Oriental motor

HM-60379

Support software

MEXE02

OPERATING MANUAL

This manual describes the MEXE02 version 4 and later.
The screens and operation procedures in the MEXE02 version 4 and later differ from those in versions earlier than the MEXE02 version 4.
Please contact your nearest Oriental Motor sales office for further information.

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This 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.

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.

- **Products for possible combinations**

  For the products that can be combined with **MEXE02** version 4, check on the Oriental Motor Website. A product that can be combined with the **MEXE02** is described as "applicable product" here.

- **Notation rules**

  This operating manual describes using screens displayed under the following conditions.
  Type of Operating System: Windows 10
  Product type: **AZ** Series EtherNet/IP Compatible Driver

- **Functions of MEXE02**

  The **MEXE02** is a software that supports all aspects of the equipment from starting-up to maintenance.
  Editing the operation data and parameters, test operation of a motor, and a variety of monitors can be performed.

  memo Functions, setting items, screens and others vary depending on the applicable product combined with the **MEXE02**.

- **Installation and uninstallation of MEXE02**

  For the installation and uninstallation of the **MEXE02**, refer to Oriental Motor Website or the separate manual Support software **MEXE02** INSTALLATION MANUAL.

- **Communication cable**

  Connect a PC and an applicable product using a commercially available USB cable. For specifications of the USB cable that can be used, refer to the user manual or operating manual of the applicable product.

- **Operating environment**

OS	The following operating systems are compatible only with the 32-bit (x86) version and 64-bit (x64) version. • Microsoft Windows 10 • Microsoft Windows 8.1 *1 • Microsoft Windows 7 Service Pack 1 *2
Recommended CPU *3	Intel® Core i3™ processor 2 GHz or more (Your operating system must support the OS.)
Display resolution	HD (1280×720) or higher resolution
Recommended memory *3	32-bit (x86) version: 2 GB or more 64-bit (x64) version: 2 GB or more
Hard disk capacity *4	Available disk space of 1 GB or more
USB port	One USB 2.0 Port

*1 The Windows 8.1 Update (KB2919355) must be applied.

*2 The update program (KB2670838) must be applied or the Internet Explorer 11 must be installed.

*3 The hardware requirements for the OS must be satisfied.

*4 Microsoft .NET Framework 4.6.2 must be installed in your PC so that the **MEXE02** version 4 may function. Microsoft .NET Framework 4.6.2 will be installed automatically, if not already installed. The following disk space may require additionally.
32-bit (x86) version: 4.5 GB
64-bit (x64) version: 4.5 GB

- **RoHS Directive**

  The products do not contain the substances exceeding the restriction values of RoHS Directive (2011/65/EU).

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 of the applicable 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

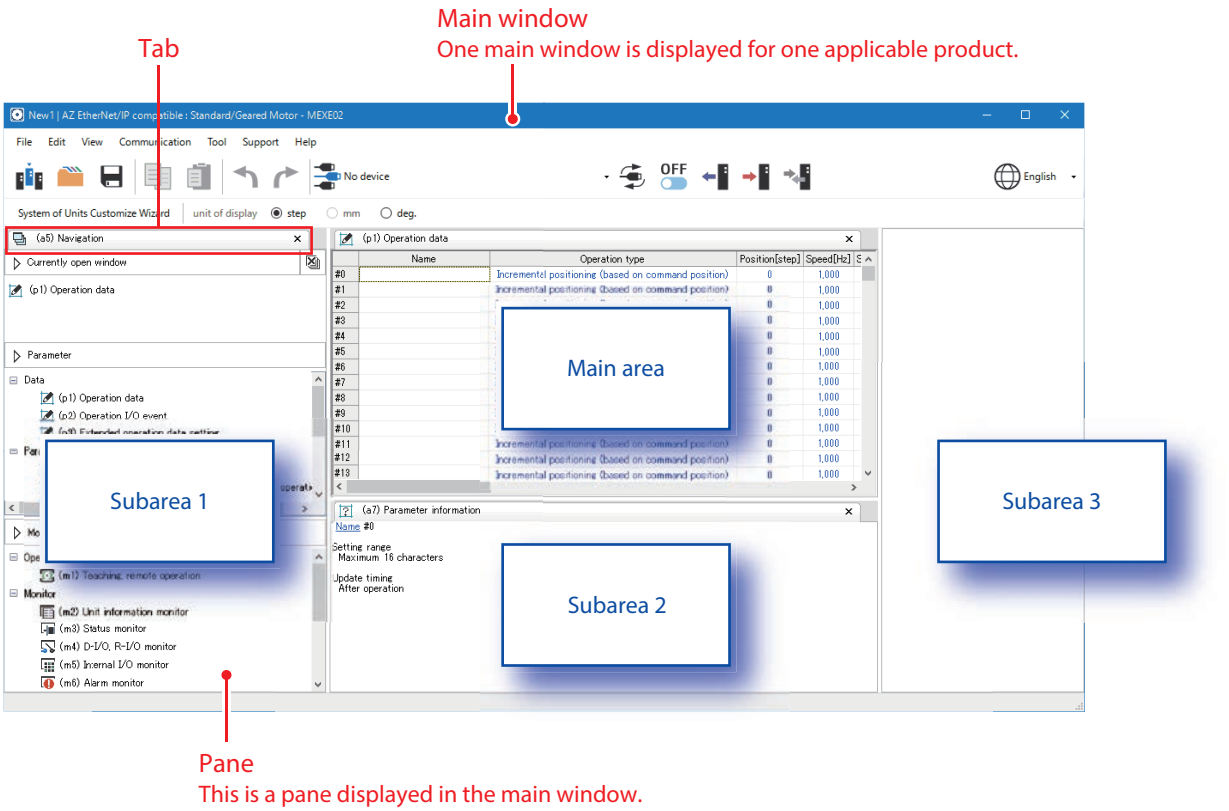
- The USB communication connector of the applicable product is not insulated. When grounding the positive terminal of the power supply, do not connect any equipment (PC, etc.) whose negative terminal is grounded. Doing so may cause the equipment and applicable product to short, damaging both. Do not 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 Basic operation

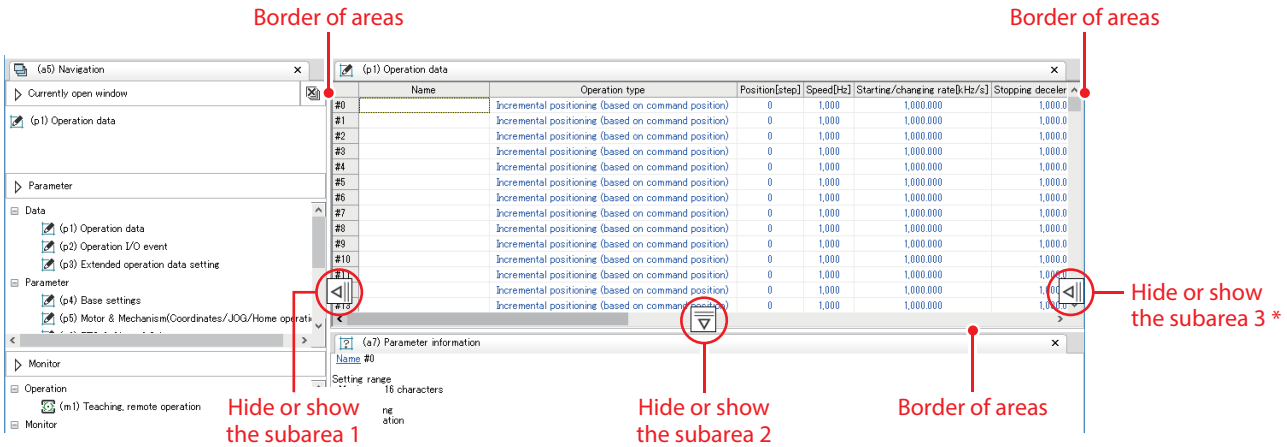
■ Configuration of MEXE02 screens



Main area: Displays panes for "Parameter" and "Monitor."
Subarea: Displays the navigation pane, the parameter information pane, and others.

