] How to handle position in task calculation.
It is used as the position of a takt end point at the time of absolute position designation and as the distance from 0.00 mm at the time of relative position designation.

[Movement mode] Select a calculation formula used for a takt calculation.
In the case of the positioning mode, use the takt calculation formula of general transfer movement.
In the case of pressing mode movement 1 or pressing mode movement 2, use the takt calculation formula of pressing movement.

[Position] The handling in the takt calculation will vary depending on the setting of position designation.
In the case of absolute position designation,
<Movement distance> = Absolute value (<Takt end point position> - <Takt start point position>)
In the case of relative position designation, <Movement distance> = Absolute value (<Position>)

[Pressing velocity] Set it when the movement mode is pressing mode movement 1 or pressing mode movement 2.
Set a movement velocity in the pressing zone.

[Pressing distance] Set it when the movement mode is pressing mode movement 1 or pressing mode movement 2.
Set a movement distance in the pressing zone.

[Takt start point] Set it when the movement mode is the positioning mode.

(2) Display of takt calculation table

When items required for a takt calculation are input and [Calculation] is clicked, a takt time dialog will be displayed.

* If the movement mode is the positioning mode and [Calculation] is clicked without setting a takt start point, a warning message will be displayed.

(3) Execution of takt calculation

There are two takt calculation tables (takt time): general transfer movement and pressing movement.

When [Takt calculation] is clicked, a takt calculation will be executed.

☆ General transfer movement

☆ Pressing movement

(4) Reflection of takt calculation

When a takt calculation table is closed, the positioning time of the calculation value will be reflected into the takt.

* When the calculation result of a constant velocity time is 0 or less, a warning message will be displayed.

5.3 User parameter setting

For the initial value of a user parameter, refer to the instruction manual of the controller.

- Reading from controller
- Writing of data into controller
- Backup of data into file
- Open file
- Data initialization

5.3.1 Reading

Read a user parameter in the controller.

(1) Reading

When reading the user parameter from the controller, click [Read (EC => PC)].

* During reading, a warning message overwriting the parameter being edited is displayed.

(2) Display of EC selection

Change the display of EC selection depending on the parameter in which the user parameter was loaded.

5.3.2 Writing

Write the edited user parameter into the controller.

(1) Writing selection

When writing the user parameter into the controller, click [Write (PC => EC)].

* During writing, a warning message overwriting the data being edited is displayed.
* Writing cannot be performed if the controller types are different. A warning message is displayed.
* If all the user parameters cannot be written, a warning message will be displayed and the writing will be stopped.

5.3.3 Backup

Data can be backed up into a file.

(1) Backup

When performing a backup, click [Backup (PC => File)].

(2) Input a file name.

The storage area for a backup file is the “E Tools” folder in My Document (default).

The extension is “upa”.

Input the file name of a user parameter backed up and click [Save].

* If the backup file for writing is used in application other than the E Tools, the writing cannot be performed. Close the backup file and perform the backup again.

5.3.4 Open

Load the backup data.

(1) Open the data.

When loading the point data, click [Open (File => PC)].

(2) Select a backup file.

Select a file and click [Open].

* During loading, a warning message overwriting the parameter being edited is displayed.

(3) Load the user parameter of EC or EC07 during EC63 editing.

When the user parameter of EC or EC07 is loaded during EC63 editing, a warning message will be displayed to check the handling of the user parameter.

(4) Display of EC selection

The display of EC selection changes depending on the parameter in which the user parameter was loaded.

5.3.5 Initialization

Initialize the user parameter.

(1) Initialization

When initializing the user parameter of the controller, click [Initialize (EC)].

* If the end of the initialization cannot be checked, a warning message will be displayed and the initialization will be stopped.

5.4 Manual operation

* The control of the actuator by PIO cannot be performed during a manual operation.

