CKD

For Electric Actuator
PC setting software

S-Tools

INSTRUCTION MANUAL

Read this Instruction Manual before using the product.
In particular, read the safety notes carefully.
Keep this Instruction Manual safe for use at any time.

2026-01-15 SM-A11147-A/8

PREFACE

This Instruction Manual contains basic matters such as installation and usage instructions in order to ensure optimal performance of PC setting software for electric actuators “S-Tools”. Please read this Instruction Manual thoroughly and use the product properly.
Keep this Instruction Manual in a safe place and be careful not to lose it.

Product specifications and appearances presented in this Instruction Manual are subject to change without notice.

CKD has no warranty obligation whatsoever with respect to the information provided by this software, including the contents, accuracy, safety, merchantability, and compatibility for a particular use or purpose.
CKD Corporation shall not be responsible nor liable for any damage caused by this software.

SAFETY INFORMATION

In order to use our products safely, it is important to select, use, handle, and maintain the products properly.
Observe the warnings and precautions described in this Instruction Manual to ensure device safety.
Handling that is not described in this Instruction Manual may cause an accident.
Thoroughly read and understand this Instruction Manual before using the product.

To explicitly indicate the severity and likelihood of a potential harm or damage, precautions are classified into three categories: "DANGER", "WARNING", and "CAUTION".

DANGER	Indicates an imminent hazard. Improper handling will cause death or serious injury to people.
WARNING	Indicates a potential hazard. Improper handling may cause death or serious injury to people.
CAUTION	Indicates a potential hazard. Improper handling may cause injury to people or damage to property.

Precautions classified as "CAUTION" may still lead to serious results depending on the situation.
All precautions are equally important and must be observed.

< Warning symbol type >

	A general purpose mark indicating prohibited (not allowed) actions.		A mark that prohibits touching equipment.
	A mark that prohibits the act of putting a finger.		A general purpose mark indicating the danger such as electric shock and burn.
	A mark indicating the danger that occurs when an automatic equipment is started.		A general purpose mark indicating what you must do.
	A mark instructing you to carefully read the Instruction Manual.		A mark instructing the connection of the ground wire.

In addition, the following icons indicate general precautions, usage tips, or technical information or glossary.

- Contains useful information such as general precautions, supplementary information, and reference information.

- Contains detailed information and tips on how to use it in a practical way.

- Contains technical information and glossary that you should know when using the function.

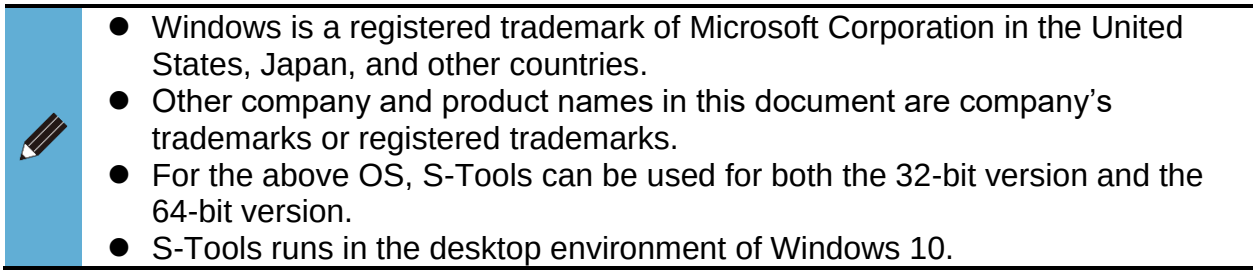
CONTENTS

1. PRODUCT OVERVIEW

1.1. Operating Environment

This software requires the following operating environment.

Operating system (OS)	**Windows® 10**
Resolution	Recommended: 1024 × 768 (XGA) or higher Required: 800 × 600 (SVGA) or higher
USB port	USB 2.0 compliant
Others	Microsoft .NET Framework 4.7.1 or later



- Windows is a registered trademark of Microsoft Corporation in the United States, Japan, and other countries.
- Other company and product names in this document are company's trademarks or registered trademarks.
- For the above OS, S-Tools can be used for both the 32-bit version and the 64-bit version.
- S-Tools runs in the desktop environment of Windows 10.

1.2. Models compatible with of S-Tools

Depending on the S-Tools version, some controllers cannot be connected and some functions are not available for use. Use the latest version of S-Tools.

1.3. License agreement

CKD Corporation holds all rights to the Software (including programs, data, text, photographs, manuals, etc.). You may use the Software by agreeing to the following terms and conditions.

- You may not copy, modify, transfer, sell, rent or distribute the Software to third parties.
- You may not reverse engineer, decompile, or disassemble the Software.
- You cannot duplicate manuals or other printed materials.
- CKD Corporation may terminate this license agreement if you violate this agreement. In such case, you shall not be able to use the Software at all.
- CKD has no warranty obligation whatsoever with respect to the information provided by this software, including the contents, accuracy, safety, merchantability, and compatibility for a particular use or purpose.
- CKD Corporation shall not be responsible nor liable for any damage caused by this software.
- The contents of the Software may be changed without notice.

1.4. Safety Instructions

CAUTION

Do not set Windows to sleep mode (standby) while running S-Tools.
- This may cause a communication failure when returning from sleep mode.

Do not connect/disconnect the USB network cable or turn ON/OFF the controller while sending/receiving data to/from the controller.
- This may cause the controller to malfunction or S-Tools to malfunction.

Do not start and use S-Tools on one computer at the same time.
- Doing so may cause communication error and the actuator may perform an unexpected operation.

Exit S-Tools before connecting/disconnecting the connector or turning ON/OFF the power supply.

If a communication error occurs, check the connection of the USB network cable (such as whether there are any disconnections).

Exit other communication software before using this software.
- This software cannot be used simultaneously with other communication software that uses the USB communication interface.

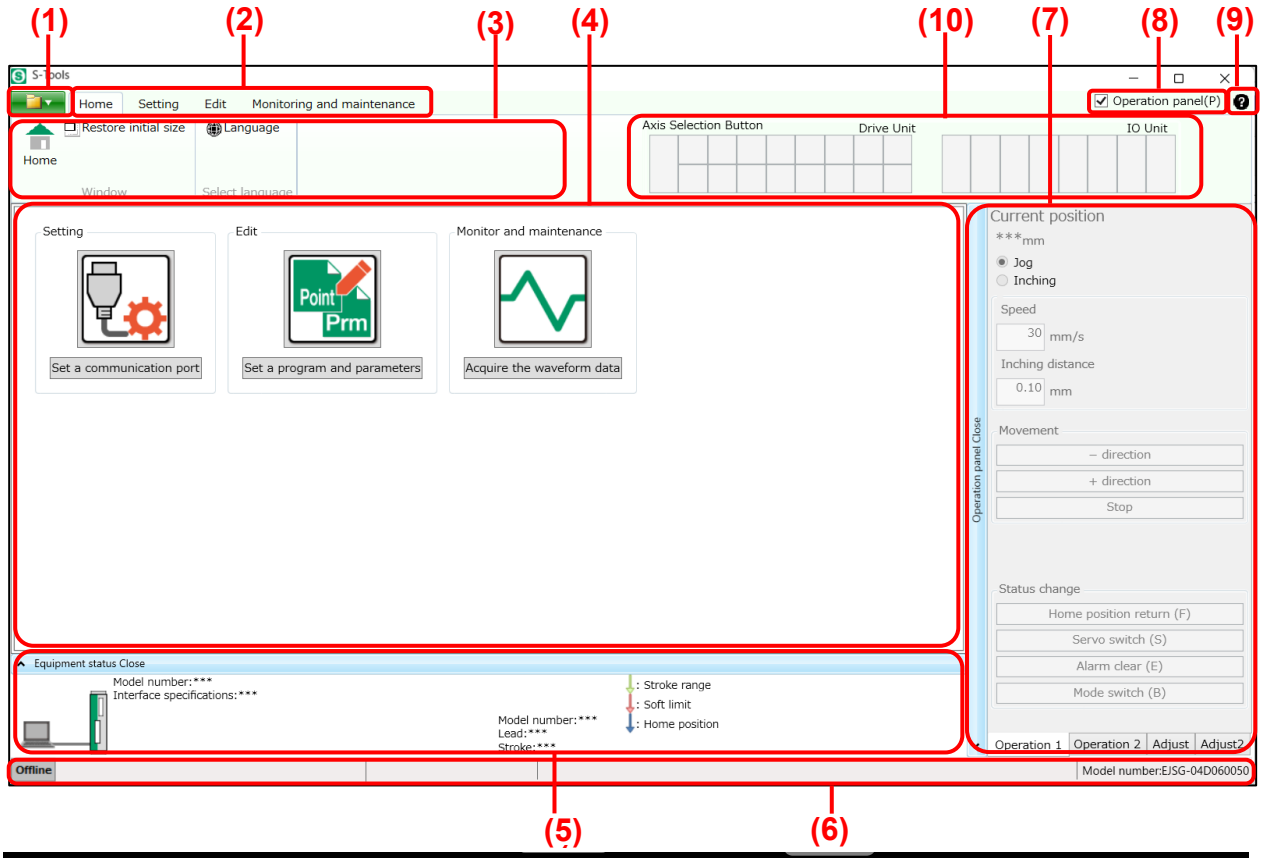
Use a USB network cable to communicate with the controller.
- For connection a USB network cable, refer to the Instruction Manuals for applicable actuator or controller.

S-Tools is a setting software for following products.
- ECR Series controller (a controller for EBS-M Series and other similar electric actuators)
- ECG Series controller (a controller for EBS-G Series and other similar electric actuators)
- FFLD Series electric actuators (Controller built-in)
- ECMG Series controller (a controller for EBS-G Series and other similar electric actuators)
- LRX Series electric actuators (controller built-in)

- Specifications common to all products are explained in this instruction manual. For details on functions and screens exclusive to the ECMG Series, please refer to the instruction manual (SM-A62471).

1.5. Screen Layout of S-Tools

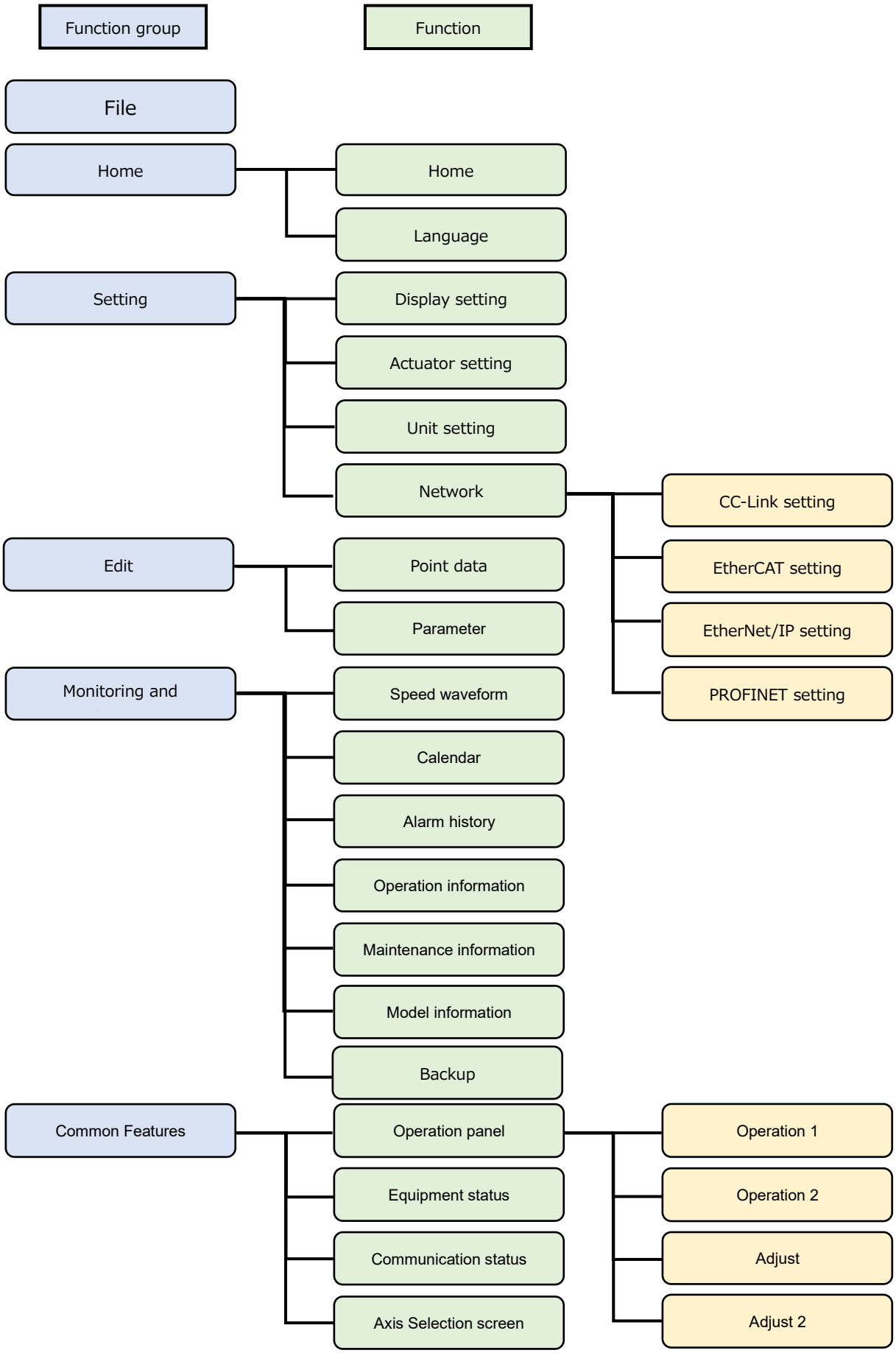
The S-Tools screen consists of following elements:



No.	Part Name	Description
(1)	**File Tab**	It contains commands for managing files and performing print and print preview.
(2)	**Ribbon tabs**	They represent the S-Tools function group. Selecting a tab switches the ribbon menu.
(3)	**Ribbon menu**	It displays the operating buttons for function groups.
(4)	**View**	It displays the area for using the selected function.
(5)	**Equipment status panel**	It displays the status of each piece of equipment (PC, controller, and actuator).
(6)	**Communication status bar**	It displays the controller communication status and the actuator model number.
(7)	**Operation panel**	It contains commands for checking the operation of the electric actuator when online. It switches among four tabs: “Operation 1,” “Operation 2,” “Adjustment,” and “Adjustment 2.”
(8)	**Operation panel Connection check**	It opens/closes the operation panel.
(9)	**Help button**	It shows the software version of S-Tools and the version information of the installed DLL.
(10)	**Axis Selection Screen**	Use this button to select the axis to be operated when using the multi-axis controller. This button can be selected only when the ECMG Series controller is connected.

* One edit file can be opened on S-Tools of Ver. 1.07.00.00. Therefore, the window tab for selecting the file to be edited in Ver. 1.06.01.00 or earlier is not provided in Ver. 1.07.00.00.

1.6. Application Structure



1.7. Operation Modes of S-Tools

The following functions and views can be used depending on the operation mode of S-Tools:

Function, View		Operation mode			Remarks
		Online	**Offline**	**Actuator Unconnected**	
Home	**Home**	A	A	A	-
	Language	A	A	A	-
Setting	**Disconnect**	A	S	A	A message appears when offline.
	Display setting	A	N	A	A warning message appears if communication with the controller cannot be made.
	Actuator Setting	A	S	A	Settings cannot be read, written, or initialized offline.
	Unit Setting	A	S	A	Settings cannot be read or written offline.
	CC-Link Setting	A	S	A	Settings cannot be read or written offline.
	EtherCAT Setting	A	S	A	Settings cannot be read or written offline.
	EtherNet/IP Setting	A	S	A	Settings cannot be read or written offline.
	PROFINET Setting	A	S	A	Settings cannot be read or written offline.
Edit	**Point data**	A	S	S	Point data cannot be read or written offline. Controller cannot be initialized offline. Position cannot be imported with the actuator unconnected.
	Parameters	A	S	A	Parameters cannot be read or written offline. Controller cannot be initialized offline.

※ A: All functions can be used, S: Some functions can be used, N: No function can be used

Function, View		Operation mode			Remarks
		Online	**Offline**	**Actuator Unconnected**	
Monitoring and maintenance	**Speed waveform**	A	S	N	Speed waveform cannot be monitored offline.
	Calendar	A	S	A	Calendar information cannot be read from or written to the controller offline.
	Alarm history	A	S	A	Alarm information cannot be read from the controller or initialized offline.
	Operation information	A	N	A	A warning message appears if communication with the controller cannot be made.
	Maintenance information	A	S	A	Maintenance information cannot be read from the controller offline.
	Model information	A	S	A	Model information cannot be read offline. Actuator information cannot be saved offline.
	Backup	A	N	A	This screen is dedicated to ECMG. Backups cannot be performed offline because there is no data to store.
Common Features	**Operation panel**	A	N	S	Panel cannot be operated offline. Alarms can be cleared, modes can be switched, and gains can be adjusted even with the actuator unconnected.
	Equipment status	A	N	A	Connection status is displayed in gray and the controller/actuator information is displayed as “***” when offline.
	Communication status	A	N	A	Only “Offline” is displayed when offline.
	Version information	A	A	A	-
	Axis Selection screen	A	N	A	In the offline mode, the button appears in gray and cannot be clicked.

※ A: All functions can be used, S: Some functions can be used, N: No function can be used

2. INSTALLATION

2.1. Obtaining the Installer

The installer for S-Tools is available on CKD's website (https://www.ckd.co.jp/).

<How to obtain>

1. Select "Component Products" from the website

Select "Component Products" from the "Products & Support" tab or the "Product Information" page.

2. Select "Electric actuator" in the product lineup

3. Select "Stepping motor drive"

4. Access the detail page of "Controller Model No. ECG"

Access the detail page of "Controller Model No. ECG" from the product list.
* Other than the page for "ECR," the installer can also be obtained from the product information page for a controller that uses S-Tools as the setting software.

5. Download the installer

Select "Software" and download one of the following files that applies to the PC to use with S-Tools.

OS	File name
32 bit	PC Setting Software for Electric Actuators S-Tools (32 bit Ver □□□□□□□) .zip Note 1
64 bit	PC Setting Software for Electric Actuators S-Tools (64 bit Ver □□□□□□□) .zip Note 1

Note 1: * The version information of S-Tools is shown in □□□□□□□.

2.2. Installation Procedure

CAUTION

To prevent a malfunction, exit all programs before starting the installation.

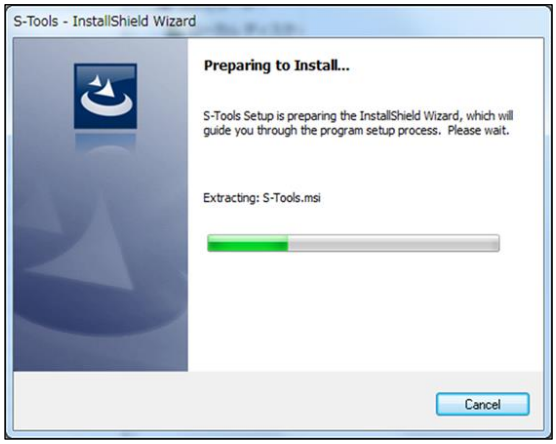
1. Double-click on the “setup.exe” file to launch the installer

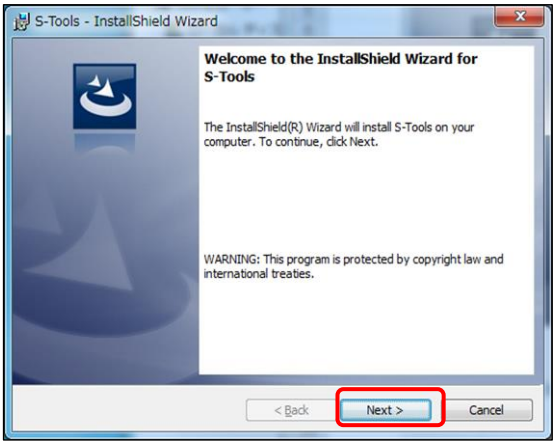
If a confirmation massage that asks whether to install the program from an unknown publisher appears at the beginning of the installation, click [Yes] to continue the installation.

2. If “Microsoft.NET Framework 4.7.1” dialog box appears, click [Install]

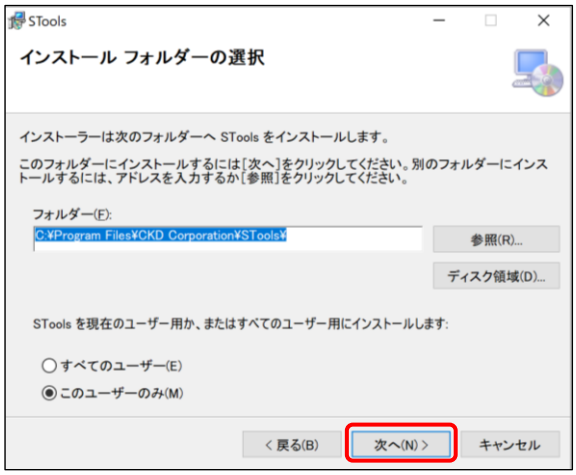
It only appears on a PC that do not have “.Net Framework” version 4.7.1 or later installed. Clicking [Cancel] will abort the installation of S-Tools.

3. Once InstallShield Wizard has been prepared, “InstallShield Wizard Welcome” dialog box appears. Click [Next]

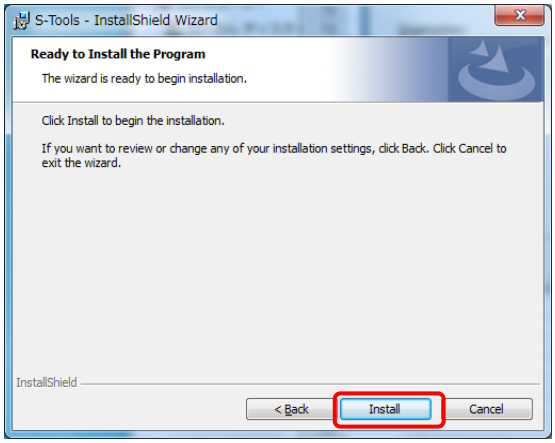




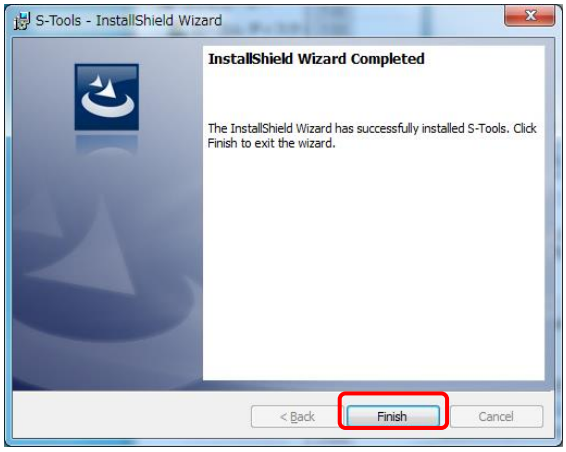
4. Click the installation destination folder and click [Next]



5. Ready to Install the Program dialog box appears. Click [Install] to begin installation



6. InstallShield Wizard Completed dialog box appears. Click [Finish] to close the dialog box



3. USAGE

CAUTION

Make sure there is no mechanical interference, stay away from the movable sections of the actuator, and confirm safety.

When adjusting the electric actuator using S-Tools, make sure to read the Instruction Manual carefully for the electric actuator and use it correctly.

- At the adjustment stage, the actuator may move in an unexpected way.

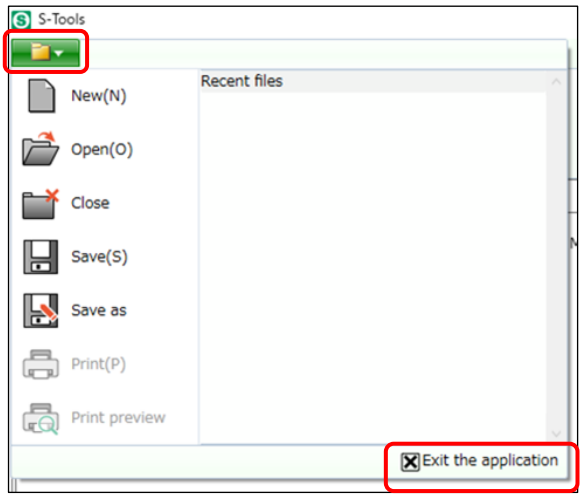
3.1. Start and Exit

3.1.1. Start

To start S-Tools, go to the Windows Start Menu, select CKD Corporation, and then select S-Tools.
New dialog box appears. For details on the “New” dialog box, refer to “3.2.2 New“.

3.1.2. Exit

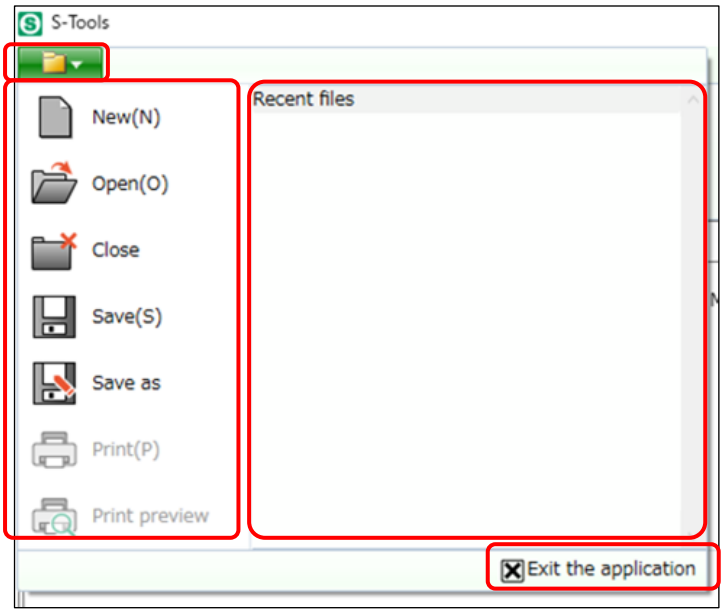
To exit S-Tools, click the [X] button in the upper right corner of the window or open the File menu and click the [Exit the application] button.



3.2. File Tab

3.2.1. Overview of the File tab

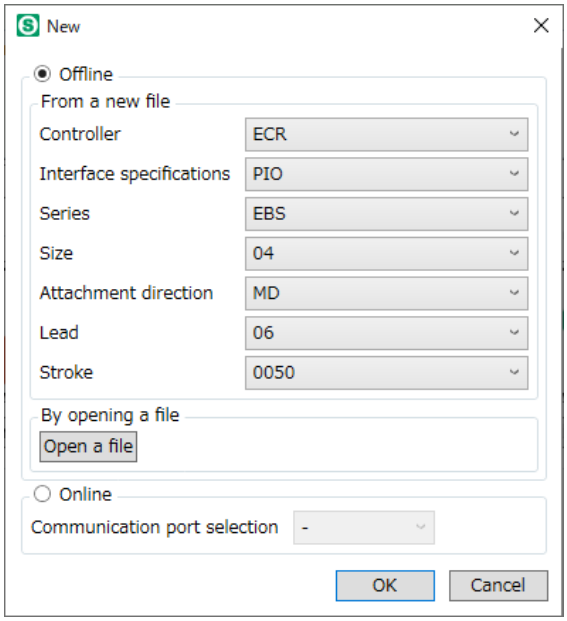
It creates a new file, and open, close, save, save as, and print a file.
Selecting the File tab displays the following menu.



Part Name	Description	References
New	Opens the New dialog box.	3.2.2
Open	Opens an existing file.	3.2.3
Close	Closes the active window tab.	3.2.3
Save	Overwrites and saves the file being edited.	3.2.4
Save as	Saves the file being edited with a name.	3.2.4
Print	It prints the currently displayed view. “Point data,” “Parameters,” and “Speed waveform” are the objects that can be printed and are printed as they appear in their respective view.	-
Print preview	It shows the object as it will appear in printed form in the preview dialog box. “Point data” and “Parameters” are the objects that can be previewed.	-
Recent files	It lists up to 10 recently used files (*.exal format) with the most recent first. Selecting a file opens it.	-
Exit the application	Close the software (S Tools).	3.2.4

3.2.2. New

Starting S-Tools or selecting [New] from the File tab opens the “New” dialog box.



■ Offline

<From a new file>

Selecting the items and clicking the [OK] button runs S-Tools without connecting to the controller. If a file has been opened, close the file, and open a new file Note 1. Clicking the [Cancel] button cancels “New” and if there are no other window tabs being edited, exits S-Tools. If another file has been opened, the “New” dialog box will close.

Note 1: On S-Tools of Ver. 1.07.00.00, the number of edit files that can be opened is 1, so processing was added for closing an already opened file to open a new file.

<By opening a file>

Clicking the [Open a file] button opens the file selection dialog box. Opening a file closes the New dialog box. If a file has been opened, perform the processing for closing the file, and open a new file Note 1. Not selecting a file in the file selection dialog box keeps the New dialog box open. Files in S-Tools format (*.exal) can be selected.

Note 1: On S-Tools of Ver. 1.07.00.00, the number of edit files that can be opened is 1, so processing was added for closing an already opened file to open a new file.

■ Online

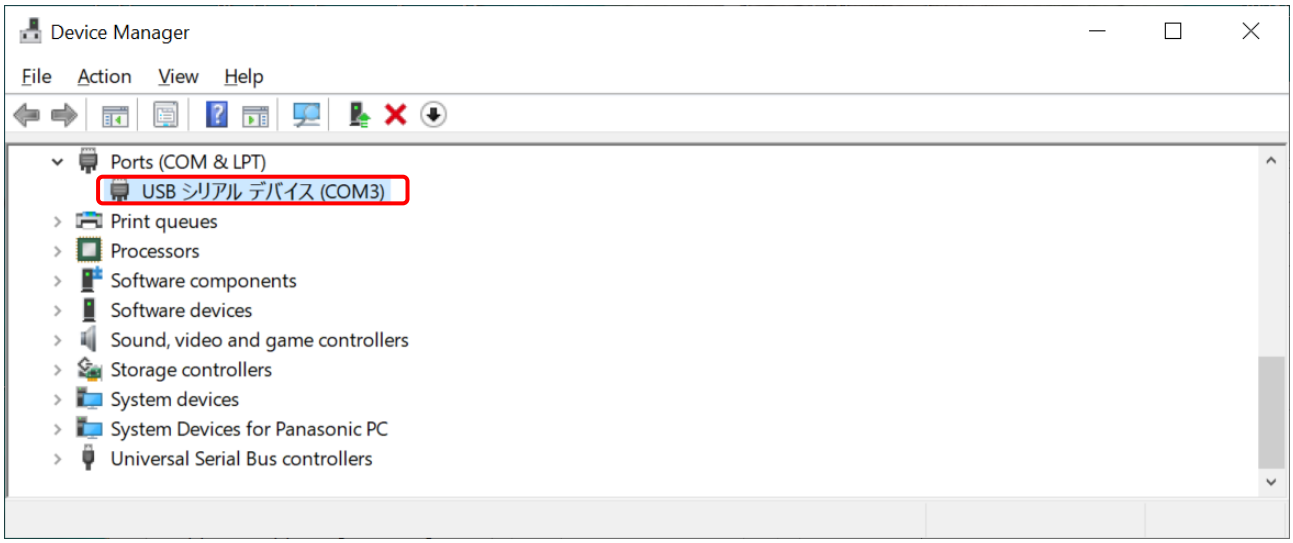
The COM port that can be connected is displayed in the box labeled “Communication port selection.” If there is no connectable COM port, “-” is displayed.