■ Hide or show the subarea

Moving the cursor to the border of areas appears a button to switch between hiding and showing.



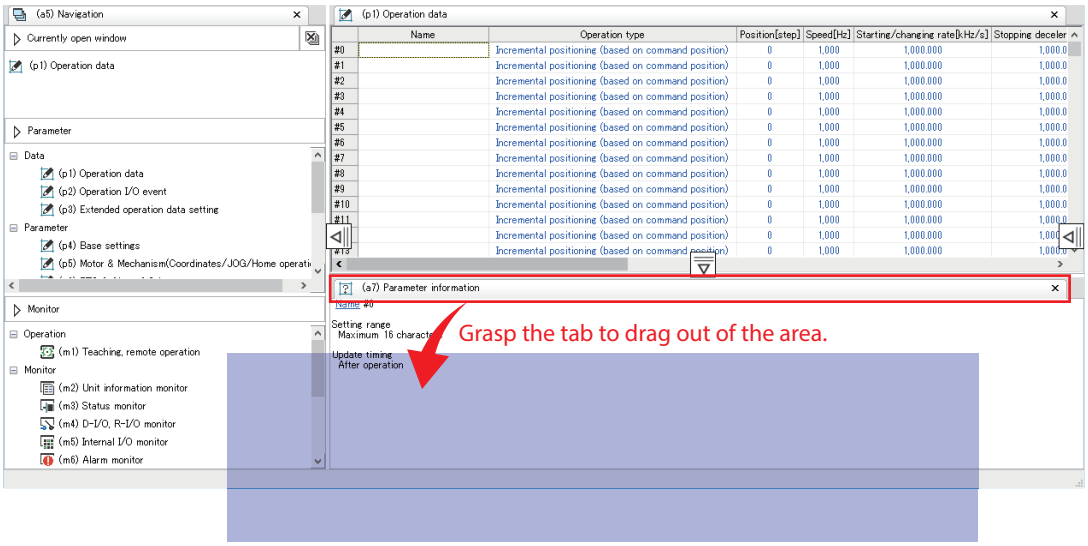
* The subarea 3 is not displayed if you create a new data file using the "Select a product" icon shown in the window when the **MEXE02** is started.

■ Basic operations of window

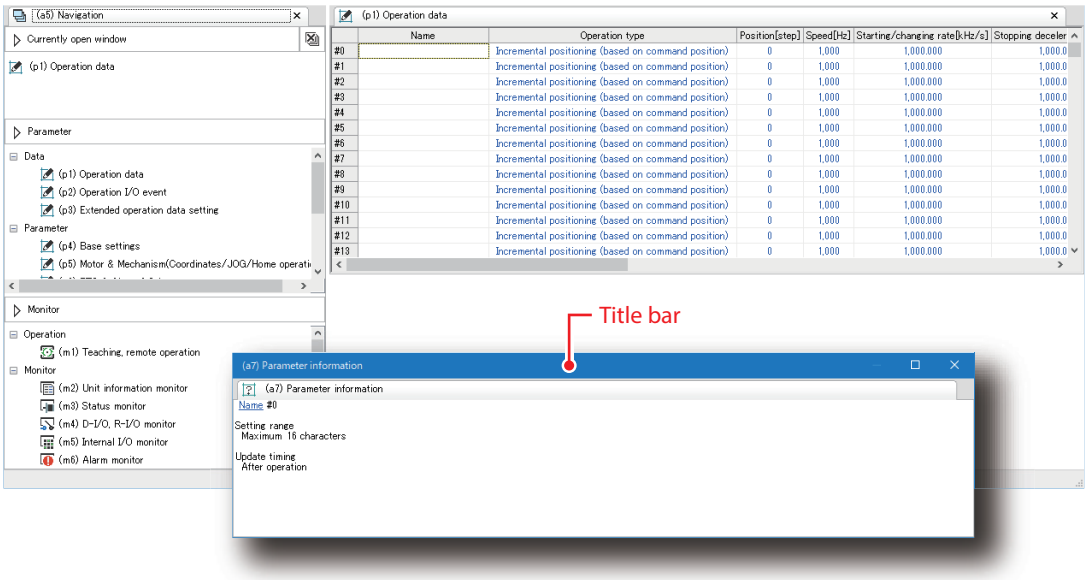
Floating: Separates a pane from the main window to display it.
Docking: Moves a pane to another area, or places multiple panes side by side in one area.

● Floating

Grasp the tab and drag the pane out of the area.



The pane is separated.



To return the floating

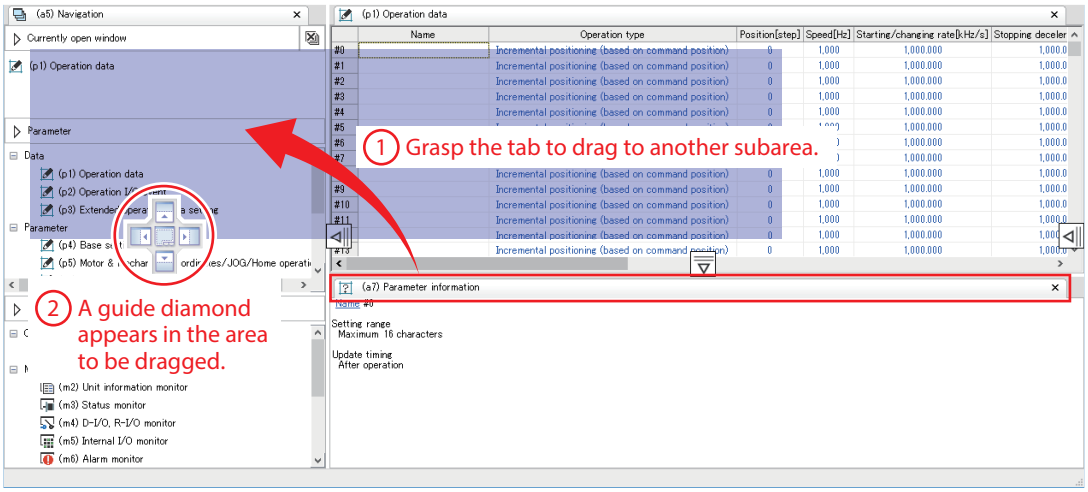
Double-clicking the title bar restores the separated pane to the area before the floating.

● Docking

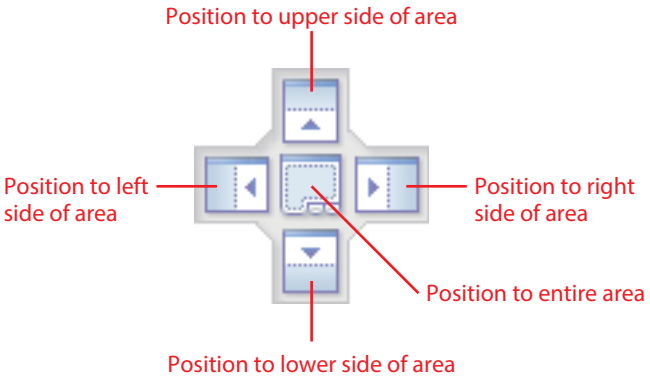
Note

- Panes in the main area cannot be docked to the subarea.
  You can arrange them side by side in the main area.
- Panes in the subarea cannot be docked to the main area.
  You can dock them between subareas or arrange them side by side in the subarea.

