Oriental motor

HM-60131-8

Support software
MEXE02 Version 3
OPERATING MANUAL

This Operating Manual describes product handling procedures and safety precautions.

- Please read it thoroughly to ensure safe operation.
- Always keep the manual where it is readily available.

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1 Introduction

■ Before Use

Perform any installation, uninstallation, editing, and other operations for the support software **MEXE02** using an account with Administrator privileges.
Use the **MEXE02** correctly and safely after thoroughly reading the manual and understanding the basic operating procedures and other details.

■ Applicable product

The **MEXE02** can be used with Oriental Motor's stepping motor drivers, servo motor drivers, brushless motor drivers, and network converters etc.
A product that can be combined with the **MEXE02** is described as "applicable product" here.

■ Notation rules

The description of text in this manual follows the notation rules specified as shown at the right. The screens shown in this manual are those displayed in Windows 7. The screens vary according to the operating systems (OS) you will be using.

[ ]	Menus and submenus shown in/from the title bar, buttons, and other controls that can be clicked with the mouse, are enclosed in square brackets.
" "	Dialog box messages, etc., are enclosed in double quotations marks.

memo Unless otherwise noted, this manual explains using screen examples of the **AR** Series FLEX AC power input Built-in controller type.

■ Functions of MEXE02

The **MEXE02** is a software program that lets you set data required for motor operation from a PC.
Data can be edited in various PC screens, or data set in an applicable product can be checked from a PC.
The key functions of the **MEXE02** are explained below.

memo Functions, setting items, screens and others vary depending on the applicable product combined with the **MEXE02**. For the functions and operating methods that can be used, check the USER MANUAL or OPERATING MANUAL **AZ** Series Function Edition of the applicable product.

- **Editing and saving the data**

  Operation data and parameters can be created and edited.
  Data edited in the **MEXE02** can be written to an applicable product, or data stored in an applicable product can be read into the **MEXE02**.
  You can save data files created in the **MEXE02** in either the **MEXE02**'s dedicated file format or CSV format.

- **Monitor function**

  You can monitor the product (motor and driver) status, motor operating status, ON/OFF status of I/O signals, and others.
  The waveform monitor lets you check I/O signals, motor speeds and other settings based on measured waveforms.

- **Test function**

  - I/O test can be performed to monitor input signals and cause output signals to be output forcibly.
  - Test operation for the motor can be performed using the teaching/remote operation or remote operation.

■ Support menu

The [Support] menu may be shown on the menu bar depending on the applicable product combined with the **MEXE02**. The update of firmware can be performed from the [Support] menu.

memo
- The [Support] menu is not shown for all of the applicable products.
- The contents of the [Support] menu vary depending on the applicable product.

■ Installation and uninstallation of MEXE02

For the installation and uninstallation of the **MEXE02**, refer to Oriental Motor Website.

■ Communication cables

Communication cables vary depending on the applicable product. Check the USER MANUAL or OPERATING MANUAL Driver Edition of the applicable product.

- **When using a USB cable**

  Use a commercially available USB cable.

- **When using our CC05IF-USB communication cable for the support software**

  Our communication cable for support software **CC05IF-USB** is a set of two cables, a PC interface cable and a USB cable. Purchase it separately.

■ System requirements

The installation of the **MEXE02** on a PC requires one of the following operating systems (OS) and a PC compatible with the OS you will be using. For the Operating environment with **MEXE02** version 3, check on the Oriental Motor Website.

2 Safety precautions

The **MEXE02** is designed on the assumption that the user has an understanding of basic operations such as starting up and exiting applications in Windows and how to use a mouse. Use the product only after carefully reading and fully understanding these instructions.
Also read the "Safety precautions" section in the USER MANUAL or OPERATING MANUAL Driver Edition for the product to be used in combination with the **MEXE02**.

⚠WARNING

Handling the product without observing the instructions that accompany a "WARNING" symbol may result in serious injury or death.

Connection

- Turn off the power to both the PC and applicable product before connecting your PC to the applicable product. Failure to follow this instruction may cause electric shock.

⚠CAUTION

Handling the product without observing the instructions that accompany a "CAUTION" symbol may result in injury or property damage.

Connection

- The data setter connector or USB connector of the applicable product is not insulated. When grounding the positive terminal of the power supply, do not connect any equipment (PC, etc.) whose negative terminal is grounded. Doing so may cause the equipment and applicable product to short, damaging both. Do not ground the equipment if you plan to connect it.

Disposal

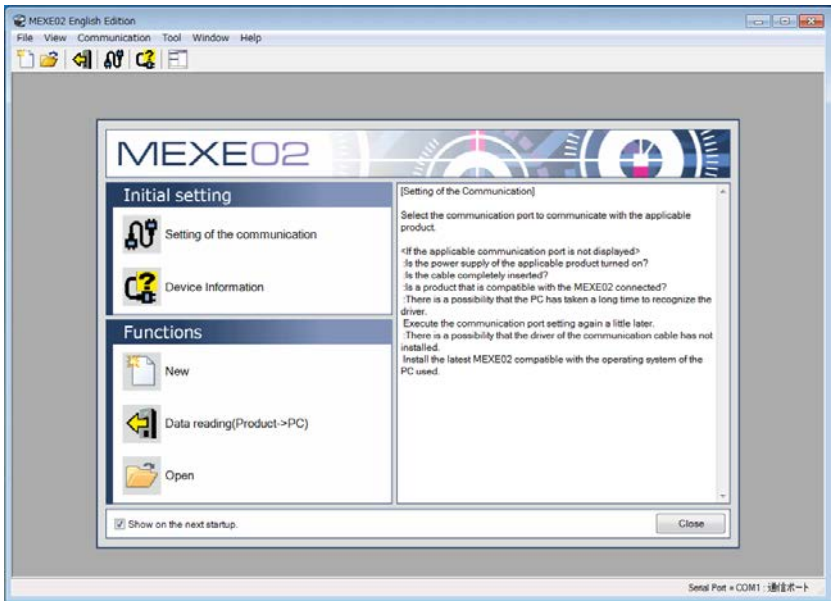
- Dispose the product correctly in accordance with laws and regulations, or instructions of local governments.

3 Startup and shutdown

This chapter explains how to start up and shut down the **MEXE02**.

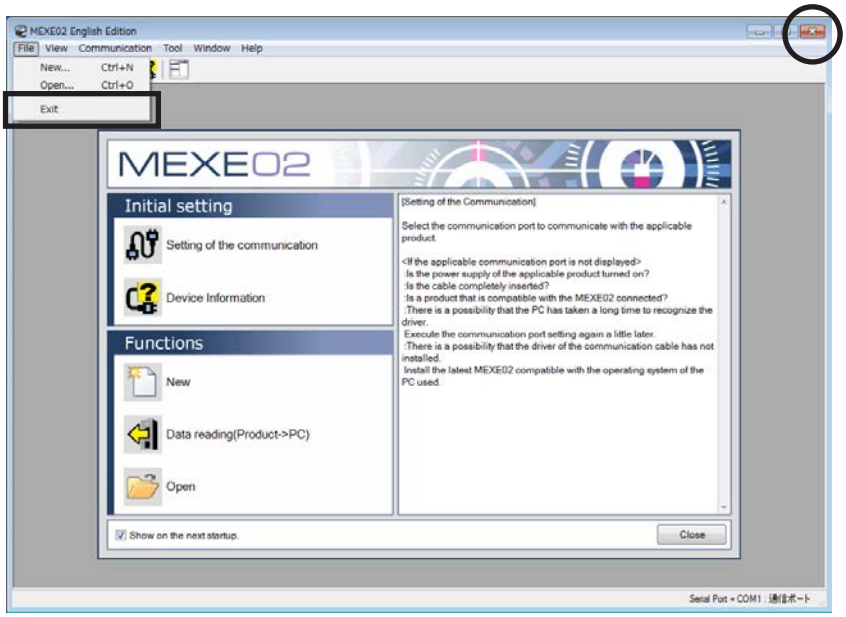
3-1 Starting the MEXE02

Double-click the **MEXE02** icon on the desktop to start the **MEXE02**.
The following window (launcher) appears.



3-2 Shutting down

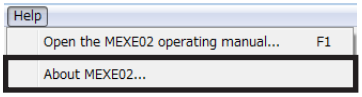
Click [Exit] from the [File] menu. Alternatively, click the button on the upper right of the screen.
The **MEXE02** shuts down.



3-3 Checking version information

You can check the version of the **MEXE02** software you are using.

1. Click [About **MEXE02**] from the [Help] menu.



2. After you have checked the software version, click [Close].

4 Connection with MEXE02 and applicable products

This chapter explains how to prepare to start communication with the **MEXE02**, and how to check the connected product.

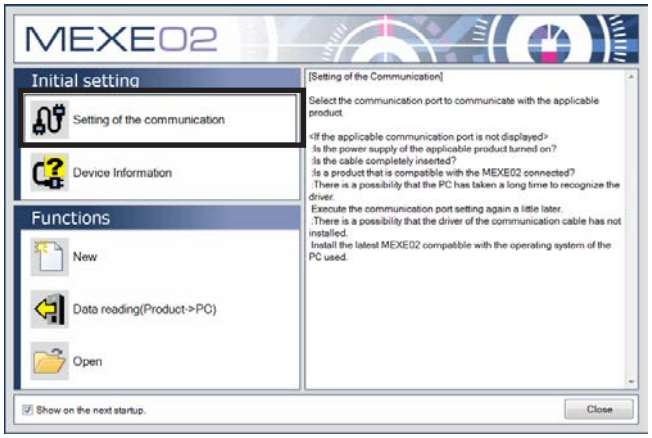
4-1 Connection with applicable product

1. Connect the PC in which the **MEXE02** has been installed and an applicable product.
   Read the USER MANUAL or OPERATING MANUAL Driver Edition of the applicable product to connect it correctly.
   Refer to p.4 for the communication cable.
2. Turn on the power to the applicable product.

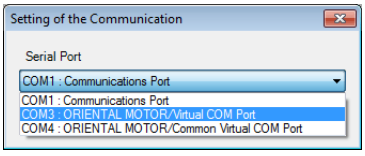
4-2 Setting of communication port

When connecting the PC and applicable product, the communication port is required to set.

1. Click [Setting of the communication] on the launcher.



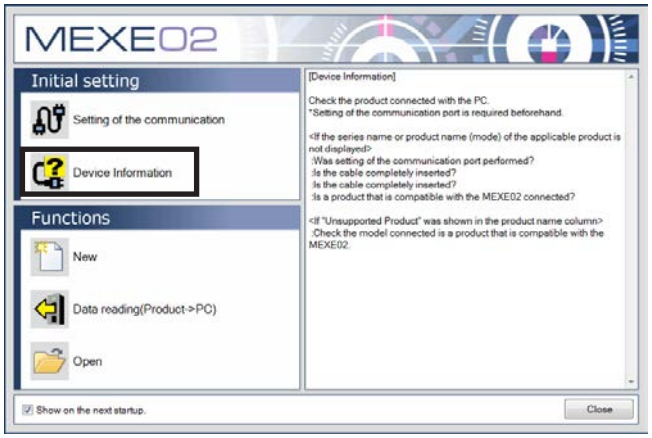
2. Select the port to which the applicable product is connected and click [OK].
   When connecting using the USB cable: "ORIENTAL MOTOR/common virtual COM port" is displayed.
   When connecting using the **CC05IF-USB**: "ORIENTAL MOTOR/virtual COM port" is displayed.



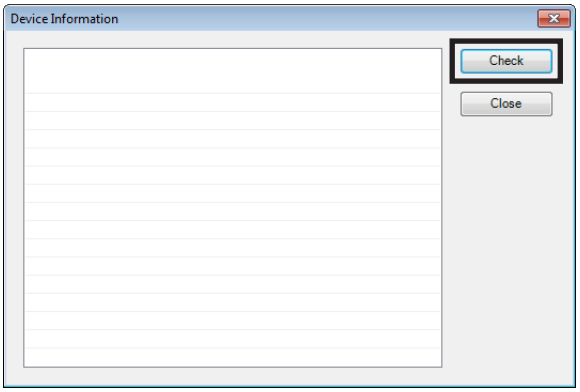
Note Before setting the communication port, make sure to connect the PC and applicable product and turn on the power of the applicable product. Without proper connection, the connection port will not be displayed.

4-3 Checking the connected product

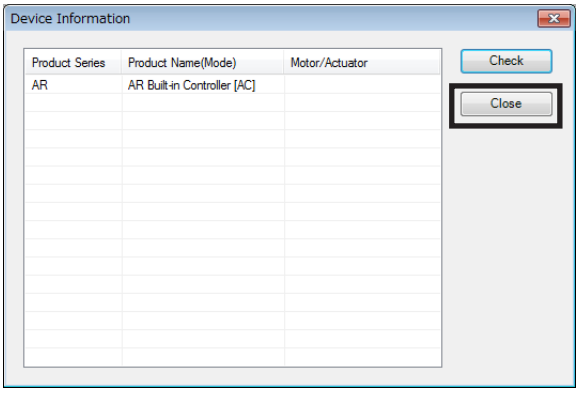
1. Click [Device information] on the launcher.



2. Click [Check].
   The check on the connected product starts.



3. When the results are displayed, click [Close].



- **When the series name or product name (mode) of the applicable product is not displayed.**

  Verify the following points:
  - Is the applicable product powered on?
  - Is the cable completely inserted?
  - Is the connected product compatible with the **MEXE02**?

- **When "Unsupported product" is shown in the product name column.**

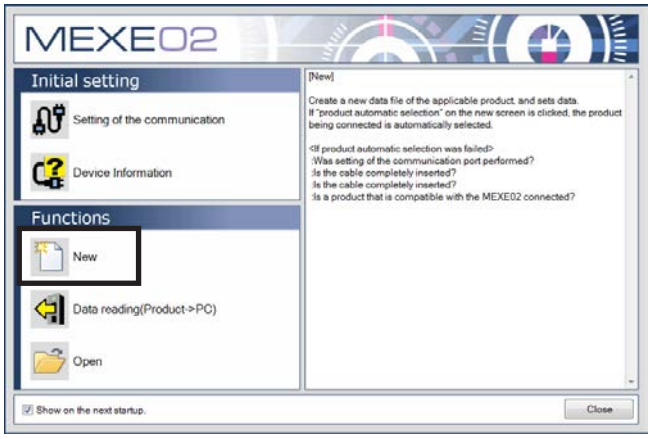
  Verify that the connected product is compatible with the **MEXE02**.

5 Methods for creating new data and editing data

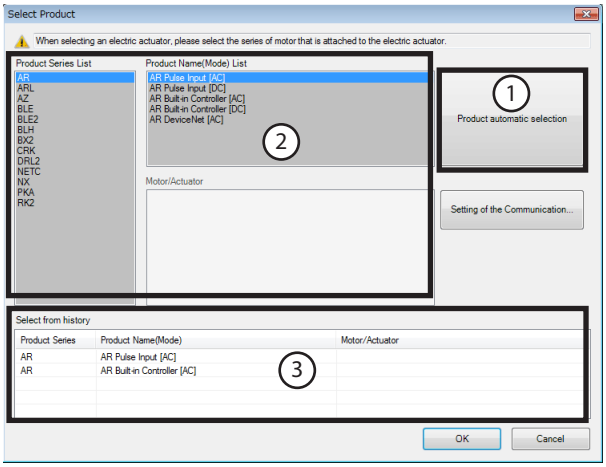
This chapter explains how to create data files, edit operation data and parameters, and store edited data.

5-1 Creating new data

1. Click [New] on the launcher.

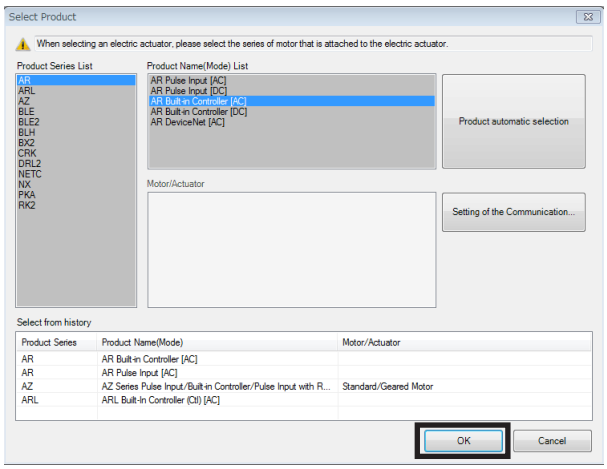


2. Select the model with any of the following methods.
   ① Click [Product automatic selection].
   The connected product is automatically selected.
   ② Select the model from the "Product series list," "Product name (mode) list," and "Motor/actuator."
   This is a method to select the model manually from the products shown in the list.
   ③ Select the model from "Select from history."
   This is a method to select the model manually from "Select from history."

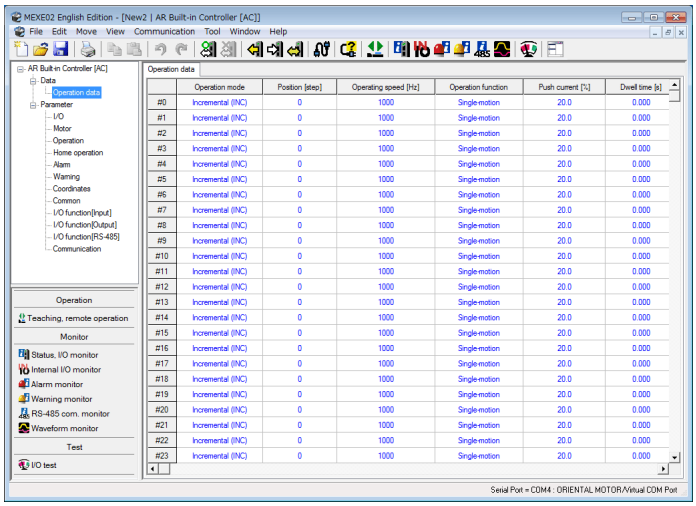


memo In the case of actuators, select the series name of the motor that is equipped to the actuator.

