PMEC/AMEC

MEC PC Software

Operation Manual
Fourth edition

IAI America, Inc.

Please Read Before Use

Thank you for purchasing our product.

This Operation Manual explains the handling methods, structure and maintenance of this product, among others, providing the information you need to know to use the product safely.

Before using the product, be sure to read this manual and fully understand the contents explained herein to ensure safe use of the product.
The CD that comes with the product contains operation manuals for IAI products.
When using the product, refer to the necessary portions of the applicable operation manual by printing them out or displaying them on a PC.

After reading the Operation Manual, keep it in a convenient place so that whoever is handling this product can reference it quickly when necessary.

[Important]

- This Operation Manual is original.
- The product cannot be operated in any way unless expressly specified in this Operation Manual. IAI shall assume no responsibility for the outcome of any operation not specified herein.
- Information contained in this Operation Manual is subject to change without notice for the purpose of product improvement.
- If you have any question or comment regarding the content of this manual, please contact the IAI sales office near you.
- Using or copying all or part of this Operation Manual without permission is prohibited.
- The company names, names of products and trademarks of each company shown in the sentences are registered trademarks.

Software License Agreement

Read this Software License Agreement carefully before using this product.
This Software License Agreement covers the software installed in your product and medium containing the software.
By using this software, you are deemed to have agreed to the terms of this Agreement. You may not use this software if you do not agree to the terms of this Agreement.
If you do not agree to the terms of this Agreement, please return your product in the original, unused condition, and IAI will refund the price you paid for the product.

IAI Corporation (hereinafter referred to as “IAI”) shall grant to the user (hereinafter referred to as “the User”), and the User shall accept, a non-transferable, non-exclusive right to use the software program supplied with this Agreement (hereinafter referred to as “the Licensed Software”), based on the following terms and conditions.

1. Term of the Agreement
   This Agreement shall take effect the moment the User opens the Licensed Software and remain effective until the User submits a termination request to IAI in writing or the Agreement is otherwise terminated pursuant to the provision of Section 5.

2. Right to Use the Licensed Software
   The User may use the Licensed Software that has been licensed to the User under this Agreement on a computer system (hereinafter referred to as “system”) based on a condition that a connecting cable that is an IAI product be used. The Licensed Software may be used on multiple systems as long as a connecting cable that is an IAI product is used. The User may not assign, sublicense or transfer to a third party the right to use the Licensed Software granted under this Agreement, the software specified hereunder, or any other item relating thereto, without obtaining a prior written consent from IAI. Unless otherwise specified expressly in this Agreement, the User is not given any right to print or reproduce the Licensed Software in whole or in part.

3. Creation of a Duplicate of the Licensed Software
   The User may create a duplicate of the Licensed Software provided by IAI solely for the purpose of using the software on multiple systems or backing up the software.

4. Protection of the Licensed Software
   The User may not provide the Licensed Software to any individual other than the employees of the User or IAI, without obtaining a prior written consent from IAI.

5. Termination of the Agreement
   In the event of breach by the User of any of the terms and conditions hereunder, or upon discovery of a material cause that makes continuation of this Agreement impossible, IAI may immediately terminate this Agreement without serving any prior notice to the User. If the Agreement is terminated for the above reason, the User must destroy the Licensed Software received from IAI and all duplicates thereof within ten (10) days after the lapse of the Agreement and send a confirmation of such destruction to IAI.

6. Scope of Protection
   IAI reserves the right to change any and all specifications relating to the Licensed Software without prior notice. IAI shall make no warranty whatsoever with respect to the Licensed Software. The User agrees not to claim compensation for damage from IAI for any loss suffered by the User as a result of installing the Licensed Software in the User’s system.

7. Attribute Information/Personal Information of User
   The User shall agree, before accepting the license to use the Licensed Software, to IAI collecting the company name, department, title, individual name or other attribute information or personal information of the User and utilizing such attribute information or personal information of the User in informational documents to be sent regarding the Licensed Software or IAI’s products or in sales promotion activities such as marketing campaigns regarding the foregoing.

Supported Models

The table below lists the supported models.

List of Supported Models

Controller model
PMEC
AMEC

Notes

[1] All copyrights to or in this software belong to IAI Corporation.

[2] This software and manual may not be used or reproduced in part or in whole without permission.

[3] This software and manual may be used only under the terms and conditions of the License Agreement for this product.

[4] IAI shall assume no responsibility whatsoever for any outcome of using this software and manual.

[5] The version number or edition specified on the cover of this manual has no correlation at all with the version number of the software.

[6] Contents of this software are subject to change without prior notice.

[7] This software runs on the Windows operating systems listed in the table below. Accordingly, one precondition for users of this software is that they can perform basic Windows operations. (Note that this software does not come with any Windows operating system.)

Port used	Compatible Windows operating systems
USB	Windows 2000[*1], Windows XP[*2] Windows Vista[*3], Windows 7[*3]

*1 SP4 or higher
*2 SP2 or higher
*3 Supported on version V1.01.00.00 or later.

Table of Contents

Safety Guide

This “Safety Guide” is intended to ensure the correct use of this product and prevent dangers and property damage. Be sure to read this section before using your product.

Regulations and Standards Governing Industrial Robots

Safety measures on mechanical devices are generally classified into four categories under the International Industrial Standard ISO/DIS 12100, “Safety of machinery,” as follows:

Safety measures
- Inherent safety design
- Protective guards --- Safety fence, etc.
- Additional safety measures --- Emergency stop device, etc.
- Information on use --- Danger sign, warnings, operation manual

Based on this classification, various standards are established in a hierarchical manner under the International Standards ISO/IEC. The safety standards that apply to industrial robots are as follows:

Type C standards (individual safety standards) → ISO10218 (Manipulating industrial robots – Safety)
→ JIS B 8433 (Manipulating industrial robots – Safety)

Also, Japanese laws regulate the safety of industrial robots, as follows:

Industrial Safety and Health Law Article 59
Workers engaged in dangerous or harmful operations must receive special education.

Ordinance on Industrial Safety and Health
Article 36 --- Operations requiring special education
- No. 31 (Teaching, etc.) --- Teaching and other similar work involving industrial robots (exceptions apply)
- No. 32 (Inspection, etc.) --- Inspection, repair, adjustment and similar work involving industrial robots (exceptions apply)

Article 150 --- Measures to be taken by the user of an industrial robot

Requirements for Industrial Robots under Ordinance on Industrial Safety and Health

Work area	Work condition	Cutoff of drive source	Measure	Article
Outside movement range	During automatic operation	Not cut off	Signs for starting operation	Article 104
			Installation of railings, enclosures, etc.	Article 150-4
Inside movement range	During teaching, etc.	Cut off (including stopping of operation)	Sign, etc., indicating that work is in progress	Article 150-3
		Not cut off	Preparation of work rules	Article 150-3
			Measures to enable immediate stopping of operation	Article 150-3
			Sign, etc., indicating that work is in progress	Article 150-3
			Provision of special education	Article 36-31
			Checkup, etc., before commencement of work	Article 151
	During inspection, etc.	Cut off	To be performed after stopping the operation	Article 150-5
			Sign, etc., indicating that work is in progress	Article 150-5
		Not cut off (when inspection, etc., must be performed during operation)	Preparation of work rules	Article 150-5
			Measures to enable immediate stopping of operation	Article 150-5
			Sign, etc., indicating that work is in progress	Article 150-5
			Provision of special education (excluding cleaning and lubrication)	Article 36-32

Applicable Modes of IAI's Industrial Robot

Machines meeting the following conditions are not classified as industrial robots according to Notice of Ministry of Labor No. 51 and Notice of Ministry of Labor/Labor Standards Office Director (Ki-Hatsu No. 340):

(1) Single-axis robo with a motor wattage of 80 W or less
(2) Combined multi-axis robot whose X, Y and Z-axes are 300 mm or shorter and whose rotating part, if any, has the maximum movement range of within 300 mm^3 including the end of the rotating part
(3) Multi-joint robot whose movable radius and Z-axis are within 300 mm

Among the products featured in our catalogs, the following models are classified as industrial robots:

1. Single-axis ROBO Cylinders
   RCS2/RCS2CR-SS8□ whose stroke exceeds 300 mm
2. Single-axis robots
   The following models whose stroke exceeds 300 mm and whose motor capacity also exceeds 80 W:
   ISA/ISPA, ISDA/ISPDA, ISWA/ISPWA, IF, FS, NS
3. Linear servo actuators
   All models whose stroke exceeds 300 mm
4. Cartesian robos
   Any robot that uses at least one axis corresponding to one of the models specified in 1 to 3
5. IX SCARA robots
   All models whose arm length exceeds 300 mm
   (All models excluding IX-NNN1205/1505/1805/2515, NNW2515 and NNC1205/1505/1805/2515)

Notes on Safety of Our Products

Common items you should note when performing each task on any IAI robot are explained below.