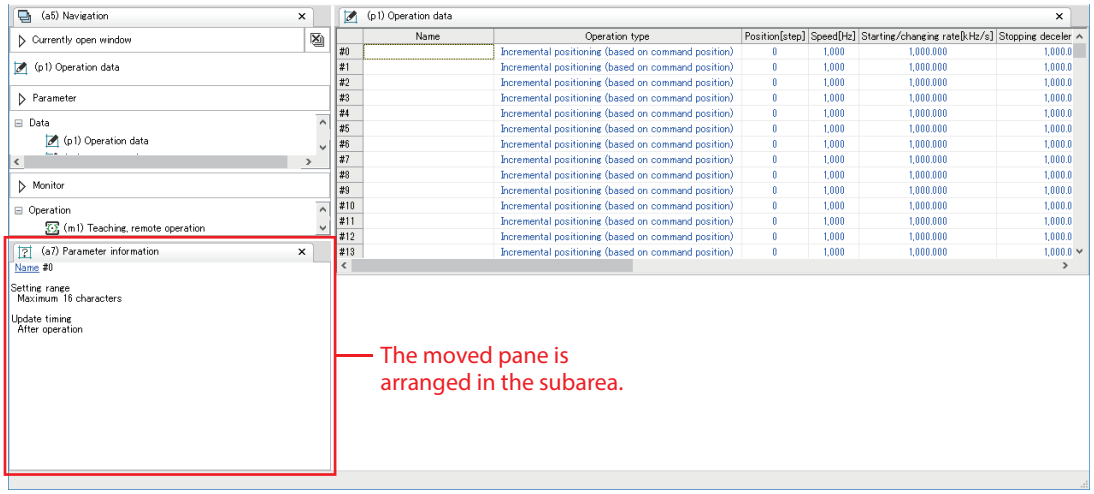
If you grasp the tab and drag the pane to another area, a guide diamond appears.



How to use a guide diamond is common to the main area and the subarea.
If there is only one pane in the area, only "Position to entire area" will be displayed.

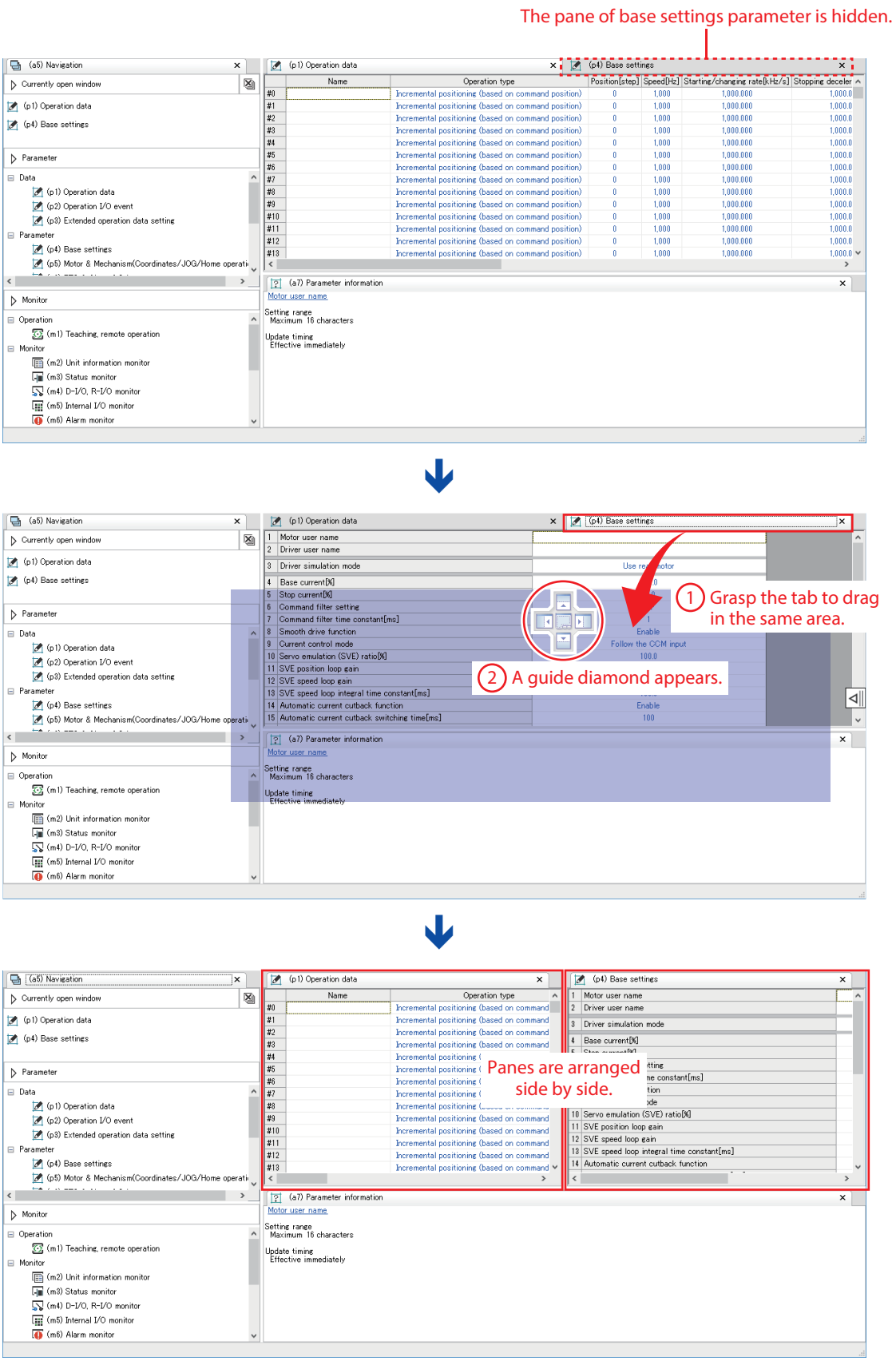


Dropping the pane based on the guide diamond will dock it to the specified position.



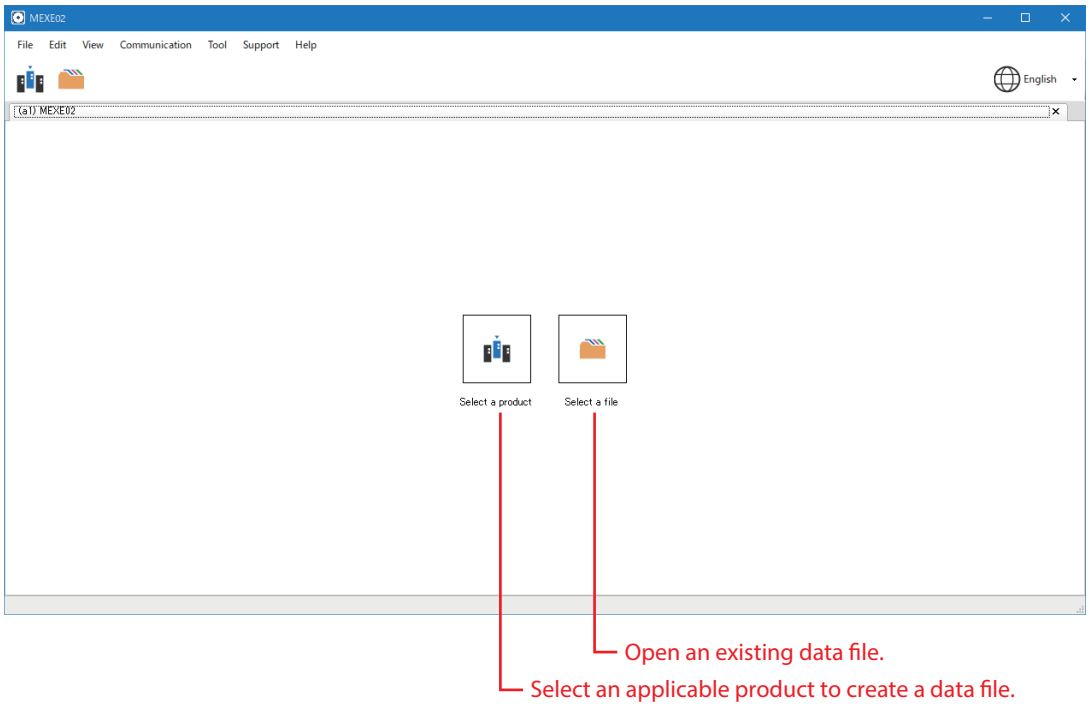
To arrange panes side by side in the same area