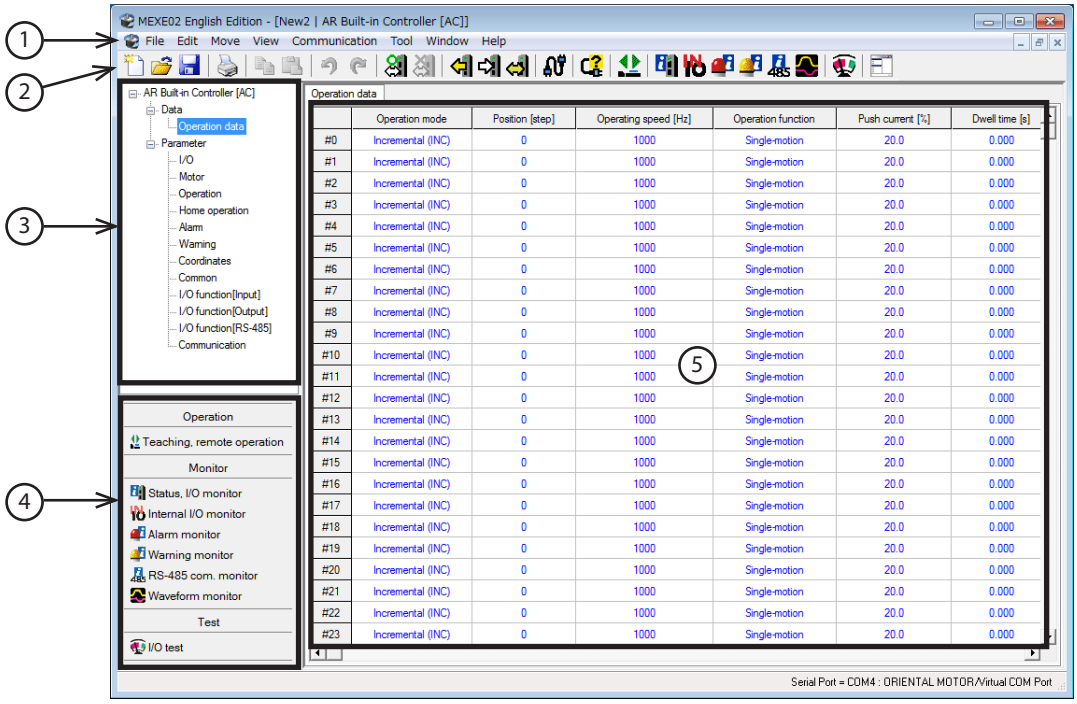
3. Click [OK].
   The data edit window appears.



Data edit window



■ Description of edit window



1	Menu bar	This is used to select and execute a function.
2	Tool bar	Some of the functions available on the menu are provided as an array of icons.
3	Tree view	This is used to select a group of data for editing.
4	Short-cut buttons	Using these buttons, functions such as monitor and test can be executed. The functions in this area can also be executed from the [Tool] menu.
5	Data setting area	This is an area to edit data. The display is changed by selecting a group from the tree view.

■ Explanation of functions

memo Functions, setting items, screens and others vary depending on the applicable product combined with the **MEXE02**. For the functions and operating methods that can be used, check the USER MANUAL or OPERATING MANUAL **AZ** Series Function Edition of the applicable product.

Name	Icon	Description
Teaching remote operation		This function lets you check how the motor will operate before actually connecting it to a host controller. Operation data can also be set using teaching function.
Remote operation		This function lets you check how the motor will operate before actually connecting it to a host controller.
I/O test		I/O signals of direct I/O and remote I/O can be tested. Also, you can monitor input signals and cause output signals to be output forcibly. This function is convenient if you want to check the wire connection of physical I/O with the host controller and the operation of network I/O.
Status, I/O monitor		You can monitor the current status of an applicable product and the ON/OFF status of I/O signals.
Internal I/O monitor		All the I/O signals of an applicable product can be monitored. You can also check signals not assigned to direct I/O or remote I/O.
Remote I/O monitor		You can check the ON/OFF status of network I/O.
Remote register monitor		You can monitor the remote register status that can be read and written to via a network.

Name	Icon	Description
RS-485 status monitor		You can monitor the RS-485 communication status of an applicable product.
Remote monitor		You can monitor the data sent and received between an applicable product and host controller.
Alarm monitor		The alarm records of up to ten most recent alarms starting from the latest one can be checked. Also, with the **AZ** Series, the operation and the status of I/O signals, which were executed when the alarm generated, can be checked.
Warning monitor		The warning records of up to ten most recent warnings starting from the latest one can be checked.
RS-485 communication monitor		The error records of up to ten most recent errors starting from the latest one can be checked. Also, with the **AZ** Series, the received data via RS-485 communication can be checked.
Waveform monitor		The motor speeds and I/O signal status can be checked in waveforms.
Gain tuning		You can adjust parameters while checking the motor speeds and I/O signal status in waveforms.
Launcher		You can start the launcher.

5-2 Setting data in the data edit window

Note Just changing the data in the **MEXE02** will not cause the data in the applicable product to change. To change the data in the applicable product, writing data must be performed. Refer to p.18 for details.

memo Data cannot be edited while communicating with the applicable product using the monitor or test function. Edit data after ending the communication.

■ Data entry

The background color of a cell is initially white. When the value in the cell is changed, the color of the cell changes to yellow.
The color of characters in the cell is initially blue. When the value in the cell is changed, the color of characters changes to black.

- **Entering a numeric value**

  Click a desired cell, and enter a numeric value using the keyboard.

Position loop gain	10
Speed loop gain	180

- **Selecting a value from a pull-down menu**

  Double-clicking a desired cell displays a pull-down menu. Select a desired value from the pull-down menu.

Control mode	Normal mode
Smooth drive	Normal mode Current control mode

- **Entering characters**

  Click a cell and enter characters using the keyboard.

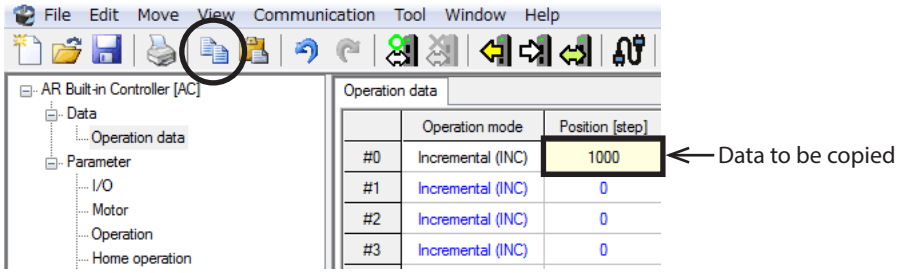
	Name	Operation type
#0	INDEX01	Incremental positioning (based on command position)
#1	INDEX02	Incremental positioning (based on command position)

Note Do not enter a comma (,) in the "Name" field of the operation data. Entering a comma may cause a problem in the subsequent data edit.

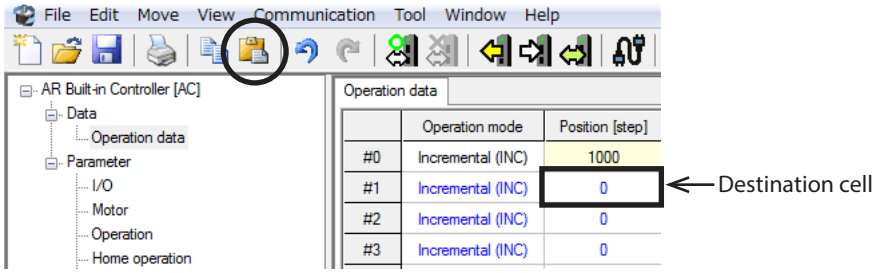
■ Copying and pasting data

You can copy an entered value and paste it into a different cell. Copying and pasting lets you quickly populate multiple cells with the same value.

1. Select the data you want to copy, and then click the [Copy] icon in the toolbar.
   You can select a single value or multiple values.

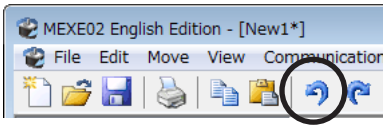


2. Click the cell you want to paste the data into, and then click the [Paste] icon in the toolbar.

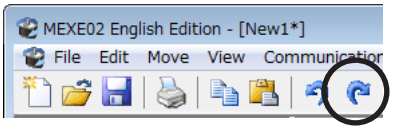


■ Undoing and redoing

1. To undo the last edit that you made, click the [Undo] icon in the toolbar.



2. To redo the last edit that was undone, click the [Redo] icon in the toolbar.



memo

- [Undo] operation cannot execute:
  - When communicating with the applicable product
  - When no edit has been done yet.
- [Redo] operation cannot execute:
  - When no [Undo] has been done yet.

5-3 Saving a data file

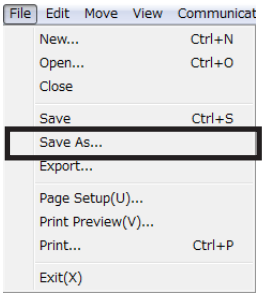
The data edited within the **MEXE02** or data read by the applicable product will be saved as a file.
Data files can be saved in the **MEXE02** format (.mx2), **MEXE02** extended format (.mx2a), or CSV format (.csv). Data files saved in the **MEXE02** format and **MEXE02** extended format cannot be opened in other applications. Save data files in the CSV format if you want to open them in other applications.

■ Saving data by overwriting

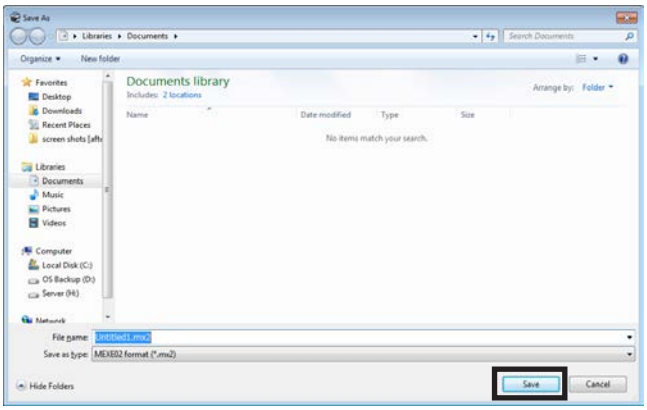
Click the [Save] icon in the toolbar.
The current data is saved over the existing data.

■ Saving data under a different name

1. Click [Save as] from the [File] menu.

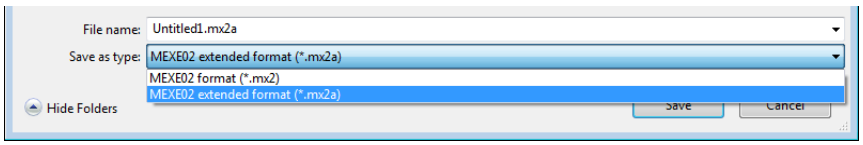


2. Enter a new file name, and click [Save].
   The data is saved under the specified name.



Note

If the data, which has been saved in the **MEXE02** extended format (.mx2a), will be saved in the **MEXE02** format (.mx2) again, the extended information will be erased. Be sure to check the saving format (filename extension) beforehand.

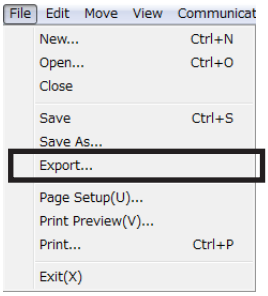


■ Saving data in CSV format

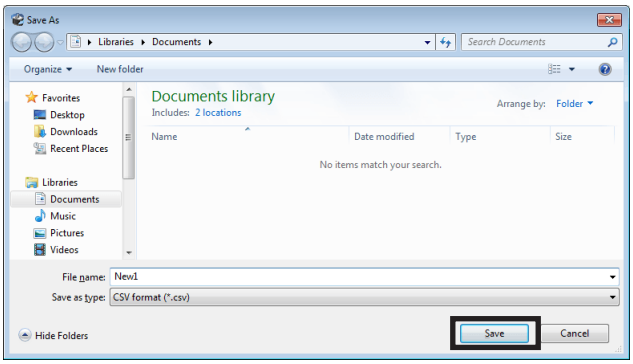
Data saved in the CSV format can be edited in applications other than the **MEXE02**.

memo Data files in the CSV format cannot be opened in the **MEXE02**. To edit in the **MEXE02**, open the file in an application other than the **MEXE02**, and paste the data to the **MEXE02**.

1. Click [Export] from the [File] menu.



2. Enter a file name, and click [Save].
   All operation data and parameters are saved in CSV format.

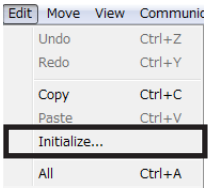


5-4 Data initialization

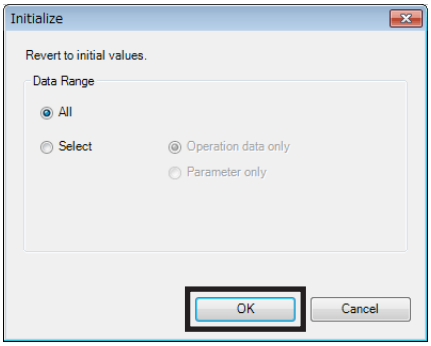
■ Restoring the editing data to the default

You can initialize the data you have edited in the data edit window.

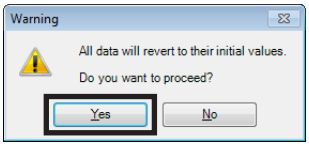
1. Click [Initialize] from the [Edit] menu.



2. Select the data you want to initialize, and click [OK].

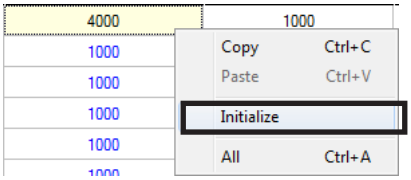


3. Click [Yes].
   The data being edited is returned to the default.



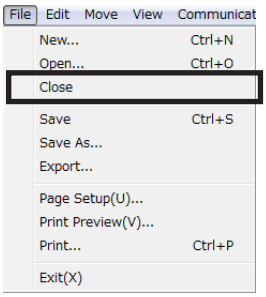
■ Restoring only the value in the selected cell to the default

1. Select the cell to return to the default on the data edit window.
2. Click the right mouse button, and click [Initialize].
   The value in the selected cell returns to the default.
   The color of the cell remains as yellow. It does not return to white (initial state).



5-5 Ending data edit

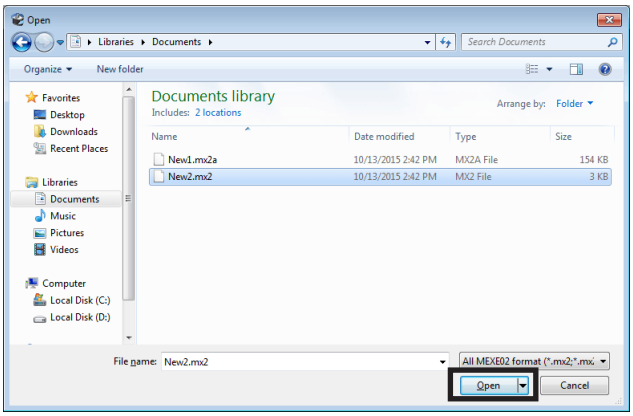
To close the data edit window, click [Close] from the [File] menu.



5-6 Opening an existing data file

1. Click the [Open] icon in the toolbar.

2. Select the file you want to edit, and click [Open].
   The data edit window appears.



6 Communication function between MEXE02 and applicable products

This chapter explains how to hold communication between the **MEXE02** and an applicable product to write or read data.

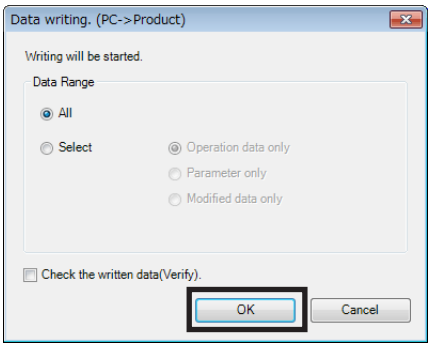
6-1 Writing data to applicable product

The data created in the **MEXE02** can be written to the applicable product.

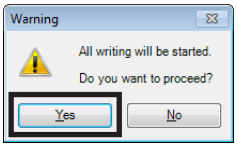
Note Do not turn off the power of the applicable product while writing data. Doing so may destroy the data.

1. Click the [Data writing] icon in the toolbar.

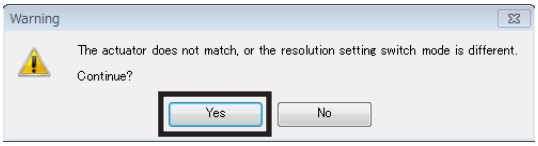
2. Select data to be written and click [OK].



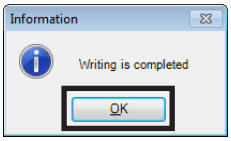
3. Click [Yes].
   Data writing starts.



4. If the following message is displayed, click either [Yes] or [No] after checking the applicable product.
   [Yes]: Writing data will be started.
   [No]: Writing data will be discontinued.