No.	Task	Note
1	Model selection	● This product is not planned or designed for uses requiring high degrees of safety. Accordingly, it cannot be used to sustain or support life and must not be used in the following applications: [1] Medical devices relating to maintenance, management, etc., of life or health [2] Mechanisms or mechanical devices (vehicles, railway facilities, aircraft facilities, etc.) intended to move or transport people [3] Important safety parts in mechanical devices (safety devices, etc.) ● Do not use this product in the following environments: [1] Place subject to flammable gases, ignitable objects, flammables, explosives, etc. [2] Place that may be exposed to radiation [3] Place where the surrounding air temperature or relative humidity exceeds the specified range [4] Place subject to direct sunlight or radiated heat from large heat sources [5] Place subject to sudden temperature shift and condensation [6] Place subject to corrosive gases (sulfuric acid, hydrochloric acid, etc.) [7] Place subject to excessive dust, salt or iron powder [8] Place where the product receives direct vibration or impact ● Do not use this product outside the specified ranges. Doing so may significantly shorten the life of the product or result in product failure or facility stoppage.
2	Transportation	● When transporting the product, exercise due caution not to bump or drop the product. ● Use appropriate means for transportation. ● Do not step on the package. ● Do not place on the package any heavy article that may deform the package. ● When using a crane of 1 ton or more in capacity, make sure the crane operators are qualified to operate cranes and perform slinging work. ● When using a crane, etc., never hoist articles exceeding the rated load of the crane, etc. ● Use hoisting equipment suitable for the article to be hoisted. Calculate the load needed to cut off the hoisting equipment and other loads incidental to equipment operation by considering a safety factor. Also check the hoisting equipment for damage. ● Do not climb onto the article while it is being hoisted. ● Do not keep the article hoisted for an extended period of time. ● Do not stand under the hoisted article.
3	Storage/ preservation	● The storage/preservation environment should conform to the installation environment. Among others, be careful not to cause condensation.
4	Installation/ startup	(1) Installing the robot, controller, etc. ● Be sure to firmly secure and affix the product (including its work part). If the product tips over, drops, malfunctions, etc., damage or injury may result. ● Do not step on the product or place any article on top. The product may tip over or the article may drop, resulting in injury, product damage, loss of/drop in product performance, shorter life, etc. ● If the product is used in any of the following places, provide sufficient shielding measures: [1] Place subject to electrical noise [2] Place subject to a strong electric or magnetic field [3] Place where power lines or drive lines are wired nearby [4] Place subject to splashed water, oil or chemicals

No.	Task	Note
4	Installation/ startup	(2) Wiring the cables ● Use IAI's genuine cables to connect the actuator and controller or connect a teaching tool, etc. ● Do not damage, forcibly bend, pull, loop round an object or pinch the cables or place heavy articles on top. Current leak or poor electrical continuity may occur, resulting in fire, electric shock or malfunction. ● Wire the product correctly after turning off the power. ● When wiring a DC power supply (+24 V), pay attention to the positive and negative polarities. Connecting the wires in wrong polarities may result in fire, product failure or malfunction. ● Securely connect the cables and connectors so that they will not be disconnected or come loose. Failing to do so may result in fire, electric shock or product malfunction. ● Do not cut and reconnect the cables of the product to extend or shorten the cables. Doing so may result in fire or product malfunction.
		(3) Grounding ● Be sure to provide class D (former class 3) grounding for the controller. Grounding is required to prevent electric shock and electrostatic charges, improve noise resistance and suppress unnecessary electromagnetic radiation.
		(4) Safety measures ● Implement safety measures (such as installing safety fences, etc.) to prevent entry into the movement range of the robot when the product is moving or can be moved. Contacting the moving robot may result in death or serious injury. ● Be sure to provide an emergency stop circuit so that the product can be stopped immediately in case of emergency during operation. ● Implement safety measures so that the product cannot be started only by turning on the power. If the product starts suddenly, injury or product damage may result. ● Implement safety measures so that the product will not start upon cancellation of an emergency stop or recovery of power following a power outage. Failure to do so may result in injury, equipment damage, etc. ● Put up a sign saying "WORK IN PROGRESS. DO NOT TURN ON POWER," etc., during installation, adjustment, etc. If the power is accidently turned on, electric shock or injury may result. ● Implement measures to prevent the work part, etc., from dropping due to a power outage or emergency stop. ● Ensure safety by wearing protective gloves, protective goggles and/or safety shoes, as necessary. ● Do not insert fingers and objects into openings in the product. Doing so may result in injury, electric shock, product damage, fire, etc. ● When releasing the brake of the vertically installed actuator, be careful not to let the actuator drop due to its dead weight, causing pinched hands or damaged work part, etc.
5	Teaching	● Whenever possible, perform teaching from outside the safety fences. If teaching must be performed inside the safety fences, prepare "work rules" and make sure the operator understands the procedures thoroughly. ● When working inside the safety fences, the operator should carry a handy emergency stop switch so that the operation can be stopped any time when an abnormality occurs. ● When working inside the safety fences, appoint a safety watcher in addition to the operator so that the operation can be stopped any time when an abnormality occurs. The safety watcher must also make sure the switches are not operated inadvertently by a third party. ● Put up a sign saying "WORK IN PROGRESS" in a conspicuous location. ● When releasing the brake of the vertically installed actuator, be careful not to let the actuator drop due to its dead weight, causing pinched hands or damaged load, etc. * Safety fences --- Indicate the movement range if safety fences are not provided.

No.	Task	Note
6	Confirmation operation	● After teaching or programming, carry out step-by-step confirmation operation before switching to automatic operation. ● When carrying out confirmation operation inside the safety fences, follow the specified work procedure just like during teaching. ● When confirming the program operation, use the safety speed. Failure to do so may result in an unexpected movement due to programming errors, etc., causing injury. ● Do not touch the terminal blocks and various setting switches while the power is supplied. Touching these parts may result in electric shock or malfunction.
7	Automatic operation	● Before commencing automatic operation, make sure no one is inside the safety fences. ● Before commencing automatic operation, make sure all related peripherals are ready to operate in the auto mode and no abnormalities are displayed or indicated. ● Be sure to start automatic operation from outside the safety fences. ● If the product generated abnormal heat, smoke, odor or noise, stop the product immediately and turn off the power switch. Failure to do so may result in fire or product damage. ● If a power outage occurred, turn off the power switch. Otherwise, the product may move suddenly when the power is restored, resulting in injury or product damage.
8	Maintenance/ inspection	● Whenever possible, work from outside the safety fences. If work must be performed inside the safety fences, prepare “work rules” and make sure the operator understands the procedures thoroughly. ● When working inside the safety fences, turn off the power switch, as a rule. ● When working inside the safety fences, the operator should carry a handy emergency stop switch so that the operation can be stopped any time when an abnormality occurs. ● When working inside the safety fences, appoint a safety watcher in addition to the operator so that the operation can be stopped any time when an abnormality occurs. The safety watcher must also make sure the switches are not operated inadvertently by a third party. ● Put up a sign saying “WORK IN PROGRESS” in a conspicuous location. ● Use appropriate grease for the guides and ball screws by checking the operation manual for each model. ● Do not perform a withstand voltage test. Conducting this test may result in product damage. ● When releasing the brake of the vertically installed actuator, be careful not to let the actuator drop due to its dead weight, causing pinched hands or damaged work part, etc. * Safety fences --- Indicate the movement range if safety fences are not provided.
9	Modification	● The customer must not modify or disassemble/assemble the product or use maintenance parts not specified in the manual without first consulting IAI. ● Any damage or loss resulting from the above actions will be excluded from the scope of warranty.
10	Disposal	● When the product becomes no longer usable or necessary, dispose of it properly as an industrial waste. ● When disposing of the product, do not throw it into fire. The product may explode or generate toxic gases.

Indication of Cautionary Information

The operation manual for each model denotes safety precautions under “Danger,” “Warning,” “Caution” and “Note,” as specified below.

Level	Degree of danger/loss	Symbol
Danger	Failure to observe the instruction will result in an imminent danger leading to death or serious injury.	Danger
Warning	Failure to observe the instruction may result in death or serious injury.	Warning
Caution	Failure to observe the instruction may result in injury or property damage.	Caution
Note	The user should take heed of this information to ensure the proper use of the product, although failure to do so will not result in injury.	Note

Handling Precautions

- What to do in case of emergency
  If this product is found in a dangerous condition, promptly turn off the power switch on the product as well as power switches of all devices, etc., connected to the product, or unplug all power cables from the power outlets. (“Dangerous condition” refers to a condition where fire or bodily injury may occur due to abnormal generation of heat or smoke, ignition, and so on.)

1. Preparation Before Use

1.1 Operating Environment

The following environment is required to operate this software.

Applicable operating systems	Windows 2000 SP4 or higher, Windows XP SP2 or higher, Windows Vista*1, Windows 7*1 (It is recommended that .NET Framework 2.0 or higher is installed.) Note, however, 64-bit version is not supported.
Computer	Personal computer running an applicable operating system (Windows) (A professor of 500 MHz or faster is recommended.)
Keyboard	Keyboard compatible with the personal computer running an applicable operating system (Windows)
Memory	Memory of the size needed to run an applicable operating system (Windows)
Display	XGA (1024x768) or higher
Pointing device	Mouse, etc., and compatible driver
Hard disk	Hard disk of at least 300 MB of free disk space (To use this software, it must be installed on the hard disk.)
COM port	USB port

*1 Supported on version V1.01.00.00 or later.