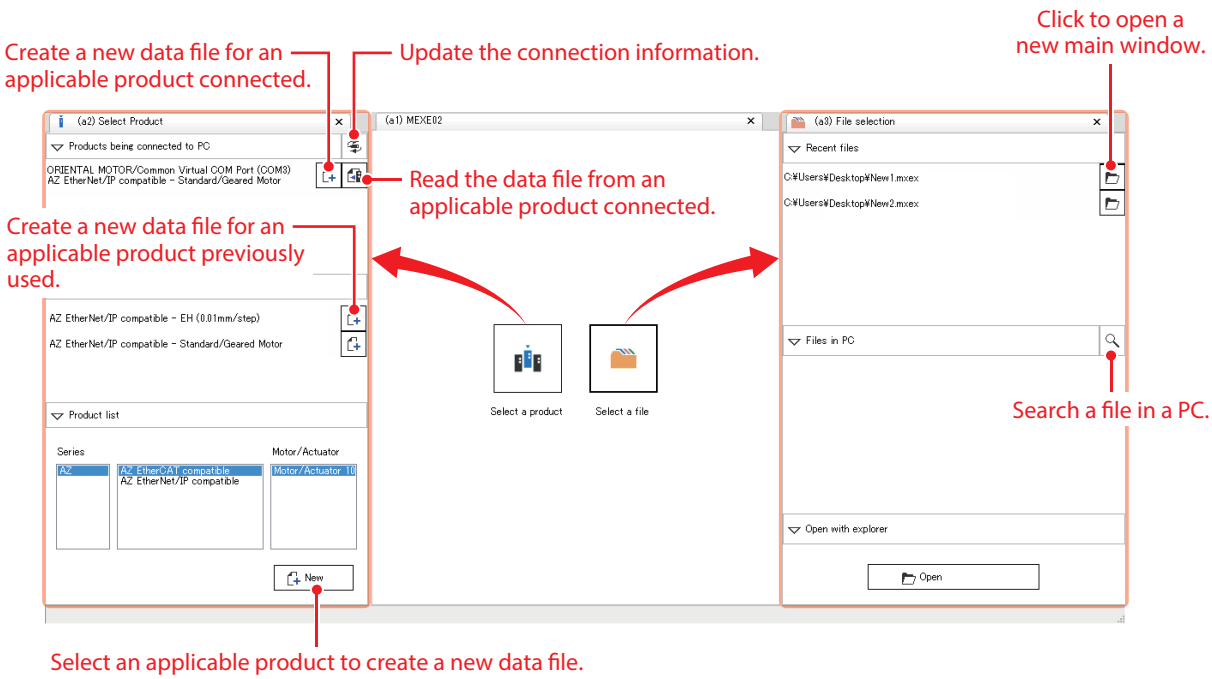
If multiple panes are opened in the same area, they are arranged to overlap.
When arranging these panes side by side, grasp the tab and drag in the same area.
As a guide diamond appears when dragged, dropping the pane based on the guide diamond will dock it to the specified position.



4 Open the data file

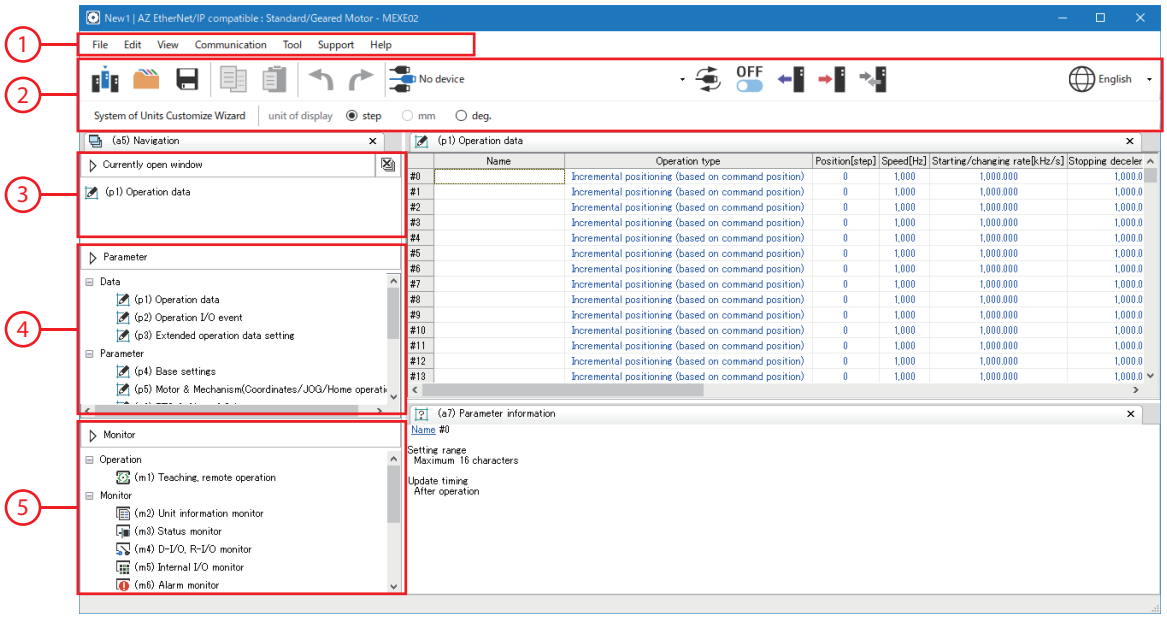
When the **MEXE02** is started, the following window appears.





5 How to use the screen

memo Screens, functions, setting items and others vary depending on the applicable product.



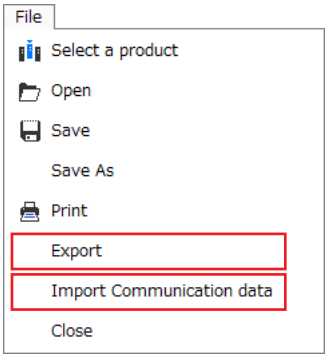
1	Menu bar	
2	Toolbar	
3	Currently open window	Shows a list of panes that are open in the main area.
4	Parameter	Edits the operation data and parameters.
5	Monitor	Executes the monitor, test operation, and others.

■ Menu bar

This includes commonly used PC-operations (open, overwrite save, print, etc.) and the **MEXE02** specific operations. This section describes operations specific to the **MEXE02**.

File menu

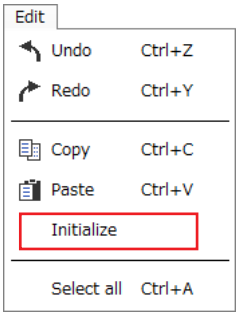
- Export
  Save the data in CSV format. Data saved in the CSV format can be edited in applications other than the **MEXE02**. However, data files in the CSV format cannot be opened in the **MEXE02**.
- Import communication data
  Read the monitor content from the saved file. *



* This is a function that can offline check the monitor content having been executed when a file was saved (excluding the waveform monitor).