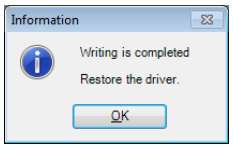


5. After it is completed, click [OK].

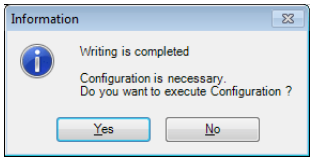


memo Depending on the data, you may need to turn on the power supply again or execute Configuration. Follow the instructions in the displayed messages.

- Restarting power



- Executing Configuration
  Click [Yes] to execute Configuration.
  If you click [No], execute Configuration manually.
  Refer to p.23 for details.

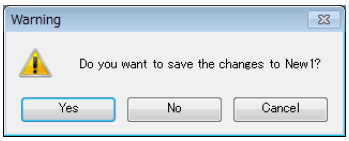


6-2 Reading data from applicable product

The data saved in an applicable product can be read to the **MEXE02**.

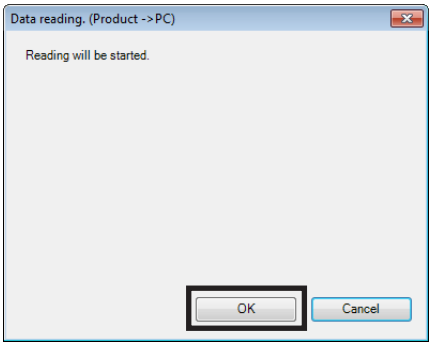
1. Click the [Data reading] icon in the toolbar.

2. If the data is being edited in the **MEXE02**, a confirmation message for saving the data is shown.
   Click [Yes] to save the edited data or [No] not to save it.

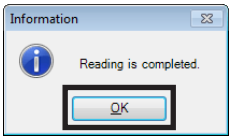


memo If you select [No], the data under editing is cleared and overwritten with the data to be read.

3. Click [OK].
   Data reading starts.



4. After it is completed, click [OK].
   The screen shows the data that has been read.

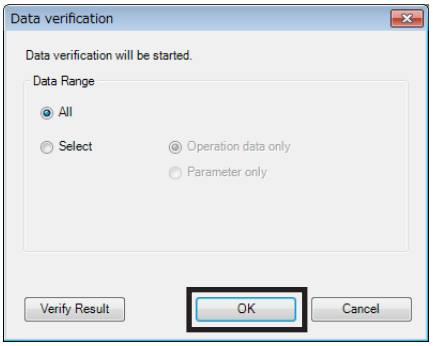


6-3 Verifying data

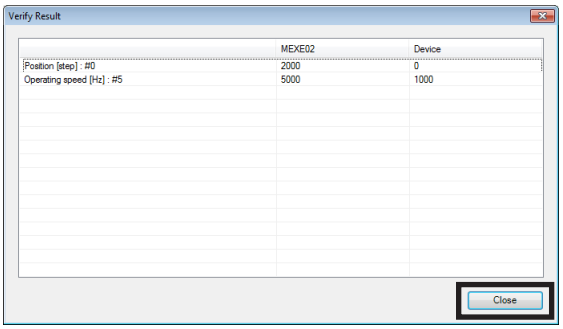
The data saved in the applicable product can be verified against the data displayed in the **MEXE02**.

1. Click the [Data verification] icon in the toolbar.

2. Select the data to be verified, and then click [OK].
   Data is verified.
   The results are displayed after the completion of verification.



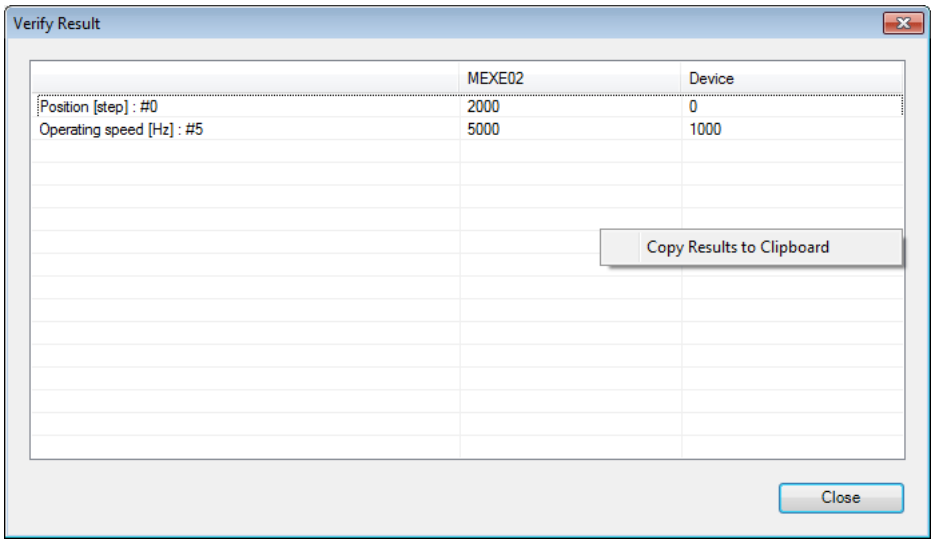
3. After checking the verification results, click [Close].



■ Copying verification results

The verification results can be copied to the clipboard by clicking the right mouse button on the area that displays the results and clicking [Copy results to clipboard]. The copied data can be pasted to other applications.

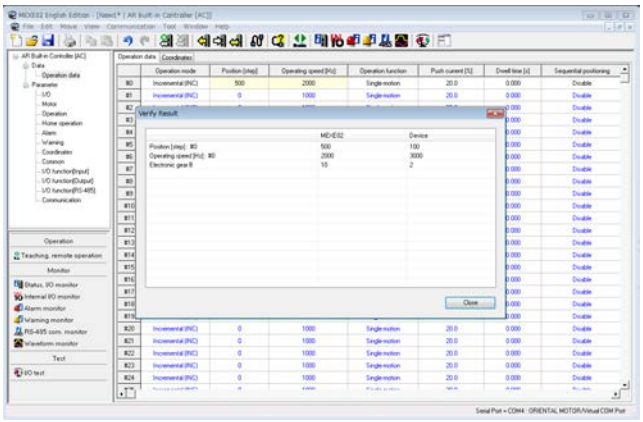
memo Nothing is copied if the data completely matches.



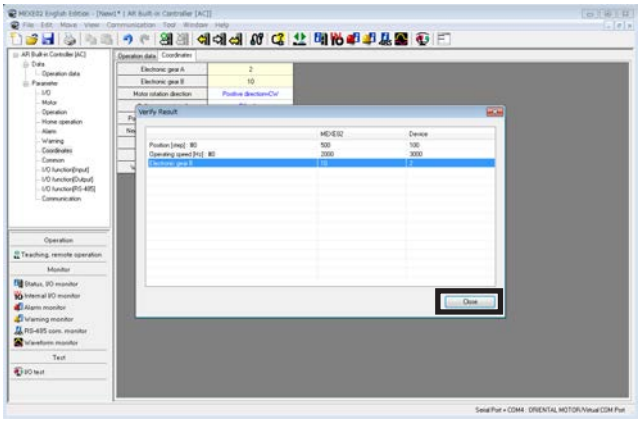
■ Jumping to desired data from verification results

You can jump from the list of verification results to the edit window for the displayed data.

1. Select and double-click data that you want to edit.
   The window for editing the desired data appears.



2. Click [Close].

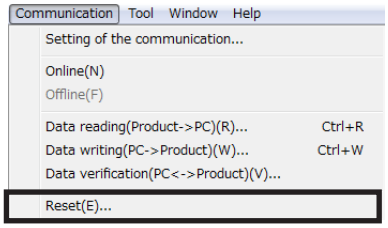


6-4 Resetting data of applicable product to factory default settings

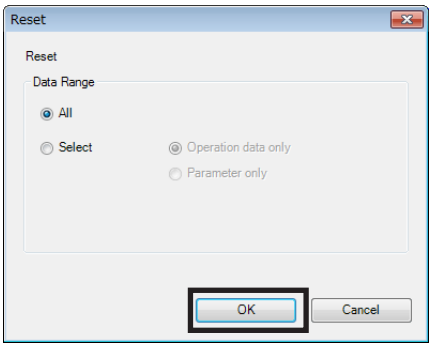
The data saved in the non-volatile memory of the applicable product can be reset to the factory default settings.

Note Do not turn off the power of the applicable product until the process is complete. Doing so may destroy the data.

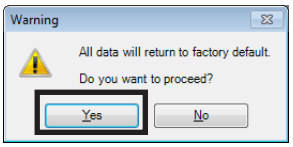
1. Click [Reset] from the [Communication] menu.



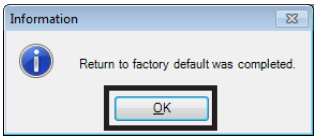
2. Select data that you want to reset to the factory default settings and click [OK].



3. Click [Yes].
   The data saved in the non-volatile memory of the applicable product will be reset to the factory default settings.

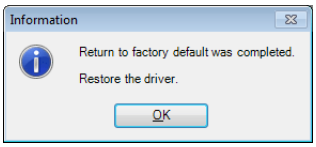


4. After it is completed, click [OK].

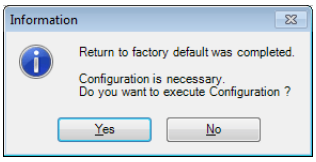


memo Depending on the data, you may need to turn on the power supply again or execute Configuration. Follow the instructions in the displayed messages.

- Restarting power



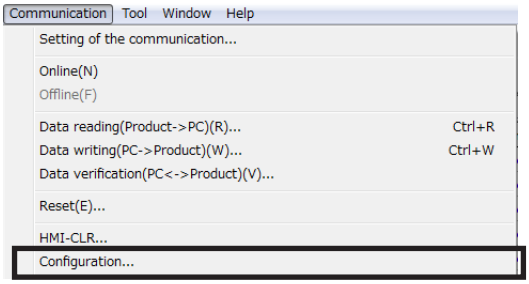
- Executing Configuration
  Click [Yes] to execute Configuration.
  If you click [No], execute Configuration manually.
  Refer to p.23 for details.



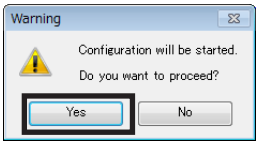
6-5 Executing Configuration

When the data of an applicable product is changed, the timing that the new value is applied varies depending on the data. When a message prompts asking to execute Configuration, perform according to the following procedure. This section explains using screen examples of the **AZ** Series Pulse input type, Pulse input type with RS-485 communication interface and Built-in controller type.

1. Click [Configuration] from the [Communication] menu.



2. Click [Yes].
   Configuration is executed.



3. After it is completed, click [OK].

6-6 Going offline collectively

This is a method to end the operation function, monitor function, and test function collectively.

- Online: A state where any of the operation function, monitor function, or test function is enabled
- Offline: A state where all of the operation function, monitor function, and test function are disabled

To go offline collectively, click the "Disconnect (offline)" icon in the toolbar.

Clicking the "Disconnect (offline)" icon brings into a pressed state, causing to go offline.

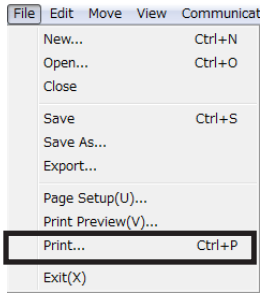
memo Executing any of the operation function, monitor function, or test function causes to go online automatically.

7 Printing data

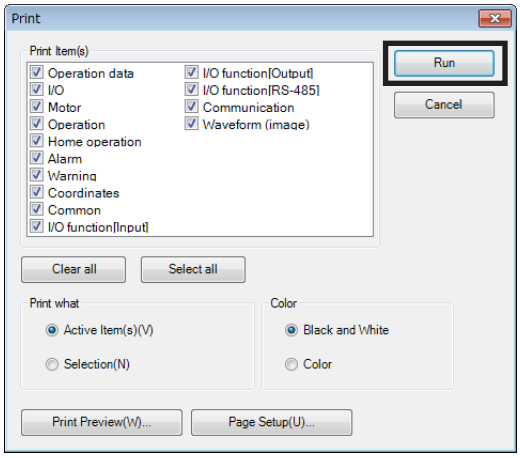
This chapter explains how to print the set data and waveform measurement results.

7-1 How to print data

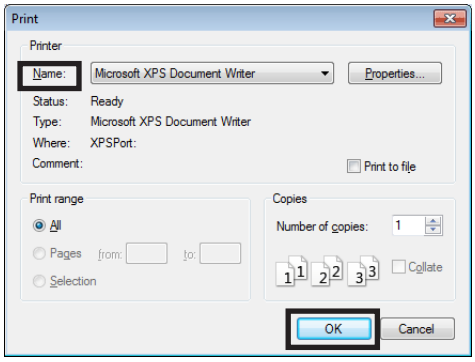
1. Click [Print] from the [File] menu.



2. Set the print item, print object and color, and click [Run].



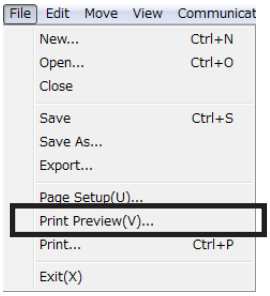
3. At "Name," select a printer that you want to use for printing and click [OK].
   Data is printed.



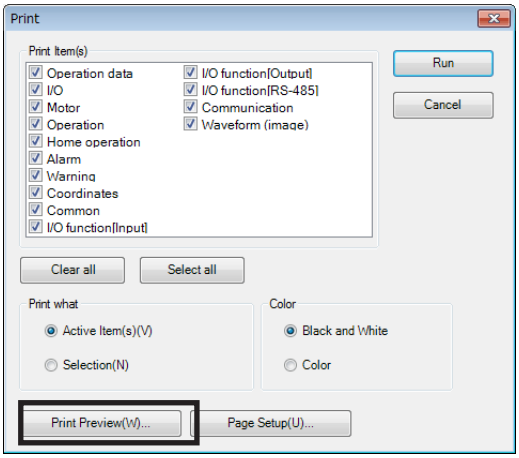
7-2 Print preview

You can preview the print image on screen before printing it on the printer.

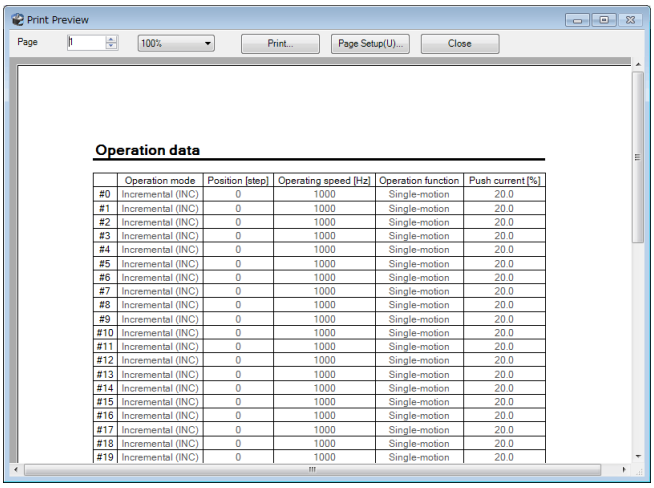
1. Click [Print preview] from the [File] menu. Alternatively, click [Print] from the [File] menu and, in the window that opens, execute print preview.



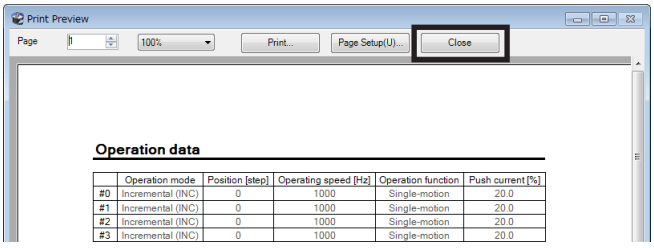
When [Print] is clicked



The print preview window appears.