Selecting a COM port and clicking the [OK] button runs S-Tools after connecting to the controller. If a file has been opened, perform the processing for closing the file, and open a new file Note 1. Clicking the [Cancel] button cancels “New” and if there are no other window tabs being edited, exits S-Tools. If another file has been opened, the “New” dialog box will close.

Note 1: On S-Tools of Ver. 1.07.00.00, the number of edit files that can be opened is 1, so processing was added for closing an already opened file to open a new file.

If the actuator is not connected, the confirmation message “Could not verify the actuator model number. Select the model number to continue bringing it online” appears. Clicking the [OK] button opens the model number selection dialog box. Selecting the model number and clicking the [OK] button brings the equipment online with the selected model number. Clicking the [Cancel] button cancels “New” and if there are no other window tabs being edited, exits S-Tools. If there are other window tabs being edited, the New dialog box closes.

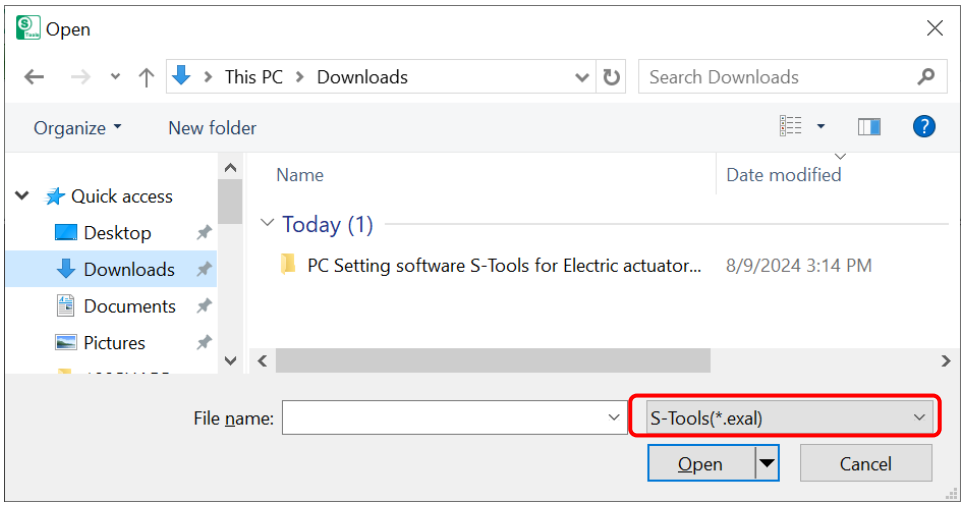
* The COM port to which the controller (such as ECG Series) is connected can be checked in “Ports (COM & LPT)” under the “Device Manager,” a standard Windows OS feature. Use the COM port indicated with “USB Serial Device” or “CDC USB Driver.”



3.2.3. Open/Close

<Open>

Selecting [Open] opens the file selection dialog box. When a file is opened, it opens with the Home tab selected. If a file has been opened, perform the processing for closing the file, and open a new file Note 1. Files in S-Tools format (*.exal) can be selected.

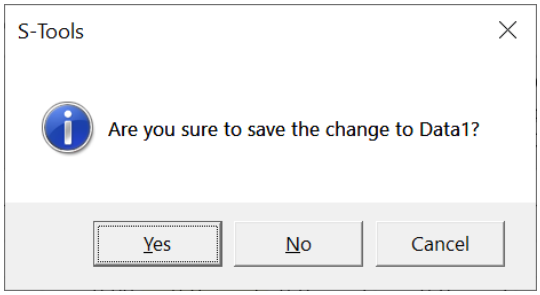


Note 1: On S-Tools of Ver. 1.07.00.00, the number of edit files that can be opened is 1, so processing was added for closing an already opened file to open a new file.

<Close>

Close the file in use. After the file is closed, S-Tools will exit. For the procedure for exiting S-Tools, refer to “3.2.4 Save/Exit.”

If either “Point data,” “Parameters,” or “Speed waveform” is being edited, the confirmation message “Are you sure to save the change to Data1?” appears. The Data1 part will contain the window tab name (file name).



Part Name	Description
Yes	S-Tools will exit after saving the file using “Save” or “Save As.”
No	S-Tools will exit without saving the file.
Cancel	It closes the dialog box.

3.2.4. Save/Exit

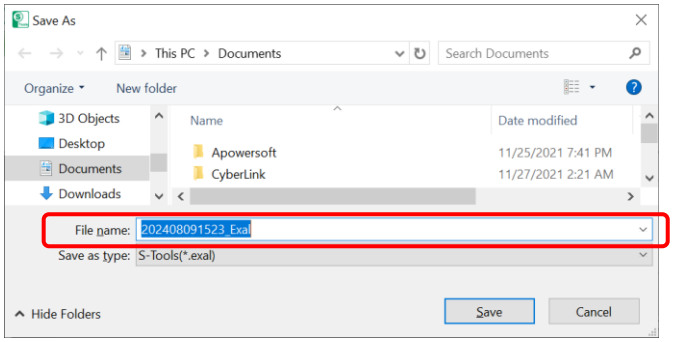
<Save>

Selecting [Save] overwrites the file being edited. If the file has never been saved before, the same dialog box as “Save As” appears.

Data saved in the file	
Point data	Parameters
Speed waveform	Alarm history
Maintenance information	Model information
CC-Link	EtherCAT
EtherNet/IP	PROFINET

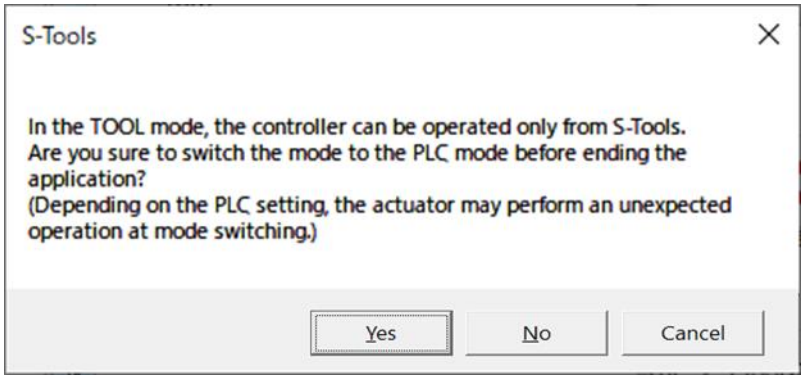
<Save as>

Selecting [Save as] saves the file being edited with a name. The default file name is date_Exal.exal (example: 201805211457_Exal.exal). If either “Point data,” “Parameters,” or “Speed waveform” is displayed, it can be saved in csv format.



<Exit the application>

Clicking the [Exit the application] button closes all window tabs and exits S-Tools.
In the TOOL mode, a dialog confirming to switch to the PLC mode, as shown below, appears.



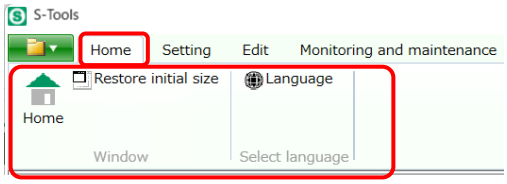
To close a window tab, refer to “3.2.3 Open/Close.”

3.3. Home Tab

3.3.1. Overview of the Home tab

The Home tab contains commands for managing windows, switching between functions, and changing the display language.

Selecting the Home tab displays the following ribbon menu.

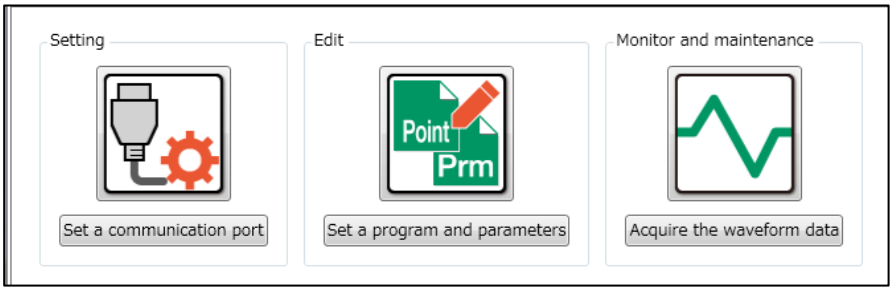


Part Name	Description	References
Home	Starts the “Home” view.	3.3.2
Restore initial size	It restores the S-Tools window to its default size.	-
Language	It is used to change the display language. The selected language takes effect after restarting the PC.	3.3.3

※ One edit file can be opened on S-Tools of Ver. 1.07.00.00. Therefore, the [Window] button for switching the opened window tabs which was present on Ver. 1.06.01.00 or earlier has been removed from Ver. 1.07.00.00.

3.3.2. Home

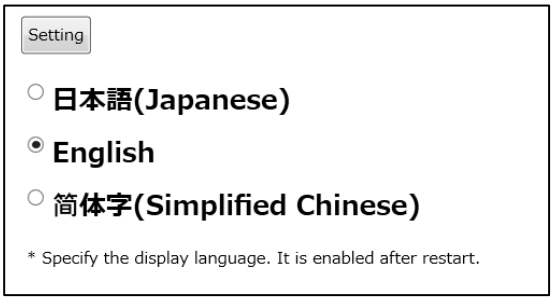
Clicking the [Home] button starts the following view.



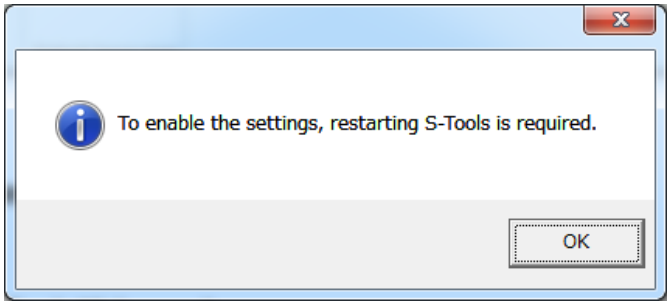
Part Name	Description
Set a communication port	It shows the Setting tab and its ribbon when the icon or the button is clicked.
Set a program and parameters	It shows the Edit tab and its ribbon when the icon or the button is clicked.
Acquire the waveform data	It shows the Monitoring and maintenance tab and its ribbon when the icon or the button is clicked.

3.3.3. Language

Clicking the [Language] button starts the “Language” view. It can also be used offline.



After selecting the language to use and clicking the [Setting] button, the confirmation dialog box “Restart S-Tools to enable the setting.” appears.



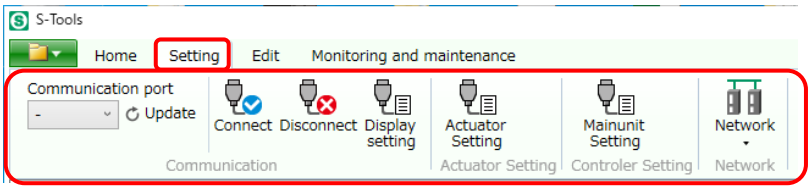
The selected language takes effect after restarting S-Tools.

3.4. Setting Tab

3.4.1. Overview of the Setting tab

The Setting tab contains commands for configuring and displaying the network settings.

Selecting the Settings tab displays the following ribbon menu.



Part Name	Description	References
Communication port	It is used to select or update the communication port when online.	3.4.2
Connect	It connects the port selected in the communication port drop-down box.	3.4.3
Disconnect	It releases the port selected in the communication port drop-down box.	3.4.4
Display setting	Starts the “Display setting” view.	3.4.5
Actuator setting	Starts the “Actuator setting” view.	3.4.6
Unit setting (Main unit Setting)	Starts the “Unit setting” view.	-Note 1
Network	It is used to configure CC-Link, EtherCAT, EtherNet/IP, or PROFINET settings.	3.4.7

Note 1: “Unit setting” is a screen exclusive to the ECMG Series. Refer to the instruction manual (SM-A62471) for details on using the screen.

- Changes to the settings related to the parallel I/O and IO-Link specifications are made in the “Parameters” view started from the Edit tab.

3.4.2. Communication port

This function displays the communication port that can be connected. If there is no connectable communication port, “-” is displayed. Clicking the communication port drop-down box shows the connectable communication ports from which the communication port to use for connecting to the controller can be selected.

Clicking the [Update] button updates the information of the connectable communication port.

3.4.3. Connect

Clicking the [Connect] button connects the selected communication port to the controller. If the connection cannot be made (cannot be opened), the message “The communication port could not be opened.” appears. Disconnecting the connection (except clicking the [Disconnect] button) unintentionally, the connection is automatically reconnected when the controller is recognized by the selected communication port. However, if the controller is connected to a different port, click the [Disconnect] button once to select the communication port again, and then click the [Connect] button.

If the actuator is not connected, the confirmation message “Could not verify the actuator model number. Do you want to continue and bring it online?” appears. Clicking the [OK] button connects the selected communication port to the controller. Clicking the [Cancel] button closes the dialog box.

3.4.4. Disconnect

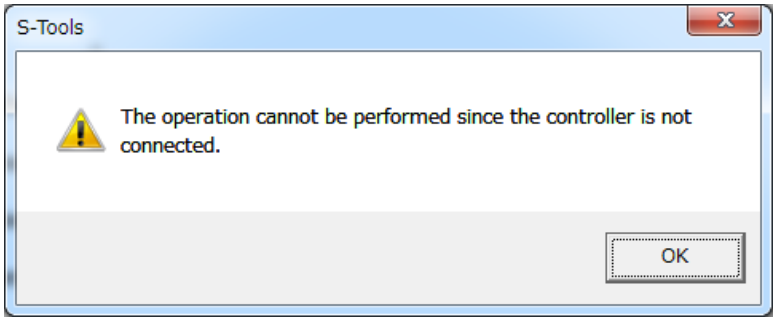
CAUTION

Before switching the controller to the PLC mode, check the input state of the signal from the upper level equipment to the controller.

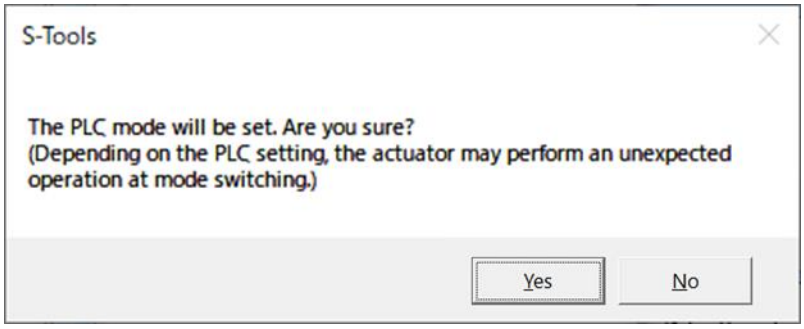
- When the mode is switched from TOOL to PLC, the actuator may perform an unexpected operation depending on the setting of the upper level equipment.

Clicking the [Disconnect] button closes (releases) the currently connected communication port. It can be performed only when the port is open.

If the [Disconnect] button is clicked when the port is closed (released), the message “The operation cannot be performed since the controller is not connected.” appears.



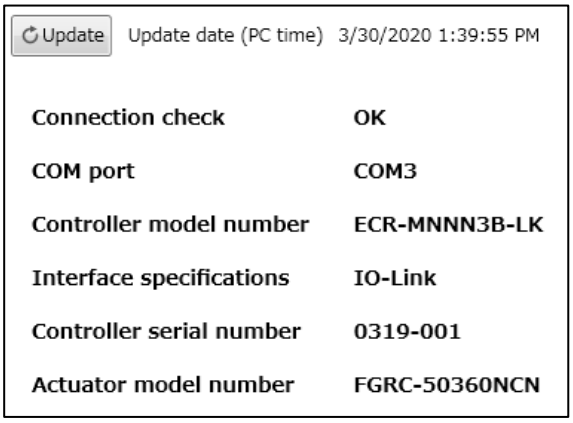
If the [Disconnect] button is clicked during the TOOL mode, a dialog confirming to switch to the PLC mode, as shown below, appears.



- When operating the actuator from an upper level equipment, set the controller to the PLC mode. In the TOOL mode, the controller does not accept operations from tan upper level equipment (such as PLC).

3.4.5. Display setting

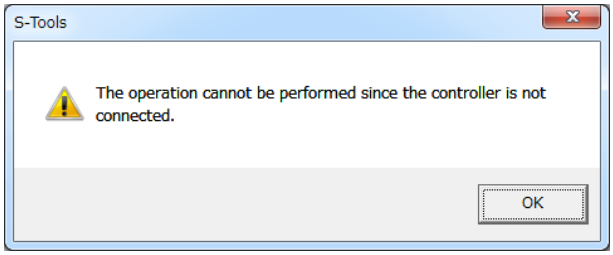
Clicking the [Display setting] button starts the “Display setting” view.

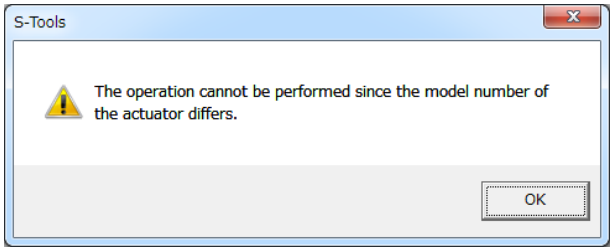


Clicking the [Update] button updates the set information. The information to be updated is as follows.

Part Name	Description
Update date (PC time)	It shows the PC date and time the [Update] button was clicked.
Connection check	It shows the status of the connection with the controller. It shows “OK” when there is connection and shows “-” when the connection is not established or there is no connection.
COM port	It shows the currently connected COM port. It shows “-” when the connection is not established or there is no connection.
Controller model number	It shows the model number of the connected controller. It shows “-” when the connection is not established or there is no connection.
Interface specifications	It shows the interface specifications of the connected controller. It shows “N/A” if it is other than “CC-Link,” “EtherCAT,” “EtherNet/IP,” “IO-Link,” “PROFINET,” or “PIO.” It shows “-” when the connection is not established or there is no connection.
Controller serial number	It shows the serial number of the connected controller. It shows “-” when the connection is not established or there is no connection.
Actuator model number	It shows the model number of the connected actuator. It shows “-” when the connection is not established or there is no connection.

If the controller is not connected, the message “The operation cannot be performed since the controller is not connected.” appears.
Also, if the model number of the connected actuator differs from the actuator model number shown in the selected window tab, the message “The operation cannot be performed since the model number of the actuator differs.” appears.





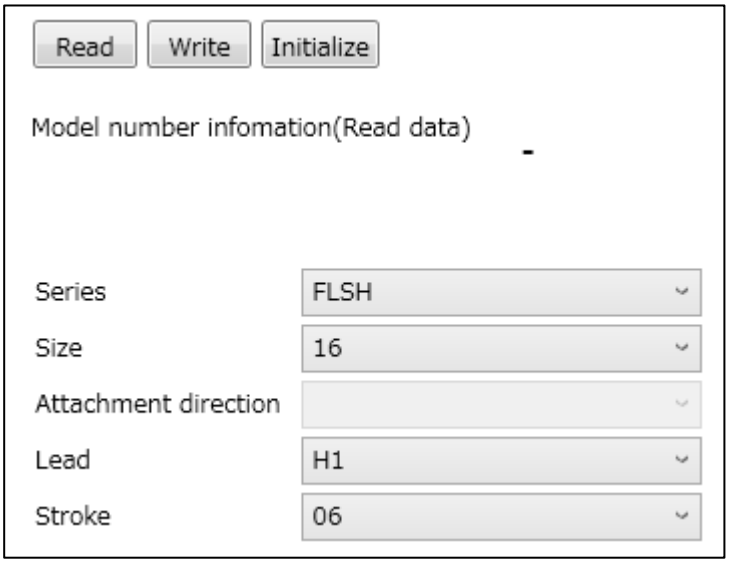
3.4.6. Actuator setting

CAUTION

When executing a software reset, check the input state of the signal from the upper level equipment to the controller in advance.

- If a software reset is executed, the controller is started in the PLC mode. The actuator may perform an unexpected operation depending on the setting of the upper level equipment.

Clicking the [Actuator setting] button starts the “Actuator setting” view. Use this when setting the actuator information to the ECG-B Series controller.



■ Operating button

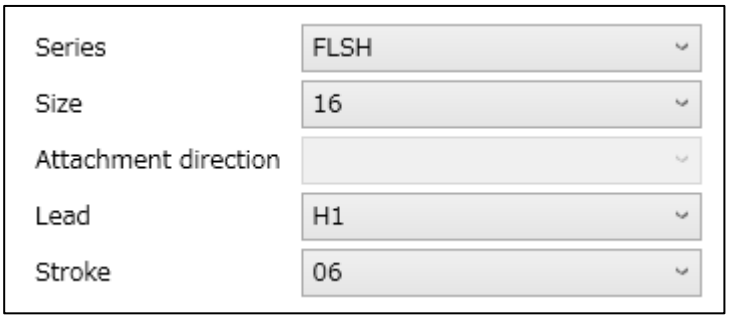
Part Name	Description
[Read] button	It reads the actuator model number from the controller, and displays the actuator model number to the side of “Actuator model number (read data).” “No data” is displayed if any actuator information has not been written to the controller. Note 1, Note 2
[Write] button	Writes the actuator information for the model number selected from the on-screen drop-down list. Note 1, Note 2 The operation can only be performed in the TOOL mode and also when the actuator is in the servo OFF status. A confirmation message that asks whether to execute software reset appears after writing.
[Initialize] button	This function initializes the actuator information that is written to the controller. Note 1, Note 2

Note 1: If the controller is not connected, the message “The operation cannot be performed since the controller is not connected.” appears.
Note 2: If the actuator model number read from the controller differs from the actuator model number shown in the selected window tab, the message “The operation cannot be performed since the model number of the actuator differs.” appears.

- This screen can be used from the S-Tools version 1.04.00.00 or later. The S-Tools version that can be set will vary depending on the actuator. Make sure to always use the latest S-Tools.
- The write and initialize functions can be used only when a controller from the ECG-B Series or ECMG Series (Type B) is connected. With other controllers, the actuator information is read from the actuator that is connected to the controller.

■ Drop down list

Select the actuator model number to be written to an ECG-B Series or ECMG Series (Type B) controller. Do not select other than the model number of the actuator that is to be used with connected to the controller (FLSH Series, FLCR Series, or FGRC Series).



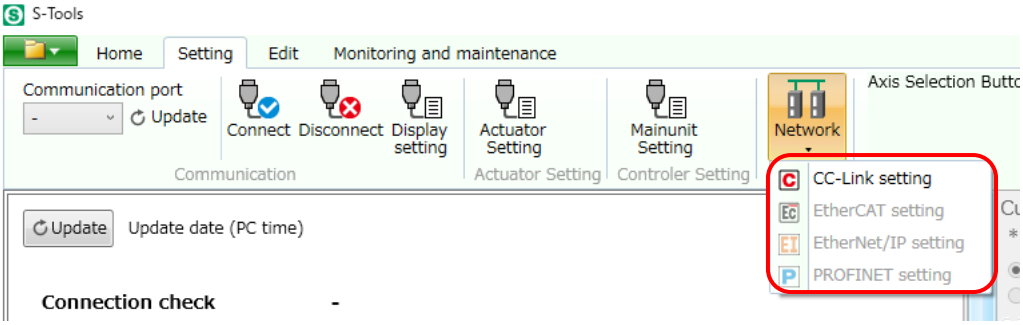
3.4.7. Network

CAUTION

When executing a software reset, check the input state of the signal from the upper level equipment to the controller in advance.

- If a software reset is executed, the controller is started in the PLC mode. The actuator may perform an unexpected operation depending on the setting of the upper level equipment.

Clicking the [Network] button shows the network submenu.

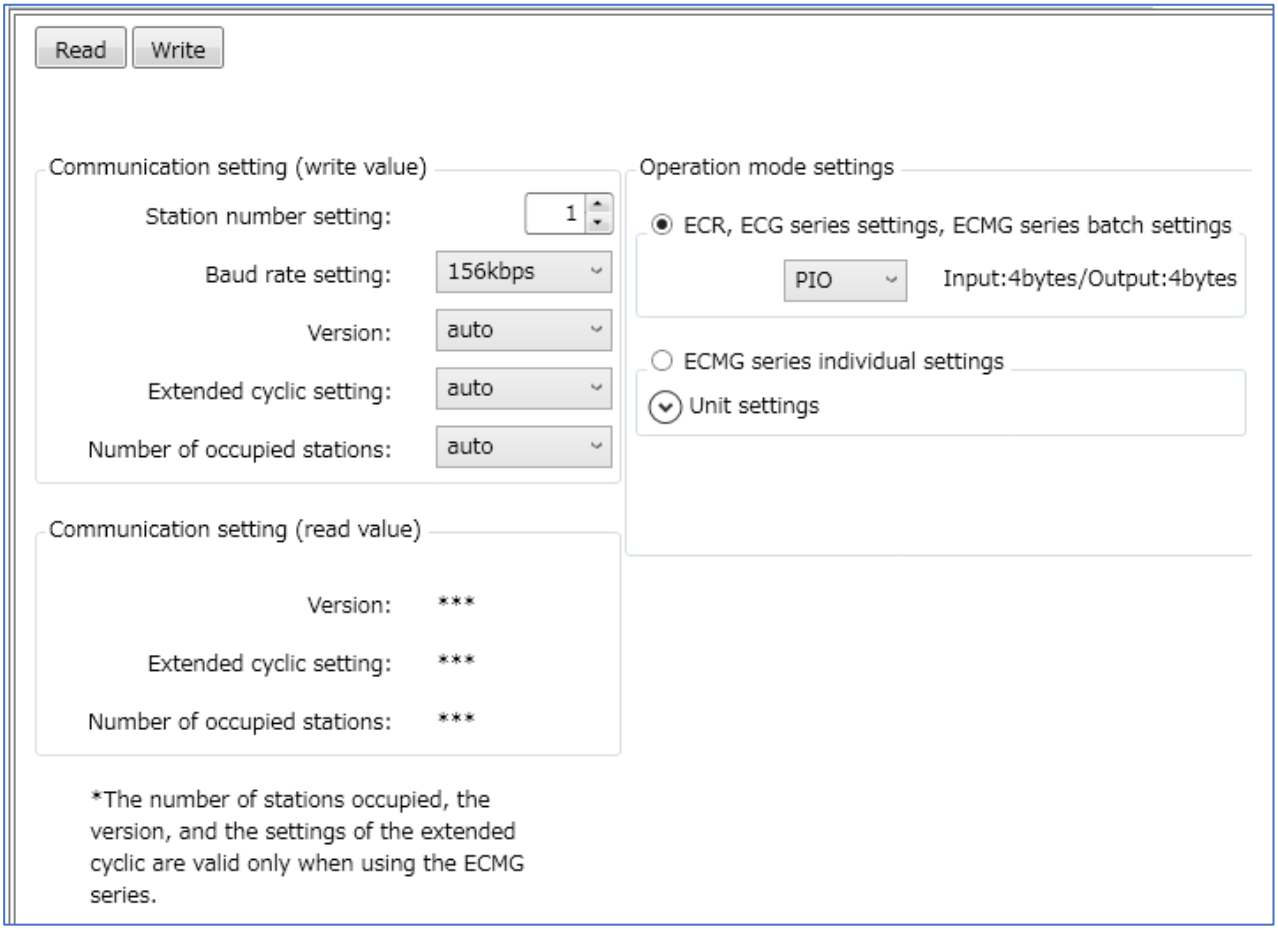


Items that are grayed out in the network submenu cannot be selected.
The following shows how to select "CC-Link setting," "EtherCAT setting," "EtherNet/IP setting," and "PEOFINET setting."

Part Name	Description
CC-Link setting	It can be selected when “CC-Link” is selected for the “Interface specifications” in the “Offline” section of the “New” dialog box or when the “Interface specifications” of the controller connected via Online section of the “New” dialog box is “CC-Link.”
EtherCAT setting	It can be selected when “EtherCAT” is selected for the “Interface specifications” in the “Offline” section of the “New” dialog box or when the “Interface specifications” of the controller connected via Online section of the “New” dialog box is “EtherCAT.”
EtherNet/IP setting	It can be selected when “EtherNet/IP” is selected for the “Interface specifications” in the “Offline” section of the “New” dialog box or when the “Interface specifications” of the controller connected via Online section of the “New” dialog box is “EtherNet/IP.”
PEOFINET setting	It can be selected when “PEOFINET” is selected for the “Interface specifications” in the “Offline” section of the “New” dialog box or when the “Interface specifications” of the controller connected via Online section of the “New” dialog box is “PEOFINET.”

■ CC-Link setting

This view is for configuring the CC-Link settings. Clicking the [CC-Link setting] option under the network submenu starts the “CC-Link setting” view.



Part Name		Description
[Read] button		The “Communication setting (write value),” “Communication setting (read value),” and “Operation mode setting” acquired from the controller are displayed. Note 1, Note 2
[Write] button		The values set for "Communication setting (write value)” and “Operation mode setting” are reflected onto the controller. Note 1, Note 2 After writing the data, a message confirming to reset the software appears.
Communication setting (write value)	**Station number setting**	Set the station No. The setting range varies depending on the operation mode. The initial value is “1”. For the ECMG Series edit file, the setting range is "1” to “64.”
	Baud rate setting	Set the baud rate. Select from “156 kbps,” “625 kbps,” “2.5 Mbps,” “5 Mbps,” or “10 Mbps.” The initial value is “156 kbps.”
	Version Note 3	Set the version. Select from “Auto,” “1.10,” or “2.00.” The initial value is “Auto.”
	Extended cyclic setting Note 3	Set the extended cyclic setting. Select from “Auto,” “1x,” “2x,” “4x,” or “8x.” The initial value is “Auto.”
	Number of occupied stations Note 3	Set the version. Select from “Auto,” “1 station,” “2 stations,” “3 stations,” or “4 stations.” The initial value is “Auto.”
Communication setting (read value) Note 3		The version, extended cyclic setting, and number of occupied stations set in the controller are displayed.
Setting the operation mode	**ECR and ECG Series setting, ECMG Series batch setting**	Set the operation mode. Select from “PIO,” “SDP,” “FDP,” “HSDP,” or “HDP.” The initial value is “PIO.” Note 4 If the same operation mode settings are being used when connected to the ECMG series, set the operation mode in this group.
	ECMG Series individual setting	Set the operation mode. The operation mode can be set within this group only when the ECMG Series is connected. Select “Drive Unit” or “IO Unit” for each axis number. When “Drive Unit” is selected, “PIO,” “SDP,” “HDP” or “FDP” can be selected. The default values are “Drive Unit” and “PIO.”

Note 1: If the controller is not connected, the message “The operation cannot be performed since the controller is not connected.” appears.