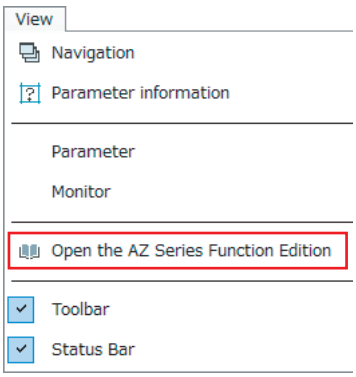
Edit menu

- Initialize
  Restore the editing data to the default.



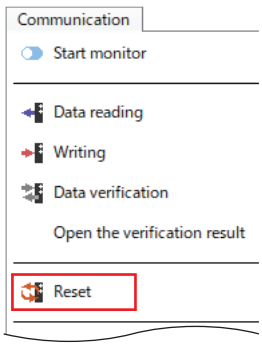
View menu

- Open the **AZ** Series Function Edition
  Open the OPERATING MANUAL **AZ** Series Function Edition.



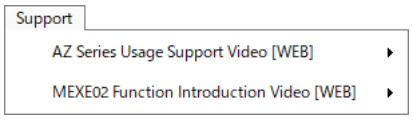
Communication menu

- Reset
  Reset the data saved in the non-volatile memory of the applicable product to the factory default settings.



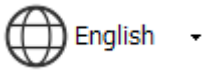
Support menu

You can use beneficial tools, such as links to videos on our Website.



■ Toolbar

	Selects an applicable product to create a new file.
	Selects an existing data file to open it.
	Saves the present data over the existing data.
	Copies the data.
	Pastes the data.
	Undoes the operation.
	Redoes the operation that has undone.

	Selects the applicable product.
	Updates the connection status.
	Switches start-stop of the monitor. is displayed while the monitor is being executed.
	Reads the data saved in an applicable product to the **MEXE02**.
	Writes the data created in the **MEXE02** to an applicable product.
	Verifies the data saved in an applicable product with the data displayed on the **MEXE02**.
	You can change the language that is displayed by the **MEXE02**.

■ Monitor

Examples for how to use the monitor are shown below. The functions presented here are excerpts.

	Teaching, remote operation	• To perform test operation of the motor. • To set the current position of the motor as the operation data.
	Unit information monitor	To check the software version of the driver.
	Status monitor	• To check the feedback position or feedback speed. • To check the present temperatures for the driver and motor. • To monitor the torque. • To check the Tripmeter (travel distance) or Odometer (cumulative travel distance).
	D-I/O, R-I/O monitor	To check the ON-OFF status of signals assigned to direct I/O or remote I/O.
	Internal I/O monitor	To check the ON-OFF status of all I/Os.
	Alarm monitor	• To check the details of alarm. • To reset the alarm that is generated presently.
	Information monitor	To check the details of information.
	Waveform monitor	To check the speed of the motor or the ON-OFF status of the I/O with waveforms.
	I/O test	To check the connection status with the host controller.

6 Editing data and test operation

This chapter explains how to edit data and write it to an applicable product, and how to perform test operation.

6-1 Editing and writing data

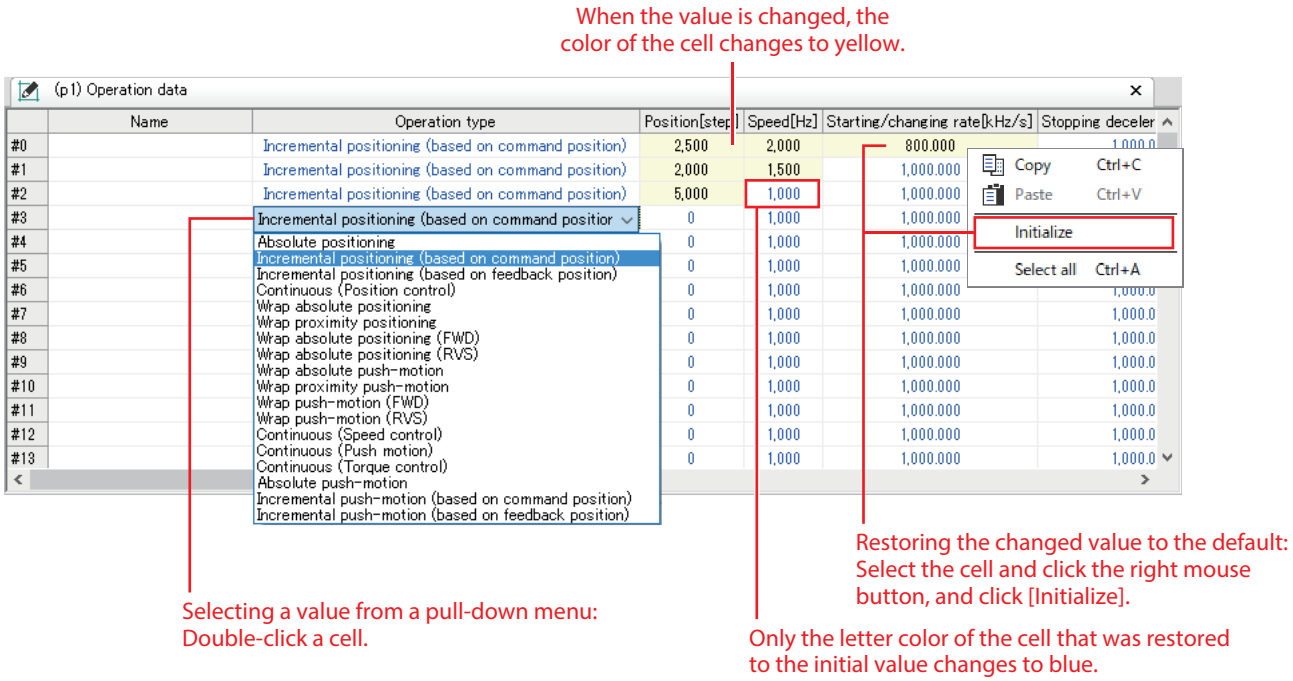
Note

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

memo

You cannot edit the data while executing the monitor. Switch from ON to OFF in the toolbar to stop the monitor before editing the data.

1. Edit the data.



2. Write the data to the applicable product with in the toolbar.

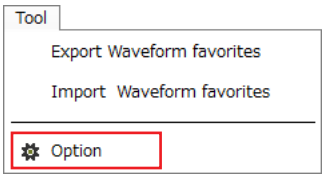
■ Warning function when writing data

This function can be used only for the applicable 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 applicable product.

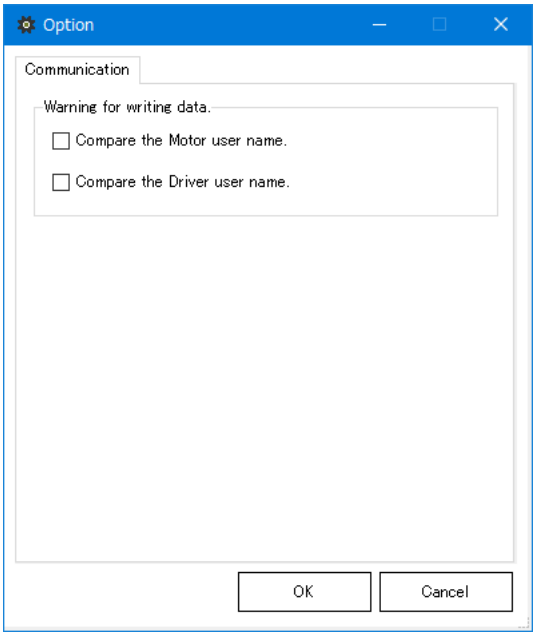
1. Set desired names to "Motor user name" and "Driver user name" in the parameter.