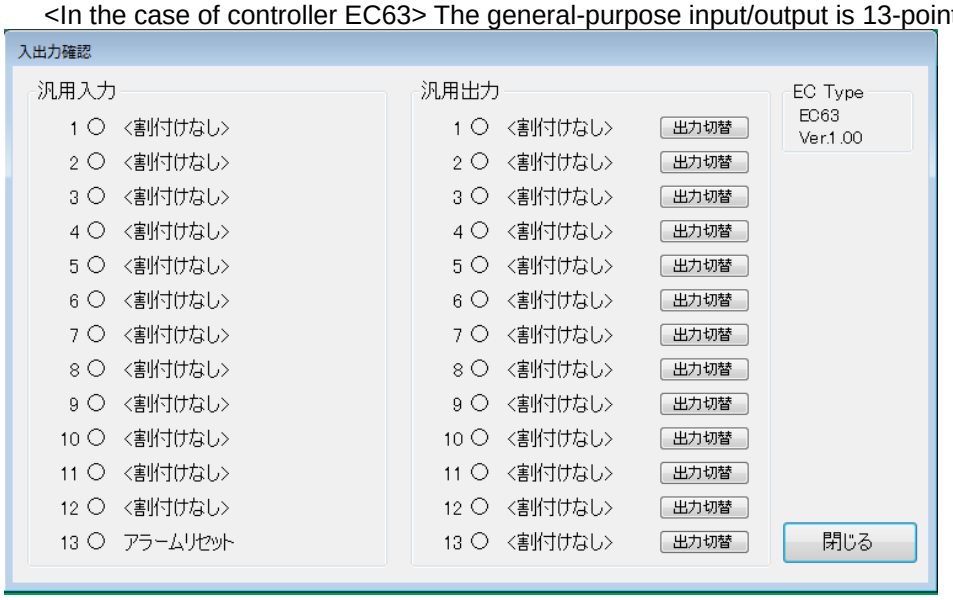
5.4.1 Input/output check

It is a function to check the connection of the general-purpose output.

The on and off of the forcible output can be changed by clicking [Output change] on the right side of the general-purpose output.

<In the case of controller EC or EC07> The general-purpose input/output is 7-point allocation.

<In the case of controller EC63> The general-purpose input/output is 13-point allocation.



During ON: ● During OFF: 〇

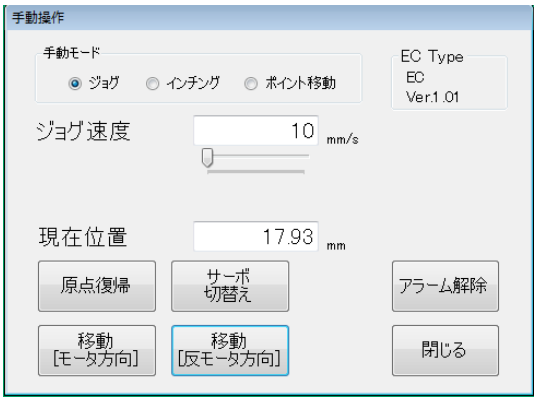
5.4.2 Jog movement

Set a jog velocity and perform jog movement.

(1) In the case of jog setting, the actuator moves to the motor direction or the opposite motor direction depending on the jog velocity when [Move] is dragged.

(2) For the present position when no origin return is performed, “*****” is displayed.

(3) The jog velocity can be set in a range of 10 to 100 mm/s.



* The servo on check screen is displayed when the servo is off.

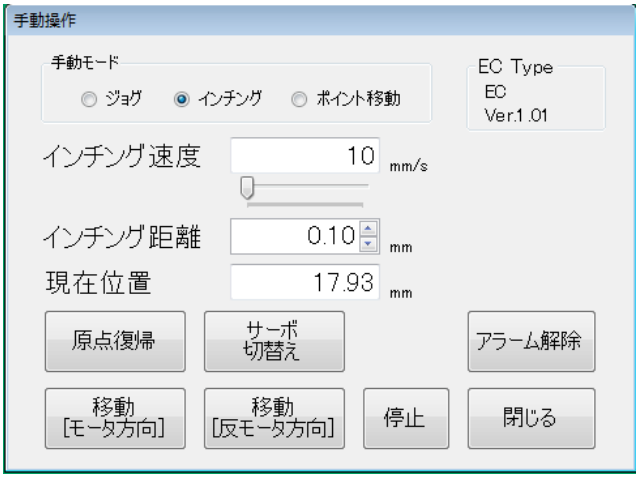
5.4.3 Inching movement

Set an inching velocity and perform inching movement.