1.2 Installing This Software

To use this software, it must be installed in the hard disk of a PC. The following explains how to install this software.

1.2.1 How to Install the Software/Uninstall the USB Driver on a PC Running Windows XP

[1] How to install the MEC PC software

(1) When installing from the CD-ROM

Set the CD-ROM containing this software in the CD-ROM drive.

The MEC setup tool will launch automatically.

* If the MEC setup tool does not launch automatically, click  in the CD-ROM. The MEC setup tool will launch.

(2) When you have downloaded the ZIP file

[1] Download the file containing this software “mec_v*_**_**_**.zip” from IAI’s website.

[2] Unzip the file using an appropriate tool.

[3] Among the extracted files, find the “MECSetupTool.exe” icon.

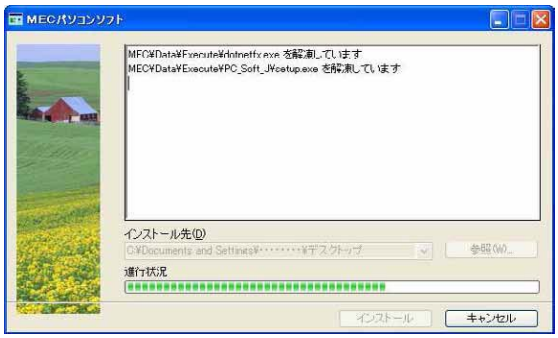
[4] Double-clicking  will launch the MEC setup tool.

(3) When you have downloaded the self-extracting file

[1] Download the file containing this software “mec_v*_**_**_**.exe” from IAI’s website.

[2] Move the downloaded file to the desktop or other location of the PC in which the software will be installed.

[3] Double-click  , and the files needed to set up the MEC PC software will be extracted.



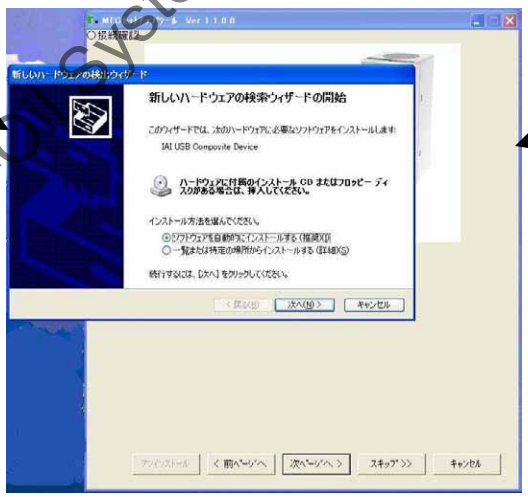
Progress Screen during File Extraction

[4] When all files have been extracted, the MEC setup tool launches automatically.
[5] Once you have extracted the files and set up the MEC PC software, the “MEC” folder created in the extraction process is no longer necessary. Delete this folder if you won’t be using it in the future.

* “**” in the file name indicates the version number.

(4) How to use the MEC setup tool
In addition to installing the “MEC PC Software,” the MEC setup tool also provides the operating procedure to install the software.
When installing the “USB driver,” for example, the “Start the Found New Hardware Wizard” screen opens a new window, as shown below.
While checking the “MEC Setup Tool” page, follow the instructions provided on the “Start the Found New Hardware Wizard” screen.
(Note) If the “MEC Setup Tool” page you must check is overlapping with the “Start the Found New Hardware Wizard” screen, as shown below, click whichever screen you want check or operate on to bring it to the front and then check a desired item or perform a desired operation.

“Start the Found New Hardware Wizard” screen



“MEC Setup Tool” page

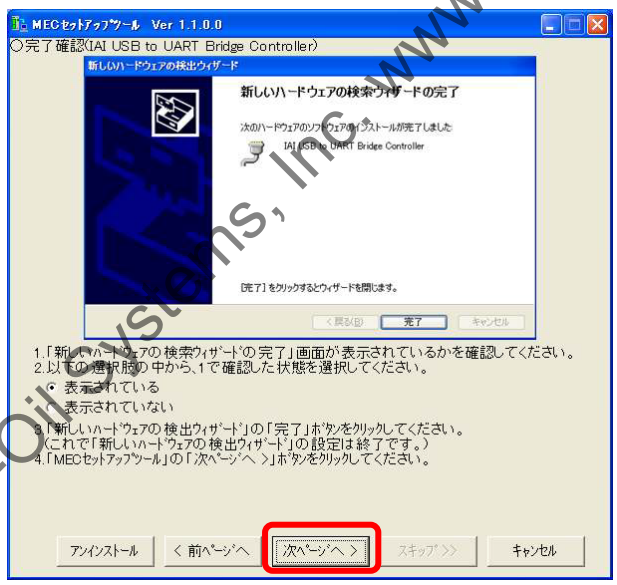
(5) Notes on installing the USB driver
When connecting the PC to multiple MEC controllers, all of the applicable MEC controllers must be connected one by one and the USB driver for each controller installed separately.

To install the USB driver for the second or subsequent MEC controller, click  to launch the “MEC Setup Tool.”
As you have done for the first MEC controller, install the USB driver according to the onscreen instructions provided by the “MEC Setup Tool.”
[Refer to (6), “Starting a MEC setup.”]
Note, however, that installation of the following software was completed with the first controller and they need not be installed again:

- Microsoft Windows Installer 3.0
- Microsoft .NET Frame maker 2.0
- MEC PC software

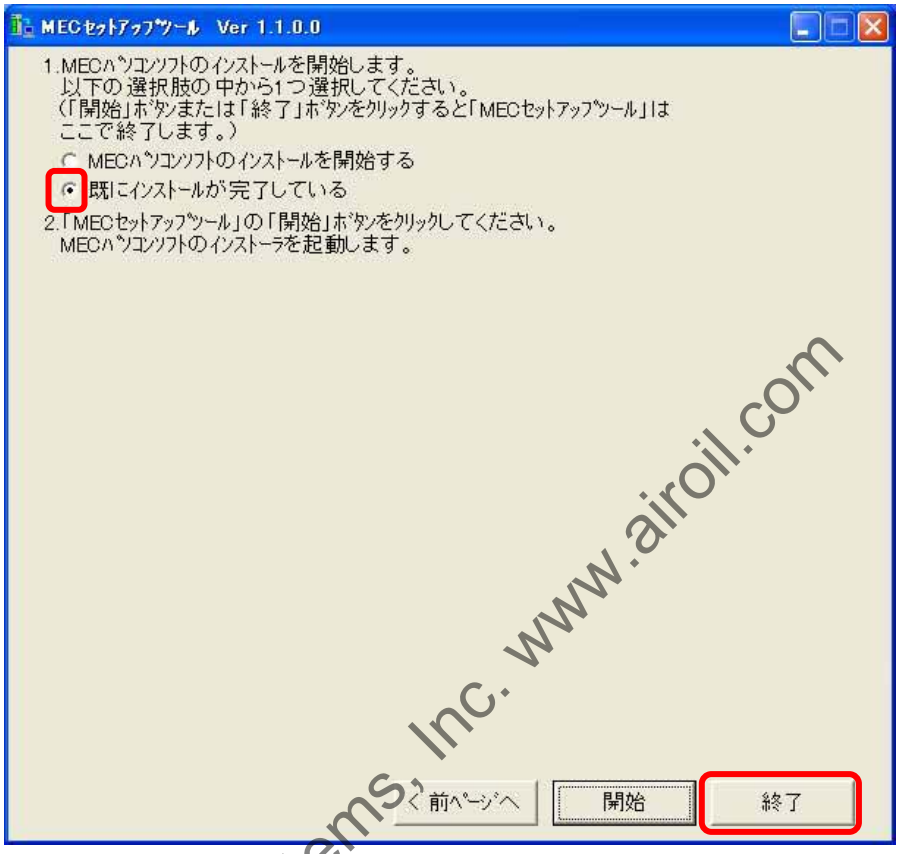
When all USB drivers have been installed, close the setup tool by following the procedure below:

[1] On the page to “Confirm Completion (IAI USB to UART Bridge Controller),” click the [Next] button.



“Completion Confirmation (IAI USB to UART Bridge Controller)” Page

[2] The “MEC PC Software Installation” page appears.
Select the “Installation completed” check box, and then click the [Close] button.
The “MEC Setup Tool” is closed.