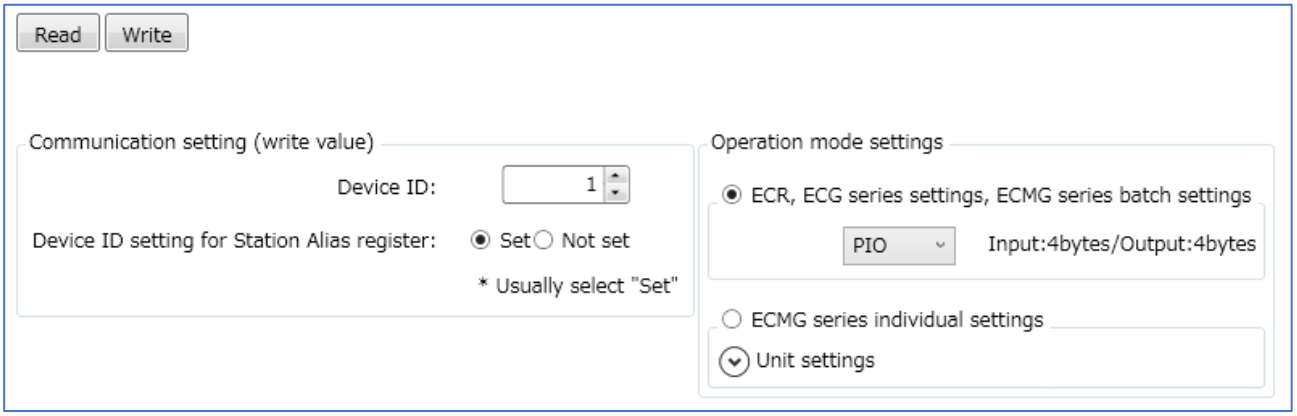
Note 2: If the model number of the connected actuator differs from the actuator model number shown in the selected window tab, the message “The operation cannot be performed since the model number of the actuator differs.” appears.

Note 3: This parameter is valid only when the ECMG Series is connected. This parameter is invalid when a controller other than the ECMG Series is connected.

Note 4: "HSDP" and "HDP" cannot be selected when a model in the ECR series is connected. “HSDP” cannot be selected when the ECMG is selected.

■ EtherCAT setting

This view is for configuring the EtherCAT settings. Clicking the [EtherCAT setting] option under the network submenu starts the “EtherCAT setting” view.



Part Name		Description
[Read] button		The “Communication setting (write value),” “Communication setting (read value),” and “Operation mode setting” acquired from the controller are displayed. Note 1, Note 2
[Write] button		The values designated for "Communication setting (write value)” and “Operation mode setting” are reflected onto the controller. Note 1, Note 2 After writing the data, a message confirming to reset the software appears.
Communication setting (write value)	**Device ID**	It sets the device ID. The initial value is “1.”
	Device ID setting for Station Alias register	It is selected to either “Set” or “Not set.” The default value is “Set.”
Setting the operation mode	**ECR and ECG Series setting, ECMG Series batch setting**	Set the operation mode. Select from “PIO,” “SDP,” “HDP,” “FDP,” or “HDP.” The initial value is “PIO.” Note 3 If the same operation mode settings are being used when connected to the ECMG series, set the operation mode in this group.
	ECMG Series individual setting	Set the operation mode. The operation mode can be set within this group only when ECMG Series is connected. Select “Drive Unit” or “IO Unit” for each axis number. When “Drive Unit” is selected, “PIO,” “SDP,” “HDP” or “FDP” can be selected. The default values are “Drive Unit” and “PIO.”

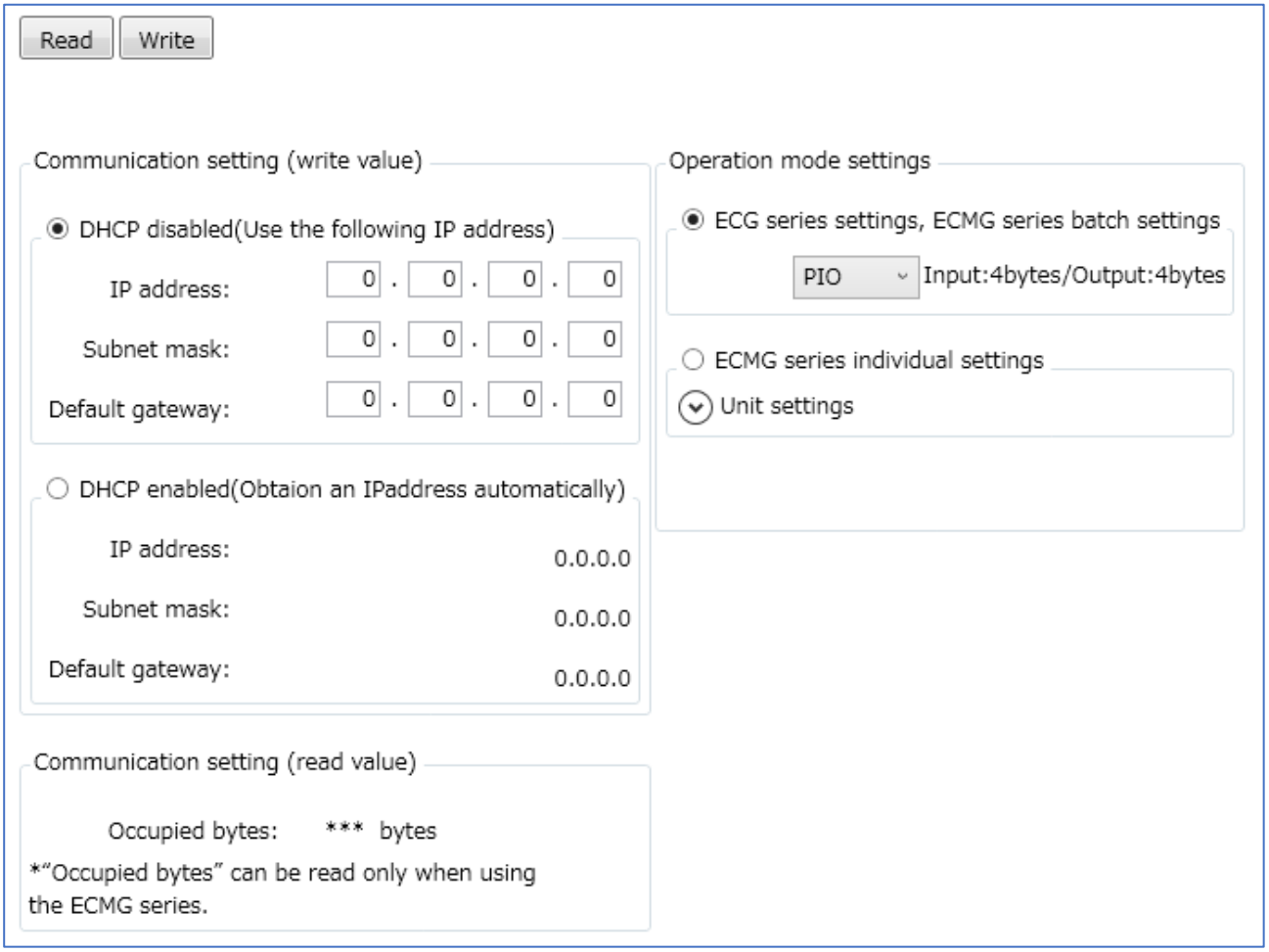
Note 1: If the controller is not connected, the message “The operation cannot be performed since the controller is not connected.” appears.

Note 2: If the model number of the connected actuator differs from the actuator model number shown in the selected window tab, the message “The operation cannot be performed since the model number of the actuator differs.” appears.

Note 3: “HDP” cannot be selected when the ECR or ECG Series is connected.

■ EtherNet/IP setting

This view is for configuring the EtherNet/IP settings. Clicking the [EtherNet/IP setting] option under the network submenu starts the “EtherNet/IP setting” view.



Part Name		Description
[Read] button		The “Communication setting (write value),” “Communication setting (read value),” and “Operation mode setting” acquired from the controller are displayed. Note 1, Note 2
[Write] button		The values set for "Communication setting (write value)” and “Operation mode setting” are reflected onto the controller. Note 1, Note 2 After writing the data, a message confirming to reset the software appears.
Communication setting (write value)	**IP address**	It sets the IP address. It sets the address in the range from 0.0.0.0 to 255.255.255.255.
	Subnet mask	It sets the subnet mask. It sets in the range from 0.0.0.0 to 255.255.255.255.
	Default gateway	It sets the default gateway. It sets in the range from 0.0.0.0 to 255.255.255.255.
	DHCP server	It is for selecting between “Disabled” or “Enabled.” When “Enabled” is selected, the IP address, subnet mask, and default gateway are assigned automatically from the DHCP server.
Communication setting (read value)		The number of occupied bytes set in the controller is displayed.
Setting the operation mode	**ECG Series setting, ECMG Series batch setting**	Set the operation mode. Select from “PIO,” “SDP,” “HDP,” “FDP,” or “HDP.” The initial value is “PIO.” Note 3 If the same operation mode settings are being used when connected to the ECMG series, set the operation mode in this group.
	ECMG Series individual setting	Set the operation mode. The operation mode can be set within this group only when ECMG Series is connected. Select “Drive Unit” or “IO Unit” for each axis number. When “Drive Unit” is selected, “PIO,” “SDP,” “HDP” or “FDP” can be selected. The default values are “Drive Unit” and “PIO.”

Note 1: If the controller is not connected, the message “The operation cannot be performed since the controller is not connected.” appears.

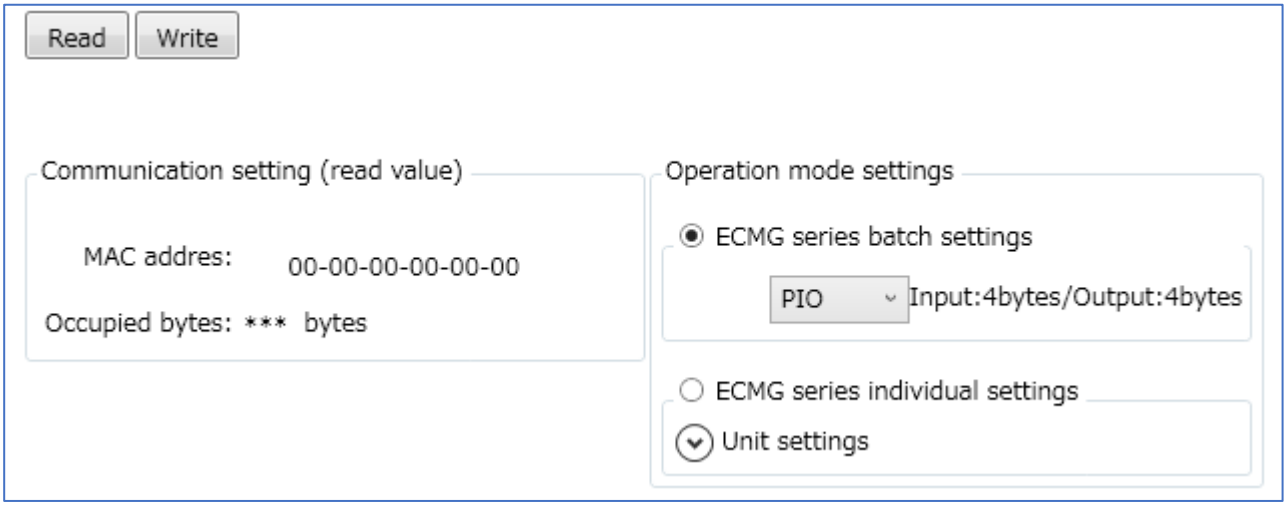
Note 2: If the actuator model number read from the controller differs from the actuator model number shown in the selected window tab, the message “The operation cannot be performed since the model number of the actuator differs.” appears.

Note 3: “HDP” cannot be selected when the ECG Series is connected.

- This screen can be used from the S-Tools version 1.04.00.00 or later.

■ PROFINET setting

Set the PROFINET settings. The [PROFINET setting] view will appear when [PROFINET setting] is selected from the network submenu.



Name		Description
[Read] button		The “Communication setting (read value),” and “Operation mode setting” acquired from the controller are displayed. Note 1, Note 2
[Write] button		The values set for “Operation mode setting” are reflected onto the controller. Note 1, Note 2 After writing the data, a message confirming to reset the software appears.
Communication setting (read value)		The MAC address and number of occupied bytes set in the controller are displayed.
Setting the operation mode	**ECMG Series batch setting**	Set the operation mode. Select from “PIO,” “SDP,” “HDP,” “FDP,” or “HDP.” The initial value is “PIO.” If the same operation mode settings are being used when connected to the ECMG series, set the operation mode in this group.
	ECMG Series individual setting	Set the operation mode. The operation mode can be set within this group only when ECMG Series is connected. Select “Drive Unit” or “IO Unit” for each axis number. When “Drive Unit” is selected, “PIO,” “SDP,” “HDP” or “FDP” can be selected. The default values are “Drive Unit” and “PIO.”

Note 1: If the controller is not connected, the message “The operation cannot be performed since the controller is not connected.” appears.

Note2: If the actuator model number read from the controller differs from the actuator model number shown in the selected window tab, the message “The operation cannot be performed since the model number of the actuator differs.” appears.

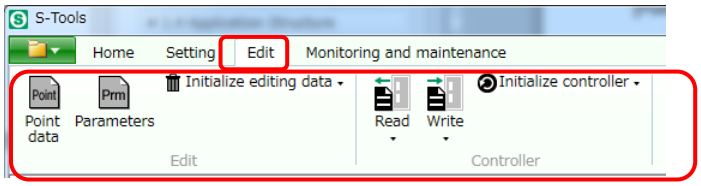
- This screen can be used from S-Tools version 1.05.12.00 or later.

3.5. Edit Tab

3.5.1. Overview of the Edit tab

The Edit tab contains commands for reading, writing, editing, and initializing the point data and parameters.

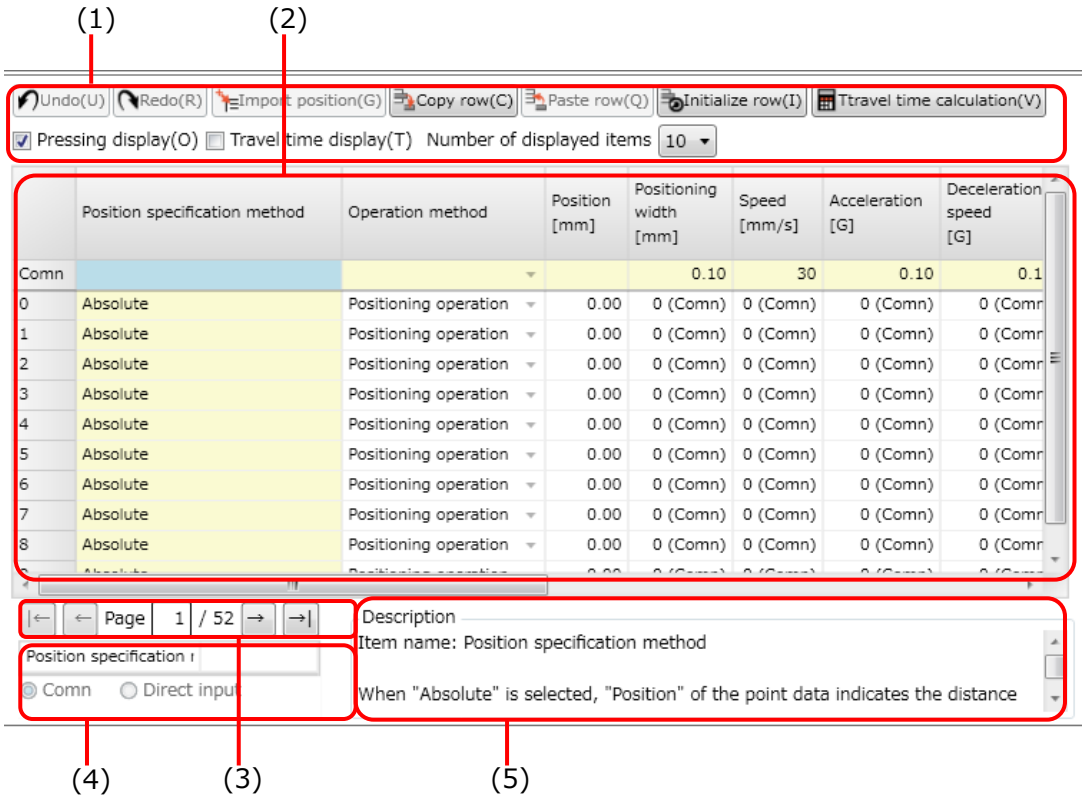
Selecting the Edit tab displays the following ribbon menu.



Part Name	Description	Details
Point data	Starts the “Point data” view.	3.5.2
Parameter	Starts the “Parameters” view.	3.5.3
Initialize editing data	It initializes the editing data of Point data, Parameters, or both.	3.5.4
Read	It reads the data in Point data, Parameters, or both from the controller.	3.5.5
Write	It writes the editing data of Point data, Parameters, or both to the controller.	3.5.6
Initialize controller	It initializes the data in Point data, Parameters, or both stored in the controller.	3.5.7

3.5.2. Point data

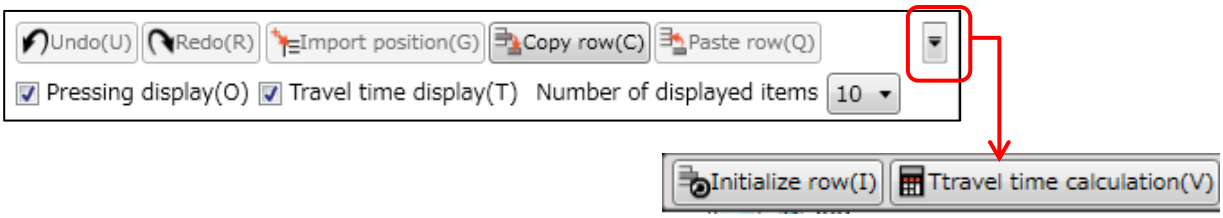
Clicking the [Point data] button starts the “Point data” view. For the setting range of the point data, refer to the Instruction Manual for the applicable controller.



No.	Part Name	Description
(1)	**Operating button**	They are buttons used for editing the Point data list.
(2)	**Point data list**	It is a list of data on the points.
(3)	**Page navigation**	It contains tools for flipping through the pages in the Point data list to be displayed on the screen.
(4)	**Selected item input area**	It can be used to edit the setting of the item selected in the Point data list.
(5)	**Explanation**	It is an area for displaying the description of the item selected in the Point data list.

■ Operating button

Depending on the window width, the buttons may be hidden. Click the down arrow button to display hidden items that do not fit within the display width.

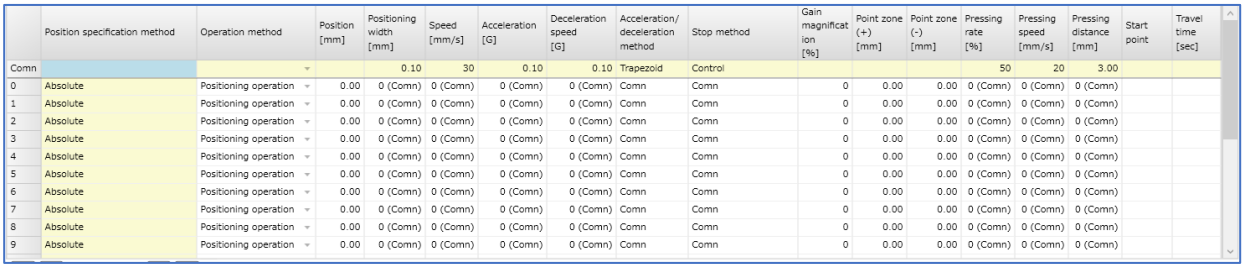


Part Name	Description
[Undo] button	It restores a value in a cell in the Point data list to its unedited value. Only the most recent unedited value can be restored. Editing a cell in the Point data list enables the [Undo] button. Restoring the unedited value disables the [Undo] button.
[Redo] button	It restores a value in a cell in the Point data list to its edited value. Restoring the unedited value with the [Undo] button enables the [Redo] button. Restoring the edited value disables the [Redo] button.
[Position incorporation] button	It enters in the point data item selected the current position displayed on the operation panel. “Import position” can be performed when the controller is connected. “Position,” “Point zone (+),” and “Point zone (−)” are the items that can import position. “Import position” cannot be used when the actuator is unconnected.
[Copy row] button	It copies the setting of the selected point data row. The copied data are retained until the window tab is closed, and multiple rows can be copied. The Comn row cannot be copied.
[Paste row] button	It pastes information for the number of rows copied starting from the selected point data row. If the number of rows to paste to is less than the number of rows copied, paste will be performed for the number of rows in the pasting destination. Information in the copied rows that is outside the range of the pasting destination cannot be pasted. Pasting cannot be performed to the Comn row.
[Initialize row] button	It resets the setting of the row currently selected in the Point data list to its default value. Multiple rows can be selected and initialized. The general rows (No. 0 to No. 511) and the Comn row (at the top) can be initialized but a general row and the “Comn” row cannot be initialized at the same time. The general rows and the “Comn” row must be initialized separately when necessary.
[Travel time calculation] button	It reflects the result of the calculation performed in the rows where calculation is possible to the [Travel time] column in the Point data list. Clicking the [Travel time calculation] button calculates the travel time of the point of the selected cell. Calculation is not possible if multiple rows are selected. If the Position specification method is set to “Absolute” and the start point is not set, the message “Please set the start point.” appears. The travel time is calculated assuming operation under specific conditions. The calculation result is for use as reference only.
Pressing display	It shows or hides the “Pressing rate,” “Pressing speed,” and “Pressing distance” columns in the Point data list. Putting a check in the box next to [Pressing display] shows those columns and unchecking the box hides them. The box is checked by default.

Part Name	Description
Travel time display	It shows or hides the “Travel time” and “Start point” columns in the Point data list. Putting a check in the box next to [Travel time display] shows those columns and unchecking the box hides them. The box is unchecked by default.
Number of displayed items	It changes the number of rows displayed in the Point data list. The default value is “10.” If the Number of displayed items is changed while displaying the second or a later page, the first page will be displayed.

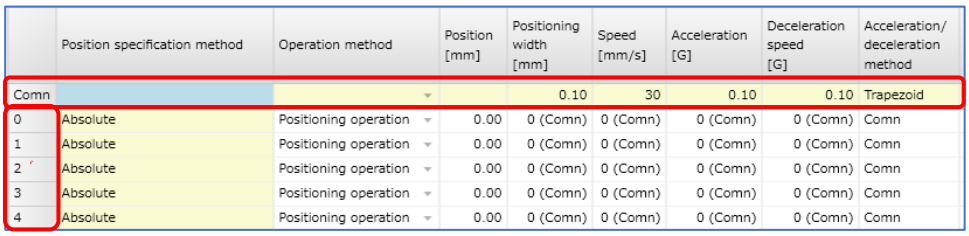
■ Point data list

The row and column of the selected cell is highlighted.



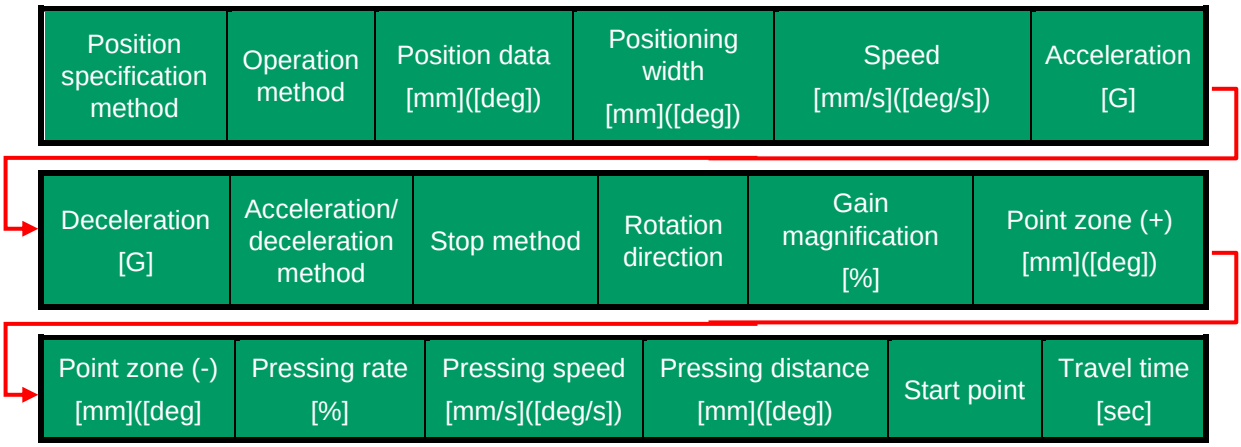
	Position specification method	Operation method	Position [mm]	Positioning width [mm]	Speed [mm/s]	Acceleration [G]	Deceleration speed [G]	Acceleration/ deceleration method	Stop method	Gain magnification [%]	Point zone (+) [mm]	Point zone (-) [mm]	Pressing rate [%]	Pressing speed [mm/s]	Pressing distance [mm]	Start point	Travel time [sec]
Comn				0.10	30	0.10	0.10	Trapezoid	Control				50	20	3.00		
0	Absolute	Positioning operation	0.00	0 (Comn)	0 (Comn)	0 (Comn)	0 (Comn)	Comn	Comn	0	0.00	0.00	0 (Comn)	0 (Comn)	0 (Comn)		
1	Absolute	Positioning operation	0.00	0 (Comn)	0 (Comn)	0 (Comn)	0 (Comn)	Comn	Comn	0	0.00	0.00	0 (Comn)	0 (Comn)	0 (Comn)		
2	Absolute	Positioning operation	0.00	0 (Comn)	0 (Comn)	0 (Comn)	0 (Comn)	Comn	Comn	0	0.00	0.00	0 (Comn)	0 (Comn)	0 (Comn)		
3	Absolute	Positioning operation	0.00	0 (Comn)	0 (Comn)	0 (Comn)	0 (Comn)	Comn	Comn	0	0.00	0.00	0 (Comn)	0 (Comn)	0 (Comn)		
4	Absolute	Positioning operation	0.00	0 (Comn)	0 (Comn)	0 (Comn)	0 (Comn)	Comn	Comn	0	0.00	0.00	0 (Comn)	0 (Comn)	0 (Comn)		
5	Absolute	Positioning operation	0.00	0 (Comn)	0 (Comn)	0 (Comn)	0 (Comn)	Comn	Comn	0	0.00	0.00	0 (Comn)	0 (Comn)	0 (Comn)		
6	Absolute	Positioning operation	0.00	0 (Comn)	0 (Comn)	0 (Comn)	0 (Comn)	Comn	Comn	0	0.00	0.00	0 (Comn)	0 (Comn)	0 (Comn)		
7	Absolute	Positioning operation	0.00	0 (Comn)	0 (Comn)	0 (Comn)	0 (Comn)	Comn	Comn	0	0.00	0.00	0 (Comn)	0 (Comn)	0 (Comn)		
8	Absolute	Positioning operation	0.00	0 (Comn)	0 (Comn)	0 (Comn)	0 (Comn)	Comn	Comn	0	0.00	0.00	0 (Comn)	0 (Comn)	0 (Comn)		
9	Absolute	Positioning operation	0.00	0 (Comn)	0 (Comn)	0 (Comn)	0 (Comn)	Comn	Comn	0	0.00	0.00	0 (Comn)	0 (Comn)	0 (Comn)		

It always displays the common row (labeled Comn) in the first row.
Initially, the points “No. 0” to “No. 9” are displayed. The points to be displayed can be switched with the page navigation buttons.



	Position specification method	Operation method	Position [mm]	Positioning width [mm]	Speed [mm/s]	Acceleration [G]	Deceleration speed [G]	Acceleration/ deceleration method
Comn				0.10	30	0.10	0.10	Trapezoid
0	Absolute	Positioning operation	0.00	0 (Comn)	0 (Comn)	0 (Comn)	0 (Comn)	Comn
1	Absolute	Positioning operation	0.00	0 (Comn)	0 (Comn)	0 (Comn)	0 (Comn)	Comn
2	Absolute	Positioning operation	0.00	0 (Comn)	0 (Comn)	0 (Comn)	0 (Comn)	Comn
3	Absolute	Positioning operation	0.00	0 (Comn)	0 (Comn)	0 (Comn)	0 (Comn)	Comn
4	Absolute	Positioning operation	0.00	0 (Comn)	0 (Comn)	0 (Comn)	0 (Comn)	Comn

The columns in the point data list display the following items from the left.



- When converting [G] to [mm/s^2] or [deg/s^2] for acceleration and deceleration, assume 1G = 9800 mm/s^2 (deg/s^2) for calculation.
- Depending on the actuator, some items are not set and are therefore not displayed.

■ Position specification method

This is the “Position” reference. The initial value is Absolute.

Part Name	Description
Absolute	Distance from the home position is set using the home position (0 mm) as reference point.
Incremental	Distance from the present position is set using the present position as reference point.

※ Common value: None

■ Operation method

You can select the “operation method.” The initial value is Positioning operation.

Part Name	Description
Positioning operation	When the positioning width is reached, the point travel complete signal is output. When the positioning completion point is reached, the actuator stops.
Pressing operation 1	In the pressing operation, the workpiece is continuously pressed until the pressing completion point is reached. During this time, the alarm is not detected even if it is stopped halfway due to an external force. When the set pressing rate is reached, the point travel complete signal is output. When the pressing completion point is reached, the pressing operation is terminated and the actuator stops.
Pressing operation 2	In the pressing operation, the workpiece is continuously pressed until the pressing completion point is reached. During this time, the alarm is not detected even if it is stopped halfway due to an external force. It operates at the set pressing rate, and when it reaches within the positioning width, the point travel complete signal is output. When the pressing completion point is reached, the pressing operation is terminated and the actuator stops.

※ Common value: None

■ Position [mm] ([deg])

The content of the setting depends on the setting of the “Operation method” as follows.
The default value is 0.00 mm(deg).

Operation method	Description
Positioning operation	It sets the operation completion position.
Pressing operation 1	The operation completion position is determined together with the "pressing distance".
Pressing operation 2	The operation completion position is determined together with the "pressing distance".

※ Common value: None

■ Positioning width [mm] ([deg])

The content of the setting depends on the setting of the “Operation method” as follows. The default value is 0 (common).

Operation method	Description
Positioning operation	This item sets the output of the complete signal using the width (one side) relative to the final position.
Pressing operation 1	Since the travel complete signal is determined by the pressing rate, the positioning width setting is not reflected.
Pressing operation 2	This item sets the output of the complete signal using the width (one side) with respect to “Pressing start position + Pressing distance.”

※ Common row: Value in the "Common positioning width" of the user parameter

■ Speed [mm/s] ([deg/s])

You can set the “speed” for the transfer zone. The default value is 0 (common).

※ Common row: Value in the "Common speed" of the user parameter

■ Acceleration [G]

You can set the “acceleration” of the transfer zone. The default value is 0 (common).

※ Common row: Value in the "Common acceleration speed" of the user parameter

■ Deceleration [G]

You can set the “deceleration” of the transfer zone. The default value is 0 (common).