1	Motor user name	Axis1
2	Driver user name	Axis1
3	Driver simulation mode	Use real motor
4	Main power mode	Automatic discrimination
5	Base current[%]	100.0
6	Stop current[%]	50.0

2. Click [Option] from the [Tool] menu.



3. Select the user name to be compared.
When writing data, if the user name is not same between the **MEXE02** and applicable product, the message is displayed. Check the applicable product.

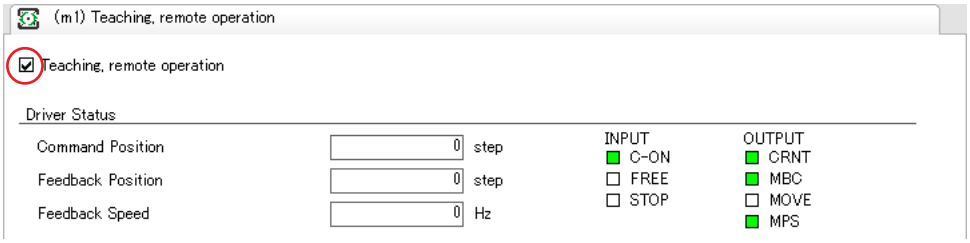


6-2 Test operation

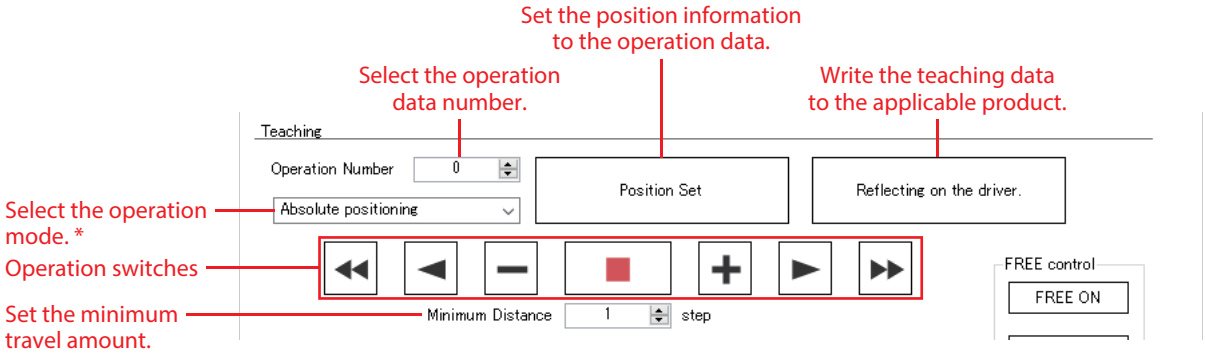
Test operation of the motor can be performed using only the **MEXE02** before connecting a host controller. (Remote operation)
The result having obtained by test operation can be applied to the data depending on an applicable product. (Teaching, remote operation)
This section describes using the pane of teaching, remote operation of the **AZ** Series EtherNet/IP compatible driver.

memo The I/O test cannot be executed during test operation.

1. Click [Teaching, remote operation] in the monitor.
2. Click "Teaching, remote operation."

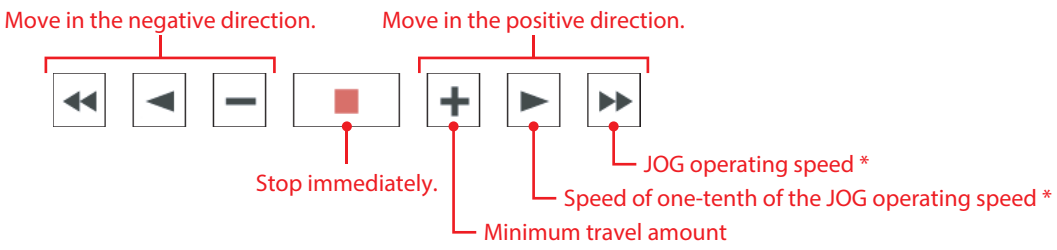


3. Use buttons on the pane to operate the motor.



* When [Not set] is selected, the operation mode set in the operation data is used.

Operation switches



* JOG operating speed is set with the parameter.

4. To end the test operation, unselect "Teaching, remote operation."
   It can also end the test operation by switching from ON to OFF in the toolbar.

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

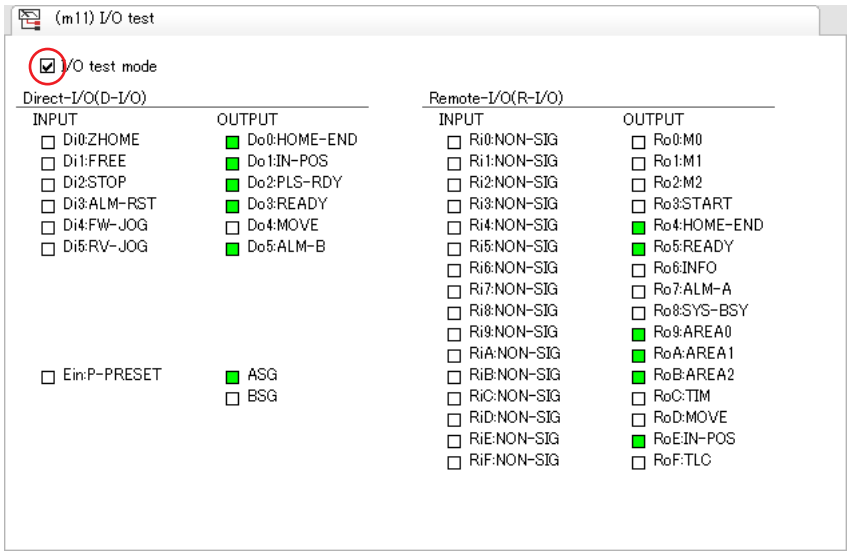
6-3 I/O test

I/O signals of direct I/O and remote I/O can be tested. 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 I/O test cannot be executed during test operation.

1. Click [I/O test] in the monitor.
2. Click "I/O test mode."



Indicator	Direct I/O (D-I/O) Encoder input (Ein)	Remote I/O (R-I/O)
ON (green)	Conducting	Active
OFF (white)	Non-conducting	Not active

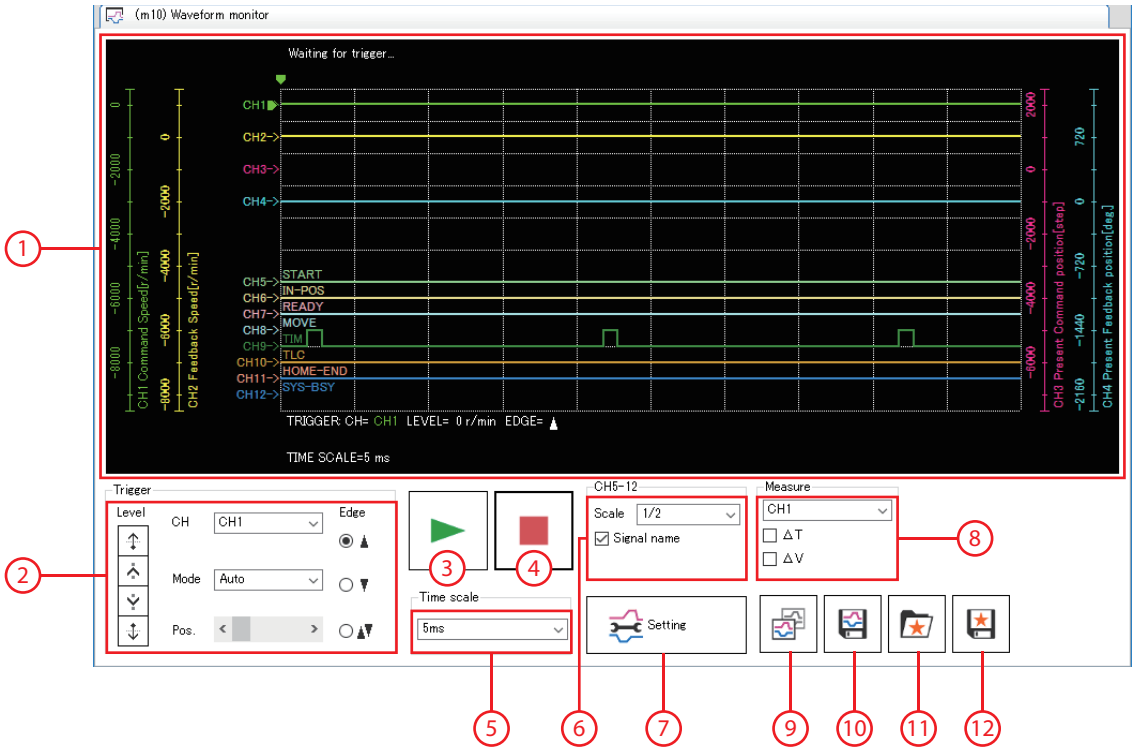
3. Switch the ON-OFF status of input signals from the host controller.
   The check box ☐ of the corresponding input signal is changed.
4. When switching the ON-OFF status of output signals, click the check box ☐ of corresponding output signals.
5. To end the I/O test, unselect "I/O test mode."