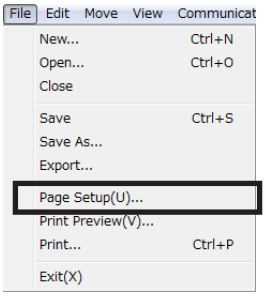


2. After checking the print image, click [Close].

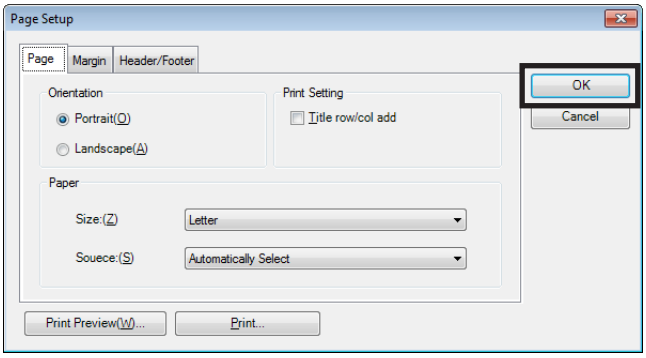


7-3 Setting print options

1. Click [Page setup] from the [File] menu.

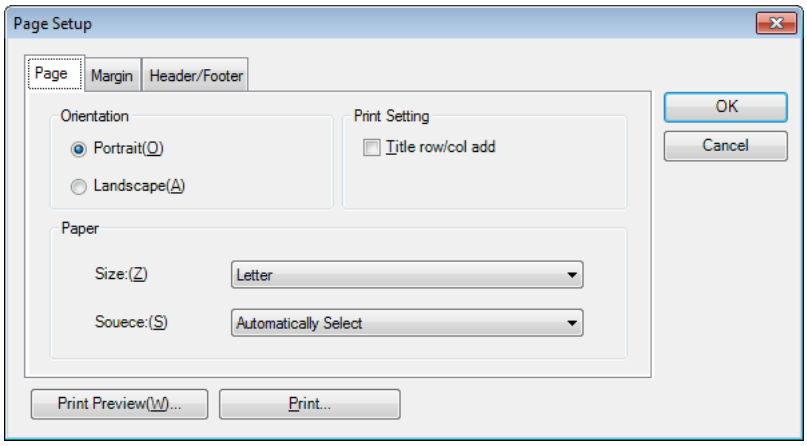


2. Click the tab of an option that you want to set.
   After the setting is completed, click [OK].



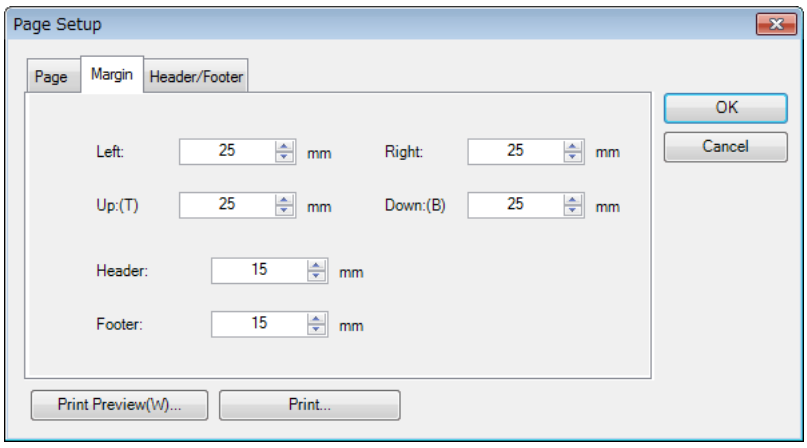
- **"Page" tab**

  Set the orientation, paper, etc. to be used for printing.



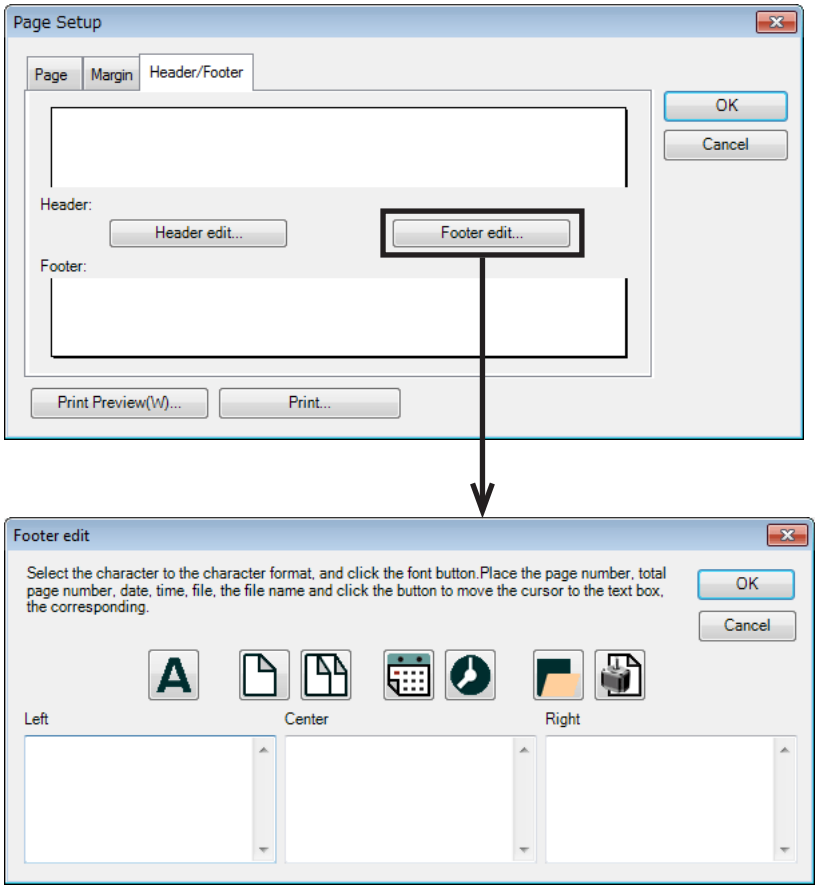
- **"Margin" tab**

  Set the paper margin and header/footer positions.



- **"Header/footer" tab**

  Set the header/footer.



8 Setup function

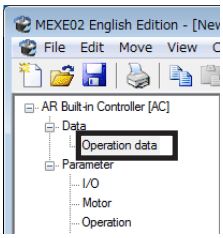
This chapter explains the functions mainly used to start up an applicable product.

8-1 Editing operation data

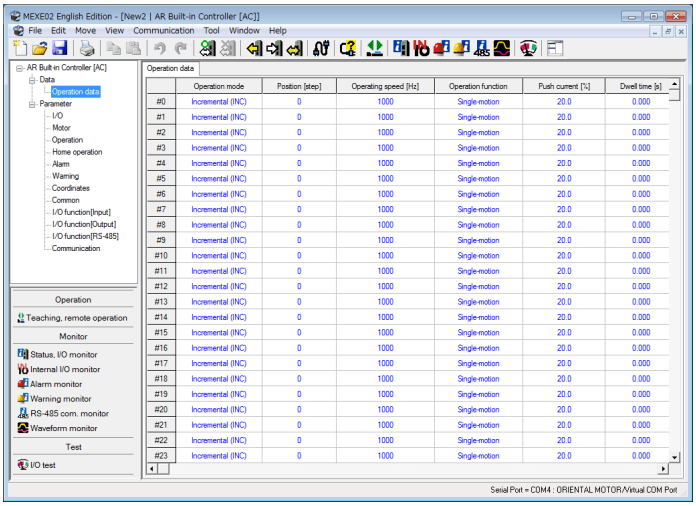
The operation data of an applicable product can be edited using the **MEXE02**.

Note Just changing the data in the **MEXE02** will not cause the data in the applicable product to change. To change the data in the applicable product, writing data must be performed. Refer to p.18 for details.

1. Open the data edit window.
2. Click [Operation data] on the tree view. The operation data edit window appears.

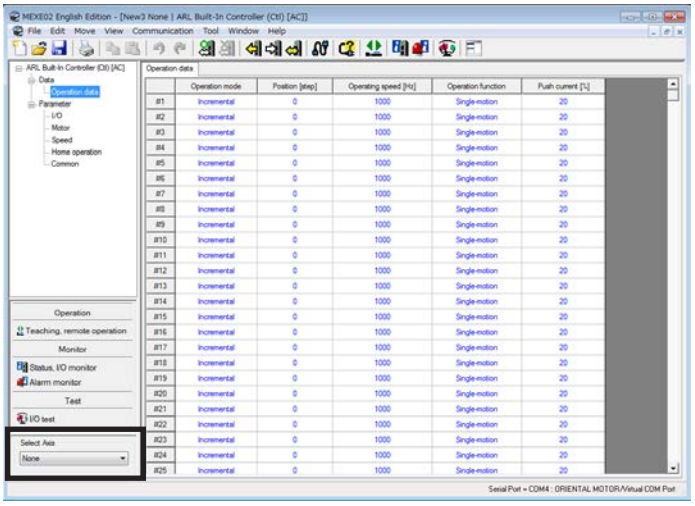


Operation data edit window



Refer to "5-2 Setting data in the data edit window" on p.13 for how to edit data and other information.

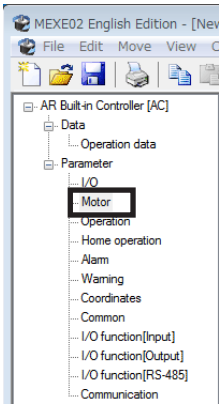
memo When the **ARL** Series is used, set the product ID in "Select axis" before editing the operation data. To edit the data, the product ID and the ID selected in the axis selection of the **MEXE02** must be matched.



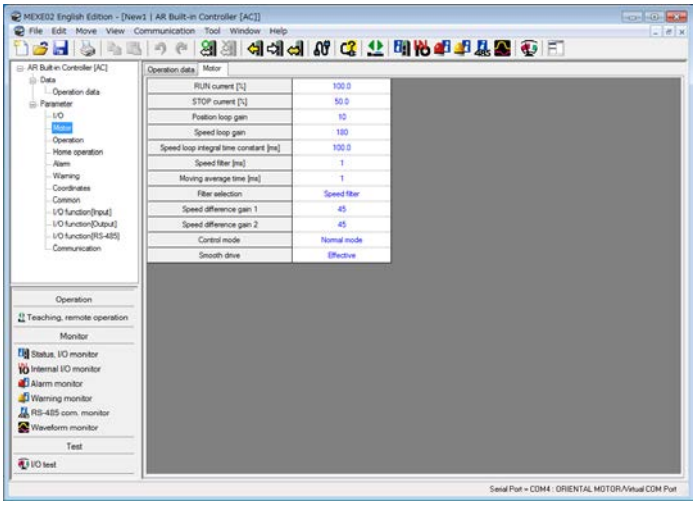
8-2 Editing parameters

The parameters of an applicable product can be edited using the **MEXE02**.
If "Data writing" is executed, the edited data can be written to the applicable product. Refer to "6-1 Writing data to applicable product" on p.18 for details.

1. Open the data edit window.
2. Click a parameter group that you want to edit from the tree view.
   The parameter edit window appears.



Parameter edit window



Refer to "5-2 Setting data in the data edit window" on p.13 for how to edit data and other information.

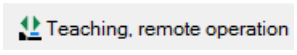
8-3 Teaching/remote operation

A motor can be operated using the **MEXE02**. This function lets you check how the motor will operate before actually connecting it to a host controller. Operation data can also be set using teaching function. Refer to p.44 for details.

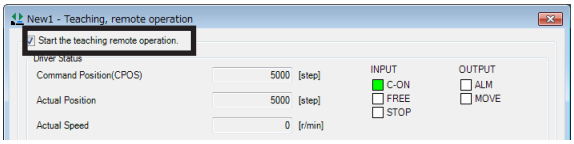
memo The teaching/remote operation and I/O test cannot be executed simultaneously.

1. Click the [Teaching, remote operation] icon in the toolbar or click the [Teaching, remote operation] short-cut button.
   The teaching/remote operation window appears.

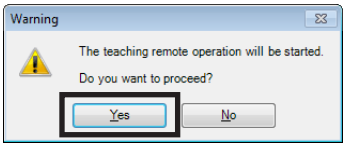
or



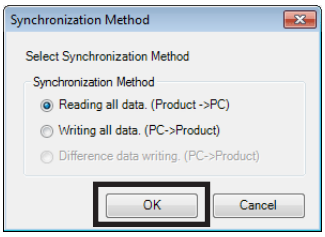
2. Click "Start the teaching remote operation."



3. Click [Yes].
   The teaching/remote operation is enabled.

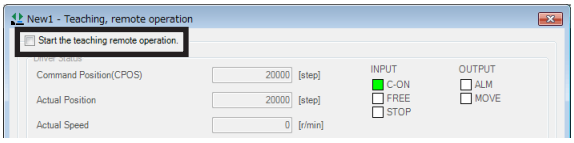


The teaching/remote operation requires synchronization of the data under editing and the data of an applicable product. When the data is not synchronized, the following window appears. Select a synchronization method and click [OK].



memo When the above window appears, all the communications in progress are disabled. All the other monitors in progress in other windows are also stopped. Resume monitor after synchronization is completed.

4. To end the teaching/remote operation, unselect "Start the teaching remote operation."



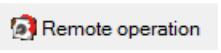
8-4 Remote operation

A motor can be operated using the **MEXE02**. This function lets you check how the motor will operate before actually connecting it to a host controller. Refer to p.44 for details.
This section explains using screen examples of the **AR** Series AC power input Pulse input type.

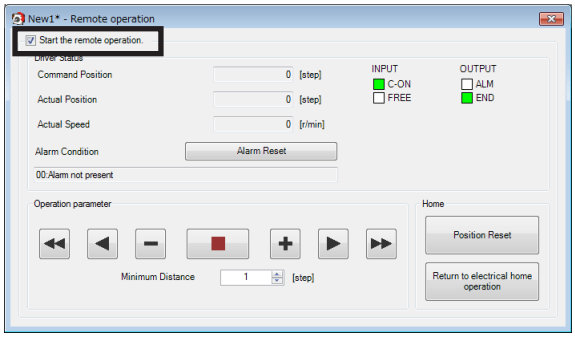
memo The remote operation and I/O test cannot be executed simultaneously.

1. Click the [Remote operation] icon in the toolbar or click the [Remote operation] short-cut button.
   The remote operation window appears.

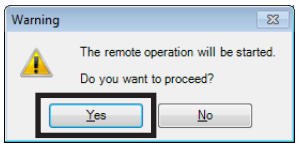
or



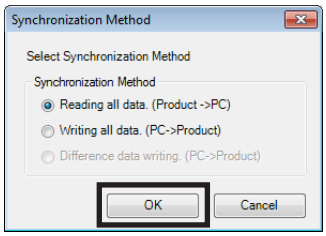
2. Click "Start the remote operation."



3. Click [Yes].
   The remote operation is enabled.

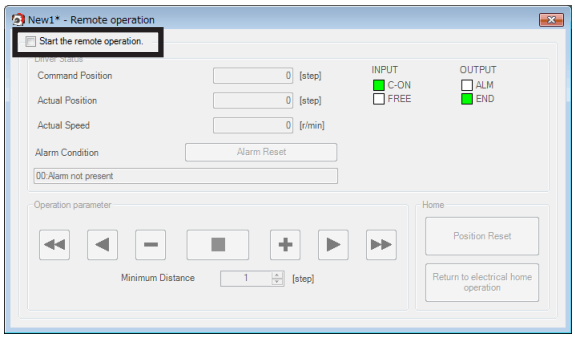


The remote operation requires synchronization of the data under editing and the data of an applicable product. When the data is not synchronized, the following window appears. Select a synchronization method and click [OK].



memo When the above window appears, all the communications in progress are disabled. All the other monitors in progress in other windows are also stopped. Resume monitor after synchronization is completed.

4. To end the remote operation, unselect "Start the remote operation."



8-5 I/O test

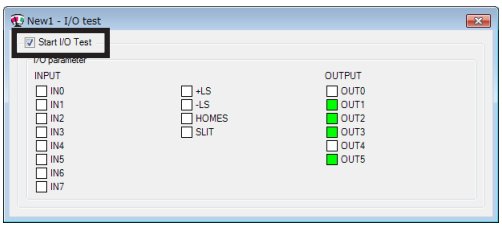
I/O signals of direct I/O and remote I/O can be tested. Also, you can monitor input signals and cause output signals to be output forcibly.
This function is convenient if you want to check the wire connection of physical I/O with the host controller and the operation of network I/O.

Note In I/O test, you can forcibly turn on or off output signals. Consequently, other equipment connected to an applicable product may operate. Check the surrounding circumstances to ensure safety before conducting this procedure.

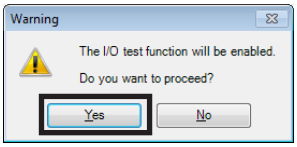
memo The teaching/remote operation and I/O test cannot be executed simultaneously.

1. Click the [I/O test] icon in the toolbar or click the [I/O test] icon.
   The I/O test window appears.

2. Click "Start I/O test."



3. Click [Yes].
   You can now perform I/O test.



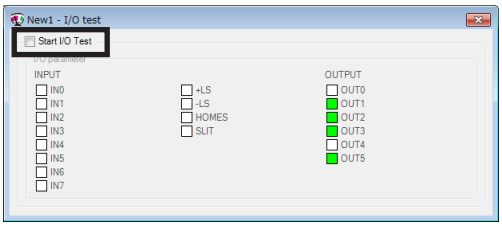
4. Switch the ON/OFF status of input signals externally.
   The check box ☐ of the corresponding "INPUT" is changed in the window.

Indicator	Direct I/O	Remote I/O (RS-485 communication)
ON (green)	Conducting	Active
OFF (white)	Non-conducting	Not active

5. When switching the ON/OFF status of output signals, click the check box ☐ of "OUTPUT" in the window.

Indicator	Direct I/O	Remote I/O (RS-485 communication)
ON (green)	Conducting	Active
OFF (white)	Non-conducting	Not active

6. To end the I/O test, unselect "Start I/O test."



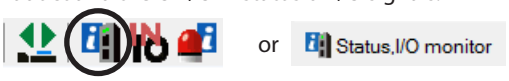
9 Monitor function

This chapter explains how to check the status of an applicable product using the **MEXE02**.

9-1 Status, I/O monitor

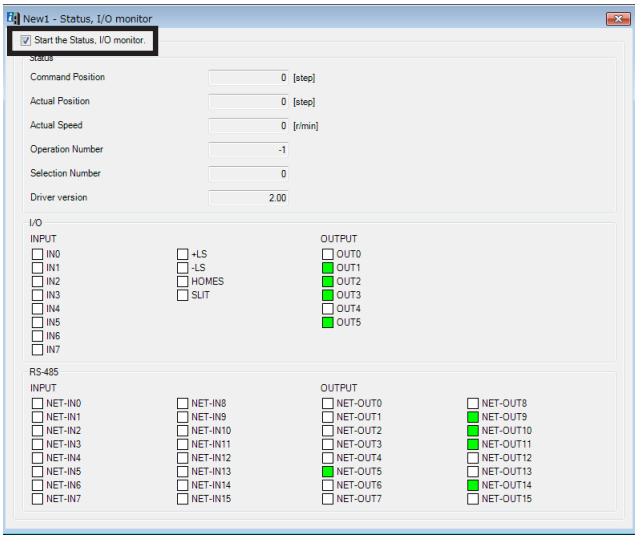
You can monitor the current status of an applicable product and the ON/OFF status of I/O signals.