※ Common row: Value in the "Common deceleration speed" of the user parameter

■ Acceleration/deceleration method

This is how acceleration/deceleration is performed during positioning operation. The default value is Common.

Part Name	Description
Common	The acceleration / deceleration method set by the common acceleration / deceleration method of the parameters will be applied.
Trapezoid	This is the acceleration/deceleration method where the speed command changes at a certain rate.

※ Common row: Value in the "Common acceleration speed" of the user parameter

■ Stop method

This is how a stop is performed during positioning operation. The default value is Common.

Part Name	Description
Common	The stop method set by the common stop method of the parameters will be applied.
Control	After the positioning or pressing operation is completed, the actuator is controlled by the current that can keep the completion position and stopped and held.
Fixed excitation	After the positioning or pressing operation is completed, the actuator is stopped and held by the fixed current when stopped set in the parameters.
Automatic Servo OFF 1	The control stops after reaching the target position in positioning or pressing operation. Servo OFF is initiated after the time set in Automatic servo OFF time 1 in the parameters elapses.
Automatic Servo OFF 2	The control stops after reaching the target position in positioning or pressing operation. Servo OFF is initiated after the time set in Automatic servo OFF time 2 in the parameters elapses.
Automatic Servo OFF 3	The control stops after reaching the target position in positioning or pressing operation. Servo OFF is initiated after the time set in Automatic servo OFF time 3 in the parameters elapses.

※ Common row: Value in the "Common stop method" of the parameter

■ Rotation direction

This is the rotation direction. It is displayed only when a rotary type electric actuator is selected. The default value is Common.

Part Name	Description
Common	The rotation direction set in the common rotation direction of the parameter is applied.
Close rotation	From the current position to the target position, it rotates to a direction in which the operation distance is short.
CW	It rotates in the CW direction (clockwise).
CCW	It rotates in the CCW direction (counterclockwise).

※ Common row: Value in the "Common rotation direction" of the parameter

■ Gain magnification [%]

Use this only when gain adjustment is required for each point. The default value is 0 (common).

※ Common value: None

■ Point zone (+) [mm] ([deg])

This is the limit for switching the point zone output signal from ON to OFF, indicated by the distance from the home position. The default value is 0.00 mm(deg).

※ Common value: None

■ Point zone (−) [mm] ([deg])

This is the limit for switching the point zone output signal from OFF to ON, indicated by the distance from the home position. The default value is 0.00 mm(deg).

※ Common value: None

■ Pressing rate [%]

The content of the setting depends on the setting of the “Operation method” as follows.
The default value is 0 (common).

Operation method	Description
Positioning operation	The setting of pressing rate is not reflected.
Pressing operation 1	This item indicates the percentage based on maximum pressing force for judging the completion of pressing.
Pressing operation 2	This item indicates the maximum value of the percentage based on maximum pressing force for performing the pressing operation after the actuator reaches the pressing operation start position.

※ Common row: Value in the "Common pressing rate" of the parameter

■ Pressing speed [mm/s] ([deg/s])

The content of the setting depends on the setting of the “Operation method” as follows.
The default value is 0 (common).

Operation method	Description
Positioning operation	The setting of pressing speed is not reflected.
Pressing operation 1	You can set the speed of the pressing zone.
Pressing operation 2	You can set the speed of the pressing zone.

※ Common row: "Common pressing speed" of the user parameter

■ Pressing distance [mm] ([deg])

The content of the setting depends on the setting of the “Operation method” as follows.
The default value is 0 (common).

Operation method	Description
Positioning operation	The setting of pressing distance is not reflected.
Pressing operation 1	You can set the travel distance of the pressing zone.
Pressing operation 2	You can set the travel distance of the pressing zone.

※ Common row: Value in the "Common pressing distance" of the user parameter

■ Start point

This is the point used as the start point when the travel time is calculated. The default value is blank.
Setting range: 0 to 511 or 0 to 63

※ Common value: None

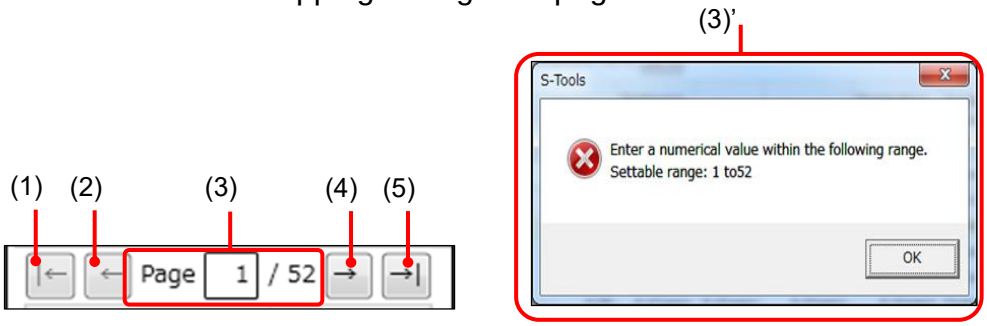
■ Travel time [sec]

This is the result of the travel time calculation between the edit point and start point.
The value cannot be input directly into the cell.

※ Common value: None

■ Page navigation

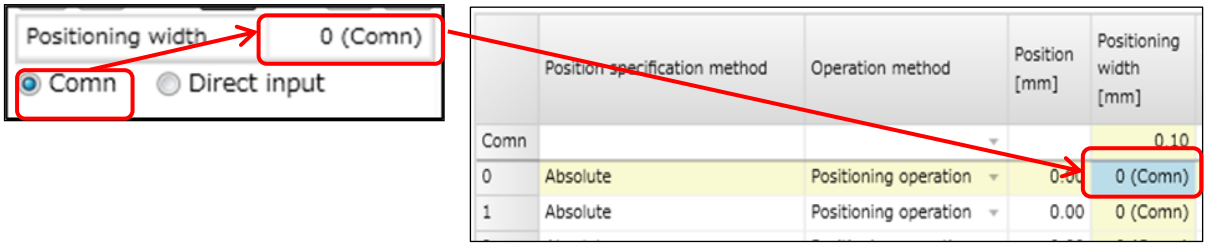
It contains tools for flipping through the pages in the Point data list.



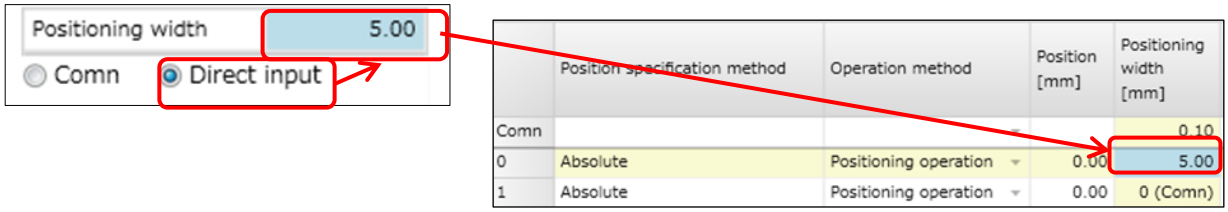
No.	Description
(1)	It moves the list to the first page. It cannot be selected if the first page is displayed.
(2)	It moves the list to the previous page. It cannot be selected if the first page is displayed.
(3)	It shows the number of the currently displayed page in the list and the total number of pages. Entering a page number will move the list to that page.
(3)'	It is the dialog box that appears if a page number outside the settable range is entered in the box next to Page.
(4)	It moves the list to the next page. It cannot be selected if the last page is displayed.
(5)	It moves the list to the last page. It cannot be selected if the last page is displayed.

■ Selected item input area

It shows the input area selected in the Point data list. Selecting the [Comn] radio button sets “0 (Comn)” in the cell selected in the Point data list. Entering “0” performs the same operation. The radio button cannot be selected for items with nothing in the “Comn” row (such as the Position specification method).

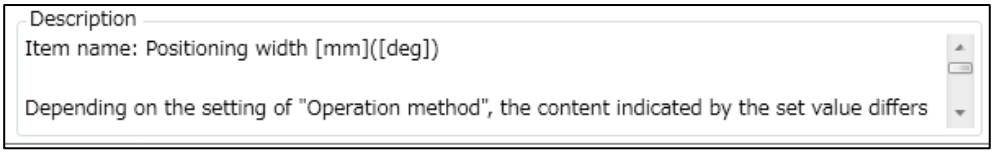


The value that is input after selecting the [Direct input] radio button is reflected in the cell selected in the Point data list. Selecting the [Direct input] radio button changes the value in the cell from “0 (Comn)” to the default value.
The value can be input directly without selecting the [Direct input] radio button. Values other than “0” are reflected in the selected cell and “0” are switched to “0 (common).”



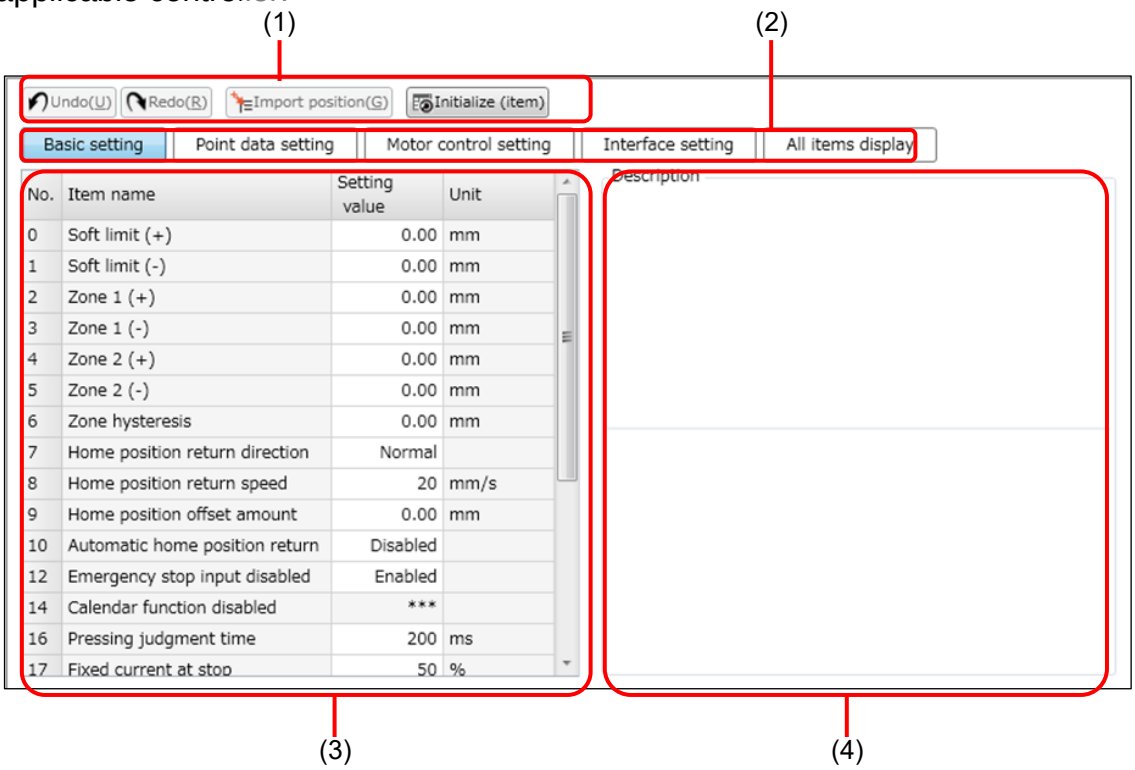
■ Explanation

It is an area for displaying the description of the item selected in the Point data list.



3.5.3. Parameter

Clicking the [Parameters] button starts the “Parameters” view.
For the default values of the parameters, refer to the Instruction Manual for the applicable controller.



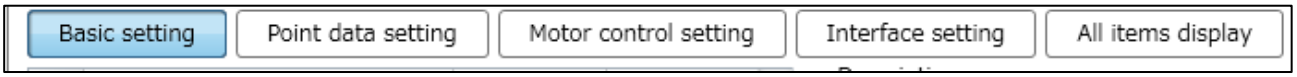
No.	Part Name	Description
(1)	**Operating button**	They are buttons used for editing the Parameters list.
(2)	**Display group navigation**	They are buttons for switching between the item groups in the Parameters list to be displayed on the screen.
(3)	**Parameters list**	It is a list of Parameters.
(4)	**Explanation**	It is an area for displaying the description of the item selected in the Parameters list.

■ Operating button

Part Name	Description
[Undo] button	It restores a value in a cell in the Parameters list to its unedited value. Only the most recent unedited value can be restored. Editing a cell in the Parameters list enables the [Undo] button. Restoring the unedited value disables the [Undo] button.
[Redo] button	It restores a value in a cell in the Parameters list to its edited value. Restoring the unedited value with the [Undo] button enables the [Redo] button. Restoring the edited value disables the [Redo] button.
[Import position] button	It enters in the parameter selected the current position displayed on the operation panel. “Import position” can be performed when the controller is connected. “Soft Limit (+),” “Soft Limit (-),” “Zone 1 (+),” “Zone 1 (-),” “Zone 2 (+),” and “Zone 2 (-),” are the items that can import position. “Import position” cannot be used when the actuator is unconnected.
[Initialize (item)] button	It resets the setting of the row currently selected in the Parameters list to its default value. Multiple rows can be selected and initialized. Clicking the [Initialize (item)] button starts initialization.

■ Display group navigation

They are buttons for switching between the parameter groups to be displayed on the screen. The parameters of the selected group are displayed in the Parameters list. Since the parameters cannot be edited for some groups, those parameters must be edited in the setting screen specified in the description of the item.



Part Name	Description
Basic setting	It displays the parameters related to the basic items of actuator operation.
Point data setting	It displays the parameters related to the values in the Comn row of the point data.
Motor control setting	It displays the parameters related to motor control.
Interface setting	It displays the parameters related to the network used with the controller.
All items display	It displays all the items in the Parameters list.

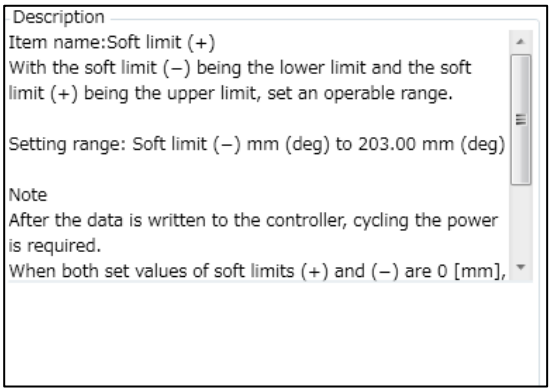
■ Parameters list

It displays a list of parameters corresponding to the controller.

Part Name	Description
No.	It shows the number given to the parameter.
Item name	It shows the item name of the parameter.
Setting value	It sets the value entered in the cell to the item.
Unit	It shows the unit of the item.

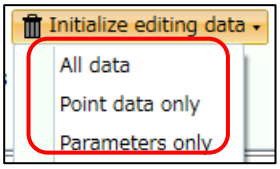
■ Explanation

It is an area for displaying the Item name, Setting range, and Note for the item selected in the Parameters list.



3.5.4. Initialize editing data

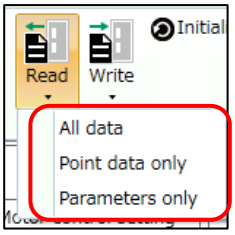
This function initializes the data being edited.
If there are data being edited, the confirmation message “The data being edited will be lost. Are you sure?” appears.



Part Name	Description
All data	It resets the data in Point data and Parameters being edited to their default values.
Point data only	It resets the data in Point data being edited to their default values.
Parameters only	It resets the data in Parameters being edited to their default values.

3.5.5. Read

This function reads the data in Point data and Parameters from the controller for editing. The operation can only be performed in the TOOL mode.
If there are data being edited, the confirmation message “The data being edited will be lost. Are you sure?” appears.



Part Name	Description
All data	It reads the Point data and Parameters from the connected controller for use as editing data.
Point data only	It reads the Point data from the connected controller for use as editing data.
Parameters only	It reads the Parameters from the connected controller for use as editing data.

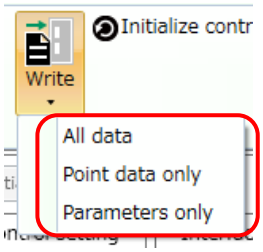
3.5.6. Write

CAUTION

When executing a software reset, check the input state of the signal from the upper level equipment to the controller in advance.

- If a software reset is executed, the controller is started in the PLC mode. The actuator may perform an unexpected operation depending on the setting of the upper level equipment.

It writes the data in Point data and Parameters being edited to the controller. The operation can only be performed in the TOOL mode.
Before writing the data to the controller, the confirmation message “The data in the controller will be overwritten. Are you sure?” appears.
If the IO-Link master is connected, the confirmation message “Are you sure to transfer the data to the IO-Link master?” appears after writing the data to the controller.



Part Name	Description
All data	It writes the data in Point data and Parameters being edited to the controller. A confirmation message that asks whether to execute software reset appears after writing.
Point data only	It writes the data in Point data being edited to the controller.
Parameters only	It writes the data in Parameters being edited to the controller. A confirmation message that asks whether to execute software reset appears after writing.

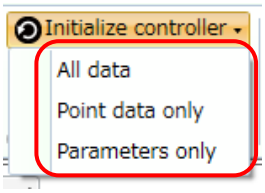
3.5.7. Initialize controller

CAUTION

When executing a software reset, check the input state of the signal from the upper level equipment to the controller in advance.

- If a software reset is executed, the controller is started in the PLC mode. The actuator may perform an unexpected operation depending on the setting of the upper level equipment.

This function initializes the data in Point data and Parameters stored in the controller.
The operation can only be performed in the TOOL mode.
Before initializing the data, the confirmation message “The data in the controller will be initialized. Are you sure?” appears.
If the IO-Link master is connected, the confirmation message “Are you sure to transfer the data to the IO-Link master?” appears after initializing the data in the controller.

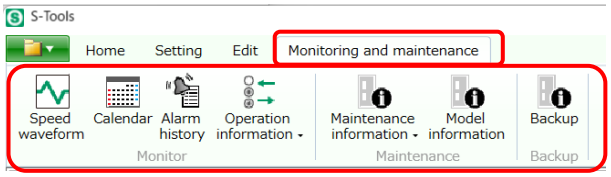


Part Name	Description
All data	It initializes the Point data and Parameters stored in the connected controller. A confirmation message that asks whether to execute software reset appears after initializing.
Point data only	It initializes the Point data stored in the connected controller.
Parameters only	It initializes the Parameters stored in the connected controller. A confirmation message that asks whether to execute software reset appears after initializing.

3.6. Monitoring and Maintenance Tab

3.6.1. Overview of the Monitoring and maintenance tab

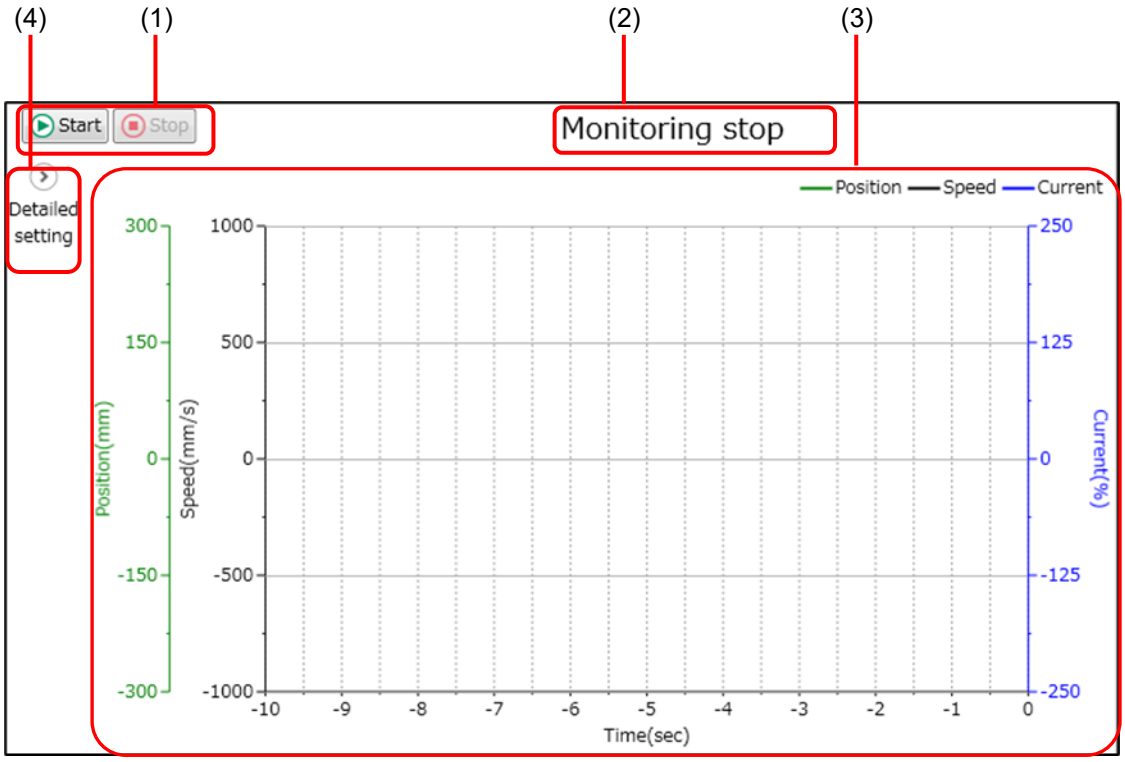
The Monitoring and maintenance tab contains commands for displaying the speed waveform, calendar, alarm history, operation information, maintenance information, and backup.
Selecting the Monitoring and maintenance tab displays the following ribbon menu.



Part Name	Description	Details
Speed waveform	Starts the “Speed waveform” view.	3.6.2
Calendar	Starts the “Calendar” view.	3.6.3
Alarm history	Starts the “Alarm history” view.	3.6.4
Operation information	It starts the “Operation information” view.	3.6.5
Maintenance information	Starts the “Maintenance information” view.	3.6.6
Model information	Starts the “Model information” view.	3.6.7
Backup	Starts the “Backup” view.	3.6.8

3.6.2. Speed waveform

Clicking the [Speed waveform] button starts the “Speed waveform” view.



No.	Part Name	Description
(1)	**Operating button**	They are for starting/stopping the acquisition of the speed waveform.
(2)	**Monitor status**	It displays the current monitor status.
(3)	**Speed waveform display area**	It displays the acquired speed waveform.
(4)	**[Detailed setting] button**	It allows the settings for acquiring and displaying the speed waveform to be made in detail.

■ Operating button

Part Name	Description
[Start] button	It starts acquiring the speed waveform. The [Start] button is selectable by default. If a waveform is displayed on the screen before acquiring the waveform, that waveform is cleared before starting acquisition. Clicking the [Start] button disables the [Start] button and editing of Detailed setting and enables the [Stop] button. Note 1, Note 2
[Stop] button	It stops acquiring the speed waveform. The box is not selectable by default. The [Stop] button is enabled if monitoring is in progress. Clicking the [Stop] button disables it and enables editing of Detailed setting and the [Start] button.

Note 1: If the controller is not connected, the message “The operation cannot be performed since the controller is not connected.” appears.

Note 2: If the model number of the connected actuator differs from the actuator model number shown in the selected window tab, the message “The operation cannot be performed since the model number of the actuator differs.” appears.

■ Monitor status

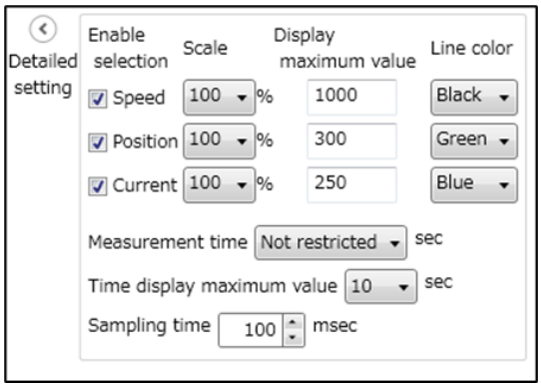
“Monitoring” is displayed when the speed waveform is being acquired. “Monitoring stop” is displayed when the speed waveform is not being acquired.

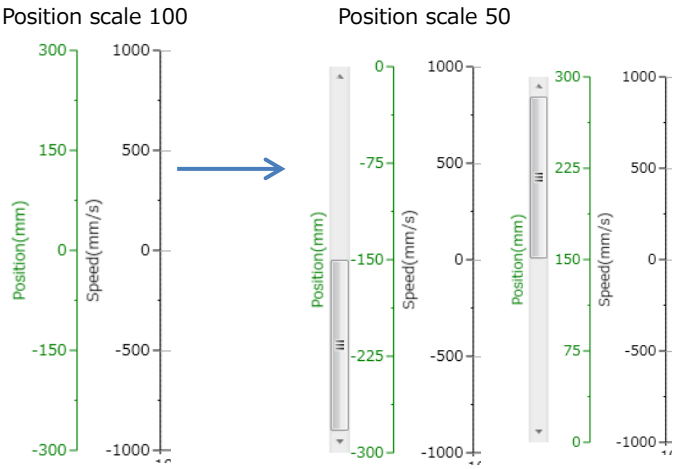
■ Speed waveform display area

A speed waveform for 3 channels (Speed, Current, Position) is displayed. Opening a file in which a graph data (waveform data) is saved displays the waveforms together that were displayed at the time the file was saved. Starting another view while the speed waveform is being acquired stops the acquisition of the speed waveform. If a communication error or alarm occurs while a speed waveform is being acquired, an error message appears and the monitoring process stops. When the process stops, the X-axis will be displayed at full scale.

■ [Detailed setting] button

Clicking the [Detailed setting] button opens the detailed setting panel as shown below.





Part Name	Description
Enable selection	It shows or hides each channel. Putting a check in the box shows the checked channel on the screen. Unchecking the box hides the unchecked channel. The box is checked by default.
Scale	It is used to select the range, between the upper and lower limits of the Y-axis of each channel, to be displayed on the screen. The choices are “100,” “50,” “25,” “10,” “5,” and “1.” The waveform shown enlarges as the number decreases. The default value is “100.”
Display maximum value	It sets the limit of the Y-axis. The default value is “1000” for Speed, “300” for Position, and “250” for Current.
Line color	It sets the color used in the Y-axis. The default value is “black” for Speed, “green” for Position, and “blue” for Current. The choices are “black,” “green,” “blue,” “red,” “magenta,” “orange,” and “purple.”
Measurement time	It is used to select the measurement time of the speed waveform. The choices are “Not restricted,” “100,” “50,” “20,” “10,” “5,” “2,” and “1.” The default value is “Not restricted.” Measurement is stopped when the set measurement time has elapsed since the acquisition of the speed waveform started. If “Not restricted” is selected, the waveform measured for a maximum of 300 [sec] is stored.
Time display maximum value	It is used to select the limit of the X-axis. The choices are “20,” “10,” “5,” “2,” and “1.” The default value is “10.”
Sampling Time	It sets the sampling time. The default value is “100.”
Display range of X-axis/Scale operation area	It allows the display area to be enlarged and the display range to be changed relative to the X-axis of the speed waveform.

- The waveform data are recorded only for 300 seconds. If a waveform is acquired for longer than 300 seconds, data that are older than the last 300 seconds will be deleted.

<Example>
If a waveform is acquired for 500 seconds, the data for 200th to 500th seconds are recorded.

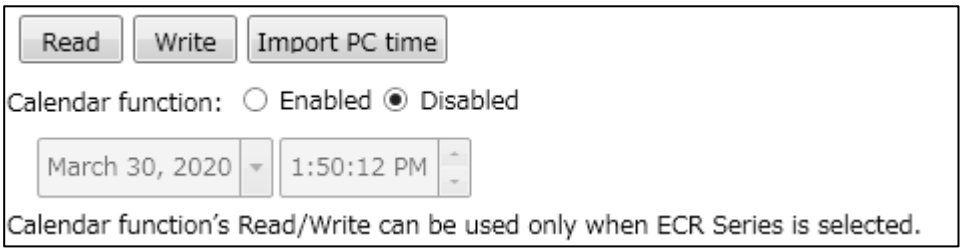
3.6.3. Calendar

CAUTION

When executing a software reset, check the input state of the signal from the upper level equipment to the controller in advance.

- If a software reset is executed, the controller is started in the PLC mode. The actuator may perform an unexpected operation depending on the setting of the upper level equipment.

This function reads and writes the calendar information and displays the PC time. Clicking the [Calendar] button starts the “Calendar” view. The [Read] and [Write] buttons are grayed out and cannot be used except when the ECR Series is connected.



■ Operating button

Part Name	Description
[Read] button	It reads and shows the calendar function setting, date, and time if the calendar function setting read from the controller is “Enabled.” If the calendar function is set to “Disabled,” the date and time are not updated. Note 1, Note 2
[Write] button	It writes the date and time shown to the controller if the calendar function is set to “Enabled.” If it is set to “Disabled,” the date and time are not written. Note 1, Note 2 The operation can only be performed in the TOOL mode. A confirmation message that asks whether to execute software reset appears after writing.
[Import PC time] button	It imports the current PC date and time and shows them in the date and time area.

Note 1: If the controller is not connected, the message “The operation cannot be performed since the controller is not connected.” appears.

Note 2: If the model number of the connected actuator differs from the actuator model number shown in the selected window tab, the message “The operation cannot be performed since the model number of the actuator differs.” appears.

- When the calendar function is disabled, the time since the controller power was turned ON is recorded at the time of an alarm occurrence. However, in both the ECG Series and FFLD Series, the calendar function is always set to Disabled.
- By disabling the calendar function, the warning “Calendar initialize” and “Calendar write error” will no longer occur.

■ Calendar function

It is for setting the calendar function to “Enabled” or “Disabled.” The default value is “Disabled.”