“MEC PC Installation” Page

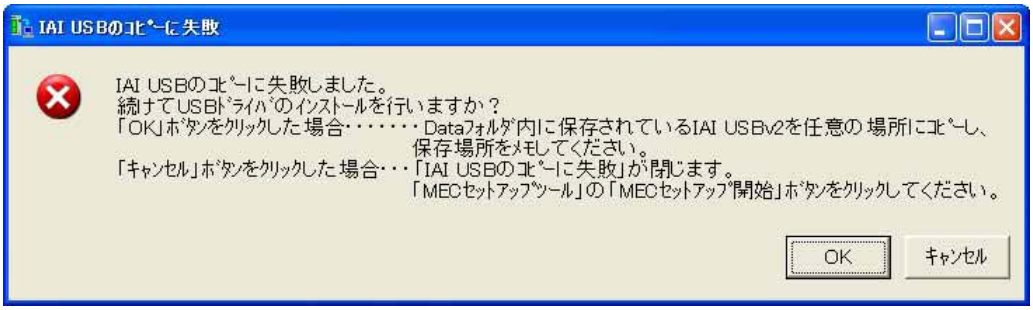
(6) Starting a MEC setup

[1] The “Start MEC Setup Tool” page appears. Click the [Start Setup] button. When the [Start Setup] button is clicked, the “Found New Hardware Wizard Appearing Up to Twice Warning” screen appears. Click the [OK] button, and the IAI USBv2 will be copied.

* If the copying fails, the “IAI USB copying failed” screen appears. If this screen appears, copy the IAI USBv2 folder in the Data folder to the PC. Write down the location to which this folder was copied and keep this memo with you, because you will need it on the “Found New Hardware Wizard” screen.

“Start MEC Setup Tool” Page

“Found New Hardware Wizard Appearing Up to Twice Warning” Screen



“IAI USB Copying Failed” Screen

[2] The “Wizard Display Confirmation” page appears. Select an appropriate option in the MEC setup tool, and then click the [Next] button.

* If you don’t need an explanation of the “Found New Hardware Wizard” screen, click the [Skip] button. A screen showing the “IAI USB Storage Location” page will appear. On this page, click the [Next] button. The page you will be switched to varies depending on the status of installation.

- If the "Microsoft Windows Installer 3.0 installer" page is currently displayed, proceed to [14].
- If the "Microsoft .NET Framework 2.0 installer" page is currently displayed, proceed to [20].
- If the “MEC PC Software Installation” page is currently displayed, proceed to [26].

“Wizard Display Confirmation” Page

“IAI USB Storage Location Display” Page

[3] The “Connection Confirmation” page appears. Connect the MEC controller. If the MEC controller is already connected, unplug the USB connector and then plug it again. When the above operation is complete, click the [Next] button.

“Connection Confirmation” Screen

[4] The “Website Connection Confirmation (IAI USB Composite Device)” page appears. Select “No. Do not connect this time. (T)” on this “Found New Hardware Wizard” screen, and then click the [Next (N)] button. Next, select an appropriate option in the MEC setup tool, and then click the [Next] button.

* Depending on the settings, this “Found New Hardware Wizard” screen for confirming website connection may not be displayed. If this screen does not appear, proceed to [5].

“Website Connection Confirmation (IAI USB Composite Device)” Page

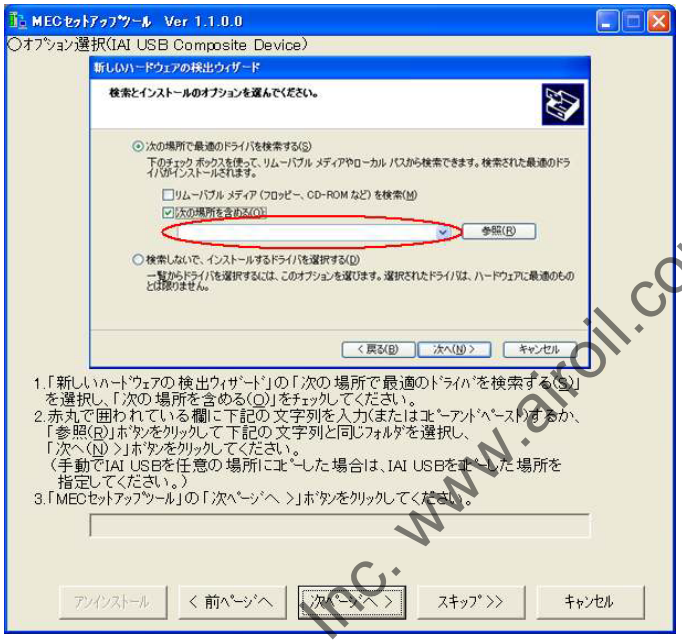
[5] The “Installation Method Selection (IAI USB Composite Device)” page appears. Select “Install from the list or a specific location (S)” on this “Found New Hardware Wizard” screen, and then click the [Next (N)] button. Next, select an appropriate option in the MEC setup tool by referring to the red underlined text below, and then click the [Next] button.

- If you have selected “IAI USB Composite Device,” proceed to [6].
- If you have selected “IAI USB to UART Bridge Controller,” proceed to [11].

“Installation Method Selection (IAI USB Composite Device)” Page

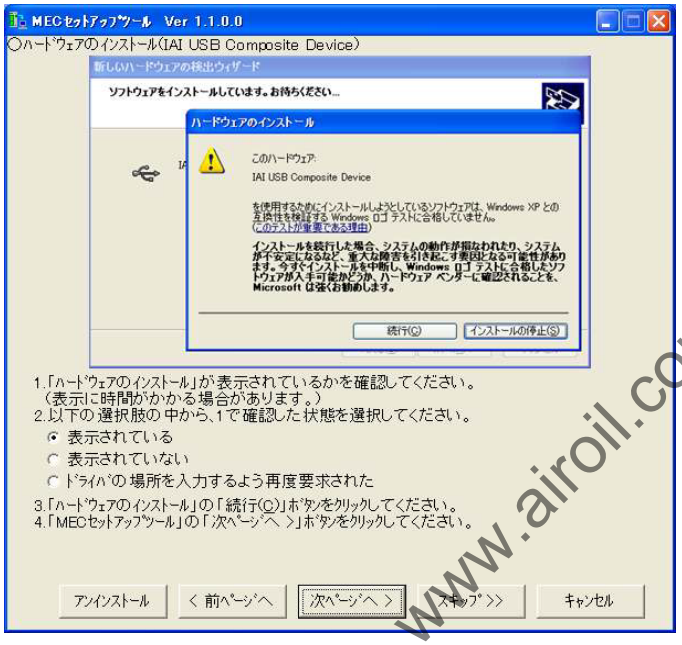
[6] The “Option Selection (IAI USB Composite Device)” page appears. Select “Find an optimal driver in the following location (S)” on this “Found New Hardware Wizard” screen and select the “Include the following location (O)” check box. Enter in the field circled in red on the “Found New Hardware Wizard” screen the file location shown on the MEC setup tool, and then click the [Next (N)] button. Next, click the [Next] button in the MEC setup tool.

* If the entered path is wrong, you cannot proceed to the next step.



“Option Selection (IAI USB Composite Device)” Page

[7] The “Hardware Installation (IAI USB Composite Device)” page appears. Click the [Continue (C)] button on this “Hardware Installation” screen. Next, set an appropriate option in the MEC setup tool, and then click the [Next] button.



“Hardware Installation (IAI USB Composite Device)” Page

[8] The “Completion Confirmation (IAI USB Composite Device)” page appears. Click the [Finish] button on this “Found New Hardware Wizard” screen. Next, click the [Next] button in the MEC setup tool.

“Completion Confirmation (IAI USB Composite Device)” Page

[9] The “Website Connection Confirmation (IAI USB to UART Bridge Controller)” page appears. Select “No. Do not connect this time. (T)” on this “Found New Hardware Wizard” screen, and then click the [Next (N)] button. Next, select an appropriate option in the MEC setup tool, and then click the [Next] button.

* Depending on the settings, this “Found New Hardware Wizard” screen for confirming website connection may not be displayed. If this screen does not appear, proceed to [10].

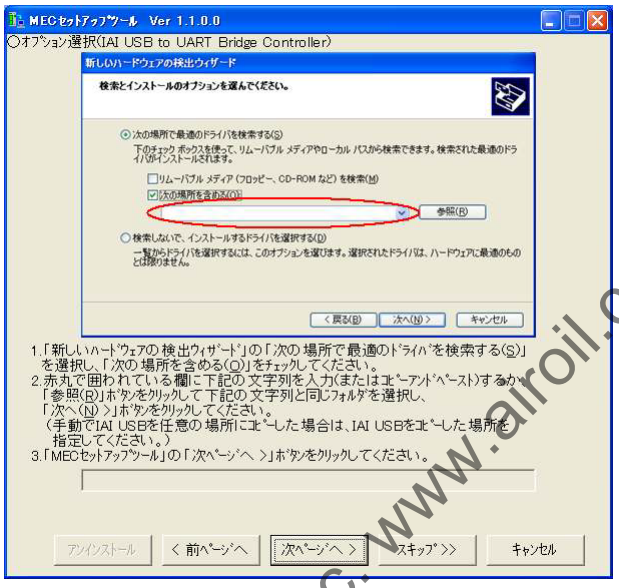
“Website Connection Confirmation (IAI USB to UART Bridge Controller)” Page

[10] The “Installation Method Selection (IAI USB to UART Bridge Controller)” page appears. Select “Install from the list or a specific location (S)” on this “Found New Hardware Wizard” screen, and then click the [Next (N)] button. Next, click the [Next] button in the MEC setup tool.