7 How to use waveform monitor

The motor speeds and I/O signals status can be checked in waveforms.

7-1 How to read the screen

Click [Waveform monitor] in the monitor.

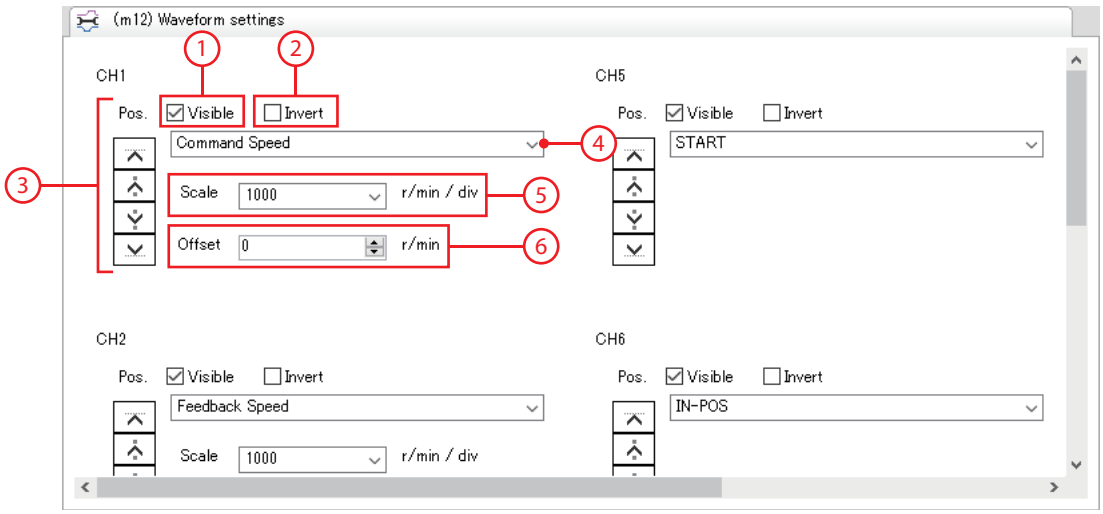


1	Measurement results are drawn in this area. CH1 to CH4: Measure a state of the applicable product CH5 to CH12: Measure the I/O signals
2	Sets a trigger.
3	Starts measurement.
4	Stops measurement.
5	Sets the measurement time range (width).
6	Sets the display method for CH5 to CH12. • Scale: Display size • Signal name: The signal name can be shown or hidden.
7	Sets the measurement conditions for each CH.
8	Switches between hiding and showing for the measurement line. Also, the CH to be measured can be selected.
9	Copies the presently displayed waveform to the clipboard.
10	Saves the presently displayed waveform to an external file. *
11	Loads the saved setting from "Favorites data."
12	The setting for measurement can be saved as "Favorites data."

* To save it, switch from ON to OFF in the toolbar to stop the measurement.

■ Setting the measurement conditions

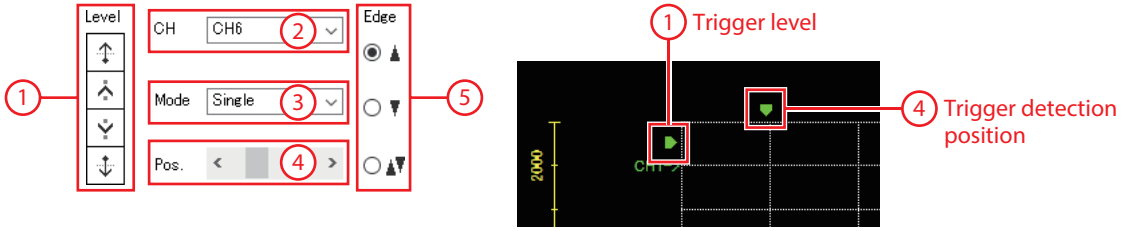
Use the pane displayed by clicking Setting to set the measurement condition of each CH.



1	Switches between hiding and showing for each CH.
2	Shows inversely the waveform of the signal measured.
3	Moves the display position of a waveform up or down.
4	Selects the item to be measured.
5	Selects a display scale for CH1 to CH4. Using this setting in combination with ⑥ can zoom in.
6	Sets the offset value to be added to the display scale of CH1 to CH4. Using this setting in combination with ⑤ can zoom in.

■ Setting the trigger

Setting a trigger to CH can check the waveforms when a certain condition is established, such as the motor speed or the ON-OFF status of signals.



1	Trigger level of CH1 to CH4 The detection condition of a trigger can be set in combination with ⑤.
2	CH to set a trigger (available only for the CH that is displayed)
3	Trigger type Refer to "Trigger type" on p.18 for details.
4	Trigger detection position
5	Trigger detection condition • ▲: In the case of setting CH1 to CH4 as a trigger, when the measured value changes from being less than the LEVEL value to being the LEVEL value or more. In the case of CH5 to CH12 as a trigger, when the signal changes from OFF to ON. • ▼: In the case of setting CH1 to CH4 as a trigger, when the measured value changes from being the LEVEL value or more to being less than the LEVEL value. In the case of CH5 to CH12 as a trigger, when the signal changes from ON to OFF. • ▲▼: This item sets both ▲ and ▼ as conditions.

Trigger type

Auto	Waveforms are updated until the waveform measurement is stopped.
Normal	Waveforms are updated every time a trigger is detected. The trigger can be detected immediately after the measurement of waveforms is started.
Single	Waveforms are updated when a trigger is detected, after which waveform monitor will stop. The trigger can be detected immediately after the measurement of waveforms is started.
Normal (Pre)	Waveforms are updated every time a trigger is detected. Waveforms before the trigger is detected (left side of the trigger detection position) can also be checked. However, the trigger is not detected until a certain period of time (*) elapses after the measurement is started.
Single (Pre)	Waveforms are updated when a trigger is detected, after which waveform monitor will stop. Waveforms before the trigger is detected (left side of the trigger detection position) can also be checked. However, the trigger is not detected until a certain period of time (*) elapses after the measurement is started.