1. Click the [Status, I/O monitor] icon in the toolbar or click the [Status, I/O monitor] short-cut button.
   The status, I/O monitor window appears.

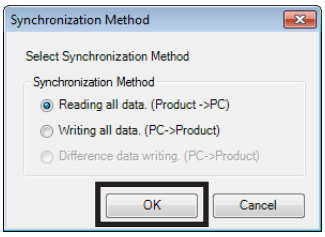


2. Click "Start the status, I/O monitor."
   The status, I/O monitor starts.
   The ON/OFF status of I/O signals is displayed as shown in the table.

Indicator	I/O	RS-485 communication
ON (green)	Conducting	Active
OFF (white)	Non-conducting	Not active

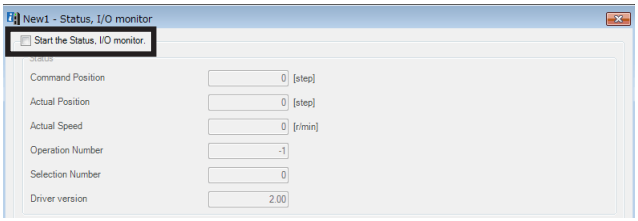


The status, I/O monitor requires synchronization of the data under editing and the data of an applicable product. When the data is not synchronized, the following window appears. Select a synchronization method and click [OK].



memo When the above window appears, all the communications in progress are disabled. All the other monitors in progress in other windows are also stopped. Resume monitor after synchronization is completed.

3. To exit the monitor, unselect "Start the status, I/O monitor."

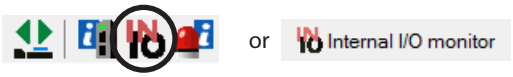


9-2 I/O monitor

■ Internal I/O monitor

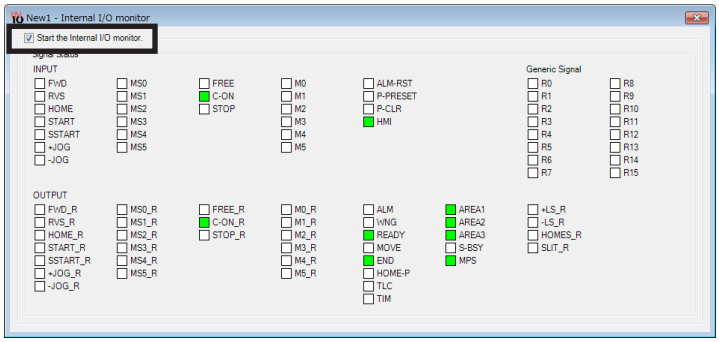
All the I/O signals of an applicable product can be monitored. You can also check signals not assigned to direct I/O or remote I/O.

1. Click the [Internal I/O monitor] icon in the toolbar or click the [Internal I/O monitor] short-cut button.
   The internal I/O monitor window appears.

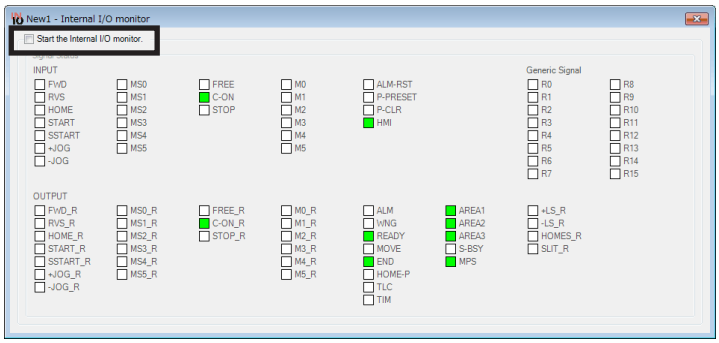


2. Click "Start the internal I/O monitor."
   The internal I/O monitor starts.
   The ON/OFF status of I/O signals is displayed as shown in the table.

Indicator	Internal signal status
ON (green)	Active
OFF (white)	Not active



3. To exit the monitor, unselect "Start the internal I/O monitor."

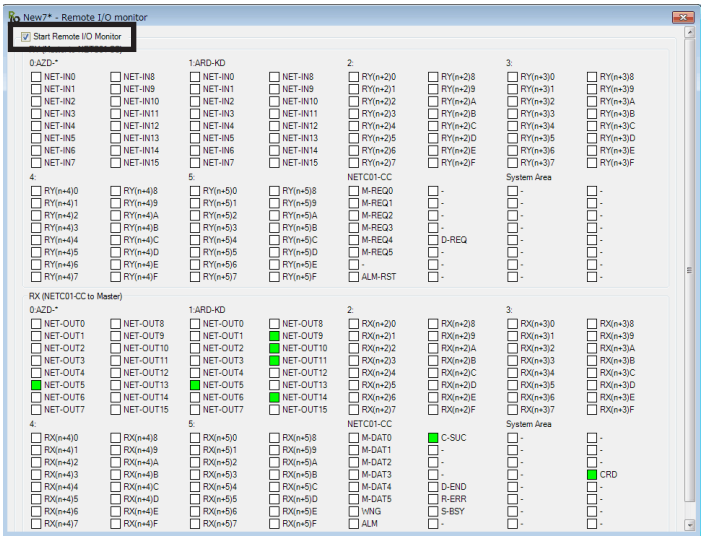


■ Remote I/O monitor

You can check the ON/OFF status of network I/O.
This section explains using screen examples of the network converter CC-Link compatible **NETC01-CC**.

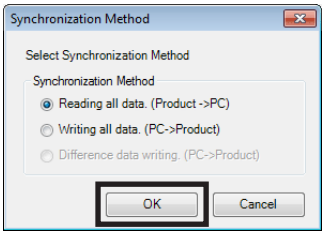
1. Click the [Remote I/O monitor] icon in the toolbar or click the [Remote I/O monitor] short-cut button.
   The remote I/O monitor window appears.

2. Click "Start remote I/O monitor."
   The remote I/O monitor starts.
   The ON/OFF status of I/O signals is displayed as shown in the table.



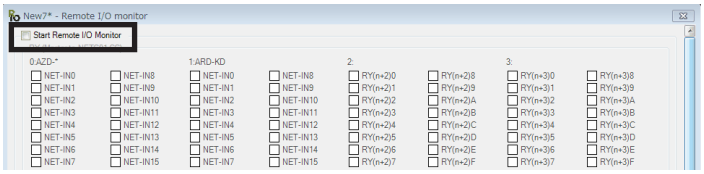
Indicator	Remote I/O (RS-485 communication)
ON(green)	Active
OFF (white)	Not active

The remote I/O monitor requires synchronization of the data under editing and the data of an applicable product. When the data is not synchronized, the following window appears. Select a synchronization method and click [OK].



memo When the above window appears, all the communications in progress are disabled. All the other monitors in progress in other windows are also stopped. Resume monitor after synchronization is completed.

3. To exit the monitor, unselect "Start remote I/O monitor."

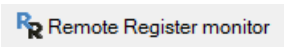


9-3 Remote register monitor

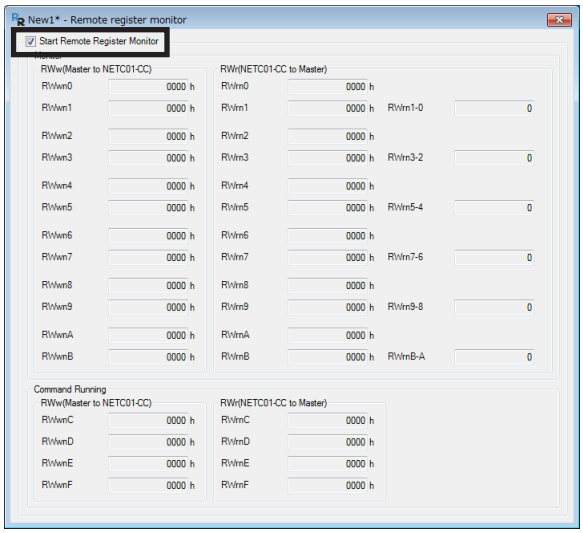
You can monitor the remote register status that can be read and written to via a network.
This section explains using screen examples of the network converter CC-Link compatible **NETC01-CC**.

1. Click the [Remote register monitor] icon in the toolbar or click the [Remote register monitor] short-cut button.
   The remote register monitor window appears.

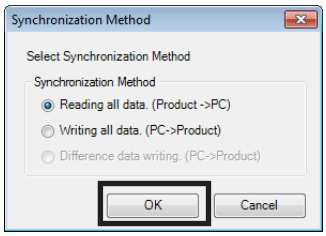
or



2. Click "Start remote register monitor."
   The remote register monitor starts.

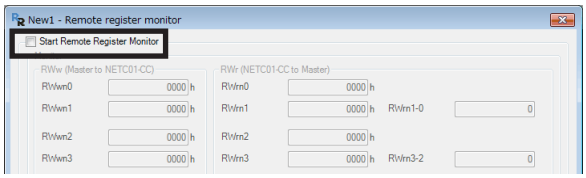


The remote register monitor requires synchronization of the data under editing and the data of an applicable product. When the data is not synchronized, the following window appears. Select a synchronization method and click [OK].



memo When the above window appears, all the communications in progress are disabled. All the other monitors in progress in other windows are also stopped. Resume monitor after synchronization is completed.

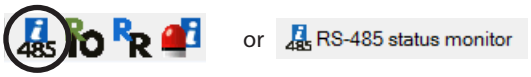
3. To exit the monitor, unselect "Start remote register monitor."



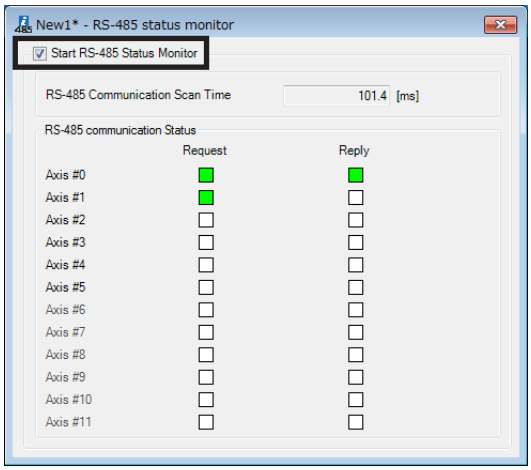
9-4 RS-485 status monitor

You can monitor the RS-485 communication status of an applicable product.
This section explains using screen examples of the network converter CC-Link compatible **NETC01-CC**.

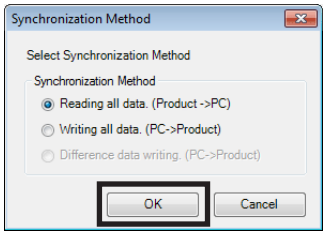
1. Click the [RS-485 status monitor] icon in the toolbar or click the [RS-485 status monitor] short-cut button.
   The RS-485 status monitor window appears.



2. Click "Start RS-485 status monitor."
   The RS-485 status monitor starts.

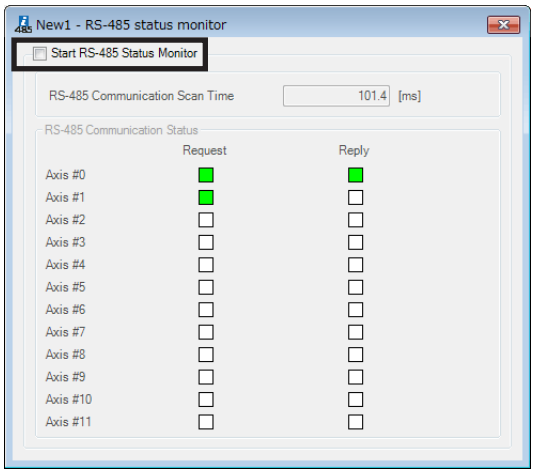


The RS-485 status monitor requires synchronization of the data under editing and the data of an applicable product. When the data is not synchronized, the following window appears. Select a synchronization method and click [OK].



memo When the above window appears, all the communications in progress are disabled. All the other monitors in progress in other windows are also stopped. Resume monitor after synchronization is completed.

3. To exit the monitor, unselect "Start RS-485 status monitor."

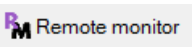


9-5 Remote monitor

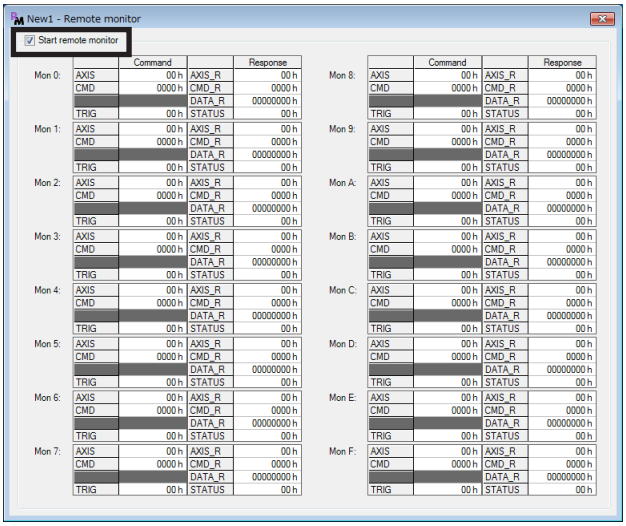
You can monitor the data sent and received between an applicable product and host controller.
This section explains using screen examples of the network converter EtherCAT compatible **NETC01-ECT**.

1. Click the [Remote monitor] icon in the toolbar or click the [Remote monitor] short-cut button.
   The remote monitor window appears.

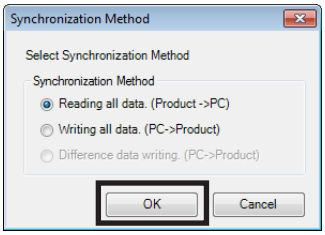
or



2. Click "Start remote monitor."
   The remote monitor starts.

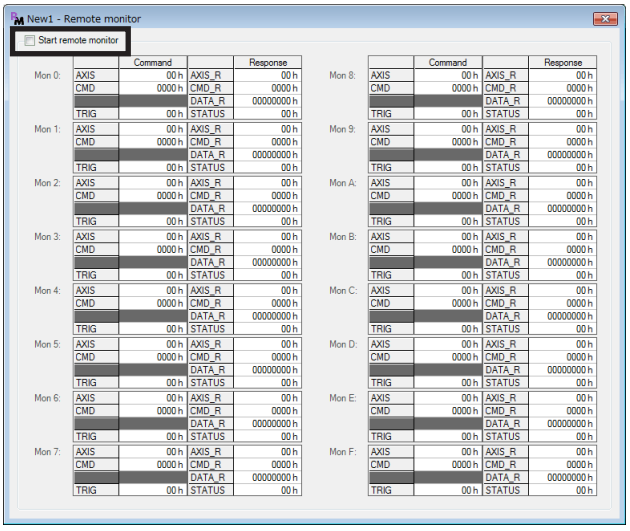


The remote monitor requires synchronization of the data under editing and the data of an applicable product. When the data is not synchronized, the following window appears. Select a synchronization method and click [OK].



memo When the above window appears, all the communications in progress are disabled. All the other monitors in progress in other windows are also stopped. Resume monitor after synchronization is completed.

3. To exit the monitor, unselect "Start remote monitor."



10 Adjustment functions

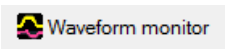
This chapter explains how to adjust an applicable product using the **MEXE02**.

10-1 Waveform monitor

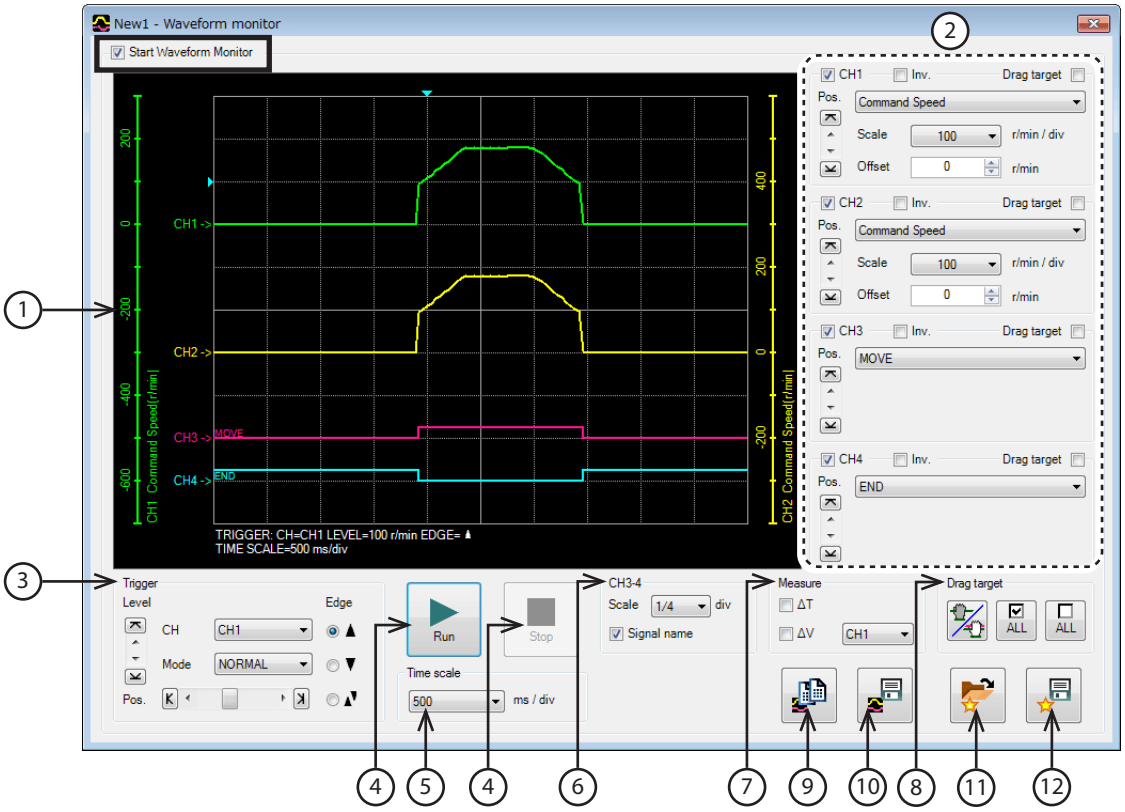
The motor speeds and I/O signal status can be checked in waveforms.
Refer to p.48 for how to use the waveform monitor.