■ Date and time settings

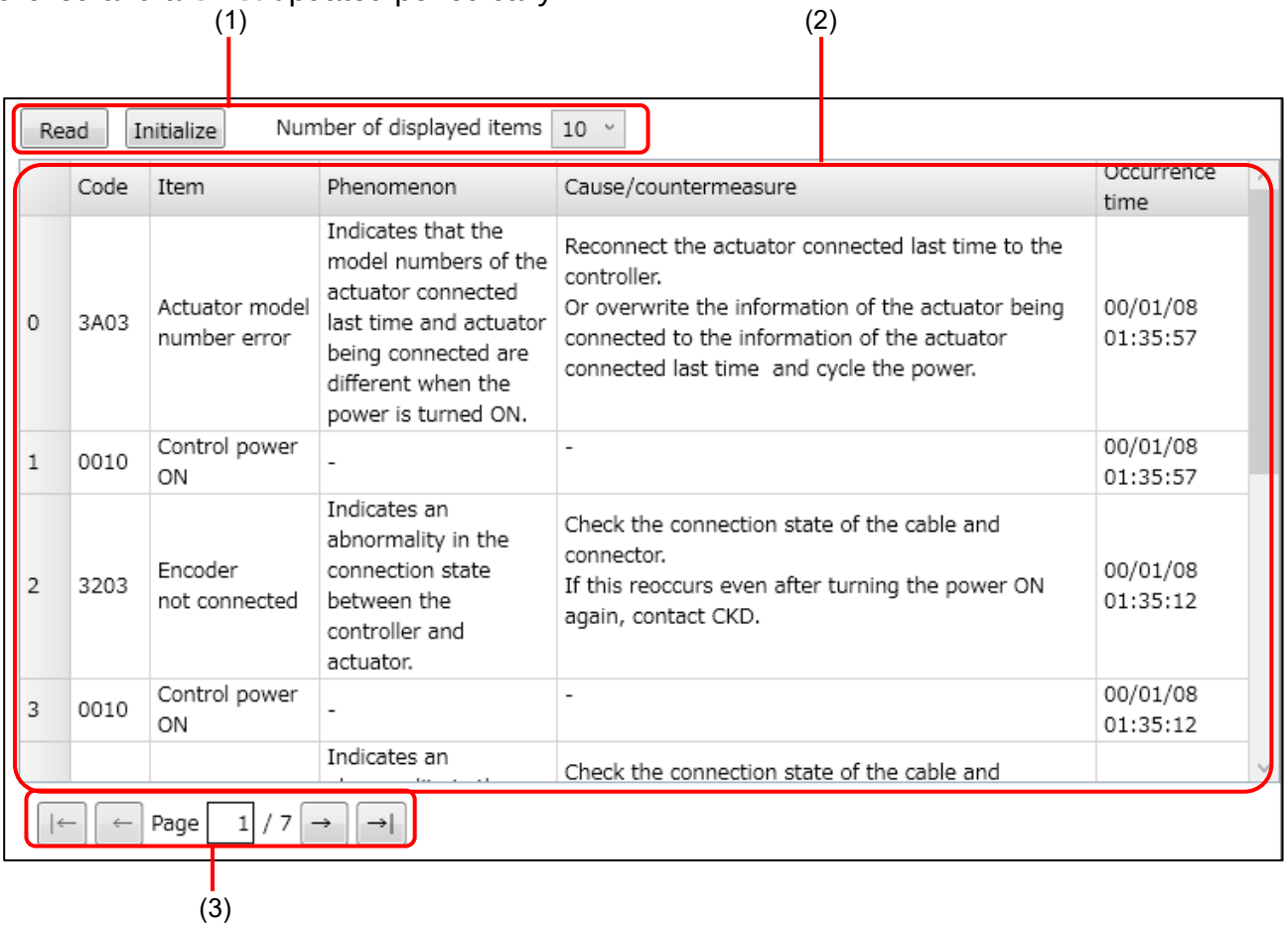
It displays the date on the left side and the time on the right side. The PC date and time the “Calendar” view was started are displayed by default.
If the calendar function is set to “Disabled,” the calendar cannot be edited.

Part Name	Description
Date	It shows the date acquired from the controller or the date to be set in the controller. The date to be set can be selected from the pull-down menu or entered directly.
Time	It shows the time acquired from the controller or the time to be set in the controller. The time to be set can be changed by clicking the spin button on the right side or entered directly.

- If only the date and time settings are edited and written, the software reset does not have to be executed.
- The software reset must be executed only when the setting of the calendar function is changed.

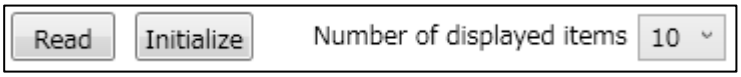
3.6.4. Alarm history

This function displays and initializes the alarm history recorded in the controller.
Clicking the [Alarm history] button starts the “Alarm history” view. It can display up to 64 alarms and the data are updated only when the [Read] button or [Initialize] button is clicked and are not updated periodically.



No.	Part Name	Description
(1)	**Operating button**	They are for reading the alarm history, initializing the alarm history, and changing the number of rows shown per page.
(2)	**Alarm history list**	It is a list of information on 64 alarms in order from the latest alarm occurrence.
(3)	**Page navigation**	It contains tools for flipping through the pages in the Alarm history list to be displayed on the screen.

■ Operating button

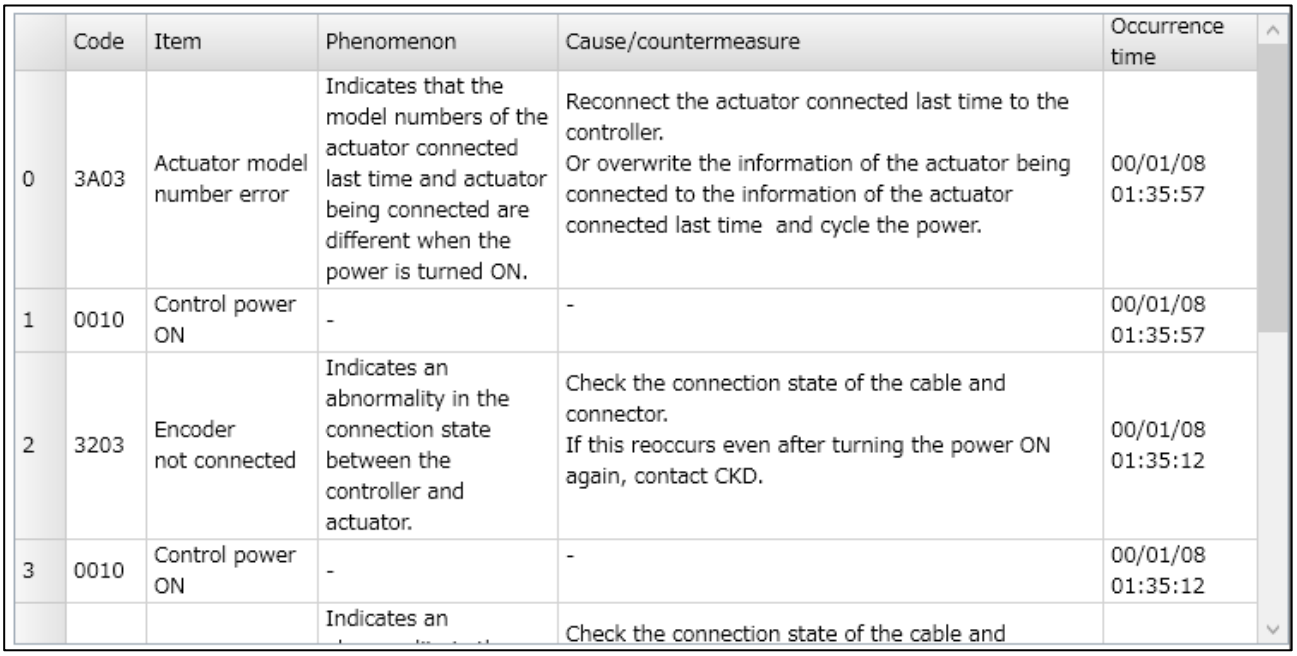


Part Name	Description
[Read] button	It acquires the Alarm history from the controller. Note 1, Note 2
[Initialize] button	It initializes the Alarm history stored in the controller. Note 1, Note 2
Number of displayed items	It changes the number of rows of Alarm history shown per page. The choices are “10” to “60,” in increments of 10, and “All rows” (maximum of 64). The default value is “10.”

Note 1: If the controller is not connected, the message “The operation cannot be performed since the controller is not connected.” appears.
Note 2: If the model number of the connected actuator differs from the actuator model number shown in the selected window tab, the message “The operation cannot be performed since the model number of the actuator differs.” appears.

■ Alarm history list

It displays a list of alarms that have occurred.

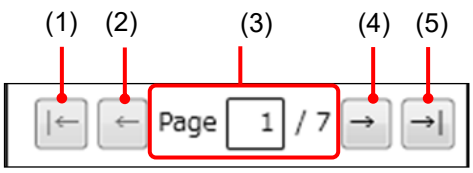


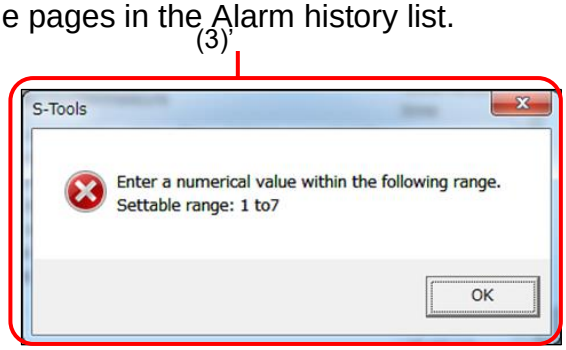
	Code	Item	Phenomenon	Cause/countermeasure	Occurrence time
0	3A03	Actuator model number error	Indicates that the model numbers of the actuator connected last time and actuator being connected are different when the power is turned ON.	Reconnect the actuator connected last time to the controller. Or overwrite the information of the actuator being connected to the information of the actuator connected last time and cycle the power.	00/01/08 01:35:57
1	0010	Control power ON	-	-	00/01/08 01:35:57
2	3203	Encoder not connected	Indicates an abnormality in the connection state between the controller and actuator.	Check the connection state of the cable and connector. If this reoccurs even after turning the power ON again, contact CKD.	00/01/08 01:35:12
3	0010	Control power ON	-	-	00/01/08 01:35:12
			Indicates an	Check the connection state of the cable and	

Part Name	Description
Code	It shows the alarm code number.
Item	It shows the type of alarm.
Problem	It shows the status of alarm occurrence.
Cause/Solution	It shows the cause of the alarm and the countermeasure.
Occurrence time	It shows the date and time the alarm occurred or the time elapsed since the controller was turned ON.

■ Page navigation

It contains tools for flipping through the pages in the Alarm history list.

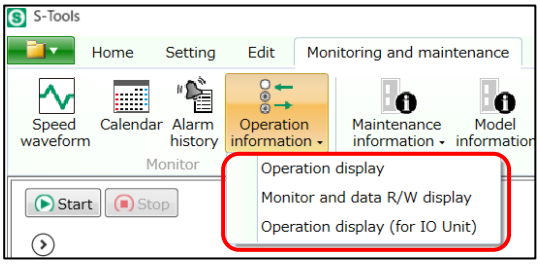




No.	Description
(1)	It moves the list to the first page. It cannot be selected if the first page is displayed.
(2)	It moves the list to the previous page. It cannot be selected if the first page is displayed.
(3)	It shows the number of the currently displayed page in the alarm history list and the total number of pages. Entering a page number directly will move the list to that page.
(3)'	It is the dialog box that appears if a page number outside the settable range is entered in the box next to Page.
(4)	It moves the list to the next page. It cannot be selected if the last page is displayed.
(5)	It moves the list to the last page. It cannot be selected if the last page is displayed.

3.6.5. Operation information

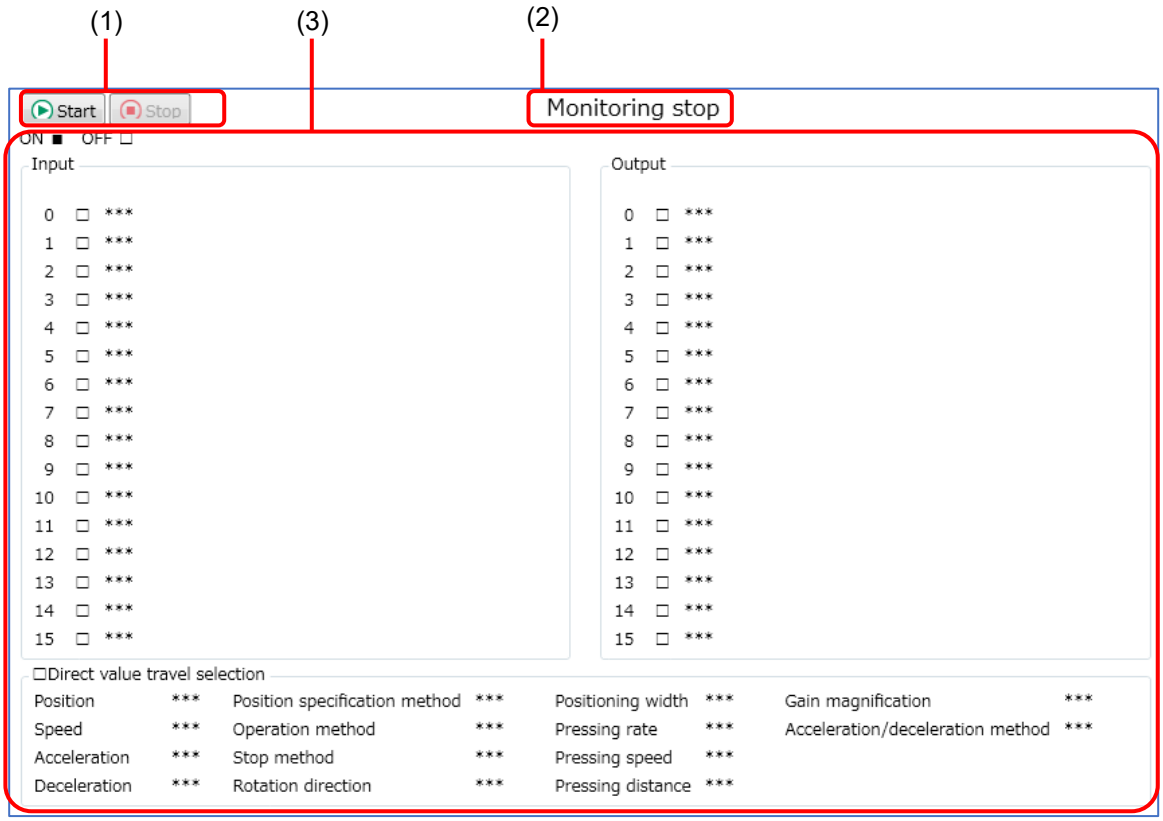
Clicking the [Operation information] button shows the operation information submenu.



Part Name	Description
Operation display	It displays the input/output information between the PLC and controller which are related to the actuator operations.
Monitor & data R/W display	It displays the monitor value (position, speed, current, alarm) as well as the data reading/writing information between the PLC and controller.
Operation display (for IO unit)	Monitor screen for IO unit of ECMG Series It displays the input/output information about the IO unit between the PLC and controller. In the TOOL mode, it operates the signals from the IO unit through the PC.

■ Operation display

It displays the input/output information between the PLC and controller which are related to the actuator operations. Clicking the [Operation display] button under the operation information submenu starts the “Operation display” view.



No.	Part Name	Description
(1)	**Operating button**	It starts/stops the acquisition of the PLC input/output information.
(2)	**Monitor status**	It displays the current monitor status.
(3)	**Operation information list**	It displays the input/output signal information of the PLC acquired from the controller, which is related to the actuator operations.

<Operating button>

Part Name	Description
[Start] button	It starts acquiring input/output information. Note 1, Note 2
[Stop] button	It stops acquiring input/output information. Clicking the [Start] button enables the [Stop] button.

Note 1: If the controller is not connected, the message “The operation cannot be performed since the controller is not connected.” appears.

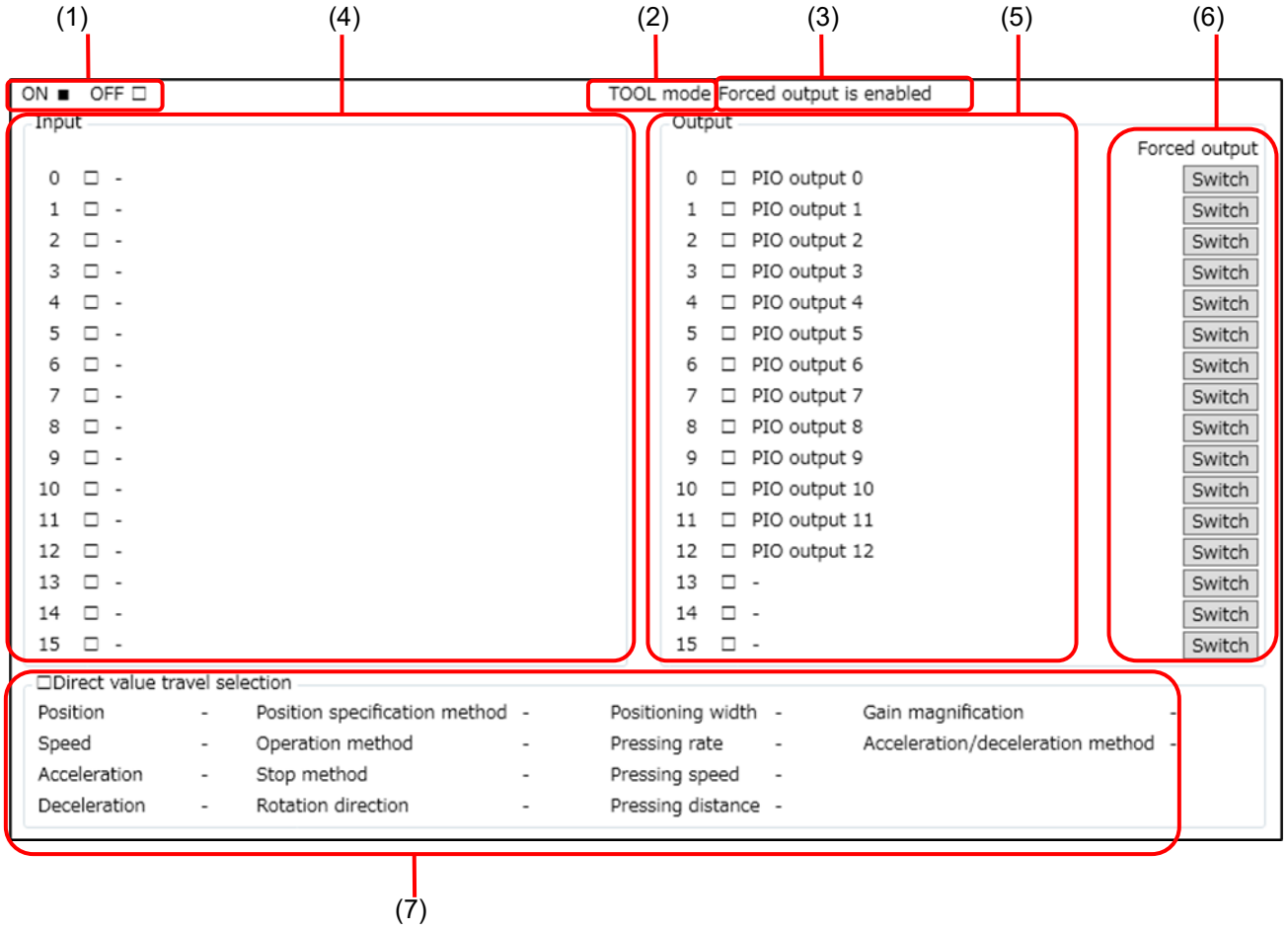
Note 2: If the actuator model number read from the controller differs from the actuator model number shown in the selected window tab, the message “The operation cannot be performed since the model number of the actuator differs.” appears.

- Clicking either the [Start] button or the [Stop] button on the “Operation information” view in the TOOL mode turns OFF all the forced output signals. Make sure that it does not cause the upper level equipment to malfunction.

<Monitor status>

“Monitoring” is displayed when the operation information is being acquired. “Monitoring stop” is displayed when the operation information is not being acquired.

<Operation information list>

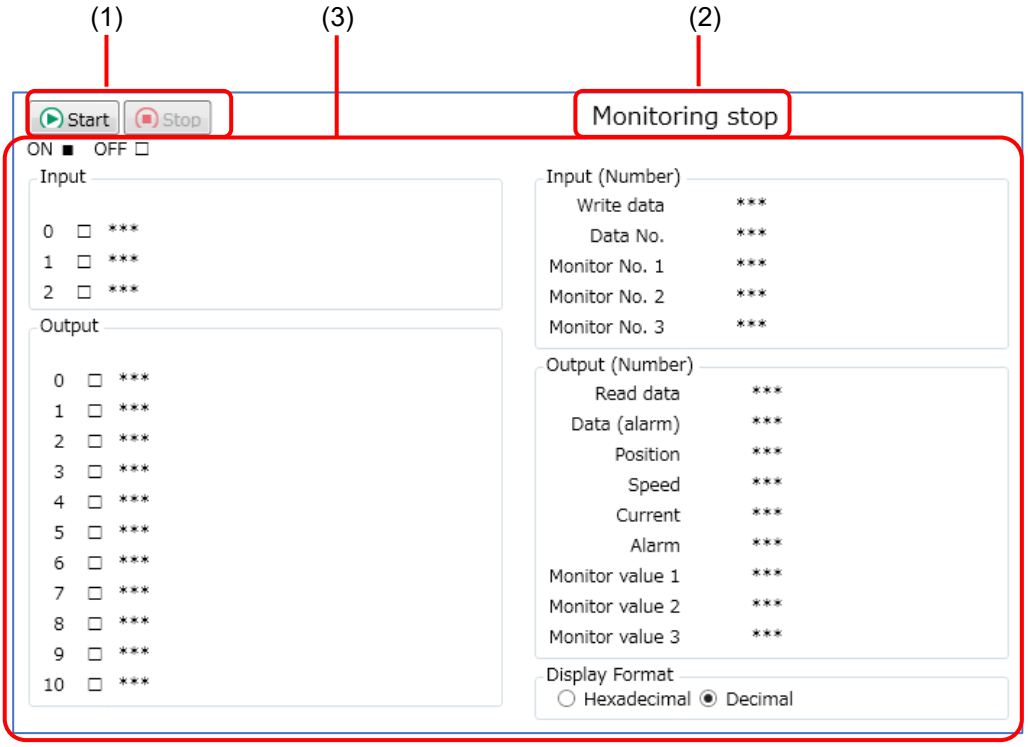


No.	Part Name	Description
(1)	**Legend**	It shows the legend for ON/OFF.
(2)	**TOOL/PLC mode**	It displays the current mode.
(3)	**Operation mode**	It displays the current mode in the PLC mode. It shows “Forced output” in the TOOL mode.
(4)	**Input**	It shows the ON/OFF status of the current input signal.
(5)	**Output**	It shows the ON/OFF status of the current output signal.
(6)	**Forced output**	It is shown when the parallel I/O specifications controller is being used, and in the TOOL mode and in the Forced output mode. It is not shown in other cases. Clicking the [Switch] button switches the output ON/OFF.
(7)	**Direct value input**	It shows the operation setting status when the controller other than with the parallel I/O specifications operates in the direct value travel.

- The direct value input monitor can be used from the S-Tools version 1.04.00.00 or later.
- The setting of direct value input can only be monitored when the ECG Series controller is used.

■ Monitor & data R/W display

It displays the monitor value (position, speed, current, alarm) as well as the data reading/writing information between the PLC and controller. Clicking the [Monitor and data R/W display] button under the operation information submenu starts the “Monitor and data R/W display” view.



No.	Part Name	Description
(1)	**Operating button**	It starts/stops the acquisition of the PLC input/output information.
(2)	**Monitor status**	It displays the current monitor status.
(3)	**Operation information list**	It displays the information on communication with PLC (monitor value and data read/write information) acquired from the controller.

<Operating button>

Part Name	Description
[Start] button	It starts acquiring input/output information. Note 1, Note 2
[Stop] button	It stops acquiring input/output information. Clicking the [Start] button enables the [Stop] button.

Note 1: If the controller is not connected, the message “The operation cannot be performed since the controller is not connected.” appears.

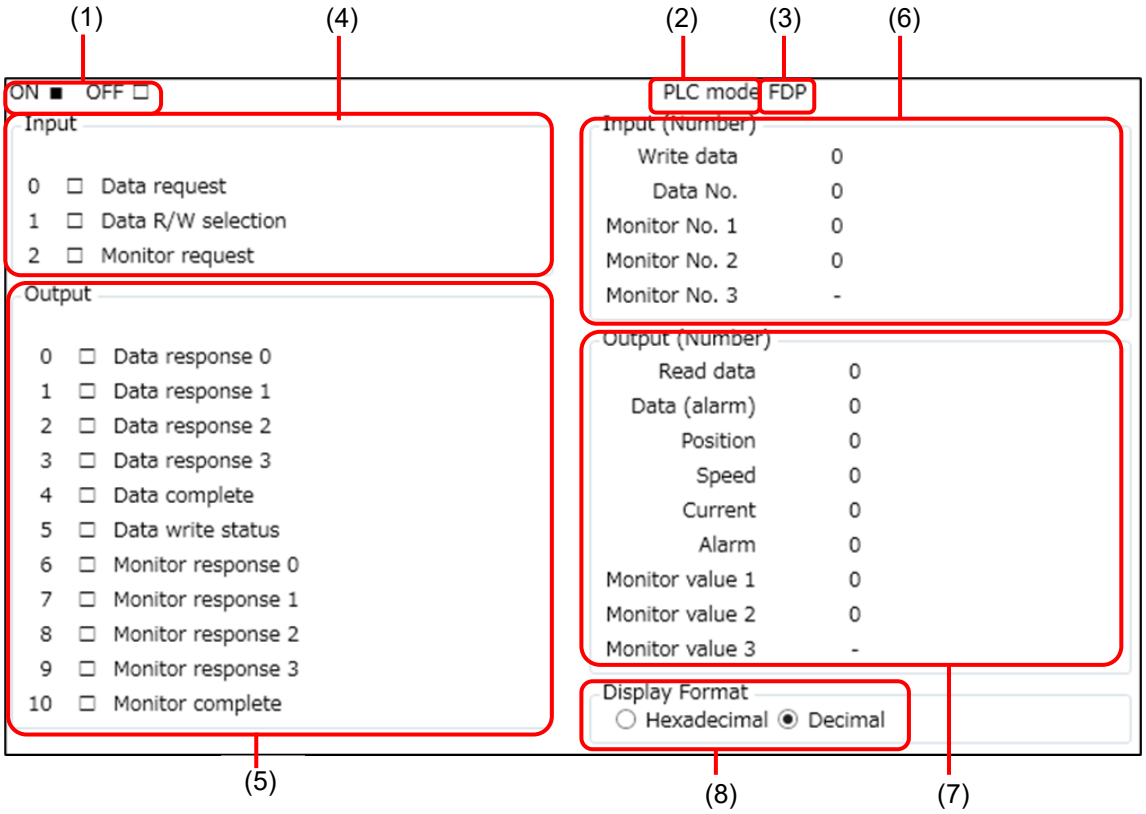
Note 2: If the actuator model number read from the controller differs from the actuator model number shown in the selected window tab, the message “The operation cannot be performed since the model number of the actuator differs.” appears.

- This screen can be used from the S-Tools version 1.04.00.00 or later.
- This screen can only be used when the ECG Series is used.

<Monitor status>

“Monitoring” is displayed when the operation information is being acquired. “Monitoring stop” is displayed when the operation information is not being acquired.

<Operation information list>

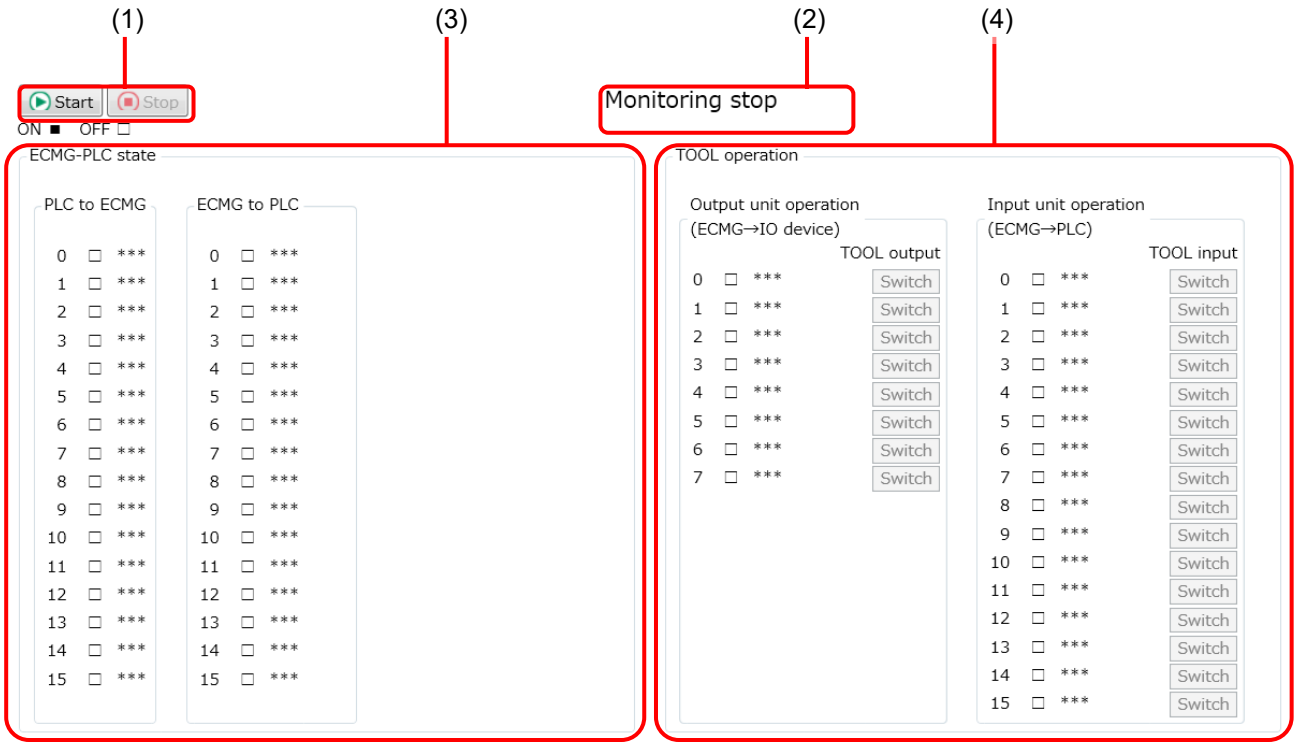


No.	Part Name	Description
(1)	**Legend**	It shows the legend for ON/OFF.
(2)	**TOOL/PLC mode**	It displays the current mode.
(3)	**Operation mode**	It displays the current mode in the PLC mode. It shows “Forced output” in the TOOL mode.
(4)	**Input**	It shows the ON/OFF status of the current input signal.
(5)	**Output**	It shows the ON/OFF status of the current output signal.
(6)	**Input (numeric value)**	It shows the input status of present numeric value data.
(7)	**Output (numeric value)**	It shows the output status of present numeric value data.
(8)	**Display format**	Selects whether to display in hexadecimal or decimal number.

- When monitoring is started in the TOOL mode, the data cannot be read from the controller. Make sure to use in the PLC mode.

■ Operation display (for IO unit)

Monitor screen for IO unit of ECMG Series It displays the input/output information about the IO unit between the PLC and controller. In the TOOL mode, it operates the signals from the IO unit through the PC.
Clicking the [Operation display (for IO unit)] button in the operation information submenu starts the “Operation display (for IO unit)” view.



No.	Part Name	Description
(1)	**Operating button**	It starts/stops the acquisition of the PLC input/output information.
(2)	**Monitor status**	It displays the current monitor status.
(3)	**Operation information list**	It displays the PLC input/output signal information related to the IO unit obtained from the controller.
(4)	**TOOL operation**	In the TOOL mode, the signals from the IO unit can be operated through the PC.

<Operating button>

Part Name	Description
[Start] button	It starts acquiring input/output information. Note 1, Note 2
[Stop] button	It stops acquiring input/output information. Clicking the [Start] button enables the [Stop] button.