* Time set in Timescale × 10

memo

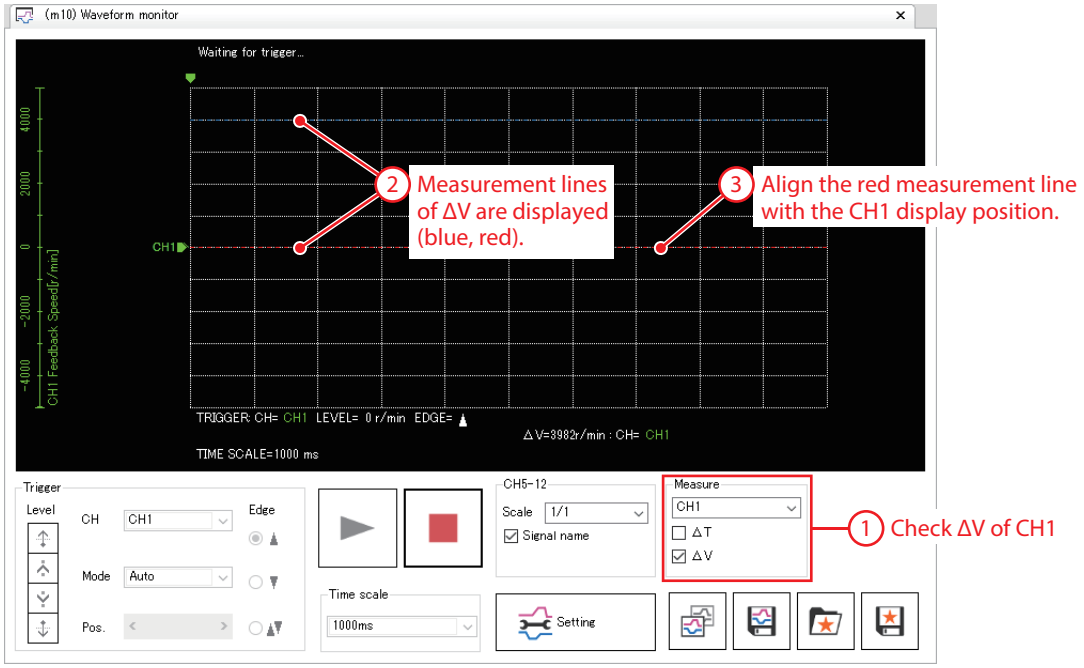
- When checking the waveforms before and after a trigger is detected, select Normal (Pre) or Single (Pre).
- When checking only the waveforms after a trigger is detected, select Normal or Single.
  Waveforms before a trigger is detected are displayed even when Normal or Single is selected.
  However, if the time from when the measurement is started until when a trigger is detected is less than a certain period of time (*), the old waveforms before the measurement is started may be mixed.

  * Time set in Timescale × Number of scales till trigger detection position

7-2 Zooming in on waveform data

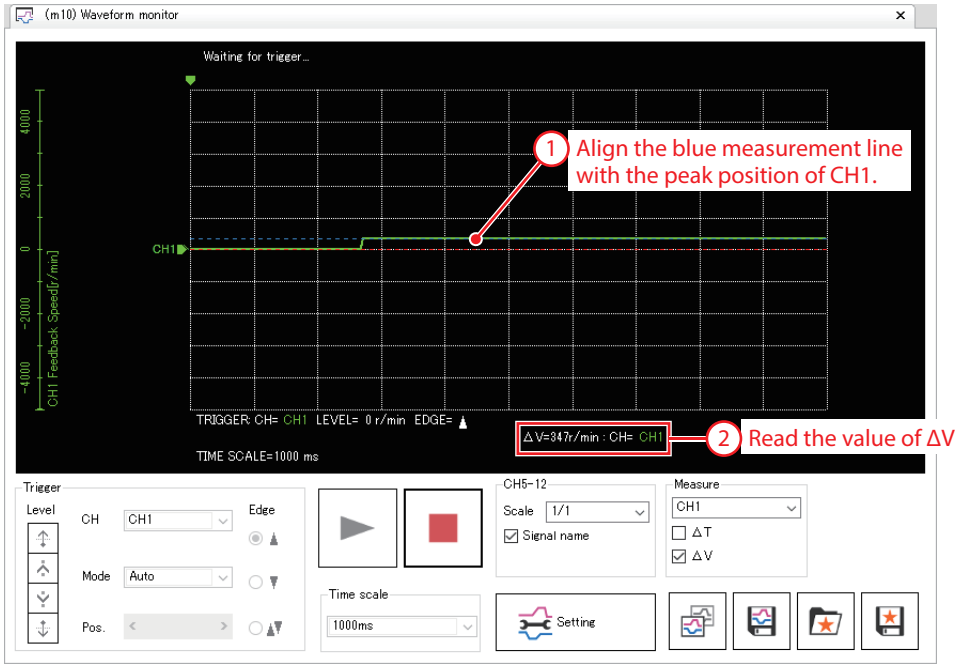
You can enlarge and display part of the measured waveform data.
The following shows an example of zooming in on around the peak value after measuring the feedback speed of CH1.

1. Select "CH1" in "Measure," and select the ΔV check box.
   Two lines (blue, red) for measuring ΔV are displayed.
2. Align the red measurement line with the CH1 display position.



3. Click ▶ to start measurement.

4. Align the blue measurement line with the peak value of CH1 and read the value of ΔV.
   The result shows the peak value of CH1 at around 350 r/min.

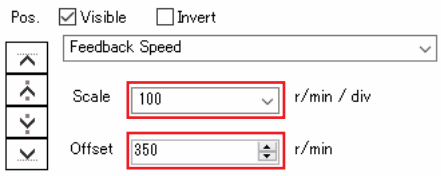


5. Click

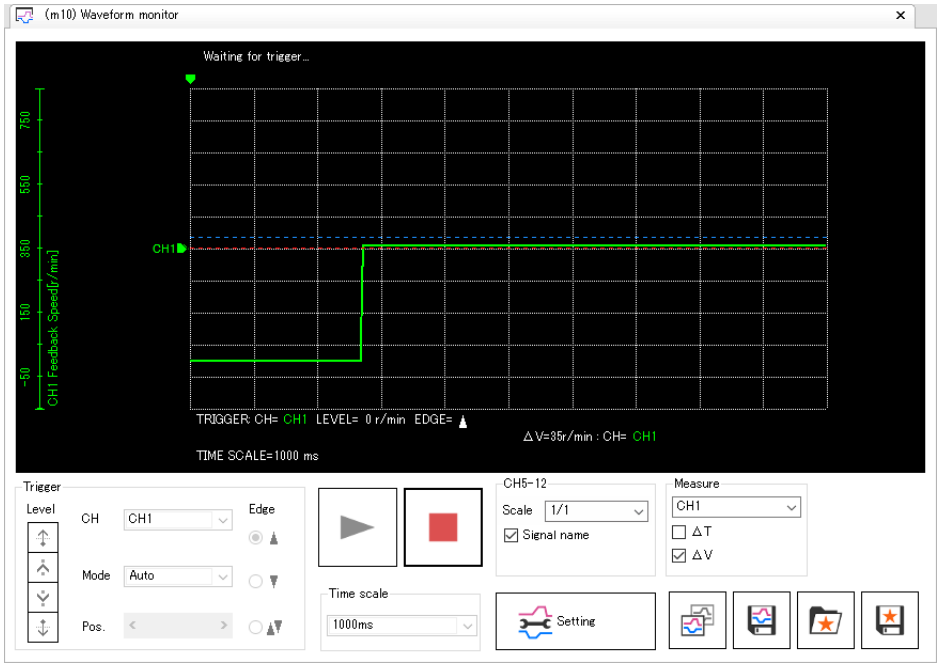
.

6. In "Offset" of CH1, enter a center value onto which you want to zoom in.
   In this example, enter 350 (r/min), the measurement result of Step 4 to zoom in on around the peak value.

7. In "Scale" of CH1, set the speed for each scale on the vertical axis.
   In this example, enter 100 (r/min/div).



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



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