“Installation Method Selection (IAI USB to UART Bridge Controller)” Page

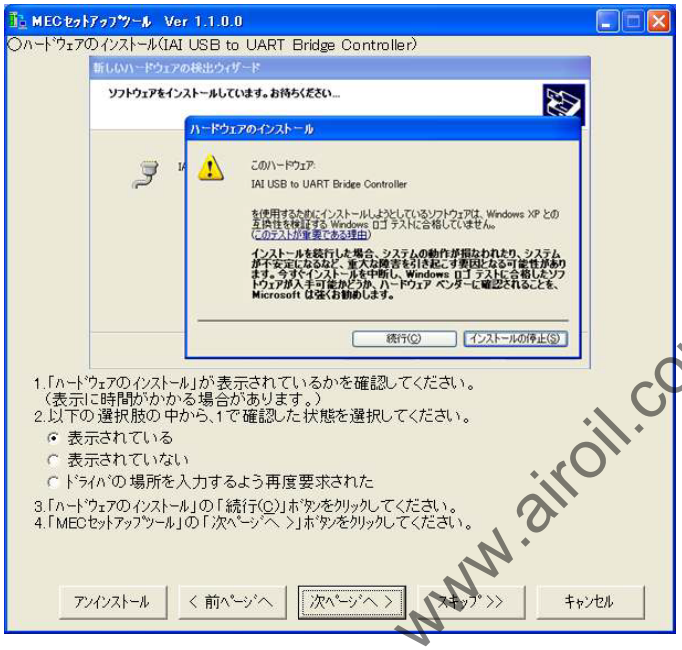
[11] The “Option Selection (IAI USB to UART Bridge Controller)” page appears. Select “Find an optimal driver in the following location (S)” on this “Found New Hardware Wizard” screen and select the “Include the following location (O)” check box. Enter in the field circled in red on the “Found New Hardware Wizard” screen the file location shown on the MEC setup tool, and then click the [Next (N)] button. Next, click the [Next] button in the MEC setup tool.

* If the entered path is wrong, you cannot proceed to the next step.



“Option Selection (IAI USB to UART Bridge Controller)” Page

[12] The “Hardware Installation (IAI USB to UART Bridge Controller)” page appears. Click the [Continue (C)] button on this “Hardware Installation” screen. Next, set an appropriate option in the MEC setup tool, and then click the [Next] button.



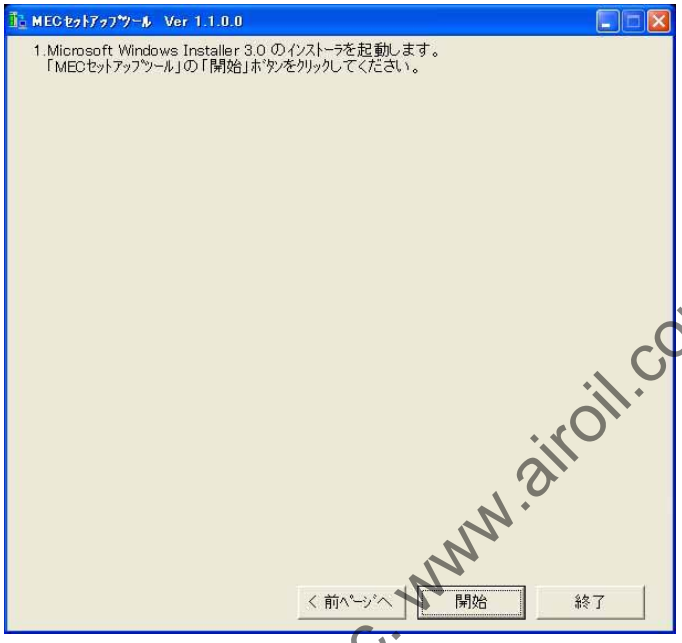
“Hardware Installation (IAI USB to UART Bridge Controller)” Page

[13] The “Completion Confirmation (IAI USB to UART Bridge Controller)” page appears. Click the [Finish] button on this “Found New Hardware Wizard” screen. Next, click the [Next] button in the MEC setup tool.

- If the "Microsoft Windows Installer 3.0 installer" page is currently displayed, proceed to [14].
- If the "Microsoft .NET Framework 2.0 installer" page is currently displayed, proceed to [20].
- If the “MEC PC Software Installation” page is currently displayed, proceed to [26].

“Completion Confirmation (IAI USB to UART Bridge Controller)” Page

[14] If Microsoft .NET Framework 2.0 required by the MEC PC software is not yet installed, the display changes to the “Microsoft Windows Installer 3.0 Installer Launch” page where you can start installing Microsoft Windows Installer 3.0 needed to install Microsoft .NET Framework 2.0. Click the [Start] button in the MEC setup tool.

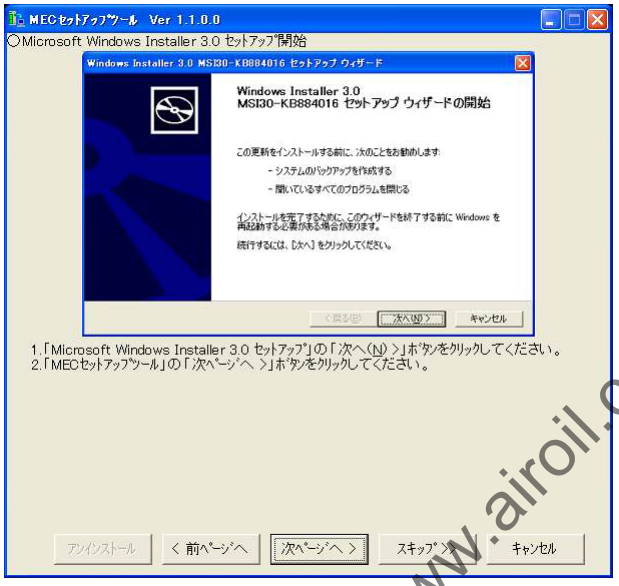


“Microsoft Windows Installer 3.0 Installer Launch” Page

[15] The “Microsoft Windows Installer 3.0 Installation Permission” page appears. If a “Security Warning” screen is displayed, click the [Install (R)] button and then click the [Next] button in the MEC setup tool. If no security warning is displayed, directly click the [Next] button in the MEC setup tool.

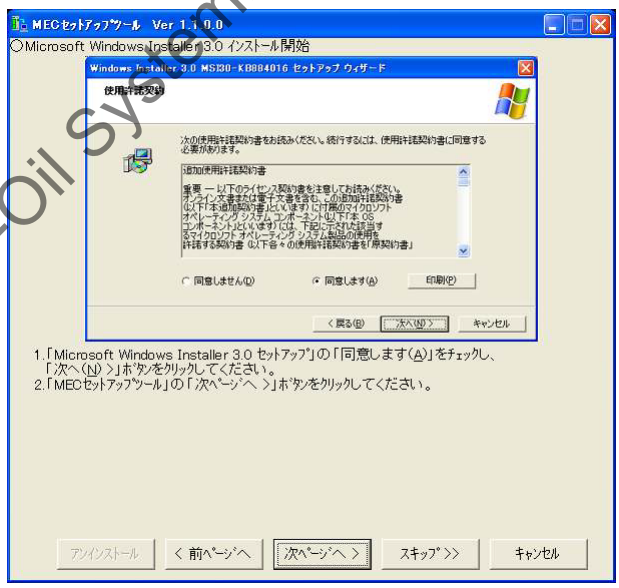
“Microsoft Windows Installer 3.0 Installation Permission” Page

[16] The “Microsoft Windows Installer 3.0 Setup Start” page appears and “Microsoft Windows Installer 3.0 Setup” screen is started. Click the [Next (N)] button on this “Microsoft Windows Installer 3.0 Setup” screen. Next, click the [Next] button in the MEC setup tool.



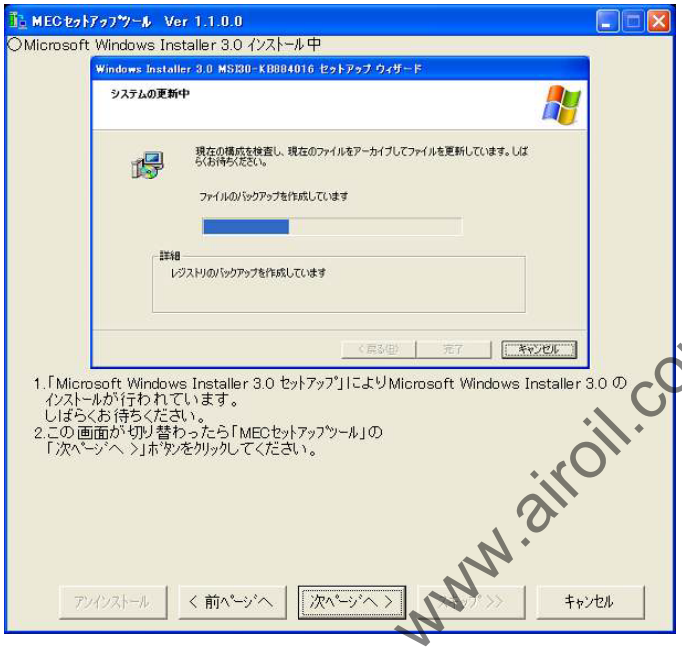
“Microsoft Windows Installer 3.0 Setup Start” Page

[17] The “Microsoft Windows Installer 3.0 Installation Start” page appears. Select the “I agree (A)” check box on this “Microsoft Windows Installer 3.0 Setup” screen, and then click the [Next (N)] button. Next, click the [Next] button in the MEC setup tool.