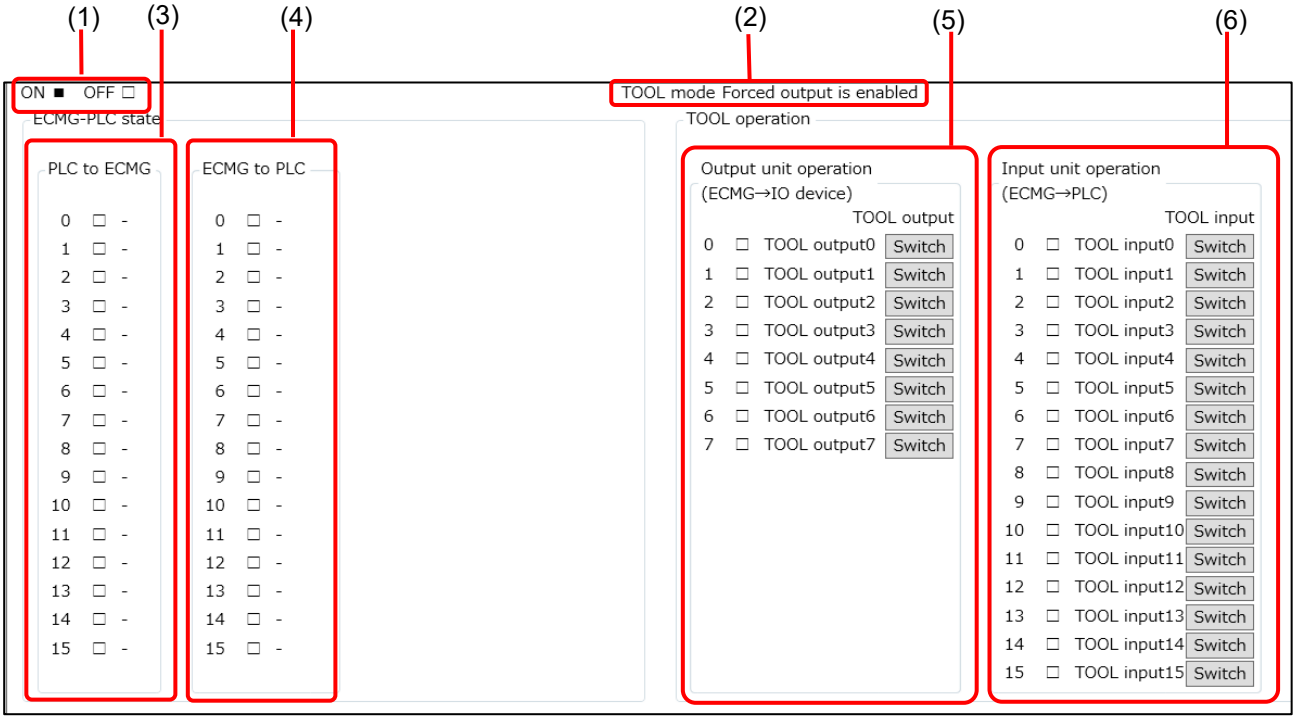
Note 1: If the controller is not connected, the message “The operation cannot be executed because the controller is not connected” is displayed.

- Press the “Start” or “Stop” button in the “Operation information” view in the TOOL mode, and all TOOL operation signals will be turned off. Make sure that it does not cause the upper level equipment to malfunction.

<Monitor status>

“Monitoring” is displayed when the operation information is being acquired. “Monitoring stop” is displayed when the operation information is not being acquired.

<Operation information list>

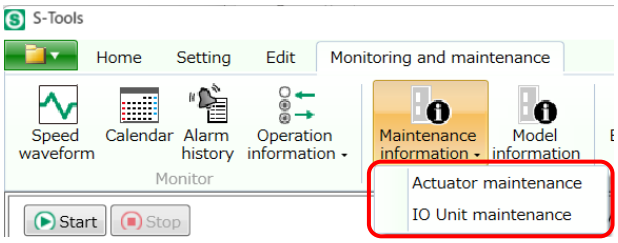


No.	Part Name	Description
(1)	**Legend**	It shows the legend for ON/OFF.
(2)	**TOOL/PLC mode**	It displays the mode of the currently communicating IO unit.
(3)	**PLC -> ECMG**	It displays the ON/OFF status of the signal received from the PLC and currently detected by ECMG.
(4)	**ECMG -> PLC**	It displays the ON/OFF status of the signal currently transmitted to the PLC from ECMG.
(5)	**Output unit operation**	The signal status can be switched in the TOOL mode and forced output mode when the output unit is connected. Clicking the “Switch” button turns ON/OFF the signal to be output to the IO device from the output connector of the output unit.
(6)	**Input unit operation**	The signal status can be switched in the TOOL mode and forced output mode when the IO unit is connected. Clicking the “Switch” button turns ON/OFF the signal to be transmitted to the PLC from ECMG.

- This screen can be used on S-Tools of Ver. 1.07.00.00 or later.
- This screen can be used only when ECMG Series IO unit is used.

3.6.6. Maintenance information

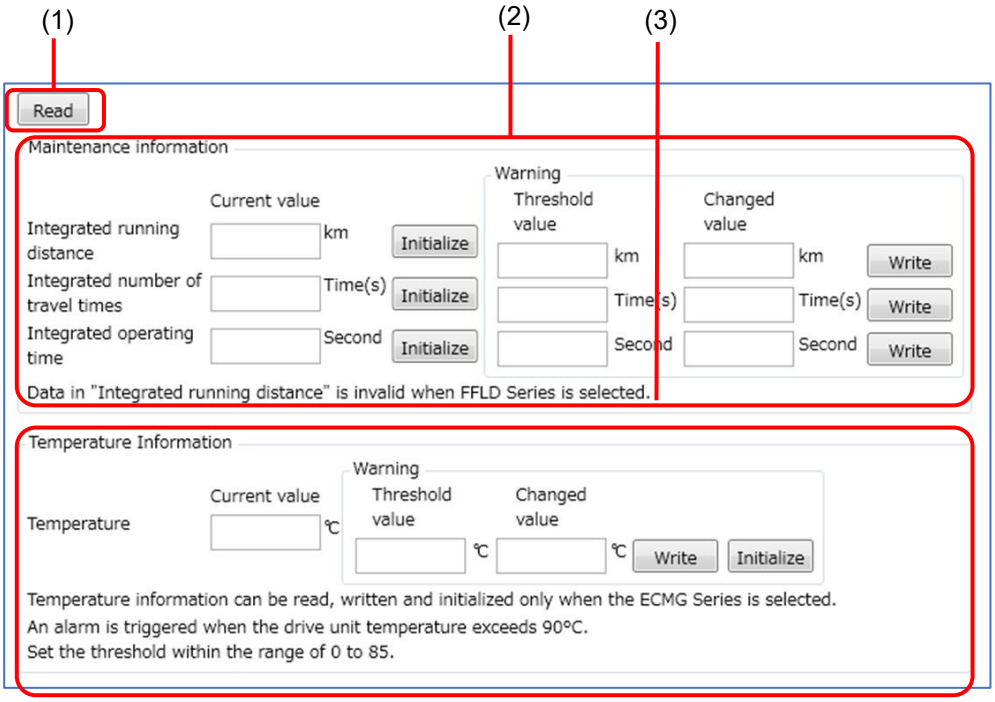
Clicking the [Maintenance information] button displays the maintenance information submenu.



Part Name	Description
Actuator maintenance	It displays the maintenance information about actuator operation.
IO unit maintenance	Monitor screen for IO unit of ECMG Series It displays the maintenance information of the IO unit.

■ Actuator maintenance

This function displays the maintenance information. Click the [Actuator maintenance] button in the maintenance information submenu, and the [Actuator maintenance] view will start. The maintenance data are updated only when the [Read] button is clicked and are not updated periodically.



No.	Part Name	Description
(1)	**Operating button**	It acquires maintenance information from the controller.
(2)	**Maintenance information**	It shows information related to maintenance and allows changes to the threshold value.
(3)	**Temperature information**	The controller temperature information is displayed and the threshold is changed here. This can be used only when the ECMG Series is connected.

<Operating button>

Part Name	Description
[Read] button	It acquires information other than the Changed value from the controller and displays them on the screen. Note 1, Note 2

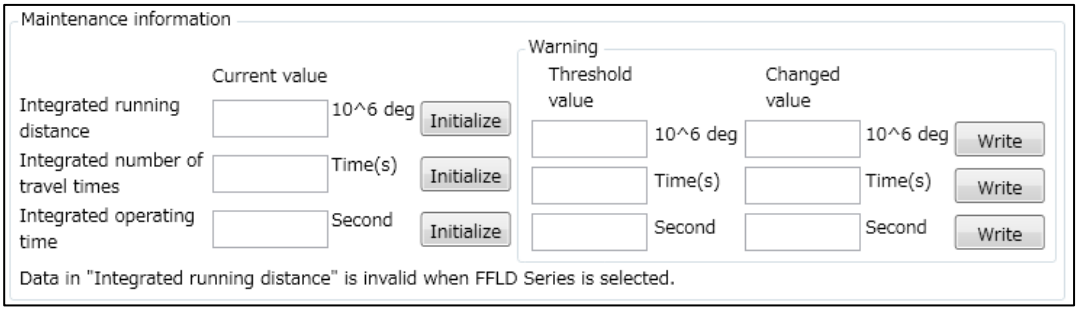
Note 1: If the controller is not connected, the message “The operation cannot be performed since the controller is not connected.” appears.
Note 2: If the model number of the connected actuator differs from the actuator model number shown in the selected window tab, the message “The operation cannot be performed since the model number of the actuator differs.” appears.

- The maintenance data in the controller are updated every 10 minutes. If the controller is turned off before the data are updated, the data before the update are not saved.

<Example>
If the controller is turned off 125 minutes after it was turned on, first 120 minutes of changes in the maintenance data will be recorded but the last 5 minutes of changes in the maintenance data will not be saved.

<Maintenance information>

It contains information for performing “Initialize” and “Write” for “Integrated running distance,” “Integrated number of travel times,” and “Integrated operating time.” When the FFLD Series is selected, the [Initialize] and [Write] buttons for “Integrated running distance” are grayed out and cannot be used.



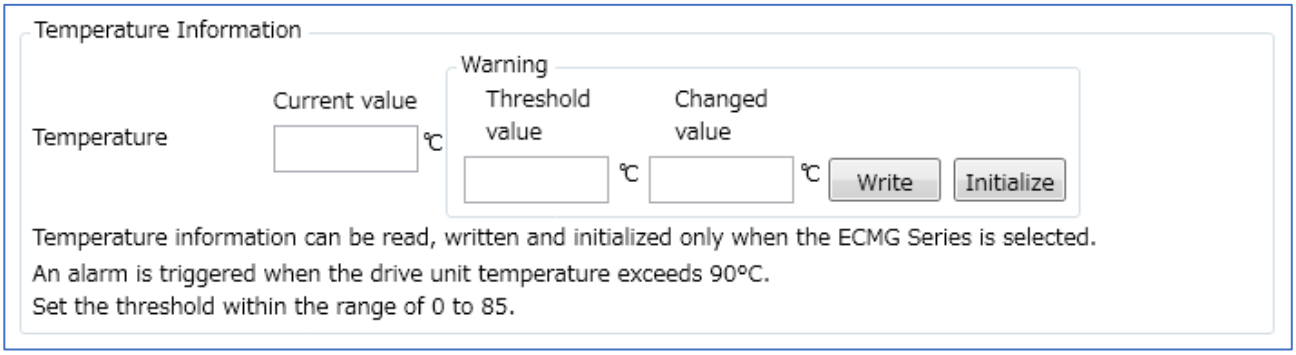
Part Name	Description
Current value	It shows the current value of each item.
[Initialize] button	It initializes the current value of each item. Note 1, Note 2 Selecting [Yes] in the confirmation message “[□□□□□□] in the controller will be initialized. Are you sure?” starts initialization. Initialization changes the value shown to “0.” The part [□□□□□□] in the message is replaced by “Integrated running distance,” “Integrated number of travel times,” or “Integrated operating time” depending on the item initialized.
Threshold value	It shows the threshold value of each item.
Changed value	It is the box in which the value to change to is entered for the threshold value of each item.
[Write] button	It writes the Changed value of the Threshold value of each item to the controller. Note 1, Note 2

Note 1: If the controller is not connected, the message “The operation cannot be performed since the controller is not connected.” appears.

Note 2: If the model number of the connected actuator differs from the actuator model number shown in the selected window tab, the message “The operation cannot be performed since the model number of the actuator differs.” appears.

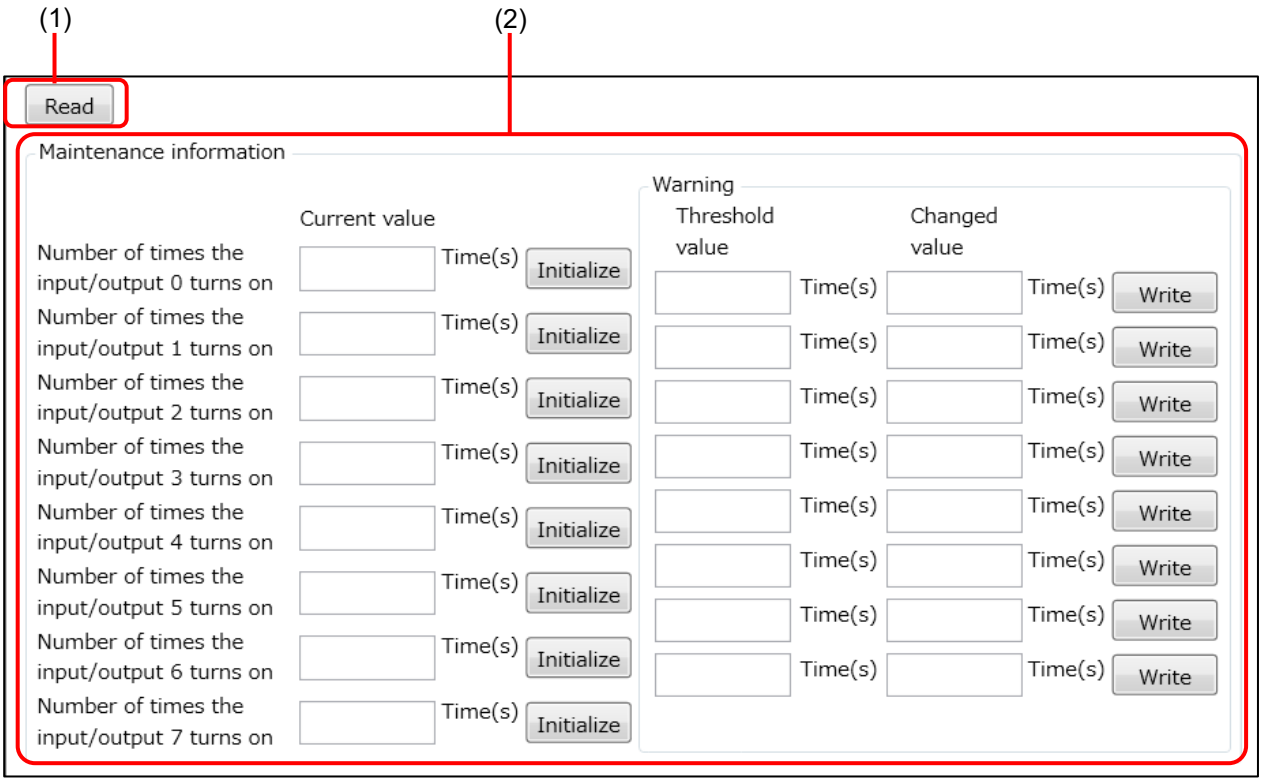
<Temperature information>

Reads, initializes, and writes the current temperature value and threshold. Refer to the instruction manual (SM-A62471) for details.



■ IO unit maintenance

Monitor screen for IO unit of ECMG Series Click the [IO unit maintenance] button in the maintenance information submenu, and the [IO unit maintenance] view will start. The maintenance data are updated only when the [Read] button is clicked and are not updated periodically.



No.	Part Name	Description
(1)	**Operating button**	It acquires the maintenance information from ECMG Series IO unit.
(2)	**Maintenance information**	The maintenance information of ECMG Series IO unit is displayed, and the threshold values can be changed.

<Operation button>

Part Name	Description
[Read] button	It acquires information other than the Changed value from the controller and displays them on the screen. Note 1

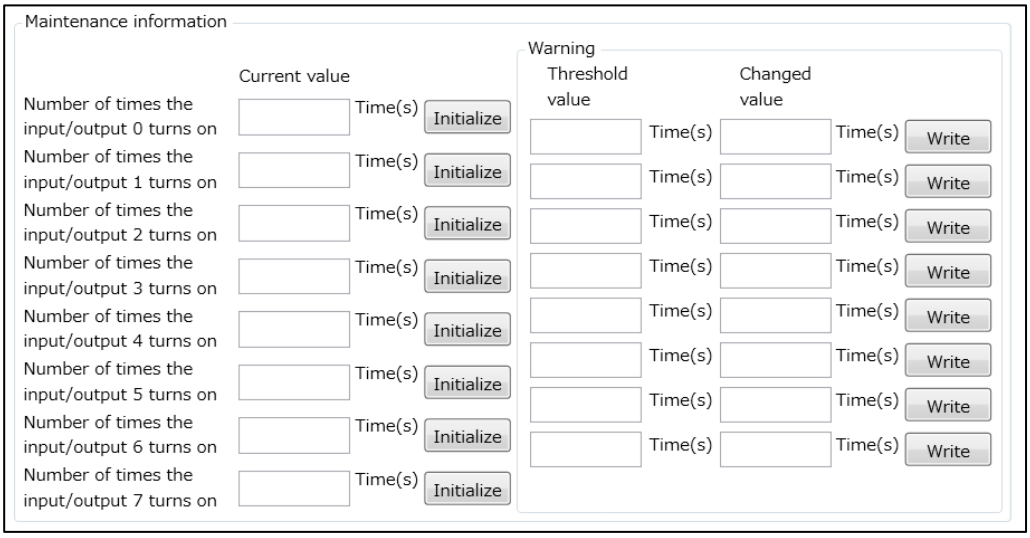
Note 1: If the controller is not connected, the message “The operation cannot be performed since the controller is not connected.” appears.

- The maintenance data in the controller are updated every 10 minutes. If the controller is turned off before the data are updated, the data before the update are not saved.

<Example>
If the controller is turned off 125 minutes after it was turned on, first 120 minutes of changes in the maintenance data will be recorded but the last 5 minutes of changes in the maintenance data will not be saved.

<Maintenance information>

“Input/output n ON count (n = 0 to 7)” can be initialized and written. This field can be used only when ECMG Series IO unit is connected.



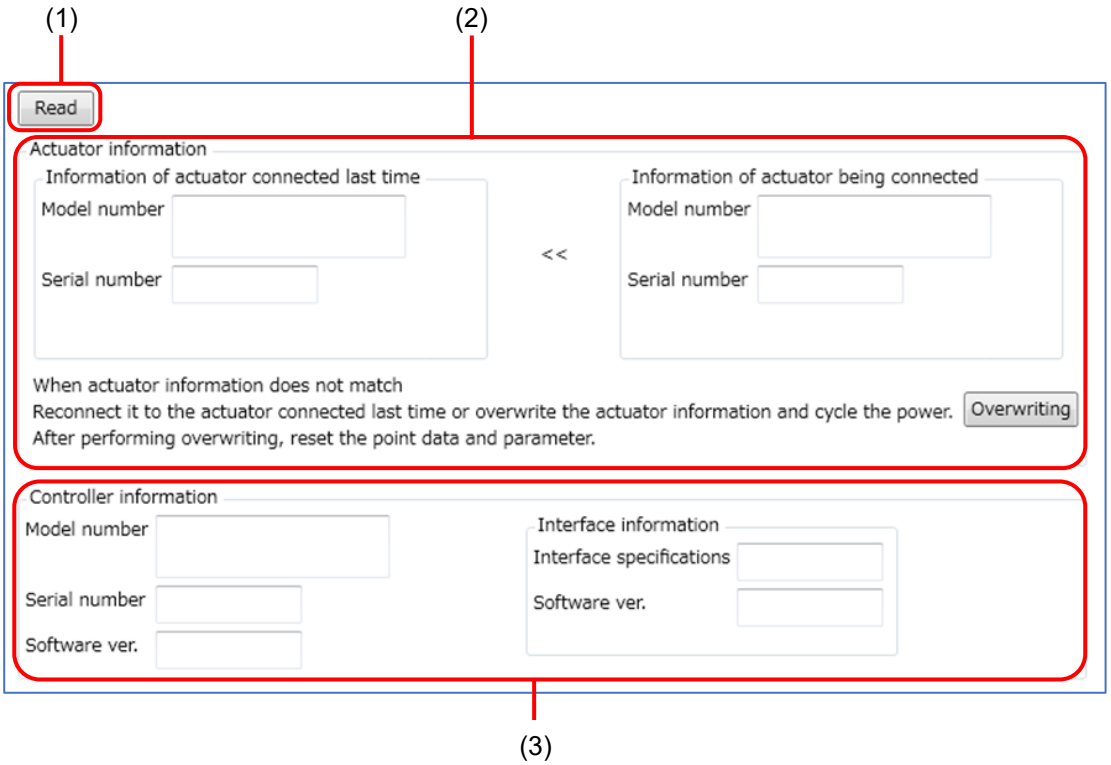
Part Name	Description
Current value	It shows the current value of each item.
[Initialize] button	It initializes the current value of each item. Note 1 Selecting [Yes] in the confirmation message "[□□□□□□] in the controller will be initialized. Are you sure?" starts initialization. Initialization changes the value shown to "0." The item to be initialized is displayed in [□□□□□□] in the message.
Threshold value	It shows the threshold value of each item.
Changed value	It is the box in which the value to change to is entered for the threshold value of each item.
[Write] button	It writes the Changed value of the Threshold value of each item to the controller. Note 1

Note 1: If the controller is not connected, the message "The operation cannot be performed since the controller is not connected." appears.

- This screen can be used on S-Tools of Ver. 1.07.00.00 or later.
- This screen can be used only when ECMG Series IO unit is used.

3.6.7. Model information

This function displays the actuator information and controller information.
Clicking the [Model information] button starts the “Model information” view. The data are updated only when the [Read] button is clicked and are not updated periodically.



No.	Part Name	Description
(1)	**Operating button**	It acquires model information from the controller.
(2)	**Actuator information**	It shows the actuator information.
(3)	**Controller information**	It shows the controller information.

■ Operating button

Part Name	Description
[Read] button	It acquires “Actuator information” and “Controller information” from the controller and displays them on the screen. Note 1

Note 1: If the controller is not connected, the message “The operation cannot be performed since the controller is not connected.” appears.

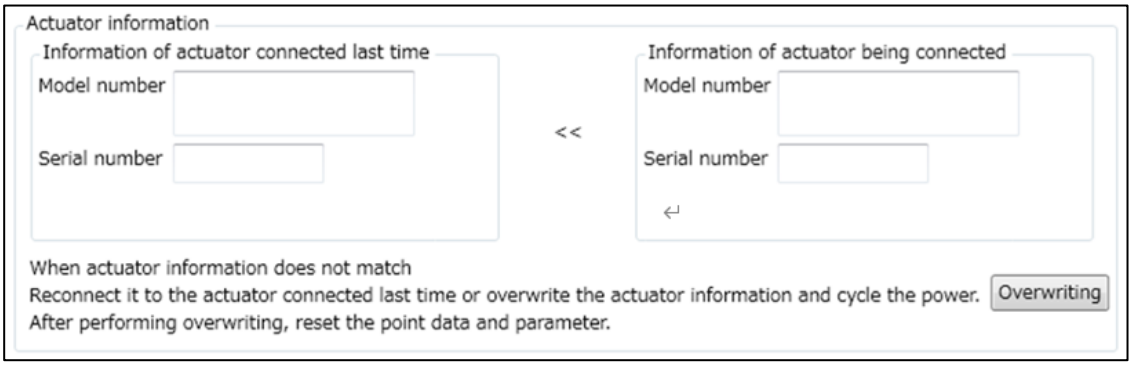
■ Actuator information

CAUTION

When executing a software reset, check the input state of the signal from the upper level equipment to the controller in advance.

- If a software reset is executed, the controller is started in the PLC mode. The actuator may perform an unexpected operation depending on the setting of the upper level equipment.

The actuator information is for display only and cannot be input.

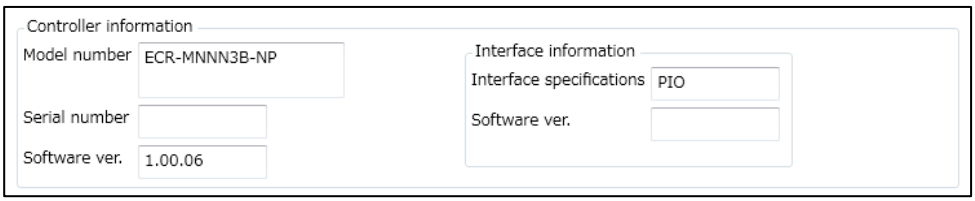


Part Name	Description
Information of actuator connected last time	It shows the "model number" and "serial number" of the previously connected actuator.
Information of actuator being connected	It shows the "model number" and "serial number" of the currently connected actuator. Note 1
[Overwriting] button	It saves the Information of actuator being connected over the Information of actuator connected last time. Note 2, Note 3 The operation can only be performed in the TOOL mode. Note 4 A confirmation message that asks whether to execute software reset appears after saving.

Note 1: Actuators connected to ECR Series or ECG-B Series do not have the serial number information. When an actuator without a serial number information is connected, the Serial number display field is blank.
Note 2: If the controller is not connected, the message “The operation cannot be performed since the controller is not connected.” appears.
Note 3: If the alarm code “0x1B03” or “0x3A03” has not occurred, the message “Since no corresponding alarm (0x1B03, 0x3A03) has occurred, the overwriting of actuator information cannot be performed.” appears.
Note 4: In the PLC mode, a message “The PLC mode is set. Set the TOOL mode.” appears.

■ Controller information

The controller information is for display only and cannot be input.

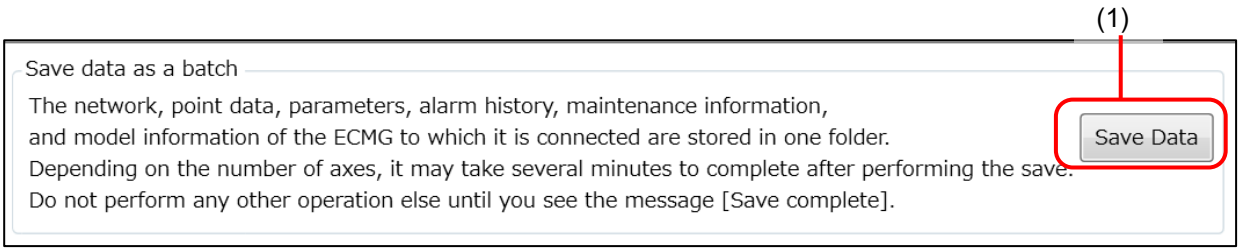


Part Name		Description
Controller information	**Model**	It shows the model number of the controller.
	Serial number	It shows the serial number of the controller.
	Software ver.	It shows the main software ver. of the controller.
Interface information	**Interface specifications**	It shows the internet specifications of the controller. It shows “N/A” if it is other than “CC-Link,” “EtherCAT,” “EtherNet/IP,” “IO-Link,” “PIO,” or “PROFINET.”
	Software ver.	It shows the interface software ver. of the controller.

- There is no “Software ver.” for controllers of parallel I/O specifications. If a controller without “Software ver.” is connected, the display field for “Software ver.” is blank.

3.6.8. Backup

When the ECMG Series is connected, the data in the controller for the number of axes is saved together.
Clicking the [Save] button starts saving the data.



No.	Part Name	Description
(1)	**Operating button**	It acquires model information from the controller.

- This screen can be used only when the ECMG Series controller is connected.
- This function saves only the data in ECMG Series drive unit. The data in the IO unit must be saved individually.

■ Operating button

Part Name	Description
[Save] button	When the ECMG Series is connected, the data stored in all drive units connected to the communicating communication unit is read and the data is saved for each axis. Note 1, Note 2, Note 3

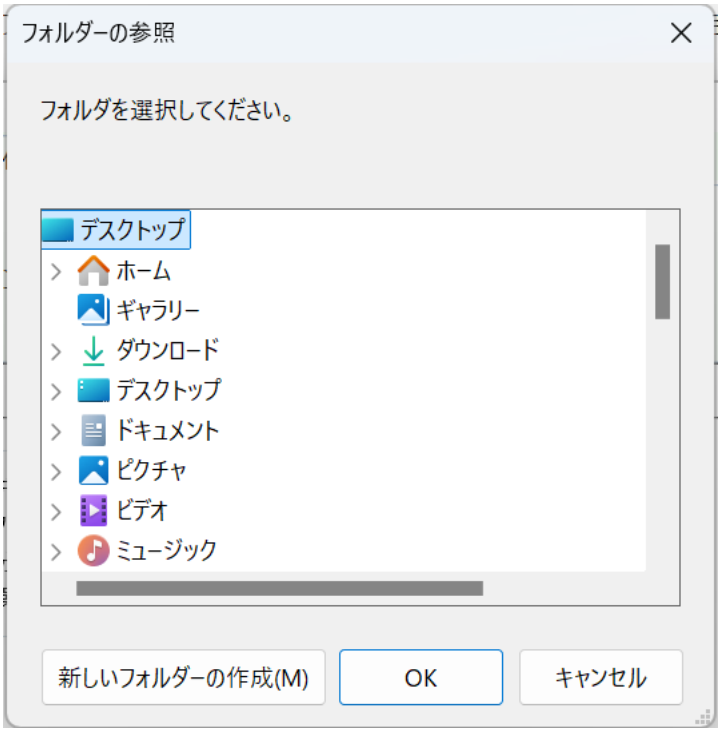
Note 1: If the controller is not connected, the message "The operation cannot be performed since the controller is not connected." appears.
Note 2: If the model number of the connected actuator differs from the actuator model number shown in the selected window tab, the message "The operation cannot be performed since the model number of the actuator differs." appears.
Note 3: When a controller other than the ECMG is connected, data is not read or saved.

■ Save process

After pressing the [Save] button, proceed with the steps below until the data is saved.