1. Click the [Waveform monitor] icon in the toolbar or click the [Waveform monitor] short-cut button.
   The waveform monitor window appears.

or



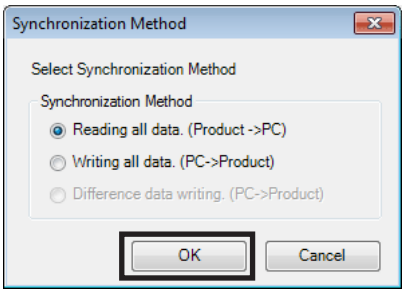
2. Click "Start waveform monitor."
   The buttons in the window are enabled, allowing you to prepare for measurement of the waveform monitor.



1	Measurement results are drawn in this area.
2	The measurement conditions for each CH can be set. Refer to Step 3 for details.
3	Waveform measurement settings: Pos (trigger position), Level, CH, Mode, and Edge (detection condition) can be specified. For "CH," only those CHs displayed at ① can be specified.
4	Run: This button is used to start measurement. Stop: This button is used to stop measurement.
5	The measurement time range can be set.
6	The display method for CH3 and CH4 can be set. Scale: The display size can be selected from 1/1 (100%), 1/2 (50%), or 1/4 (25%). Signal name: The signal name can be shown or hidden.
7	The measure for measurement can be shown or hidden. Also, the CH to be measured can be selected.

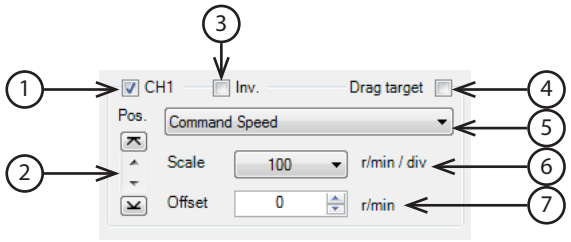
8	The method to move the display position of the waveform drawn on the window can be selected. There are the following two moving methods. • Move the waveform per CH. • Move the waveform of the CH selected in ② simultaneously.
9	The currently displayed waveform can be copied to the clipboard.
10	The currently displayed waveform can be saved to an external file. Refer to p.50 for details.
11	The setting for measurement can be loaded from "Favorites data." Refer to p.50 for details.
12	The setting for measurement can be saved as "Favorites data."

The waveform monitor may synchronize the data under editing and the data of an applicable product. When the data is not synchronized, the following window appears. Select a synchronization method and click [OK].



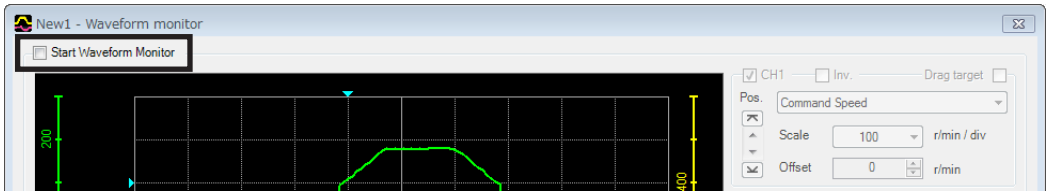
memo When the above window appears, all the communications in progress are disabled. All the other monitors in progress in other windows are also stopped. Resume monitor after synchronization is completed.

3. Set the measurement conditions for each CH.



1	Each CH can be shown or hidden.
2	The display position of a waveform can be moved up or down.
3	The display of measured signal can be inverted.
4	Selecting this check box can drag displayed waveforms drawn in the window simultaneously.
5	This is used to select a signal to be measured.
6	This is used to select a display scale for signals (CH1 and CH2 only). Using this setting in combination with ⑦ can zoom in on signals.
7	The set offset value is added to the signal display (CH1 and CH2 only). Using this setting in combination with ⑥ can zoom in on signals.

4. Click [Run].
   The waveform measurement starts.
5. During measurement, click [Stop] to exit the waveform measurement.
   If "SINGLE" is selected for Mode in Trigger, measurement automatically ends when waveform drawing ends.
6. To exit the waveform measurement, unselect "Start waveform monitor."



11 Diagnosis functions

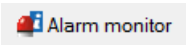
Using the alarm monitor and the warning monitor, you can check the causes of errors and troubles of an applicable product.

11-1 Alarm monitor

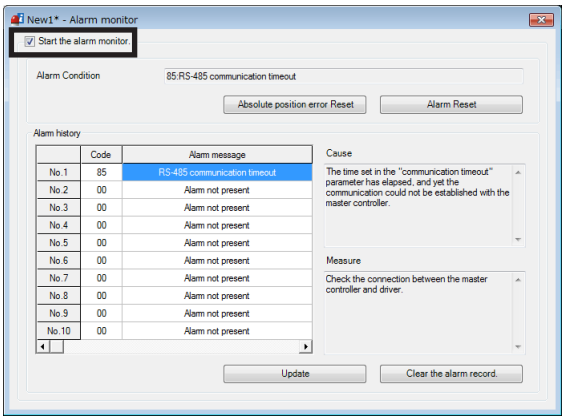
The alarm records of up to ten most recent alarms starting from the latest one can be checked. Also, with the **AZ** Series, the operation and the status of I/O signals, which were executed when the alarm generated, can be checked.

1. Click the [Alarm monitor] icon in the toolbar or click the [Alarm monitor] short-cut button.
   The alarm monitor window appears.

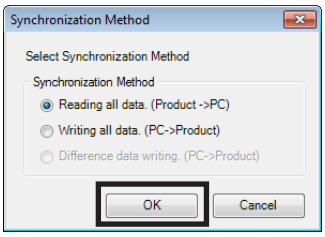
or



2. Click "Start the alarm monitor."
   The alarm monitor starts.
   The current alarm and past alarm records are displayed. Click the displayed alarm to show the cause and measure for it.

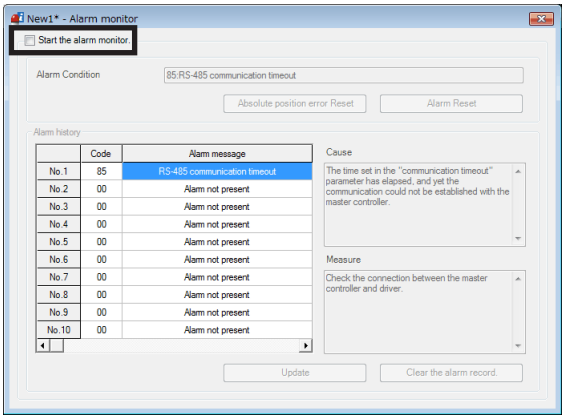


The alarm monitor may synchronize the data under editing and the data of an applicable product. When the data is not synchronized, the following window appears. Select a synchronization method and click [OK].



memo When the above window appears, all the communications in progress are disabled. All the other monitors in progress in other windows are also stopped. Resume monitor after synchronization is completed.

3. To exit the monitor, unselect "Start the alarm monitor."

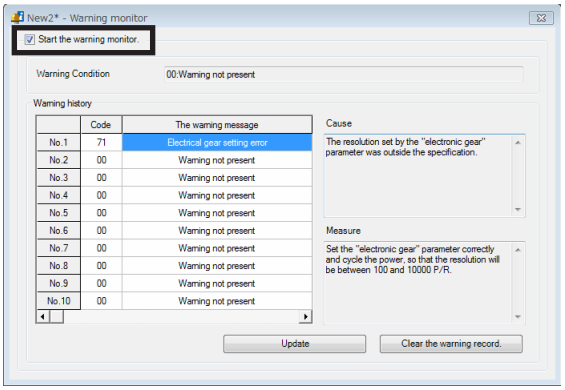


11-2 Warning monitor

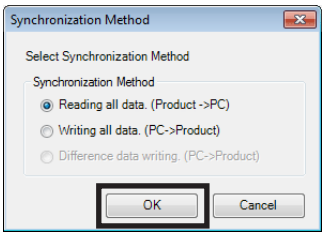
The warning records of up to ten most recent warnings starting from the latest one can be checked.

1. Click the [Warning monitor] icon in the toolbar or click the [Warning monitor] short-cut button.
   The warning monitor window appears.

2. Click "Start the warning monitor."
   The warning monitor starts.
   The current warning and past warning records are displayed. Click the displayed warning to show the cause and measure for it.

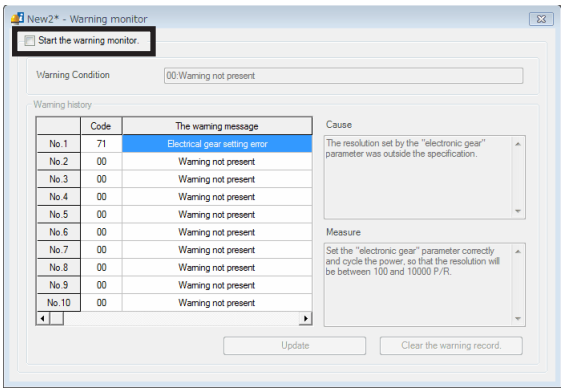


The warning monitor may synchronize the data under editing and the data of an applicable product. When the data is not synchronized, the following window appears. Select a synchronization method and click [OK].



memo When the above window appears, all the communications in progress are disabled. All the other monitors in progress in other windows are also stopped. Resume monitor after synchronization is completed.

3. To exit the monitor, unselect "Start the warning monitor."

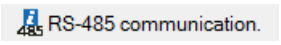


11-3 RS-485 communication monitor

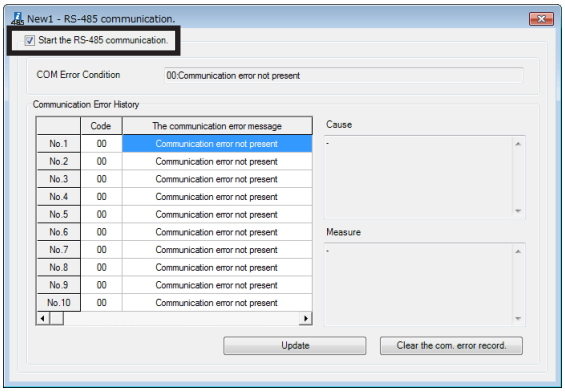
The error records of up to ten most recent errors starting from the latest one can be checked. Also, with the **AZ** Series, the received data via RS-485 communication can be checked.

1. Click the [RS-485 com. monitor] icon in the toolbar or click the [RS-485 com. monitor] short-cut button. The RS-485 communication monitor window appears.

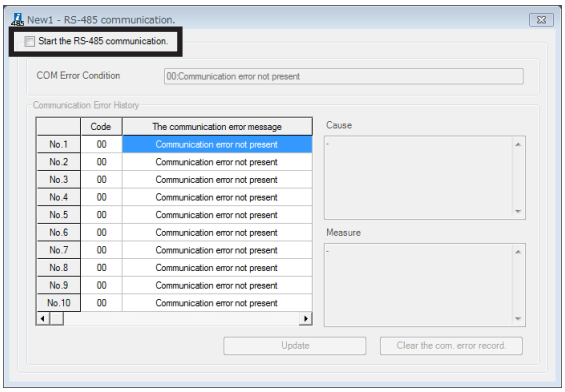
or



2. Click "Start the RS-485 communication." The RS-485 communication monitor starts. The current communication error and past communication error records are displayed. Click the displayed communication error to show the cause and measure for it.



3. To exit the monitor, unselect "Start the RS-485 communication."



12 Utilizing MEXE02

This chapter provides some examples of utilizing the **MEXE02**.

12-1 Operating motor using the MEXE02

A motor can be operated using the **MEXE02**. This function lets you check how the motor will operate before actually connecting it to a host controller.
Operation data can be set using teaching function. Although there is no need to connect to a host controller, the applicable product must be connected to the power supply.
Use the teaching/remote operation. The teaching/remote operation allows you to perform the following operations.

- Positioning operation
- Return-to-home operation
- ZHOME operation
- JOG operation
- Teaching

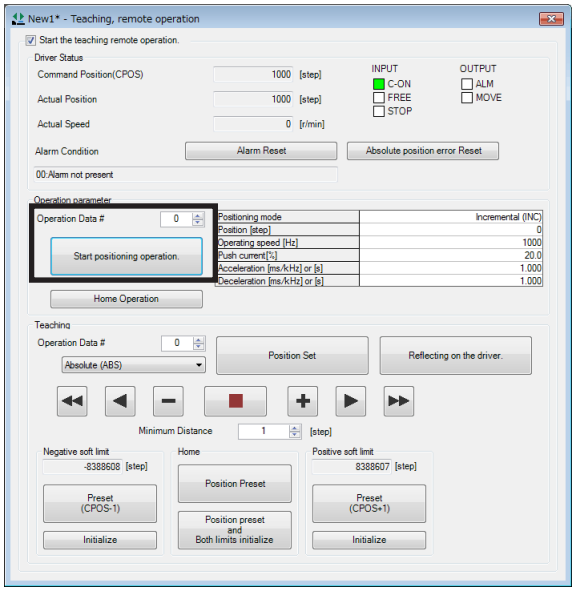
memo

- The teaching/remote operation and I/O test cannot be executed simultaneously.
- Before performing this operation, set necessary data and write it to an applicable product.
- When the operation is started, connect the power supply to the applicable product and enable the "teaching, remote operation." Refer to p.30 for details.

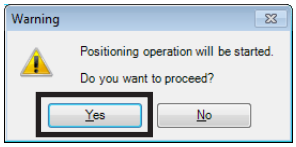
■ Positioning operation

You can operate the motor using the operation data written to the applicable product.

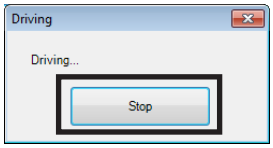
1. Set the number of operation data that you want to execute in "Operation data #."
2. Click [Start positioning operation].



3. Click [Yes].
   The positioning operation with the selected operation data number starts.

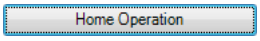


Click [Stop] to stop the operation before completion.

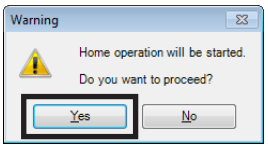


■ Return-to-home operation

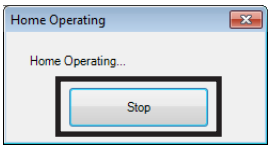
1. Click [Home operation].



2. Click [Yes].
   The return-to-home operation starts.



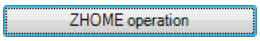
Click [Stop] to stop the operation before completion.



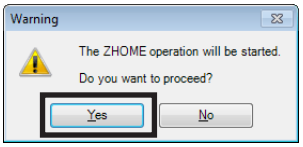
■ ZHOME operation

You can perform return-to-mechanical home (ZHOME) operation.

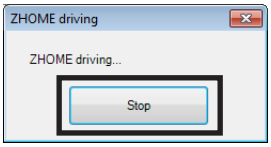
1. Click [ZHOME operation].



2. Click [Yes].
   The ZHOME operation starts.



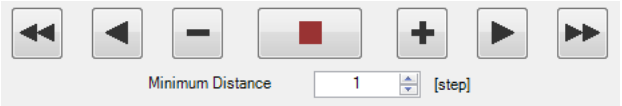
Click [Stop] to stop the operation before completion.



■ JOG operation

You can operate the motor either continuously or in steps of the specified minimum distance.
The method of JOG operation varies depending on the product.

JOG operation can be executed using the following buttons. The JOG operating speed can be changed using a parameter.

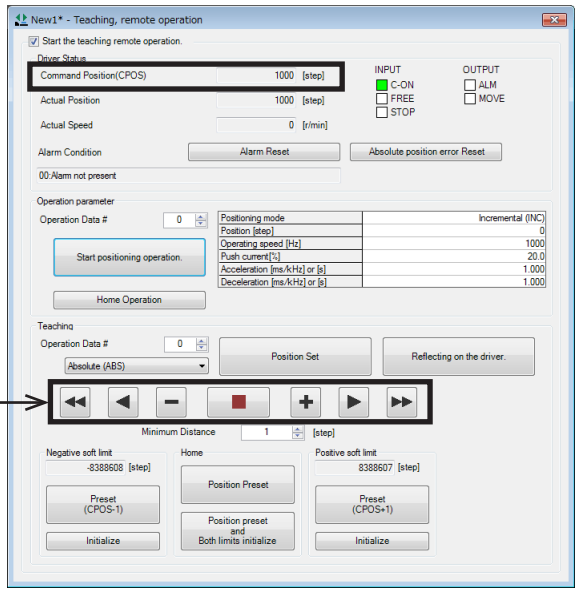


◀◀ : Moves the motor in the negative direction at the JOG operating speed.
◀ : Moves in the negative direction at the speed of one-tenth of the JOG operating speed.
− : Moves the motor in the negative direction by the minimum distance.
■ : Stops the operation immediately.
+ : Moves the motor in the positive direction by the minimum distance.
▶ : Moves in the positive direction at the speed of one-tenth of the JOG operating speed.
▶▶ : Moves the motor in the positive direction at the JOG operating speed.