(1) For inching setting, move the inching distance at the inching velocity to the direction for which [Move] is clicked.

(2) For the present position when no origin return is performed, “*****” is displayed.
No inching operation can be performed, so perform an origin return.

(3) The inching velocity can be set in a range of 10 to 100 mm/s.



* The servo on check screen is displayed when the servo is off.

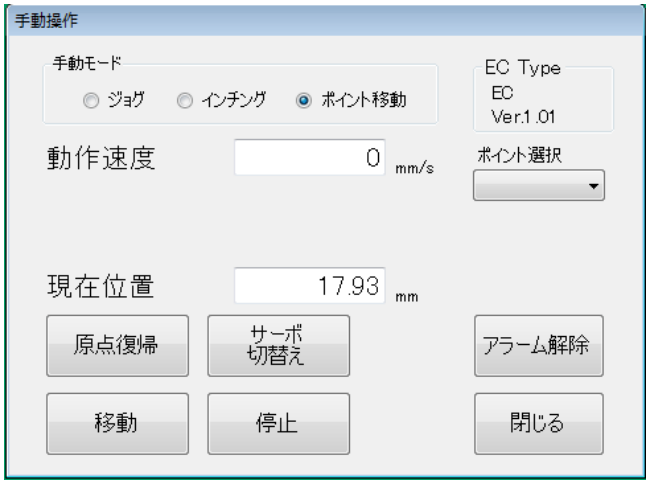
* When stopping the actuator during movement, click [Stop].

5.4.4 Point movement

(1) Select a point which has been set in the controller from the list of point selection and check the movement from the present position.

(2) For the present position when no origin return is performed, “*****” is displayed.
No point movement can be performed, so perform an origin return.

(3) For the setting of a movement velocity, acceleration, etc., change point data to be checked.



* The servo on check screen is displayed when the servo is off.

* When stopping the actuator during movement, click [Stop].

5.4.5 Setting movement

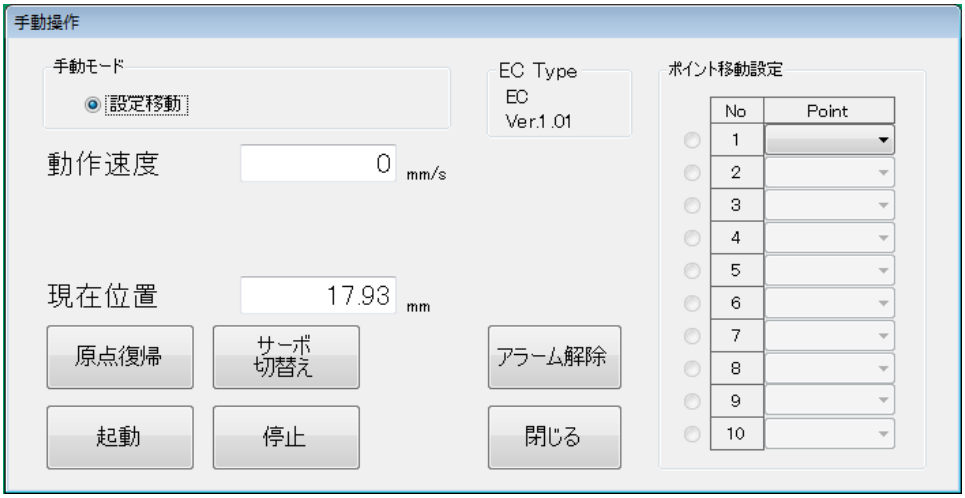
(1) For setting movement, select some points which have been set in the controller from the list of point selection and check the movement from the present position.

(2) For the present position when no origin return is performed, "*****" is displayed. No movement setting can be performed.
Perform an origin return.

(3) For the setting of a movement velocity, acceleration, etc., change point data to be checked.

* The servo on check screen is displayed when the servo is off.

* When stopping the actuator during movement, click [Stop].



5.5 Option

Set the communication of the RS-485 interface.

[Communication port]

Select the COM port set in the RS-485 interface.

If no port is displayed on the communication port list, it is conceivable that the RS-485 interface is not connected or the setup has not been performed correctly.

5.6 Help

The version information of the E Tools is displayed.

--- MEMO ---