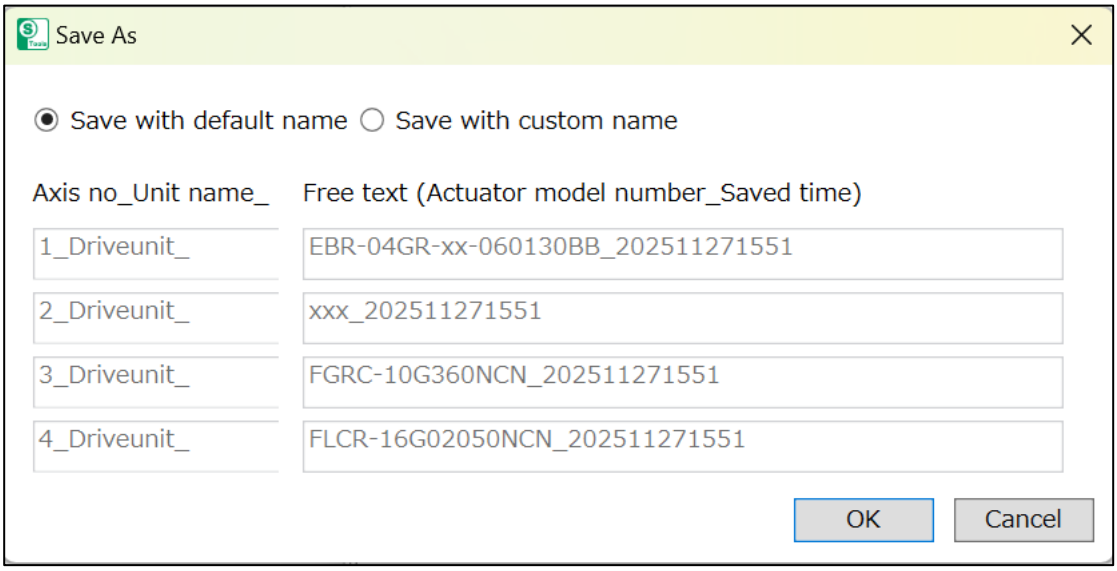
1. Select the folder to save.

When pressing the [Save] button while a controller capable of saving is connected, the [Browse for folder] screen will be displayed. After selecting the folder to save the data on the screen, press the [OK] button to proceed to the next process. Pressing the [Cancel] button will return the screen to the S-Tools operation screen, and the data in the controller will not be saved.



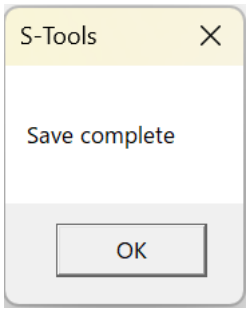
2. Set the file name for each axis.

Select a folder and select [OK] to display the [Save As] screen. The screen will display lines for setting file names for the number of axes, and after setting the file names, press the [OK] button to proceed to the next step. Pressing the [Cancel] button will return the screen to the S-Tools operation screen, and the data in the controller will not be saved.



3. The data is stored.

Pressing the [OK] button on the [Save As] screen saves the data. When the data read from the controller is saved, a message box will appear saying [Saving complete].

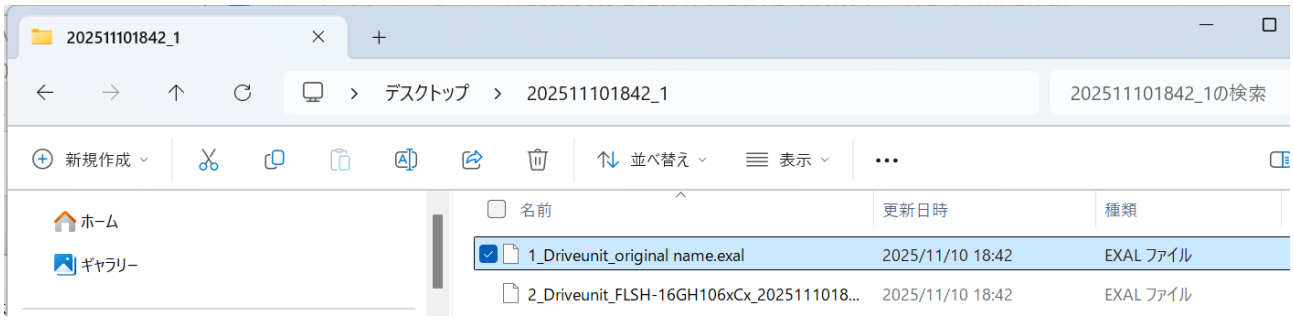


- Depending on the amount of data to be saved, it may take several minutes for the saving to complete. Do not perform any other operations until the [Saving complete] message appears.

■ Data to be saved

The data will be saved in a folder with the following name that is created in the folder selected on the [Browse folder] screen.

Folder name: Save date and time_number
(Example: If data is saved once at 9:30 on November 20, 2025, the folder name will be "202511200930_1.")



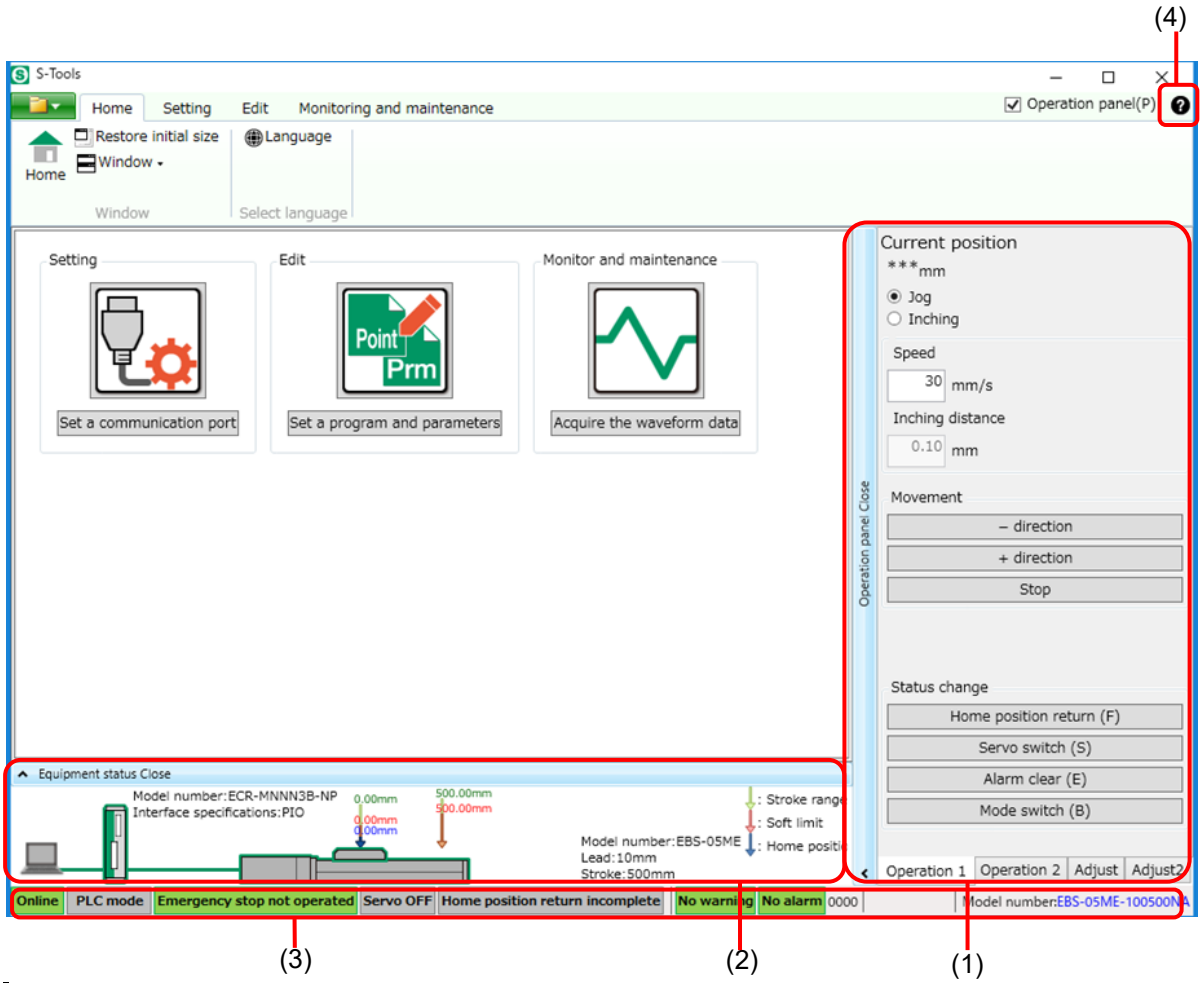
The following data is saved in each axis file.

Data saved in the file	
Point data	Parameter
Alarm history	Model information
Maintenance information	EtherCAT
CC-Link	PROFINET
EtherNet/IP	-

3.7. Common Features

3.7.1. Overview of the common features

Common features are those displayed separately from the view that is started by selecting a ribbon tab. Common features include the “Operation panel,” “Equipment status,” “Communication status,” and “Version information.”

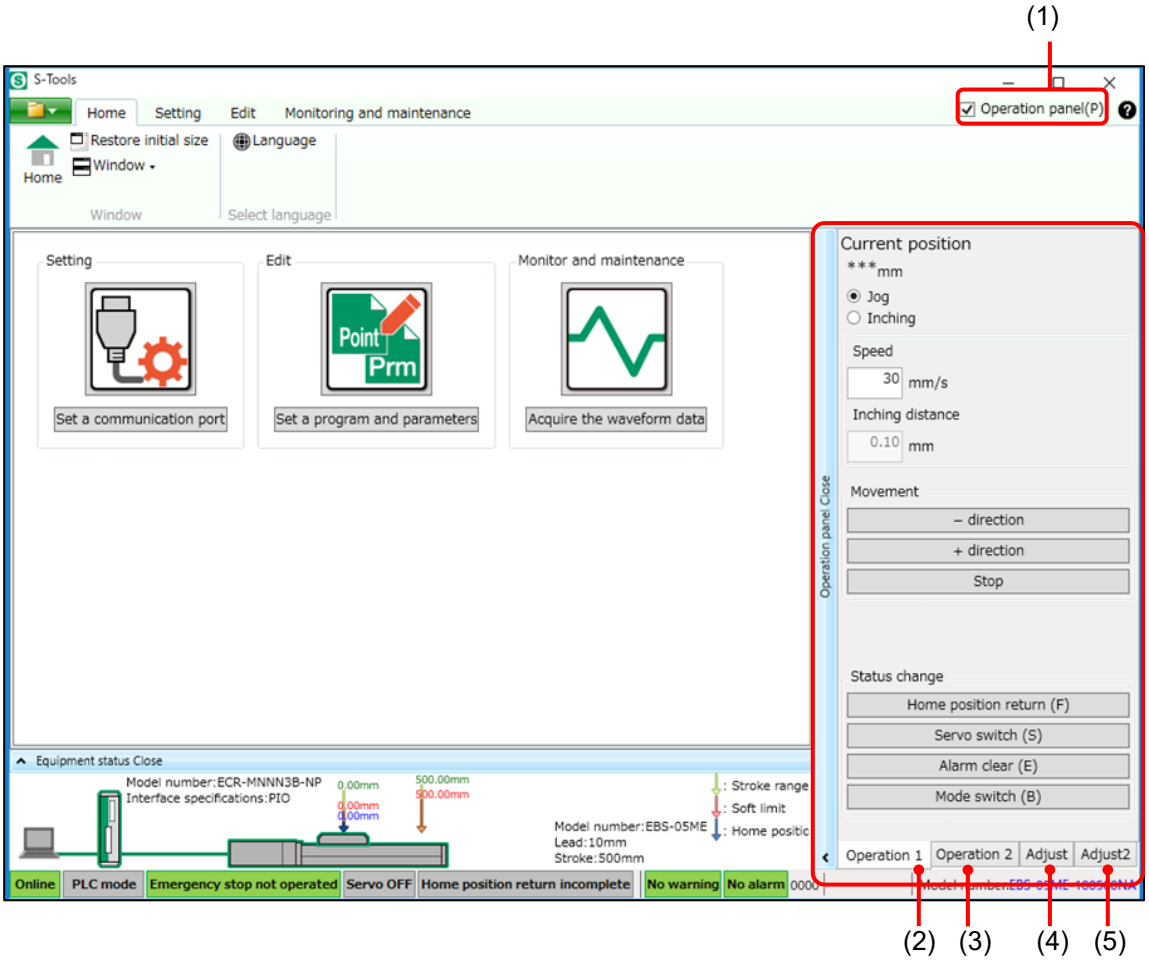


No.	Part Name	Description	Details
(1)	**Operation panel**	It contains commands for checking the operation of the electric actuator when online. It switches among four tabs: “Operation 1,” “Operation 2,” “Adjustment,” and “Adjustment 2.”	3.7.2
(2)	**Equipment status panel**	It displays the status of each piece of equipment (PC, controller, and actuator).	3.7.3
(3)	**Communication status bar**	It displays the controller communication status and the actuator model number.	3.7.4
(4)	**Help button**	It shows the software version of S-Tools and the version information of the installed DLL.	3.7.5

3.7.2. Operation panel

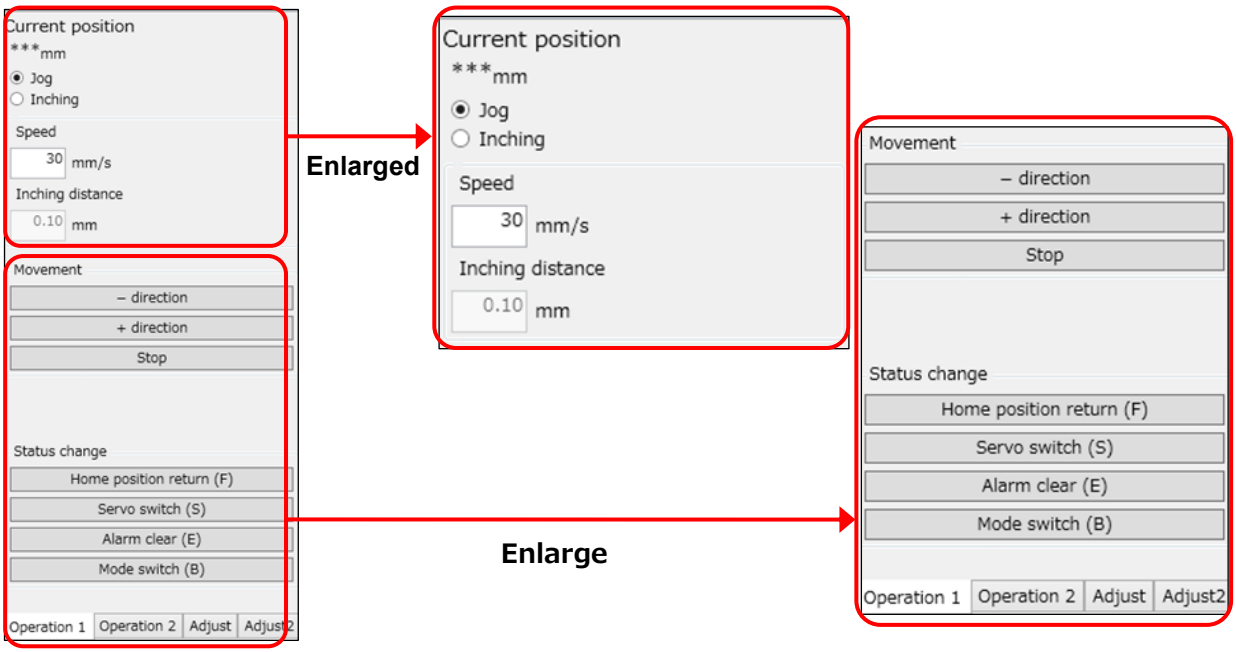
S-Tools starts with the operation panel open. S-Tools communicates with the controller and checks the operation of the electric actuator by jogging, inching, or operating a simple program.

Clicking the part that is labeled [Operation panel Close] closes the operation panel and the label changes to [Operation panel Open]. Clicking the [Operation panel Open] label opens the operation panel. Similarly, checking the [Operation panel] check box in the upper right corner of the window opens the operation panel and unchecking it closes it.
There are tabs on the operation panel: “Operation 1” tab, “Operation 2” tab, “Adjust” tab, and “Adjust 2” tab. The operation from these tabs is enabled when online.
If the connection changes to offline while the actuator is being operated (such as jogging or inching), the process is interrupted and the message “A communication error has occurred.” appears.
When the actuator is unconnected, only the [Alarm clear], [Mode switch], and [Gain adjustment] buttons on each tab can be used.



No.	Part Name	Description
(1)	**Operation panel check box**	It opens/closes the operation panel. Checking it opens the operation panel; unchecking it closes the operation panel.
(2)	**“Operation 1” tab**	It operates the actuator by selecting Jog or Inching.
(3)	**“Operation 2” tab**	It operates the actuator by specifying the Point No.
(4)	**“Adjust” tab**	It adjusts the actuator gain.
(5)	**“Adjust 2” tab**	It adjusts the home position when the timing belt is replaced and the home position of the actuator is displaced.

■ Operation 1



Part Name	Description
Current position	It shows the current position of the movable section of the actuator as a numerical value. It is for display only and cannot be input. It also shows “***” at default display, when off-line, and if home position return has not been executed for an actuator that requires home position return.
Jog/Inching	It is used to select the travel method for the movable section of the actuator.
Speed	It sets the travel speed for the movable section of the actuator. The setting range and the default value depend on the connected actuator. A warning message appears if a value outside the setting range is input.
Inching distance	It sets the inching distance for the movable section of the actuator. It cannot be input if “Jog” is selected as the travel method. The setting range is 0.10 to 10.00 [mm]. The default value is “0.10.” A warning message appears if a value outside the setting range is input.
[– direction] button	It moves the movable section of the actuator towards the motor.
[+ direction] button	It moves the movable section of the actuator in the direction opposite from the motor.
[Stop] button	It stops the movable section of the actuator that is traveling.
[Home position return] button	It performs home position return. Upon completion of the home position return, a message that indicates completion appears.
[Servo switch] button	It switches the state of the servo from ON to OFF or OFF to ON. When switching from the servo OFF state, the confirmation message “The servo will be turned on. Are you sure?” appears. When switching from the servo ON state, the confirmation message “The servo will be turned off. Are you sure?” appears. Upon completion of the servo switch, a message that indicates completion appears.
[Alarm clear] button	It clears the alarm.
[Mode switch] button	It switches the mode to PLC or TOOL. When switching from the PLC mode, the confirmation message “The TOOL mode will be set. Are you sure?” appears. When switching from the TOOL mode, the confirmation message “The PLC mode will be set. Are you sure?” appears. Upon completion of the mode switch, a message that indicates completion appears.

<Actuator operation direction>

When “Jog” is selected as the travel method, the movable section of the actuator moves while the [- direction] button or the [+ direction] button is held down. When “Inching” is selected as the travel method, clicking the [- direction] button or the [+ direction] button moves the movable section of the actuator by the distance set in “Inching distance.” Even if the [- direction] button or the [+ direction] button is clicked again when the inching operation has not been completed, the operation will not be accepted.

For each button, the actuator moves in the direction as specified below.

Button / Series	[- direction]	[+ direction]
EBS, EBR, EJSG, GSSD2, GSTK, GSTG, GSTS, GSTL	Direction of the motor	Direction opposite from the motor
FLSH, FFLD, GCKW	Finger opening direction	Finger closing direction
FLCR	PULL direction	PUSH direction
FGRC	CCW (counterclockwise)	CW (clockwise)

<Required states>

For the buttons to function, the following states are required:

State / Button	TOOL mode	No alarm	Servo ON	Home position return status
[- direction]	Required Note 1	Required Note 2	Required Note 3	Required Note 4
[+ direction]	Required Note 1	Required Note 2	Required Note 3	Required Note 4
[Home position return]	Required Note 1	Required Note 2	Required Note 3	-
[Servo switch]	Required Note 1	Required Note 2	-	-
[Alarm clear]	Required Note 1	-	-	-

Note 1: In the PLC mode, a message “The PLC mode is set. Set the TOOL mode. ” appears.
Note 2: If there is an alarm, the message “An alarm has occurred. Clear the alarm. ” appears.
Note 3: In the servo OFF state, the message “The servo is OFF. Turn ON the servo. ” appears.
Note 4: If the actuator is not in the home position, the message “The home position has not been detected. Perform home position return. ” appears.

- Switching to the TOOL mode turns OFF all the output signals of parallel I/O. Make sure that it does not cause the upper level equipment to malfunction.

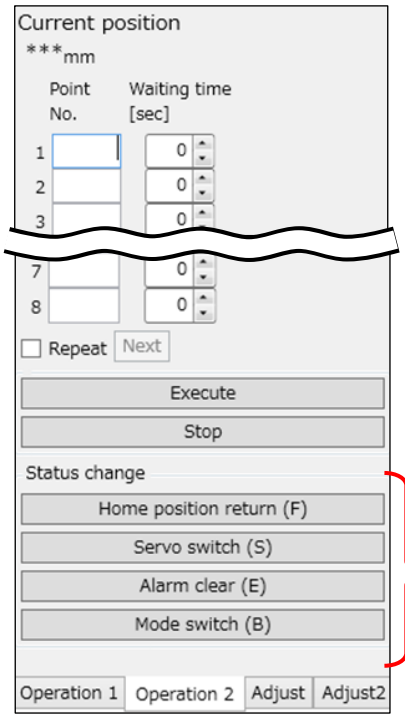
<If alarm code “1B03” or “3A03” has occurred>

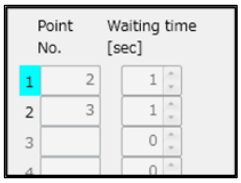
The message “The alarm for a model number mismatch (1B03, 3A03) has occurred. Reconnect the actuator connected last time to the controller or overwrite the information of the actuator being connected with the information of the actuator connected last time on the model information screen.” appears.

Depending on the alarm code, the confirmation message “It is an alarm that requests the power to be switched on again after the alarm occurrence cause is eliminated. Are you sure to perform a software reset? ” appears.

■ Operation 2

This operation moves the movable section of the actuator by running a program that combines specified points.





While the program is running, the background of the Point No. currently being executed is displayed in light blue.

Part Name	Description
[Home position return] button	It is the same as the [Home position return] button of "Operation 1". Refer to “Operation 1” for details.
[Servo switch] button	It is the same as the [Servo switch] button of "Operation 1". Refer to “Operation 1” for details.
[Alarm clear] button	It is the same as the [Alarm clear] button of " Operation 1". Refer to “Operation 1” for details.
[Mode switch] button	It is the same as the [Mode switch] button of Operation 1. Refer to “Operation 1” for details.

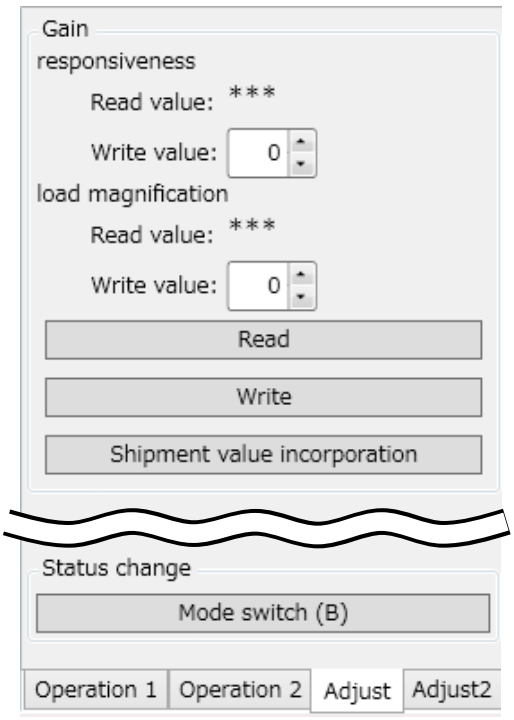
Name	Description
Current position	It is the same as the Current position of Operation 1. Refer to “Operation 1” for details.
Point No.	It is a box for entering the Point No. for which the operation is checked. The Point No. that can be entered is “0” to “511” or “0” to “63.” The default is blank. If the box is blank, the next point travel is started.
Waiting time	It is a box for setting the time to wait for point travel start. The setting range is “0” to “999” [sec]. The default value is “0.” Clicking the spin button increases or decreases the value in the box by ±1.
Repeat	It is a check box for specifying repetition of the point travel set in “Point No.” The box is unchecked by default. Pressing the [Execute] button after putting a check repeats the set point travel. The check box is disabled while the actuator is in operation. Pressing the [Stop] button interrupts the repeat process.
[Next] button	It starts the next point travel and is only enabled while the actuator is in operation.
[Execute] button	It starts point travel from the current position in the order the points are set in “Point No.” If an alarm occurs while the program is running, the message “An alarm has occurred.” appears. Required states: Servo ON and home position return Note 1, Note 2
[Stop] button	It stops the movable section of the actuator that is traveling.

Note 1: In the servo OFF state, the message “The servo is OFF. Turn ON the servo.” appears.
Note 2: If the actuator is not in the home position, the message “The home position has not been detected. Perform home position return.” appears.

- Switching to the TOOL mode turns OFF all the output signals of parallel I/O. Make sure that it does not cause the upper level equipment to malfunction.

■ Adjust

This operation reads and writes the “Responsiveness” and “Load magnification” from and to the controller.



Part Name	Description
Responsiveness - Read value	It shows the value set for responsiveness. It shows “***” initially and when offline.
Responsiveness - Write value	It sets the value entered in the box to responsiveness. The default value is “0.”
Load magnification - Read value	It shows the value set for load magnification. It shows “***” initially and when offline.
Load magnification - Write value	It sets the value entered in the box to load magnification. The default value is “0.”
[Read] button	It reads the responsiveness and load magnification values from the controller. The operation can only be performed in the TOOL mode. Note 1
[Write] button	It writes the values in Write value boxes of responsiveness and load magnification to the controller. The operation can only be performed in the TOOL mode. Note 1
[Shipment value incorporation] button	It reads the responsiveness and load magnification values at shipment from the controller and shows them in the Write value boxes. The operation can only be performed in the TOOL mode. Note 1
[Mode switch] button	It is the same as the [Mode switch] button of Operation 1. Refer to “Operation 1” for details.

Note 1: In the PLC mode, a message “The PLC mode is set. Set the TOOL mode.” appears.

- Switching to the TOOL mode turns OFF all the output signals of parallel I/O. Make sure that it does not cause the upper level equipment to malfunction.

■ Adjust 2

CAUTION

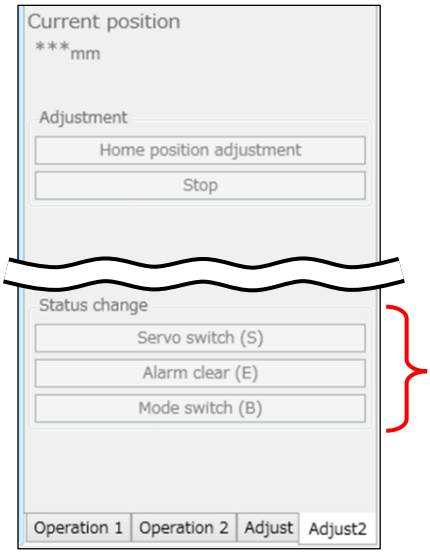
When executing a software reset, check the input state of the signal from the upper level equipment to the controller in advance.

- If a software reset is executed, the controller is started in the PLC mode. The actuator may perform an unexpected operation depending on the setting of the upper level equipment.

Perform home position adjustment in a condition where the actuator is horizontally installed with no load applied and there is no obstacle in the movable range.

- Otherwise, the home position cannot be set correctly, causing malfunction or failure of the actuator.

Resets the home position when the home position deviates, for example, after belt replacement.



Part Name	Description
[Servo switch] button	It is the same as the [Servo switch] button of "Operation 1". Refer to “Operation 1” for details.
[Alarm clear] button	It is the same as the [Alarm clear] button of " Operation 1". Refer to “Operation 1” for details.
[Mode switch] button	It is the same as the [Mode switch] button of Operation 1. Refer to “Operation 1” for details.

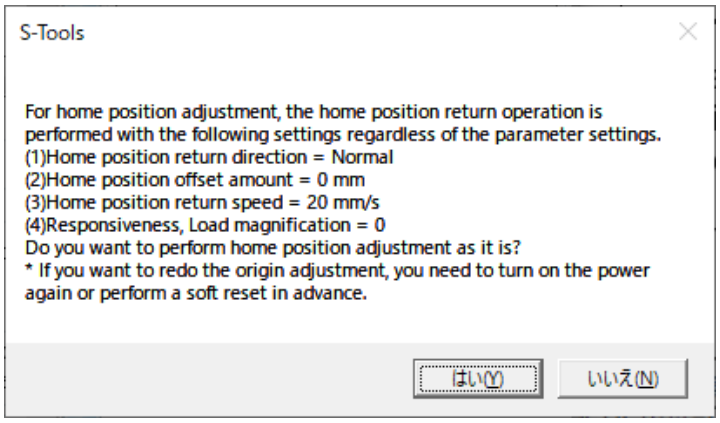
Part Name	Description
Current position	It is the same as the Current position of Operation 1. Refer to “Operation 1” for details.
[Home position adjust] button	Resets the home position when the home position deviates, for example, after belt replacement. Note 1, Note 2, Note 3
[Stop] button	It stops the movable section of the actuator that is traveling.

Note 1: In the PLC mode, a message “The PLC mode is set. Set the TOOL mode.” appears.
Note 2: If there is an alarm, the message “An alarm has occurred. Clear the alarm.” appears.
Note 3: In the servo OFF state, the message “The servo is OFF. Turn ON the servo.” appears.

Some actuators do not require the home position adjustment.

Actuator			Description
FFLD, FLCR, FLSH, FGRC, GCKW			Home position adjustment is not required. Clicking the [Home position adjustment] button displays the message “You do not need to adjust the home position for the connected actuator. Perform normal home position return.”
ECR	**EBS, EBR**		Home position adjustment is required. Clicking the [Home position adjustment] button displays the message “Use the motor unit replacement application available at our company website to adjust the home position of the connected actuator.”
ECG, ECMG	**EBS, EBR, EJSG, GSSD2, GSTK, GSTG, GSTS, GSTL**	**Absolute encoder**	Home position adjustment is required. Clicking the [Home position adjustment] button displays a confirmation message that asks whether to execute the home position adjustment.
		Incremental encoder	Home position adjustment is not required. Clicking the [Home position adjustment] button displays the message “You do not need to adjust the home position for the connected actuator. Perform normal home position return.”

For the ECG series and EBS/EBR/EJSG series (absolute encoder) of ECMG series, clicking the [Home position adjustment] button displays a confirmation message that asks whether to execute the home position adjustment.



<State of home position adjustment>

State	Description
At normal operation	A confirmation message “Home position adjustment is complete. Before restarting the home position adjustment, turn on the power again or perform a soft reset. Are you sure to perform a soft reset?” appears.
When a timeout error occurs	The message “A timeout error occurred. The home position adjustment may have failed. Turn on the power of the controller again, and then perform the home adjustment again.” appears.
At alarm occurrence	The message “An alarm has occurred. Since the home position adjustment has failed, release the alarm and adjust the home position adjustment again.” appears.
If the state does not become home position saving return state	The message “The home position adjustment has failed. Check whether the home position can be adjusted, turn on the controller again, and then perform home position adjustment again.” appears.

■ Home position adjustment of the EBS-M/EBR-M series of the ECR series

To perform home position adjustment of the EBS-M/EBR-M series of the ECR series, a motor unit replacement application is required. For details such as operation method, refer to the instruction manual (SM-A 24904) of the maintenance parts for the electric actuator.
Use the latest motor unit replacement application to properly adjust the home position. The motor unit replacement application is available on the website of CKD (https://www.ckd.co.jp/).

<How to obtain>

1. Select "Component Products" from the website

Select “Component Products” from the “Products & Support” tab or the “Product Information” page.