■ Teaching

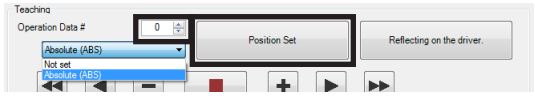
While operating the motor, you can set the current motor position as the operation data.

1. Change the current motor position either manually or with JOG operation.
   Do so while checking the "Command position (CPOS)" in "Driver status."
   Use the JOG operation buttons to move the motor with JOG operation.

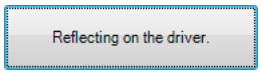


JOG operation buttons

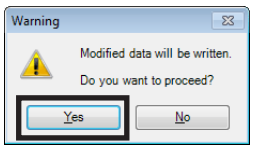
2. Select an operation data number at "Operation data #" in "Teaching."



3. Select an operation mode and click [Position set].
   If you select "No setting for operation mode," the operation mode set in the operation data number is used.
   The new position information is set to the selected operation data number.
4. Click [Reflecting on the driver] to set the teaching data to the applicable product.



5. Click [Yes].
   The data is written to the applicable product.



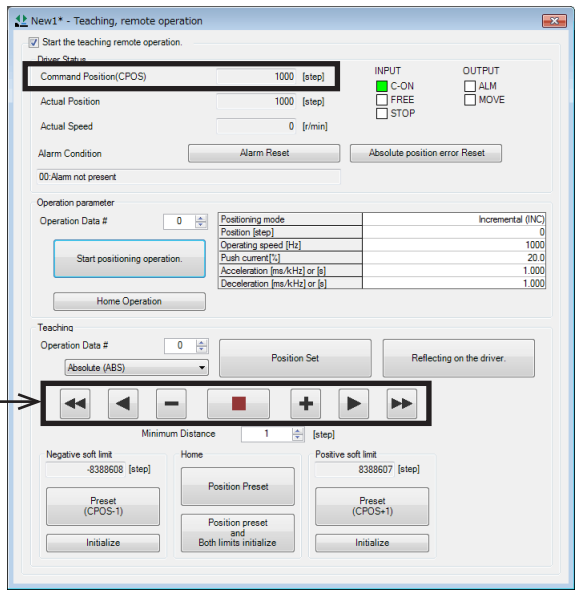
Note Just clicking [Position set] will not cause to write to the applicable product. Be sure to execute [Reflecting on the driver].

memo While the applicable product and PC are connected (online), you cannot edit data other than the operation mode and position. Edit these data under disconnected condition (offline).

12-2 Teaching software limit

While operating the motor, you can set the current motor position as the software limit value.

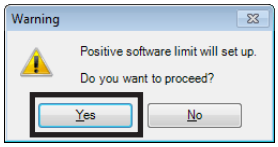
1. Enable the teaching/remote operation.
2. Change the current motor position either manually or with JOG operation.
   Do so while checking the "Command position (CPOS)" in "Driver status."
   Use the JOG operation buttons to move the motor with JOG operation.



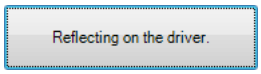
JOG operation buttons

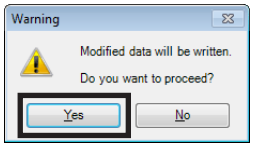
3. Click [Preset (CPOS−1)] to set a software limit value in the negative direction.
   Click [Preset (CPOS+1)] to set a software limit value in the positive direction.

4. Click [Yes].
   The software limit value is set.
   When [Preset (CPOS+1)] is selected, the positive software limit value is the command position +1.
   When [Preset (CPOS−1)] is selected, the negative software limit value is the command position −1.



5. Click [Reflecting on the driver] and then [Yes].
   The data is written to the applicable product.





Note Just clicking [Preset (CPOS−1)] or [Preset (CPOS+1)] will not cause to write to the applicable product. Be sure to execute [Reflecting on the driver].

12-3 Utilizing waveform monitor

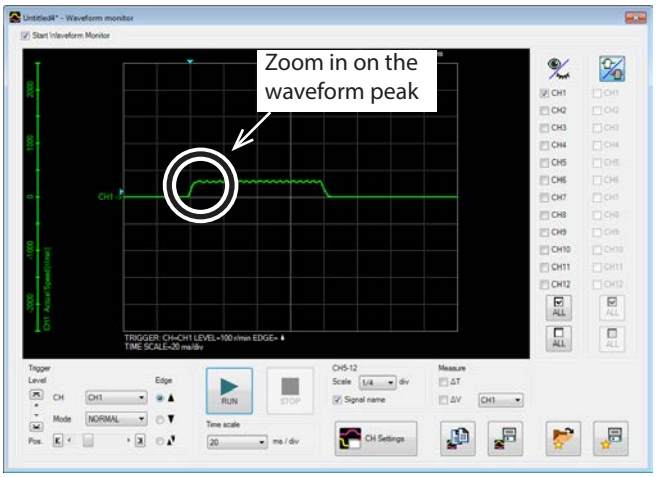
Refer to p.39 for the basic usage procedure of the waveform monitor.
As examples of utilization of the waveform monitor, this section explains the following items using screens of the **AZ** Series Pulse input type, Pulse input type with RS-485 communication interface and Built-in controller type.

- Zooming in on waveform data
- Moving drawing positions of waveforms for multiple CHs simultaneously
- Saving waveform measurement results as images
- Saving waveform measurement results as data

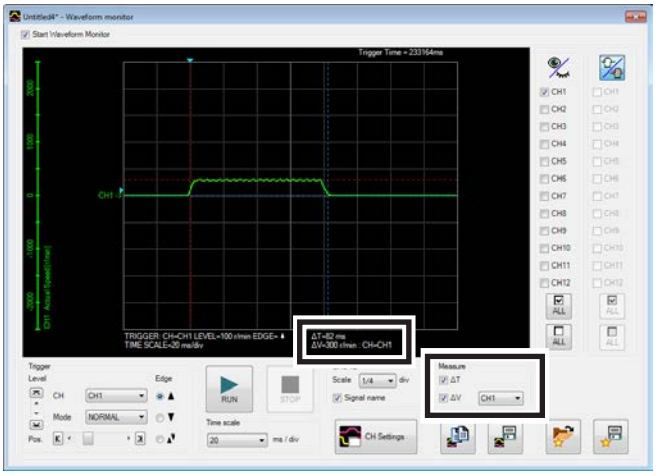
■ Zooming in on waveform data

You can enlarge and display part of the measured waveform data.
The following shows an example of zooming in on around the peak value after measuring the detection speed of CH1.

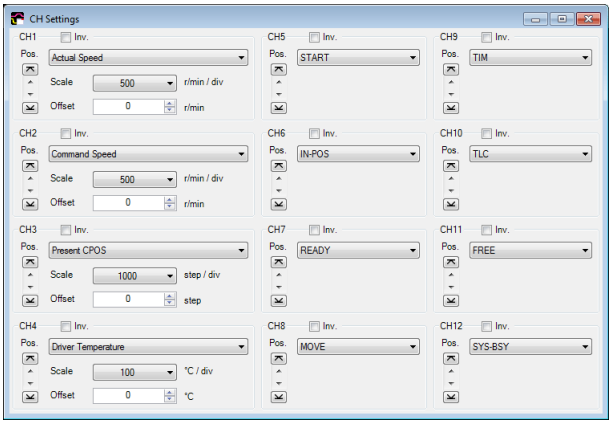
1. Measure the waveform.
   In this example, the detection speed of CH1 is measured.



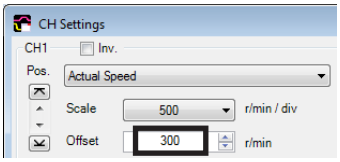
2. Select "CH1" in "Measure," and select the ΔV check box.
   The result shows the peak value of CH1 at around 300 r/min.



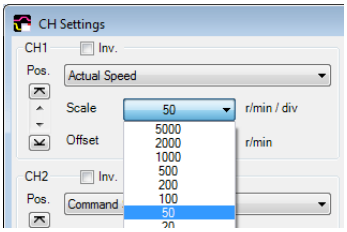
3. Click [CH settings].
   The CH settings window appears.



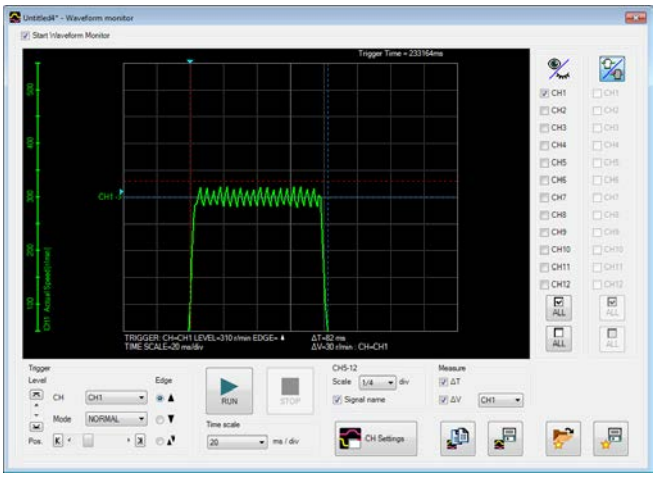
4. In "Offset" of CH1, enter a center value onto which you want to zoom in.
   In this example, enter 300 (r/min), the measurement result of Step 2, to zoom in on around the peak value.



5. Change "Scale" of CH1.
   In this example, set the speed for each scale on the vertical axis.



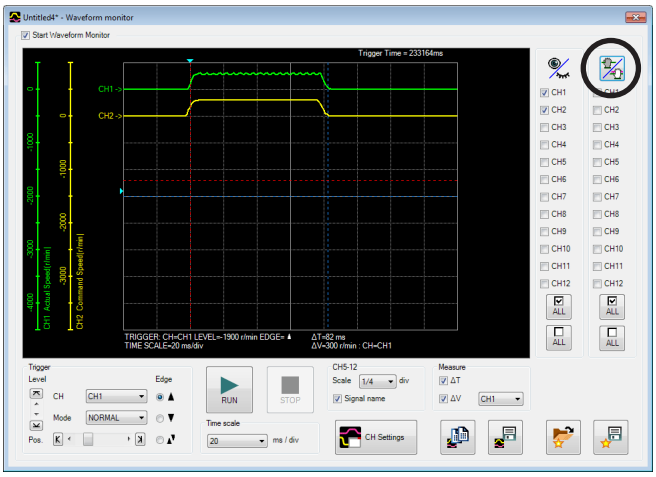
   The waveform is zoomed in, centering on the value entered as the offset value.



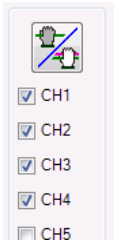
■ Moving drawing positions of waveforms simultaneously

You can change the display positions by moving the waveform curves in the window.
This section explains how to move multiple CH curves simultaneously.

1. After waveform measurement, click the button located in the upper right corner of the waveform monitor window.
   The button is changed to .



2. Click the CHs that you want to move simultaneously.
   When you want to move all of the lines on the waveform simultaneously, click ALL.
   All of the CHs can be selected.

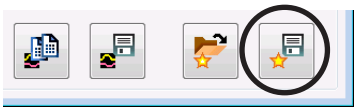


3. Drag the waveform curves in the window to move them vertically.
   The selected CHs are moved simultaneously.

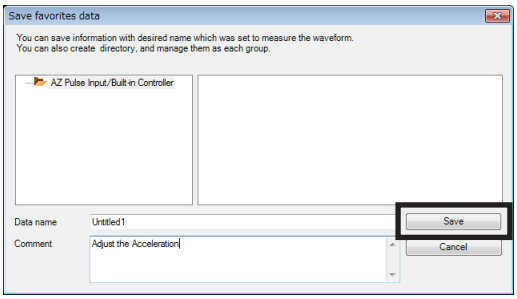
■ Saving setting conditions for measurement

The setting for measurement can be saved as "Favorites data."

1. In the waveform monitor window, click [Save favorites data].



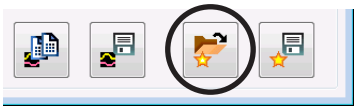
2. Enter a data name and click [Save].
   You can also enter a memo in the comment field.



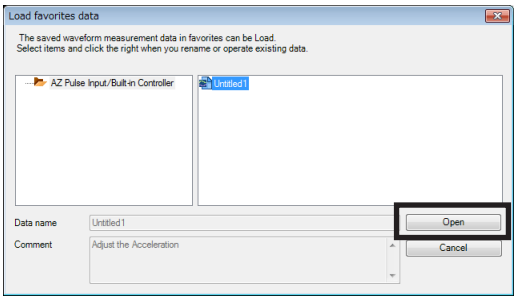
■ Loading saved setting conditions

The setting for measurement can be loaded from "Favorites data."

1. In the waveform monitor window, click [Load favorites data].



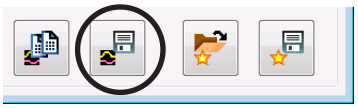
2. Select data that you want to load and click [Open].
   The loaded setting conditions are applied to the waveform monitor window.



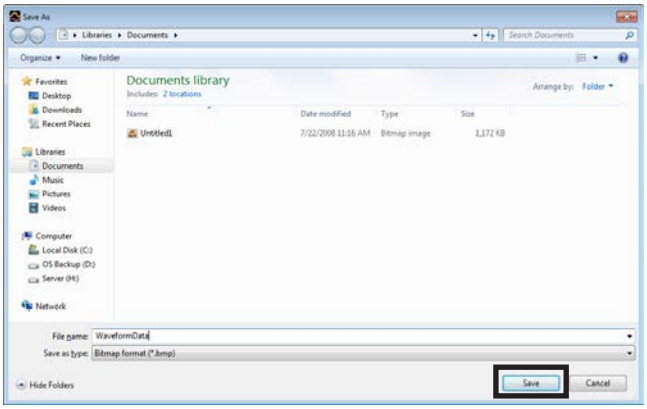
■ Saving waveform measurement results as images

The currently displayed waveform can be saved as a bitmap-format image.

1. In the waveform monitor window, click [Save waveform data].



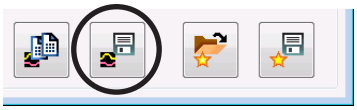
2. Enter a file name, set the file type to the bitmap format (*.bmp), and click [Save].
   The waveform is saved in the bitmap format.



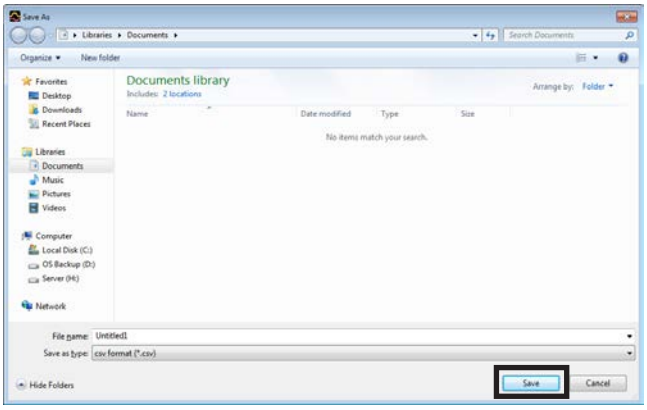
■ Saving waveform measurement results in CSV format

The currently displayed waveform can be saved in the CSV format.

1. In the waveform monitor window, click [Save waveform data].



2. Enter a file name, set the file type to the CSV format (*.csv), and click [Save].
   The waveform is saved in the CSV format.



12-4 Checking wiring of applicable product

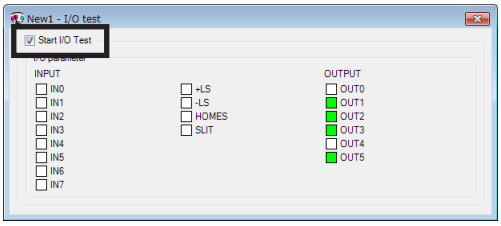
Using I/O test, you can monitor input signals and cause output signals to be output forcibly. This function is convenient if you want to check the wiring of I/O signals and the operation of network I/O.

Note In I/O test, you can forcibly turn on or off output signals. Consequently, other equipment connected to an applicable product may operate. Check the surrounding circumstances to ensure safety before conducting this procedure.

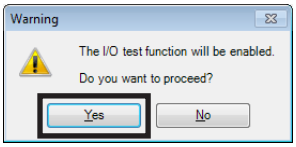
memo The teaching/remote operation and I/O test cannot be executed simultaneously.

1. Click the [Test I/O] icon in the toolbar or click the [Test I/O] short-cut button.
   The test I/O window appears.

2. Click "Start I/O test."



3. Click [Yes].
   I/O test is enabled.



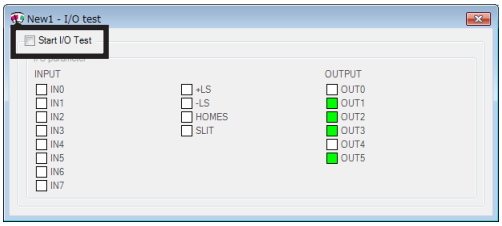
4. Switch the ON/OFF status of input signals externally.
   The check box ☐ of the corresponding "INPUT" is changed in the window.