“Microsoft Windows Installer 3.0 Installation Start” Page

[18] The “Microsoft Windows Installer 3.0 Installation Progress” page appears. Wait for a while until this “Microsoft Windows Installer 3.0 Setup” screen indicating that the system is being updated changes to a different screen. Once the screen has changed, click the [Next] button in the MEC setup tool.



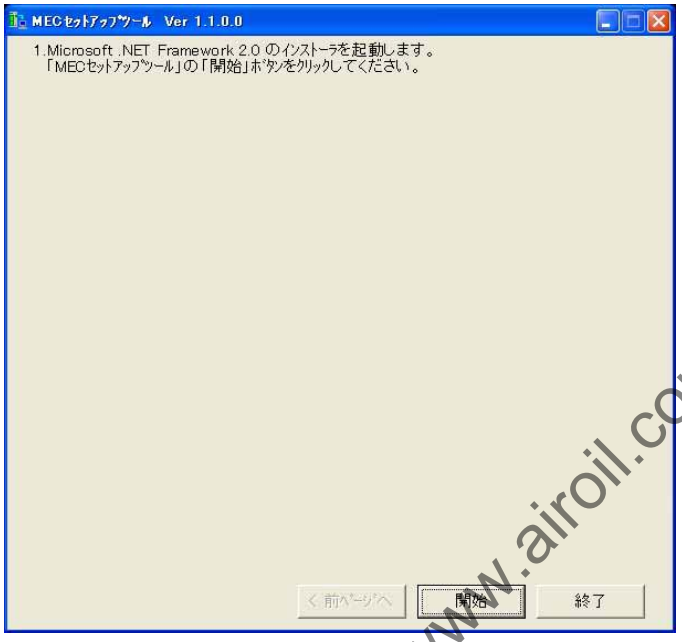
“Microsoft Windows Installer 3.0 Installation Progress” Page

[19] The “Microsoft Windows Installer 3.0 Installation Completion” page appears. Clear the “Do not restart now (D)” check box on this “Microsoft Windows Installer 3.0 Setup” screen and click the “Finish” button. Microsoft Windows will restart. After Microsoft Windows has restarted, start the MEC setup tool.

* The location of the executable file of the MEC setup tool is shown in the MEC setup tool, so check this location before restarting the MEC setup tool.

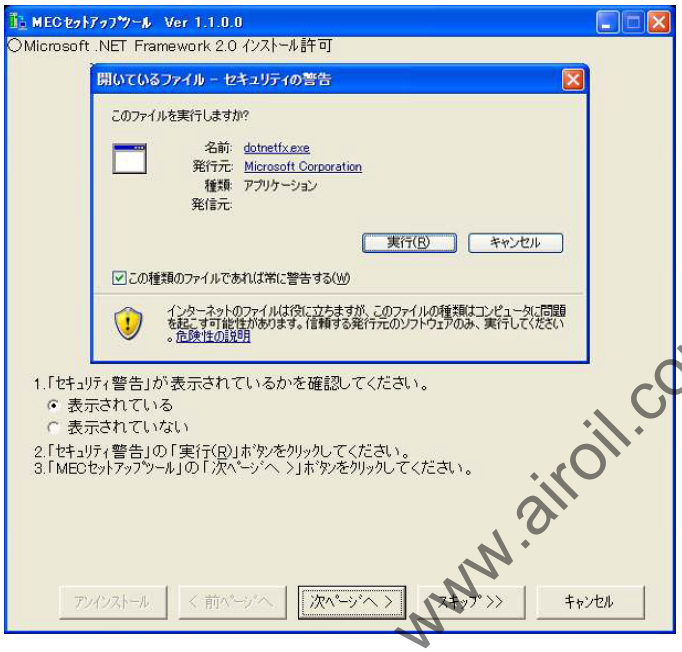
“Microsoft Windows Installer 3.0 Installation Completion” Page

[20] Once the MEC setup tool starts, the “Microsoft .NET Framework 2.0 Installer Launch” page appears. Click the [Start] button in the MEC setup tool.



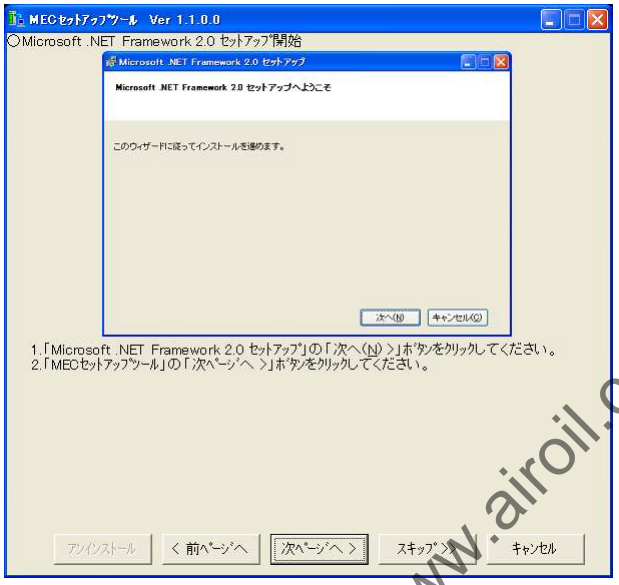
“Microsoft .NET Framework 2.0 Installer Launch” Page

[21] The “Microsoft .NET Framework 2.0 Installation Permission” page appears. If a “Security Warning” screen is displayed, click the [Install (R)] button and then click the [Next] button in the MEC setup tool. If no security warning is displayed, directly click the [Next] button in the MEC setup tool.



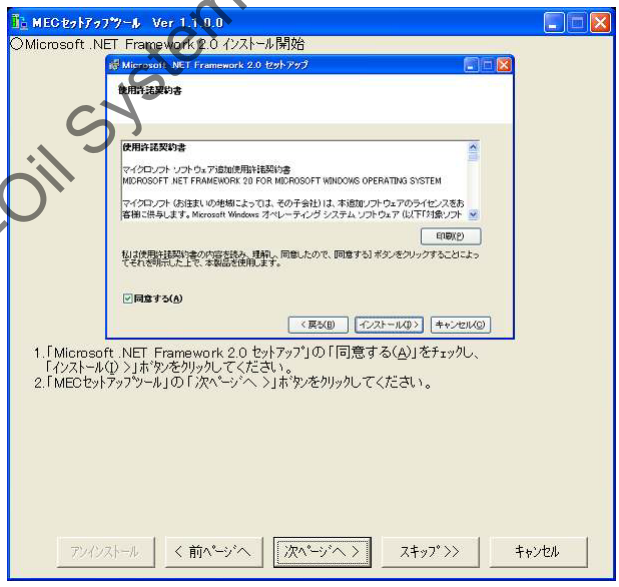
“Microsoft .NET Framework 2.0 Installation Permission” Page

[22] The “Microsoft .NET Framework 2.0 Setup Start” page appears. Click the [Next (N)] button on this “Microsoft .NET Framework 2.0 Setup” screen, and then click the [Next] button in the MEC setup tool.



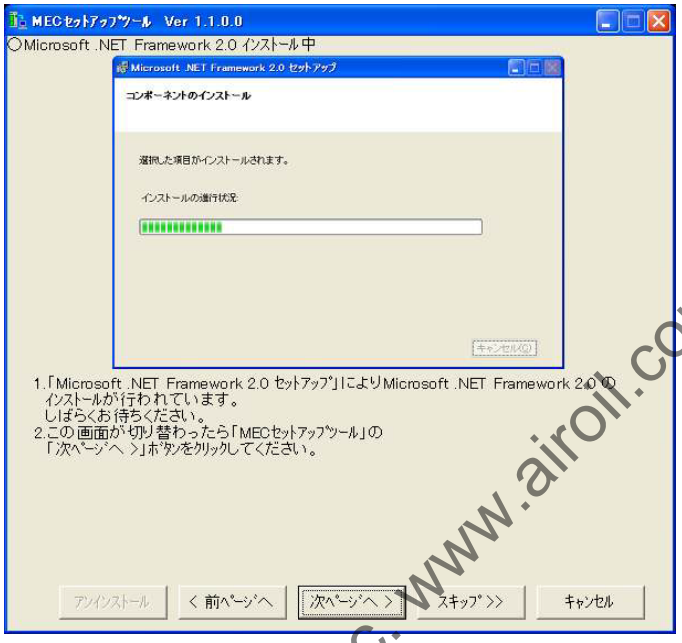
“Microsoft .NET Framework 2.0 Setup Start” Page

[23] The “Microsoft .NET Framework 2.0 Installation Start” page appears. Select the “I agree (A)” check box on this “Microsoft .NET Framework 2.0 Setup” screen, and then click the [Install (I)] button. Next, click the [Next] button in the MEC setup tool.