2. Select “Electric actuator” in the product lineup

3. Select “Stepping motor drive”

4. Access the detail page of “Controller Model No. ECR”.

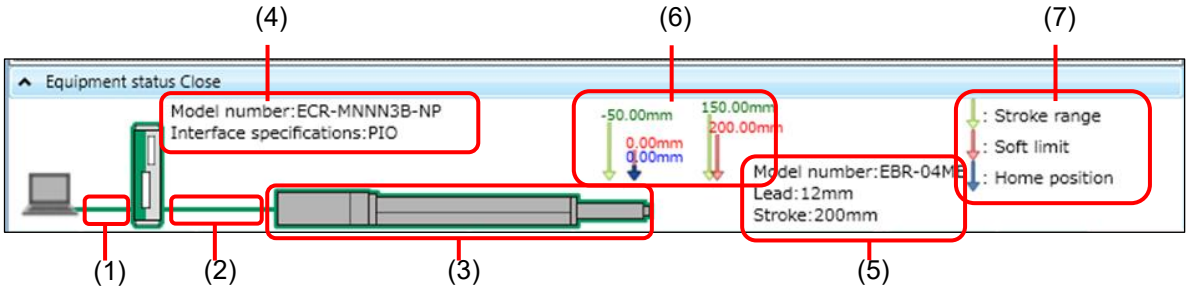
Access the detail page of “Controller Model No. ECR” from the product list.

5. Select “Software” and download "Motor unit replacement application (Ver100000) (for EBS-M/EBR-M Series).zip".

3.7.3. Equipment status

This function displays the connection status of the PC, controller, and actuator as an image.

When the equipment status panel is open, the header for opening/closing the panel shows “Equipment status Close.”
When the equipment status panel is closed, the header for opening/closing the panel shows “Equipment status Open.”



No.	Part Name	Description
(1)	**Connection status between PC and controller**	It is shown in green when a PC is connected to the controller. It is shown in gray when they are not connected.
(2)	**Connection status between controller and actuator**	It is shown in green when the controller is connected to the actuator. It is not shown when they are not connected.
(3)	**Actuator travel status**	It shows the current position of the actuator as an image. The image size of the actuator remains the same even if the actual size of the actuator changes.
(4)	**Controller information**	It shows the “Model number” and “IF (Interface) specifications” from the controller information.
(5)	**Actuator information**	It shows the “Model No.,” “Lead,” and “Stroke” from the actuator information.
(6)	**Movable range display**	It shows the movable range of the actuator with numerical values and arrows. The range shown changes according to the changes in the setting of the parameters.
(7)	**Legend**	It shows the legend used for the movable range.

3.7.4. Communication status

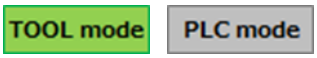
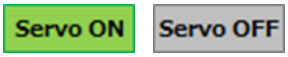
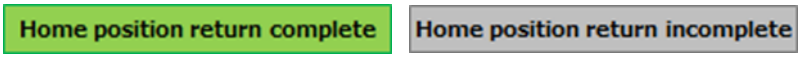
The communication status information is updated periodically. However, when the “Read,” “Write,” and “Initialize controller” buttons on the Edit tab are being processed, all items except “Port connection condition” are blank and will not be updated periodically.
The details of the communication status are as follows.

When connected to the controller

(1) (2) (3) (4) (5) (6) (7) (8) (9)

When not connected to the controller

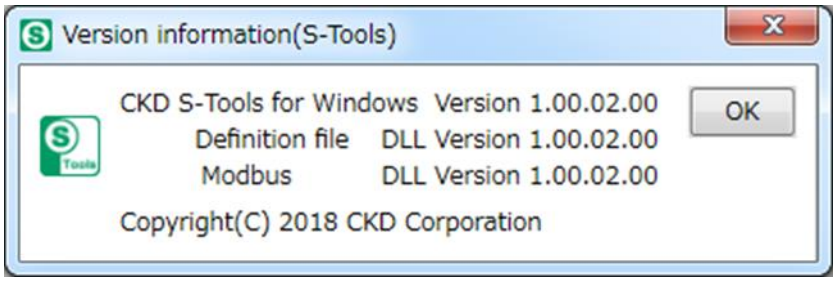
(1)

No.	Part Name	Description
(1)	**Port connection status**	It shows “Online” to indicate equipment is online when the port is opened and connected to the controller. It shows “Offline” to indicate equipment is offline when the port is closed. 
(2)	**TOOL/PLC status**	Online, it shows “TOOL mode” when the controller is in the TOOL mode. It shows “PLC mode” when the controller is in the PLC mode. Offline, it shows nothing. 
(3)	**Emergency stop status**	Online, it shows “Emergency stop operated” when the emergency stop is activated. It shows “Emergency stop not operated” when the emergency stop is not activated. Offline, it shows nothing. 
(4)	**Servo ON/OFF status**	Online, it shows “Servo ON” when the servo is turned on. It shows “Servo OFF” when the servo is turned off. Offline, it shows nothing. 
(5)	**Home position return status**	Online, it shows “Home position return complete” when the actuator has completed home position return. It shows “Home position return incomplete” when the actuator has not completed home position return. Offline, it shows nothing. 

No.	Part Name	Description
(6)	**Warning status**	Online, it shows “Warning” when there is a warning. It shows “No warning” when there is no warning. Offline, it shows nothing. 
(7)	**Alarm status**	Online, it shows “Alarm” when there is an alarm. It shows “No alarm” when there is no alarm. Offline, it shows nothing. 
(8)	**Alarm number**	Online, it shows an alarm number when there is an alarm or a warning. It shows “0000” when there is no alarm or warning. Offline, it shows nothing.
(9)	**Actuator model number**	Online, it shows the actuator model number in blue when the model number of the connected actuator is the same as the actuator model number on the window tab. It shows the actuator model number in red when they differ. Offline, it shows the actuator model number selected in the New dialog box in black.

3.7.5. Version information

Clicking the [Help] button at the far right end of the ribbon opens the Version information dialog box.
It shows the S-Tools version information and the version of the DLL used.



4. TROUBLESHOOTING

4.1. Problems, Causes, and Solutions

If a communication error occurs between S-Tools and the connected controller, check the table below for a possible solution.

Message	Cause	Solution
A communication error has occurred.	Controller does not respond correctly to a command from S-Tools.	Check that there is no problem in the connection of the USB cable.
		Check that the controller power is ON.
A timeout error has occurred.	Controller does not provide operation results correctly in response to a command from S-Tools even after certain period of time has elapsed.	Check that there is no alarm.
		Check that the command sent from S-Tools just before the message appeared has been executed by the controller.

5. REFERENCE MATERIALS

5.1. List of Shortcut Keys

Function	Item		Description	Shortcut	Key tip
File	**-**		Leaves the File menu selected.	-	Alt + F
	New		Opens the New dialog box.	Ctrl + N	Alt + F, N
	Open		Opens an existing file.	Ctrl + O	Alt + F, O
	Close		Closes the active window tab.		Alt + F, C
	Save		Overwrites and saves the file being edited.	Ctrl + S	Alt + F, S
	Save as		Saves the file being edited with a name.	-	Alt + F, A
	Print		Prints the file being edited.	Ctrl + P	Alt + F, P
	Print preview		Shows an image of the printed output of the file being edited.	-	Alt + F, V
	Recent files		Lists recently used files.	-	-
	Exit the application		Close the software (S Tools).	-	Alt + F, X
Home	**Home**		Starts the “Home” view.	-	Alt + H, H
	Restore initial size		Restores the window to its default size.	-	Alt + H, R
	Window	**Arrange windows vertically**	Displays multiple window tabs stacked vertically.	-	Alt + H, W + A, O
		Arrange windows horizontally	Displays multiple window tabs side by side.	-	Alt + H, W + A, V
		Cascade	Displays multiple window tabs overlapping one another.	-	Alt + H, W + A, C
	Language		Starts the “Language” view.	-	Alt + H, L
Setting	**Update**		Updates connectable communication ports.	-	Alt + S, U
	Connect		Connects a connectable communication port to the controller.	-	Alt + S, C
	Disconnect		Releases (opens) the connected communication port.	-	Alt + S, D

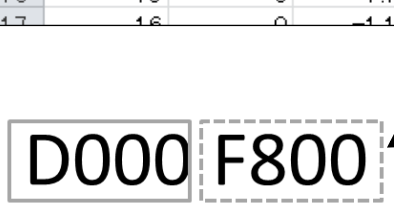
Function	Item		Description	Shortcut	Key tip
Setting	**Display setting**		Starts the “Display setting” view.	-	Alt + S, V
	Actuator setting		Starts the “Actuator setting” view.	-	Alt + S, A
	Network	**CC-Link setting**	Starts the “CC-Link setting” view.	-	Alt + S, F, F + C
		EtherCAT setting	Starts the “EtherCAT setting” view.	-	Alt + S, F, F + E
		EtherNet/IP setting	Starts the “EtherNet/IP setting” view.	-	Alt + S, F, F + N
Edit	**Point data**	**-**	Starts the “Point data” view.	-	Alt + E, P + O
		Undo	Restores unedited value.	Alt + U	-
		Redo	Restores edited value.	Alt + R	-
		Import position	Imports data on the current position from the controller.	Alt + G	-
		Copy row	Copies row by row (multiple rows can be copied).	Alt + C	-
		Paste row	Pastes information for the number of rows copied.	Alt + Q	-
		Initialize row	Initializes row by row (multiple rows can be selected).	Alt + I	-
		Travel time calculation	Calculates the travel time based on the value in the cells.	Alt + V	-
		Pressing display	Shows or hides the Pressing rate, Pressing speed, and Pressing distance columns.	Alt + O	-
		Travel time display	Shows or hides the Travel time and Start point columns.	Alt + T	-
	Parameters	**-**	Starts the “Parameters” view.	-	Alt + E, P + A
		Undo	Restores unedited value.	Alt + U	-
		Redo	Restores edited value.	Alt + R	-
		Import position	Imports data on the current position from the controller.	Alt + G	-
	Initialize editing data	**All data**	Initializes both the Point data and the Parameters.	-	Alt + E, C, A
		Point data only	Initializes only the Point data.	-	Alt + E, C, P
		Parameters only	Initializes only the Parameters.	-	Alt + E, C, R
	Read	**All data**	Reads both the Point data and the Parameters from the controller.	-	Alt + E, G, A
		Point data only	Reads only the Point data from the controller.	-	Alt + E, G, P

Function	Item		Description	Shortcut	Key tip
Edit	**Read**	**Parameters only**	Reads only the Parameters from the controller.	-	Alt + E, G, R
	Write	**All data**	Writes both the Point data and the Parameters to the controller.	-	Alt + E, S, A
		Point data only	Writes only the Point data to the controller.	-	Alt + E, S, P
		Parameters only	Writes only the Parameters to the controller.	-	Alt + E, S, R
	Initialize controller	**All data**	Initializes both the Point data and the Parameters stored in the controller.	-	Alt + E, L, A
		Point data only	Initializes only the Point data stored in the controller.	-	Alt + E, L, P
		Parameters only	Initializes only the Parameters stored in the controller.	-	Alt + E, L, R
Monitoring and maintenance	**Speed waveform**		Starts the “Speed waveform” view.	-	Alt + M, S
	Calendar		Starts the “Calendar” view.	-	Alt + M, C
	Alarm history		Starts the “Alarm history” view.	-	Alt + M, H
	Operation information	**Operation display**	Starts the “Operation display” view.	-	Alt + M, F,F + C
		Monitor & data R/W display	Starts the “Monitor & data R/W display” view.	-	Alt + M, F, F + E
	Maintenance information		Starts the “Maintenance information” view.	-	Alt + M, M
	Model information		Starts the “Model information” view.	-	Alt + M, I
Common	**Operation panel**		Opens/closes the operation panel.	-	Alt + P
	Operation 1	**Home position return**	Performs home position return of the servo.	Alt + F	-
		Servo switch	Switches the servo.	Alt + S	-
		Alarm clear	Clears an alarm.	Alt + E	-
		Mode switch	Switches the mode.	Alt + B	-
	Operation 2	**Home position return**	Performs home position return of the servo.	Alt + F	-
		Servo switch	Switches the servo.	Alt + S	-
		Alarm clear	Clears an alarm.	Alt + E	-
		Mode switch	Switches the mode.	Alt + B	-
	Adjust	**Mode switch**	Switches the mode.	Alt + B	-

5.2. Using the CSV File (Speed Waveform)

On the speed waveform screen, selecting to save the data in csv format with “Save as” saves the data as shown in the figure below. “No.” in column A indicates the data number; and to determine the time axis, it is necessary to calculate the product of the values in the “No.” and “Sampling time” cells.

	A	B	C	D	E	F	G	H	I
1	No.	Speed	Position	Current	IO				
2	1	0	-1.11	64	D000F800				
3	2	0	-1.11	65	D000F800		Date	2019/9/26	
4	3	0	-1.11	64	D000F800		Start time	20:04:50	
5	4	0	-1.11	65	D000F800		End time	20:04:59	
6	5	0	-1.11	65	D000F800		Sampling ti	100	ms
7	6	0	-1.11	65	D000F800				
8	7	0	-1.11	65	D000F800				
9	8	0	-1.11	65	D000F800				
10	9	0	-1.11	65	D000F800				
11	10	0	-1.11	64	D000F800				
12	11	0	-1.11	65	D000F800				
13	12	0	-1.11	64	D000F800				
14	13	0	-1.11	64	D000F800				
15	14	0	-1.11	64	D000F800				
16	15	0	-1.11	65	D000F800				



Input signals Output signals

“IO” in column E indicates the operation information for each time and indicates whether the input signals and the output signals are ON or OFF with an 8-digit number. The method for checking the ON/OFF for each signal is as follows.

- Signals are stored in “IO” only when the interface specifications is parallel I/O. For other interface specifications, 0 is output in “IO.”

■ Check method for input signals

Signal	Check method
Input 15	ON when the integer part of the value obtained by dividing the 8th digit (hex) by 8 is 1, and OFF when it is 0.
Input 14	ON when the integer part of the value obtained by dividing the 8th digit (hex) by 4 is odd, and OFF when it is even.
Input 13	ON when the integer part of the value obtained by dividing the 8th digit (hex) by 2 is odd, and OFF when it is even.
Input 12	ON when the 8th digit (hex) is odd, and OFF when it is even.
Input 11	ON when the integer part of the value obtained by dividing the 7th digit (hex) by 8 is 1, and OFF when it is 0.
Input 10	ON when the integer part of the value obtained by dividing the 7th digit (hex) by 4 is odd, and OFF when it is even.
Input 9	ON when the integer part of the value obtained by dividing the 7th digit (hex) by 2 is odd, and OFF when it is even.
Input 8	ON when the 7th digit (hex) is odd, and OFF when it is even.
Input 7	ON when the integer part of the value obtained by dividing the 6th digit (hex) by 8 is 1, and OFF when it is 0.
Input 6	ON when the integer part of the value obtained by dividing the 6th digit (hex) by 4 is odd, and OFF when it is even.
Input 5	ON when the integer part of the value obtained by dividing the 6th digit (hex) by 2 is odd, and OFF when it is even.
Input 4	ON when the 6th digit (hex) is odd, and OFF when it is even.
Input 3	ON when the integer part of the value obtained by dividing the 5th digit (hex) by 8 is 1, and OFF when it is 0.
Input 2	ON when the integer part of the value obtained by dividing the 5th digit (hex) by 4 is odd, and OFF when it is even.
Input 1	ON when the integer part of the value obtained by dividing the 5th digit (hex) by 2 is odd, and OFF when it is even.
Input 0	ON when the 5th digit (hex) is odd, and OFF when it is even.

■ Check method for output signals

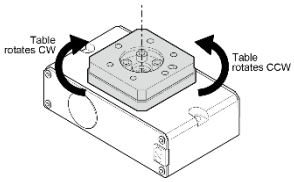
Signal	Check method
Output 15	ON when the integer part of the value obtained by dividing the 4th digit (hex) by 8 is 1, and OFF when it is 0.
Output 14	ON when the integer part of the value obtained by dividing the 4th digit (hex) by 4 is odd, and OFF when it is even.
Output 13	ON when the integer part of the value obtained by dividing the 4th digit (hex) by 2 is odd, and OFF when it is even.
Output 12	ON when the 4th digit (hex) is odd, and OFF when it is even.
Output 11	ON when the integer part of the value obtained by dividing the 3rd digit (hex) by 8 is 1, and OFF when it is 0.
Output 10	ON when the integer part of the value obtained by dividing the 3rd digit (hex) by 4 is odd, and OFF when it is even.
Output 9	ON when the integer part of the value obtained by dividing the 3rd digit (hex) by 2 is odd, and OFF when it is even.
Output 8	ON when the 3rd digit (hex) is odd, and OFF when it is even.
Output 7	ON when the integer part of the value obtained by dividing the 2nd digit (hex) by 8 is 1, and OFF when it is 0.
Output 6	ON when the integer part of the value obtained by dividing the 2nd digit (hex) by 4 is odd, and OFF when it is even.
Output 5	ON when the integer part of the value obtained by dividing the 2nd digit (hex) by 2 is odd, and OFF when it is even.
Output 4	ON when the 2nd digit (hex) is odd, and OFF when it is even.
Output 3	ON when the integer part of the value obtained by dividing the 1st digit (hex) by 8 is 1, and OFF when it is 0.
Output 2	ON when the integer part of the value obtained by dividing the 1st digit (hex) by 4 is odd, and OFF when it is even.
Output 1	ON when the integer part of the value obtained by dividing the 1st digit (hex) by 2 is odd, and OFF when it is even.
Output 0	ON when the 1st digit (hex) is odd, and OFF when it is even.

Index

Glossary

CAT5e
A standard for network cables, also called category 5e or category 5 enhanced. The communication speed has been improved from the conventional CAT5 standard. This cable is less susceptible to crosstalk caused by noise from other cables.

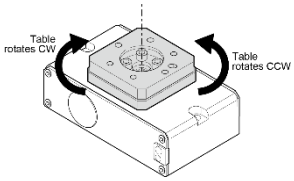
CCW
Abbreviation for Counter Clockwise Rotation. Counterclockwise when viewed from the output shaft side.



CRC
Abbreviation for Cyclic Redundancy Check. Also referred to as cyclic redundancy checking. A method to check whether data was transmitted, recorded, or replicated accurately.

CSP + file
Abbreviation for the Control & Communication System Profile Plus file. It contains information to help start up, operate, and maintain CC-Link compatible devices. Since the profile specification is fixed, parameters can be easily set for CC-Link products even if they are from different manufacturers.

CW
Abbreviation for Clockwise Rotation. Clockwise when viewed from the output shaft side.



Data Storage function
A function to back up the configuration parameter data of an IO-Link device, such as an ECG controller, to the IO-Link master.

DHCP server
A server that automatically assigns IP addresses and other configuration information to devices connected to a network.

EDS file
Abbreviation for Electronic Data Sheet file. It contains information to help start up, operate, and maintain EtherNet/IP-compatible devices. Since the profile specification is fixed, parameters can be easily set for EtherNet/IP products even if they are from different manufacturers.

ESI file
Abbreviation for EtherCAT Slave Information file. It contains information to help start up, operate, and maintain EtherCAT compatible devices. Since the profile specification is fixed, parameters can be easily set for EtherCAT products even if they are from different manufacturers.

HDLC
Abbreviation for High-level Data Link Control, and a type of protocol of the data link layer. Transmission efficiency is high because continuous transmission can be performed without waiting for the other party's response, and data error detection using CRC enables highly reliable data transmission.

IODD file
An abbreviation for the IO Device Description file. It contains information to help start up, operate, and maintain IO-Link compatible devices. Since the profile specification is fixed, parameters can be easily set for IO-Link products even if they are from different manufacturers.

IO-Link device
Devices such as sensors, actuators, and controllers compatible with IO-Link.

IO-Link master
It can connect multiple IO-Link devices and receive signals of the IO-Link devices. The IO-Link master can be set with IO-Link device setting items such as device verification function, backup function, and restore function using PLC development tools.

Input data
It indicates the 32 bit unit data (2 words) to be written from the host device (PLC, etc.) to the controller in EtherCAT communication.

Input signal
It indicates the bit-wise data to be written from the host device (PLC, etc.) to the controller in EtherCAT communication.

Output data
It indicates the 32 bit unit data (2 words) read from the controller by the host device (PLC, etc.) in EtherCAT communication.

Output signal
It indicates the bit-wise data read from the controller by the host device (PLC, etc.) in EtherCAT communication.

NPN
It indicates that NPN transistors are generally used in the output unit of a PLC in the connection of the parallel I/O specification. Even if the NPN transistor is not used, if the − side of the external power supply is connected to the output COM (output common) and the + side of the external power supply is connected to the input COM (input common), the term NPN is used. Also referred to as negative common type or sink type.

PNP
It indicates that PNP transistors are generally used in the output unit of a PLC in the connection of the parallel I/O specification. Even if the PNP transistor is not used, if the + side of the external power supply is connected to the output COM (output common) and the - side of the external power supply is connected to the input COM (input common), the term PNP is used. Also referred to as positive common type or source type.

PLC
Abbreviation for Programmable Logic Controller. A programmable controller for controlling industrial equipment. Possible to control multiple motors, sensors, robots, and other various devices.

WDT
Abbreviation for watchdog timer. A timer that detects an error in the computation time, monitors the time of one scan of the program, and issues an alarm if processing does not finish within the scheduled time.

Alarm code
When an error is detected, it is output from the controller to inform you of the error. You can check the display lamp of the controller, the output signal to the PLC, and all digits or one upper digit of the alarm code from S-Tools. You can check the details of the alarm in the Instruction Manual or the alarm history screen of S-Tools.

Inch operation
It is used when you want to move by relative position specification by the amount of travel set from the current position.

encoder
There are a linear encoder that measures and outputs movement on a linear axis, and a rotary encoder that measures and outputs angle (rotational movement). The rotary encoder is referred to as an encoder in this Instruction Manual, the instruction manual described in the “Instruction manual for this product”, and the catalog.

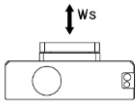
- Incremental encoder
  An encoder that measures and outputs the angle moved from the measurement start position. When using with an electric actuator, the amount of movement from the home position is unknown, so it is necessary to return to the home position before operating the actuator.
- Absolute encoder
  An encoder that measures and outputs the angle moved from the home position. When using with an electric actuator, it is not necessary to return to the home position before operating the actuator because it outputs the amount of movement from the home position.
- Battery-less absolute encoder
  An absolute encoder that does not require a battery to store the position.

Overhang amount
It indicates the distance from the center of the top surface of the slider to the center of gravity of the object transferred. In the catalog, the amount of overhang that is allowed in the front-back, left-right, and up-down directions is listed for each mass.

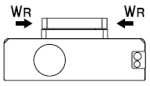
Regenerative current
Current that is generated by the motor operating like a generator when the moving part of the actuator is moved by an external force. Reverse current flows from the motor to the controller, causing malfunction or damage.

Portable mass
It indicates the maximum mass that the actuator can transfer.

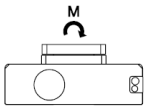
Allowable thrust load
Limit value of the load that can be applied in the direction of the actuator rotation axis. WS is used in this Instruction Manual, the instruction manual described in the “Instruction manual for this product”, and the catalog.



Allowable radial load
Limit value of the load that can be applied perpendicular (laterally) to the actuator rotation axis. WR is used in this Instruction Manual, the instruction manual described in the “Instruction manual for this product”, and the catalog.



Allowable moment load
Limit value of the load that can be applied in the direction of tilting the actuator rotation axis. M is used in this Instruction Manual, the instruction manual described in the “Instruction manual for this product”, and the catalog.



Home position
Position to be the reference (0 mm) for actuator operation.

Positioning repeatability
A term that is used only for grippers. It indicates the difference between the maximum and minimum stop positions when positioning operation is repeated from the same direction to the same position.

Repeatability
It Indicates the difference between the maximum and minimum stop positions when positioning operation is repeated from the same direction to the same position. However, in the case of grippers, it indicates the variation when the same workpiece is repeatedly gripped under the same operating conditions.

Grease
It is applied to bearings, bearings, etc., to reduce friction and smooth the operation of the machine. Because the performance cannot be demonstrated due to deterioration of grease or adhesion of foreign material, periodic maintenance is required.

Surge protector
A device that protects equipment and communication equipment from transient abnormal high voltage such as lightning.

Servo OFF
It indicates that the motor is not energized.

Servo ON
It indicates that the motor is energized.

Cyclic communication (transmission)
It indicates periodic communication between the host device (PLC, etc.) and the controller.

Subnet mask
A value that identifies in the IP address the part indicating which network it belongs to (network range) and the part indicating which device in the network . The subnet mask value tells you how many bits from the beginning of the IP address indicate the network range.

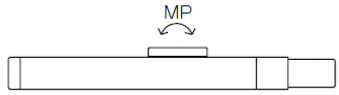
IP address: 192.168.10.1
Subnet mask: 255.255.0.0
⬇
Network range: 192.168.□.□

Jog operation
While the travel command is issued, the actuator continues to operate at the set speed.

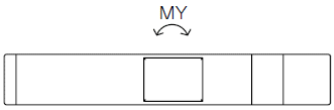
Slave station
A general term for stations other than the master station.

Static allowable moment
Limit value of the load moment that can be applied to the slider when the actuator is stationary. How to apply each moment in the slider type is as follows.

• Pitching moment
A moment acting in the front-rear direction on the slider movement axis. MP is used in this Instruction Manual, the instruction manual described in the “Instruction manual for this product”, and the catalog.



• Yawing moment
A moment that acts in the left-right direction on the slider movement axis. MY is used in this Instruction Manual, the instruction manual described in the “Instruction manual for this product”, and the catalog.



• Rolling moment
A moment that acts in the axial rotation direction on the slider movement axis. MR is used in this Instruction Manual, the instruction manual described in the “Instruction manual for this product”, and the catalog.

Installation category
A concept that expresses how well an electrical device can withstand the application of a transient voltage from an AC power source. The installation category 2 corresponds to “primary side circuit for equipment using a power cord connected to an outlet”.

Full-duplex communication
A communication method that allows simultaneous transmission and reception.

Occupied station number
In the CC-Link specification, a value that indicates how much traffic the controller occupies in the communication in the system. Since the number of stations that can be used by one master station is fixed, the total number of stations occupied by the controller and other units connected to the master station must be less than that value.

Soft limit
It indicates the limit of the operating range set in the controller.

Dynamic brake
A method that quickly stops the rotation of the motor by consuming rotational energy as heat energy by short-circuiting the motor terminals via a resistor in the event of a power failure or emergency stop. Since there is no holding torque during stop, it is necessary to use an electromagnetic brake for vertical installation.

Electromagnetic brake
A mechanism that mechanically fixes the output shaft of the motor to prevent the workpiece from falling off when becoming the servo OFF state due to power failure or an alarm in the vertical installation state. Because it is a brake for holding, it cannot be used for stopping during operation.

Electric Actuator
It is a combination of a motor and mechanical parts, and can control operations such as speed, angle, and force. The rotational force of the motor is transmitted to the drive system and converted into rotational motion or linear motion.

Default gateway
It indicates the IP address of a relay device (such as a router) that connects the inside network to the outside network. When sending or receiving data to or from a device at an address other than the network range set by the subnet mask, the relay device set by the default gateway is always passed through.

Screw lead
It refers to the distance that the workpiece can be moved when the motor rotates once in the electric actuator.

Noise filter
An electrical circuit or electronic circuit that removes noise, or a device that contains it.

Backlash
A mechanical play in gears, etc. The lower the backlash, the less rattling.

Parameters
Parameters let you set basic items for operating the actuator. In addition to the settings related to the actuator operation, settings related to communication with the PLC and warnings are also set with parameters.

Half-duplex communication
A communication method in which both transmission and reception cannot be performed at the same time (only one of them can be performed).

Fast Ethernet
It is standardized by IEEE802.3u and is a standard that improves the transmission speed of Ethernet to 100 Mbps.

Function block (FB)
It is a component of a circuit block that is used repeatedly so that it can be reused in a sequence program. By making them into the components, the control that combines multiple functions can be simplified as if it were a single command.

Ferrite core
It is magnetic material using ferrite material. It is used to attenuate high frequency noise.

Process data output / PD (out)
It indicates the data to be written from the host device (PLC, etc.) to the controller in IO-Link specification communication.

Process data input / PD (in)
It indicates the data that the host device (PLC, etc.) reads out from the controller in IO-Link specification communication.

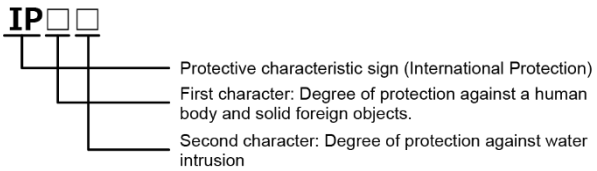
Point data
In the point data, the actuator operation pattern such as the target position and speed is set for each point number. In ECG series, the operation pattern for 64 points can be set, and the actuator can be operated by specifying the point number and issuing a travel command.

Polling
If multiple devices communicate separately, processing and signals can conflict and cause problems. Polling is the process in which the main device (master station) checks in order whether there are any requests from other devices (slave station) in order to communicate smoothly.
When polling response is being performed, it means that there is polling from the master station to the slave station, and the slave station is responding to the polling from the master station.

Ball screw
A mechanical element that can convert rotational motion to linear motion. Unlike sliding screws, the ball rolls between the screw shaft and nut, reducing energy loss due to friction. It is used to convert the rotational motion of the motor into the linear motion of the actuator.

Baud rate
It indicates the communication speed. A value that indicates how many times per second digital data can be modulated and demodulated.

Protective class IP20 / IP40
The protective class indicates the degree of protection from solid foreign materials such as dust and water. The first digit of the number indicates the degree of protection against the human body and solid foreign materials, and “2” indicates that it is protected against foreign solid materials with a diameter of 12.5 mm or more and “4” indicates that it is protected against foreign solid substances with a diameter of 1.0 mm or more. The second digit of the number indicates the degree of protection against water intrusion, and “0” indicates no protection. It is specified in JIS C 0920 and IEC 60529.



Master station
A station that controls the entire network. One master station is required for one network.

Mechanical end
A position where the moving part of the actuator stops mechanically.

Message communication (transmission)
It indicates communication that occurs irregularly (when necessary) between the host device (PLC, etc.) and the controller.

Remote device station
A station that cyclically transmits bit-wise input / output signal and word-based input / output data to the master station in the communication of CC-Link specification.

Remote output
It indicates bit-wise data that is written from the host device (PLC, etc.) to the controller in the communication of CC-Link specification.

Remote input
It indicates bit-wise data that the host device (PLC, etc.) reads out from the controller in the communication of CC-Link specification.

Remote register (output)
It indicates 16-bit unit (1 word) data that is written from the host device (PLC, etc.) to the controller in the communication of CC-Link specification.

Remote register (input)
It indicates 16-bit unit (1 word) data that the host device (PLC, etc.) reads out from the controller in the communication of CC-Link specification.

Lost motion
It is the maximum value of the difference between the average values at the stop position after rotating in the forward and reverse directions multiple times. It is affected by the backlash and the rigidity of the mechanism.