Indicator	Direct I/O	Remote I/O (RS-485 communication)
ON(green)	Conducting	Active
OFF(white)	Non-conducting	Not active

5. When switching the ON/OFF status of output signals, click the check box ☐ of "OUTPUT" in the window.

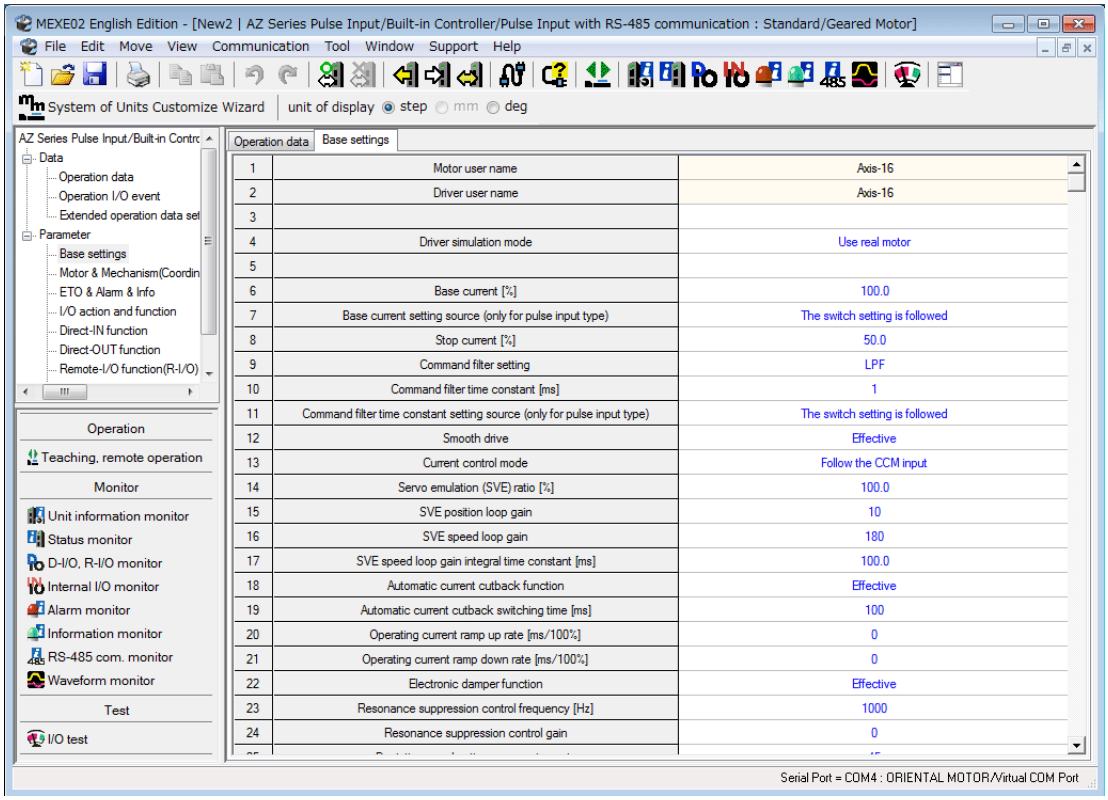
Indicator	Direct I/O	Remote I/O (RS-485 communication)
ON(green)	Conducting	Active
OFF(white)	Non-conducting	Not active

6. To exit I/O test, unselect "Start I/O test."

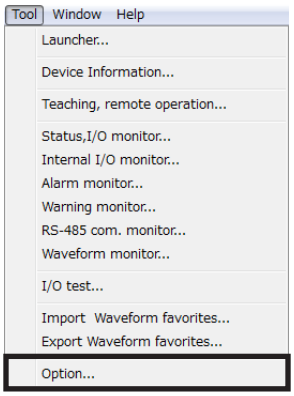


12-5 Utilizing the warning function for when writing data

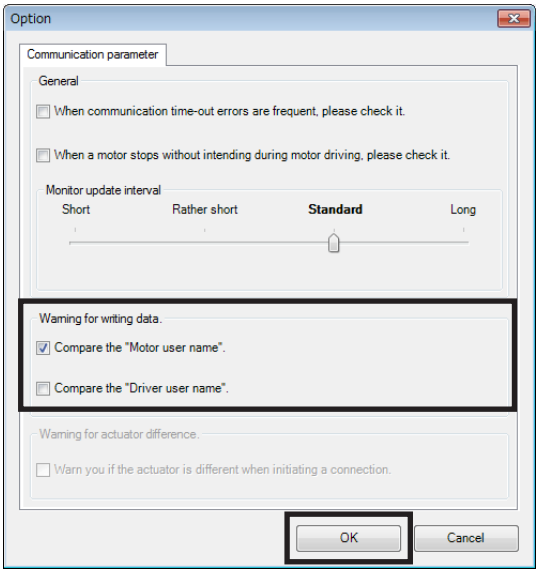
This function can be used only for the product that a desired name (user name) can be set to the motor or driver. When writing the **MEXE02** data to the applicable product, setting the user name can prevent from overwriting the data to a wrong product.
This section explains using screen examples of the **AZ** Series Pulse input type, Pulse input type with RS-485 communication interface and Built-in controller type.



1. Click [Option] from the [Tool] menu.
   The [Option] dialog appears.

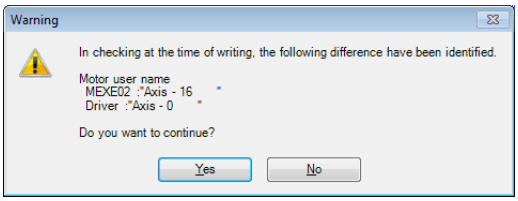


2. Select the user name to be compared from "Warning for writing data," and click [OK].



■ When writing data

When writing data, if the user name is not same between the **MEXE02** and applicable product, the following message is displayed.
Click either [Yes] of [No] after checking the applicable product.
[Yes]: Writing data will be executed.
[No]: Writing data will be discontinued.

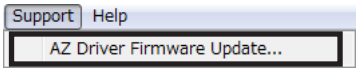


12-6 Updating the firmware of applicable product

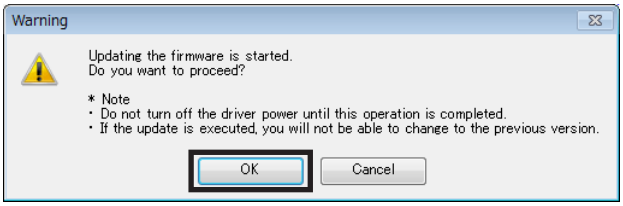
The firmware of the applicable products can be updated using the **MEXE02**.
This section explains how to update using windows/screens of the **AZ** Series pulse input type, the built-in controller type, and the pulse input type with RS-485 communication interface.

memo
- The update of firmware can be executed for the applicable products that [Firmware update] is shown under the [Support] menu.
- Stop the motor before starting the update of firmware.
- Check on the Oriental Motor Website for the latest firmware version of applicable products.

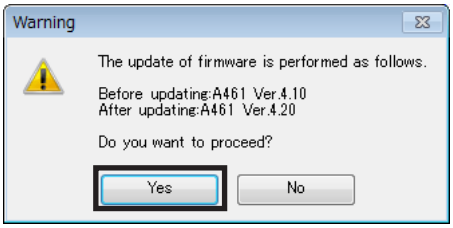
1. Click on [AZ driver firmware update] from the [Support] menu.



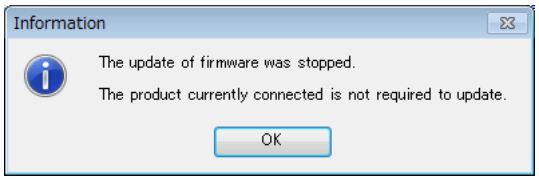
2. Click [OK].



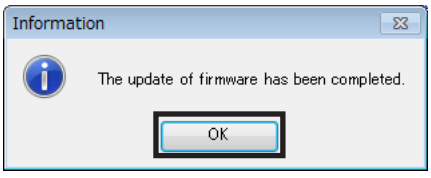
3. Click [Yes].
Updating the firmware starts.



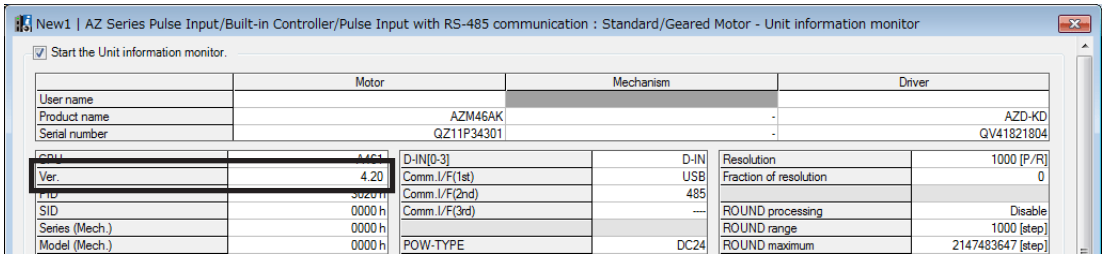
memo
- Do not turn off the power of the applicable product until the update of firmware is completed.
- Once the update of firmware is executed, the version cannot be returned to the previous one.
- If the firmware of the applicable product has already been updated, the following dialog box is shown.



4. After it is completed, click [OK].



The firmware version of the applicable product can be checked with the unit information monitor.

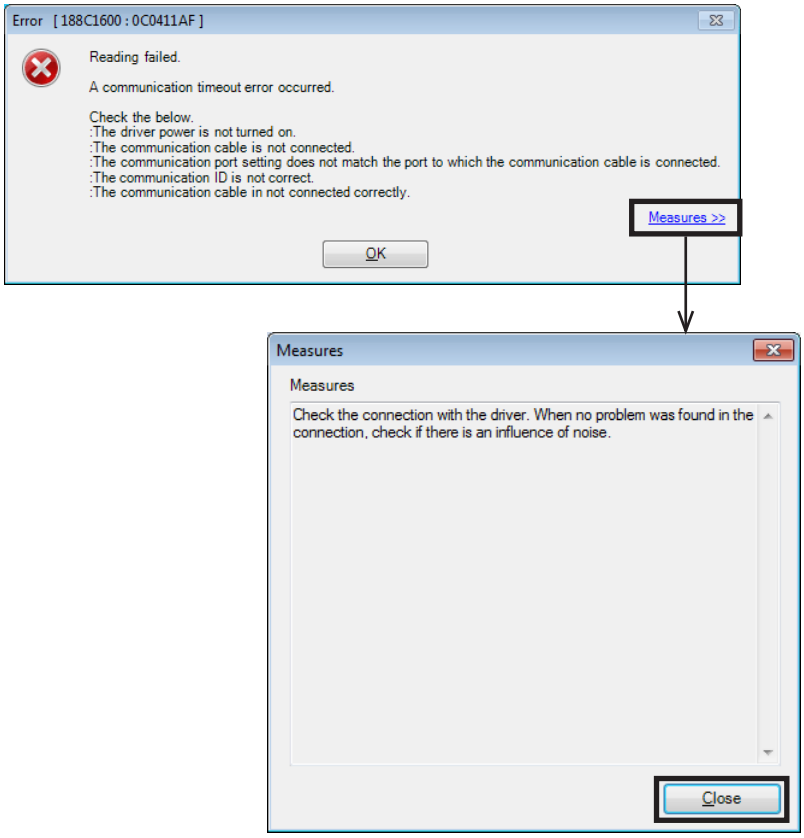


memo
Even if the firmware is updated, the settings for the operation data and parameters before updating have been retained.

13 Troubleshooting

13-1 Checking error message

If the **MEXE02** has encountered a problem while running, a corresponding error message is shown in the window. "Measures" may be displayed depending on the contents of the error message. Click "Measures" to display the error details. Check the screen and appropriately deal with the issue.



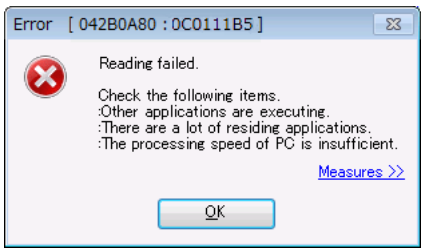
13-2 Frequently encountered errors

This section explains frequently encountered errors and measures required for them.

■ Communication fails

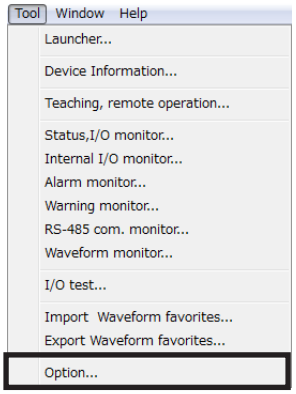
During data reading, writing, monitoring and testing, the following error message may be displayed, and communication may not start.

Example: When reading data

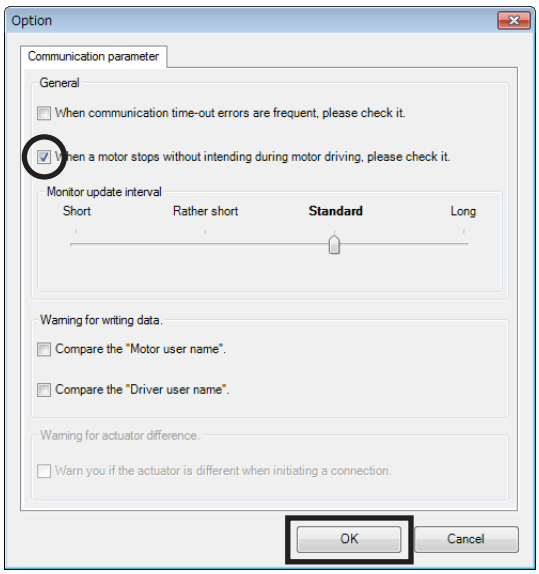


The problem may be resolved if you specify the settings in the procedure shown below.

1. Click [Option] from the [Tool] menu.
   The "Option" dialog appears.



2. Click "When a motor stops without intending during motor driving, please check it." and then click [OK].



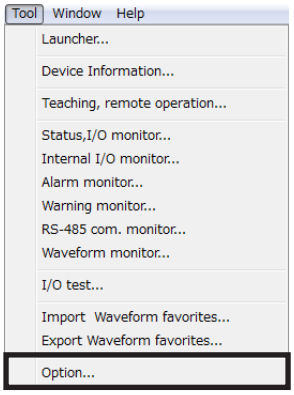
If the problem persists after you take the procedure above, the cause may be one of the following. Take an appropriate measure.

Cause	Measure
1. Other applications are running	Exit the applications other than the **MEXE02** before continuing the operation.
2. Too many applications stay resident	Exit the resident applications before continuing the operation. For some types of applications, exiting them may not resolve problems. In this case, use a PC on which the relevant applications are not installed.
3. The processing speed of PC is insufficient	• Take the measures 1 and 2 above. • Refer to p.4 and check that your PC satisfies the system requirements.

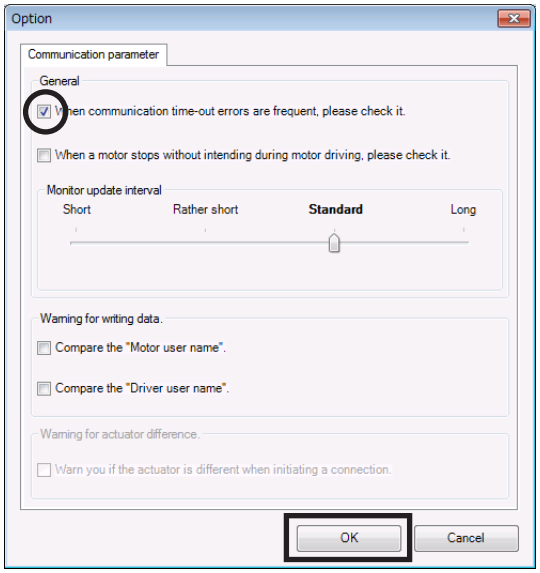
■ Communication timeout error occurs

If communication is not possible even when the applicable product is powered on and a correct communication port is selected, perform the following procedure.

1. Click [Option] from the [Tool] menu.
   The "Option" dialog appears.



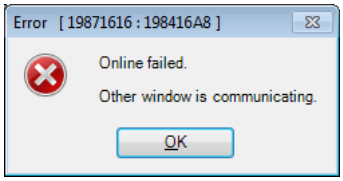
2. Click "When communication time-out errors are frequent, please check it." and then click [OK].



■ Other window is communicating

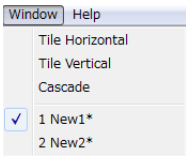
At the start of monitor or test, the following error message may be displayed, and communication may not start.

Example: Performing waveform monitor

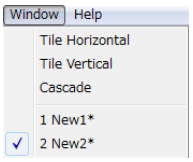


Other data setting window may be executing the communication function. While one window is executing the communication function, other windows cannot use it. Check this point using the following procedure:

1. Click the [Window] menu.
   A list of currently open windows is displayed.

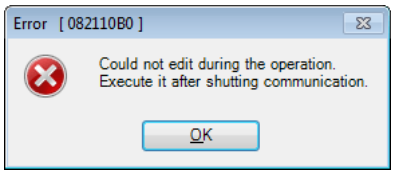


2. Select another window to check if it is online.
   If it is, click the [Offline] icon in the toolbar to clear the communication.



■ Editing cannot perform in communication

When editing data, the following error message may be displayed.



You cannot edit data while the communication function is executed.
Click the [Offline] icon in the toolbar to clear the communication.
Data can be edited.

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Published in May 2025

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