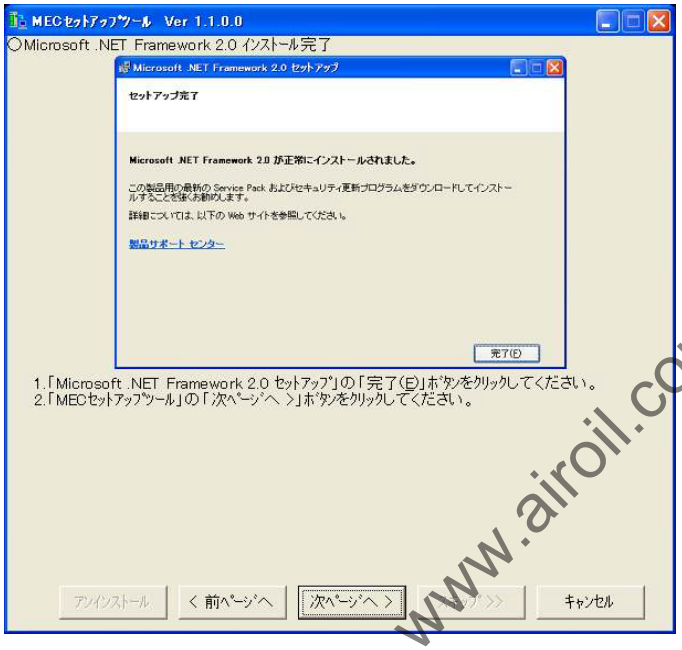
“Microsoft .NET Framework 2.0 Installation Start” Page

[24] The “Microsoft .NET Framework 2.0 Installation Progress” page appears. Wait for a while until this “Microsoft .NET Framework 2.0 Setup” screen indicating that this software component is being installed changes to a different screen. Once the screen has changed, click the [Next] button in the MEC setup tool.



“Microsoft .NET Framework 2.0 Installation Progress” Page

[25] The “Microsoft .NET Framework 2.0 Installation Completion” page appears. Click the [Finish (F)] button on this “Microsoft .NET Framework 2.0 Setup” screen. Next, click the [Next] button in the MEC setup tool.



“Microsoft .NET Framework 2.0 Installation Completion” Page

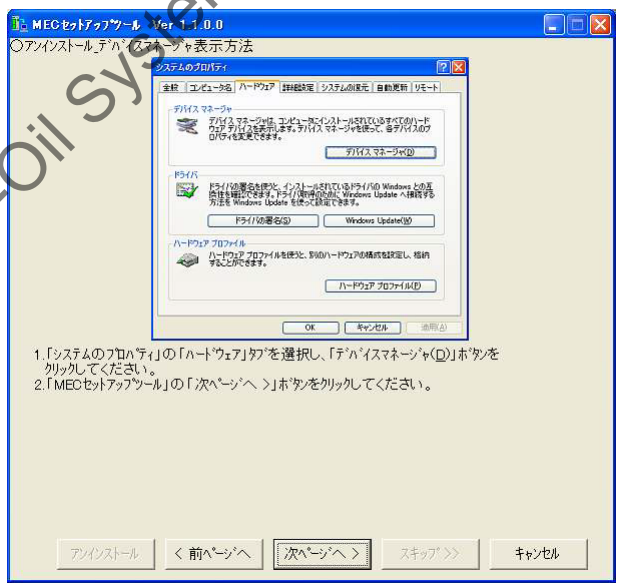
[26] The “MEC PC Software Installation” page appears. Select an appropriate option in the MEC setup tool, and then click the [Start] button.

“MEC PC Software Installation” Page

[2] How to uninstall the USB driver

[1] While the MEC controller is connected, click the [Uninstall] button in the MEC setup tool. The Device Manager will launch. If the Device Manager could not be launched, the “Uninstall_My Computer Properties Display Method” page appears first.
Display the My Computer Properties screen by following the onscreen instructions.
Next, the “Uninstall_Device Manager Display Method” page appears. Select the “Hardware” tab on the “System Properties” screen, and then click the [Device Manager (D)] button.

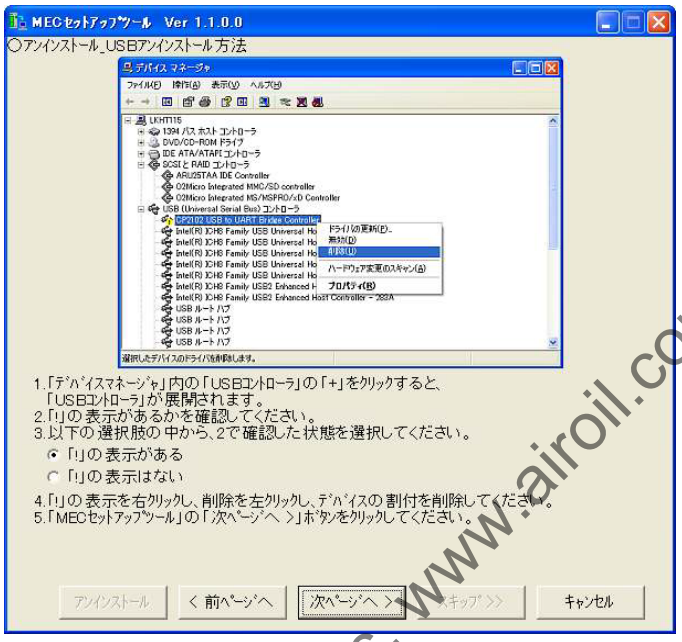
“Uninstall_My Computer Properties Display Method” Page



“Uninstall_Device Manager Display Method” Page

[2] The “Uninstall_USB Uninstallation Method” page appears. Click “+” on the left side of “USB Controllers” to expand the USB controllers. Check if any of the devices has a “!” icon shown next to it.

- If any device has a “!” icon, right-click the device and select [Delete (U)] to delete the device. Next, select an appropriate option in the MEC setup tool, and then click the [Next] button.

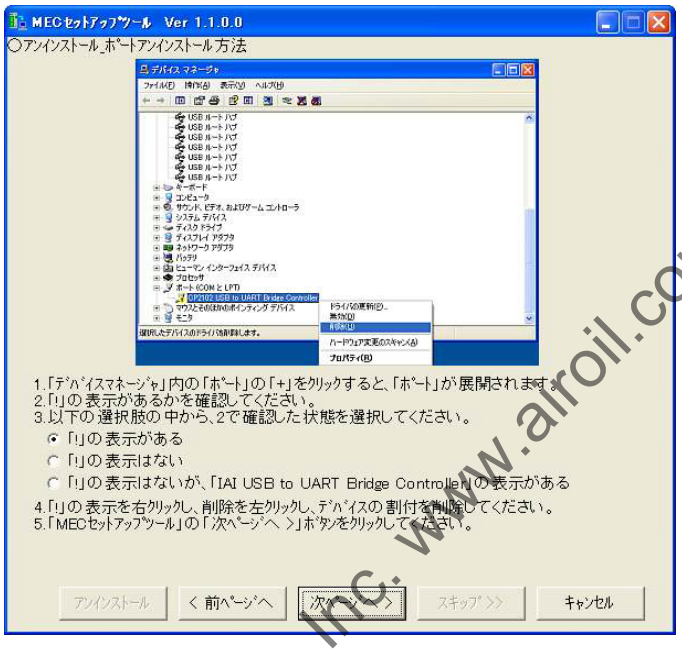


“Uninstall_USB Uninstallation Method” Page

[3] The “Uninstall_Port Uninstallation Method” Page appears. Click “+” on the left side of “Ports” to expand the ports. Check if any of the devices has a “!” icon shown next to it.

- If any device has a “!” icon, right-click the device and select [Delete (U)] to delete the device. Next, select an appropriate option in the MEC setup tool, and then click the [Next] button.

* Once a device with “!” is deleted in step [2], that device will no longer be displayed. Click the [Next] button in the MEC setup tool.



“Uninstall_Port Uninstallation Method” Page

[4] The “Wizard Display Confirmation” page appears and you go back to the start of installation.

1.2.2 How to Install the Software/Uninstall the USB Driver on a PC Running Windows 2000

[1] How to install the MEC PC software

(1) When installing from the CD-ROM

Set the CD-ROM containing this software in the CD-ROM drive.

The MEC setup tool will launch automatically.

* If the MEC setup tool does not launch automatically, click  in the CD-ROM. The MEC setup tool will launch.

(2) When you have downloaded the ZIP file

[1] Download the file containing this software “mec_v*_**_**_**.zip” from IAI’s website.

[2] Unzip the file using an appropriate tool.

[3] Among the extracted files, find the “MECSetupTool.exe” icon.

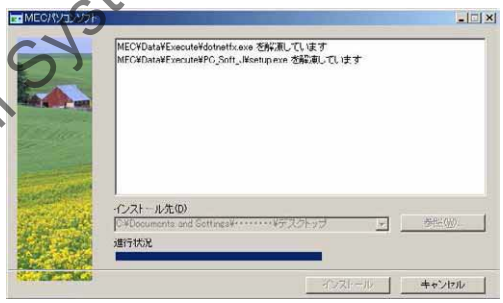
[4] Double-clicking  will launch the MEC setup tool.

(3) When you have downloaded the self-extracting file

[1] Download the file containing this software “mec_v*_**_**_**.exe” from IAI’s website.

[2] Move the downloaded file to the desktop or other location of the PC in which the software will be installed.

[3] Double-click  , and the files needed to set up the MEC PC software will be extracted.



Extracting screen

[4] When all files have been extracted, the MEC setup tool launches automatically.
[5] Once you have extracted the files and set up the MEC PC software, the “MEC” folder created in the extraction process is no longer necessary. Delete this folder if you won’t be using it in the future.

* “**” in the file name indicates the version number.

(4) How to use the MEC setup tool

In addition to installing the “MEC PC Software,” the MEC setup tool also provides the operating procedure to install the software.

When installing the “USB driver,” for example, the “Start the Found New Hardware Wizard” screen opens a new window, as shown below.

While checking the “MEC Setup Tool” page, follow the instructions provided on the “Start the Found New Hardware Wizard” screen.

(Note) If the “MEC Setup Tool” page you must check is overlapping with the “Start the Found New Hardware Wizard” screen, as shown below, click whichever screen you want check or operate on to bring it to the front and then check a desired item or perform a desired operation.

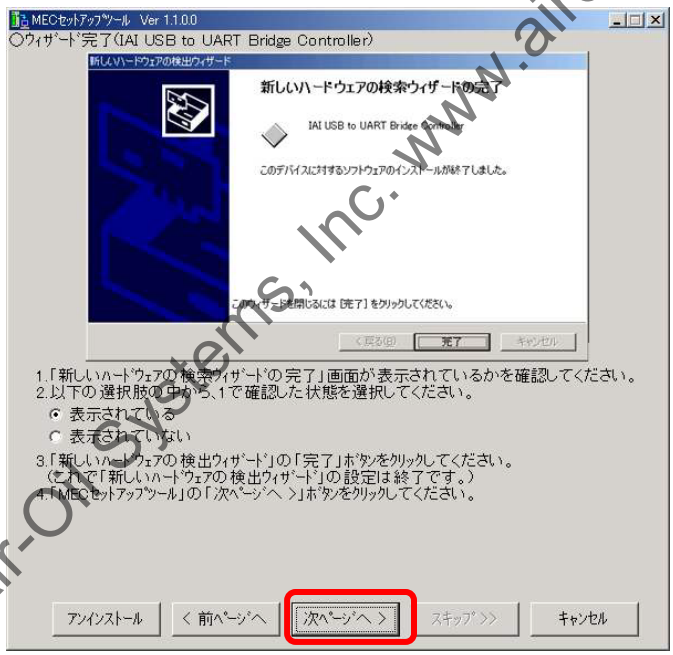
(5) Notes on installing the USB driver
When connecting the PC to multiple MEC controllers, all of the applicable MEC controllers must be connected one by one and the USB driver for each controller installed separately.

To install the USB driver for the second or subsequent MEC controller, click  to launch the “MEC Setup Tool.”
As you have done for the first MEC controller, install the USB driver according to the onscreen instructions provided by the “MEC Setup Tool.”
[Refer to (6), “Starting a MEC setup.”]
Note, however, that installation of the following software was completed with the first controller and they need not be installed again:

- Microsoft Windows Installer 3.0
- Microsoft .NET Framework 2.0
- MEC PC software

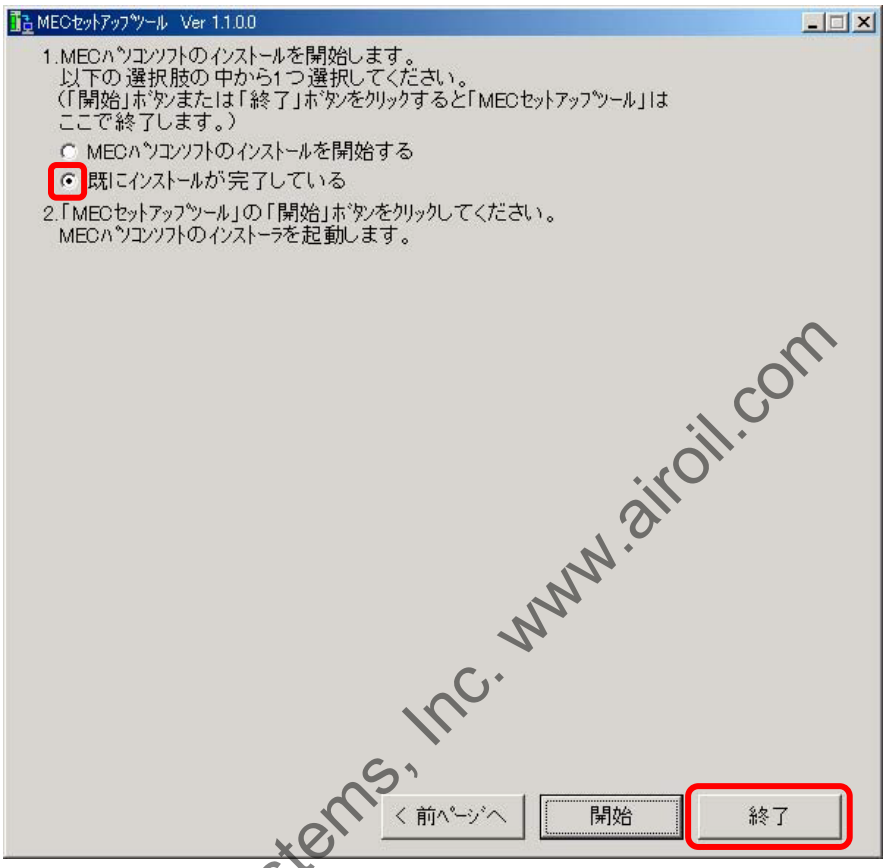
When all USB drivers have been installed, close the setup tool by following the procedure below:

[1] On the page to “Confirm Completion (IAI USB to UART Bridge Controller),” click the [Next] button.



“Completion Confirmation (IAI USB to UART Bridge Controller)” Page

[2] The “MEC PC Software Installation” page appears. Select the “Installation completed” check box, and then click the [Close] button.
The “MEC Setup Tool” is closed.

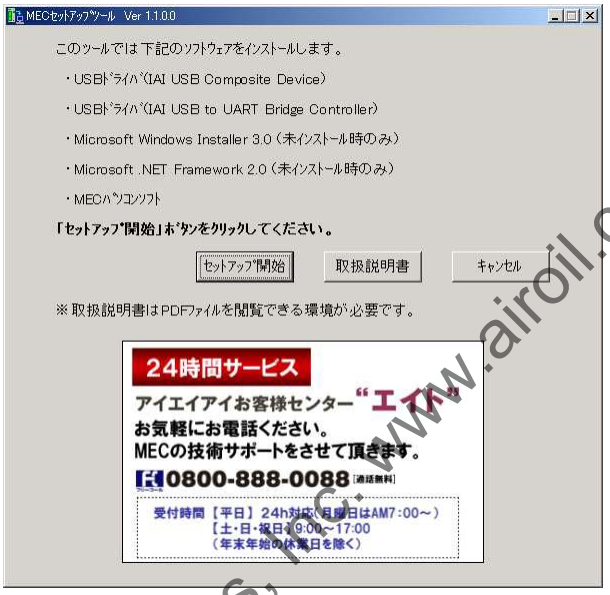


“MEC PC Installation” Page

(6) Starting a MEC setup

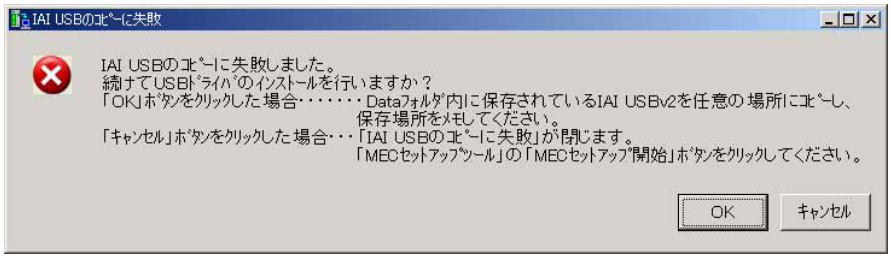
[1] The “Start MEC Setup Tool” page appears. Click the [Start Setup] button. When the [Start Setup] button is clicked, the “Found New Hardware Appearing Up to Twice Warning” screen appears. Click the [OK] button, and the IAI USBv2 will be copied.

* If the copying fails, the “IAI USB copying failed” screen appears. If this screen appears, copy the IAI USBv2 folder in the Data folder to the PC. Write down the location to which this folder was copied and keep this memo with you, because you will need it on the “Found New Hardware Wizard” screen.



“Start MEC Setup Tool” Page

“Found New Hardware Wizard Appearing Up to Twice Warning” Screen

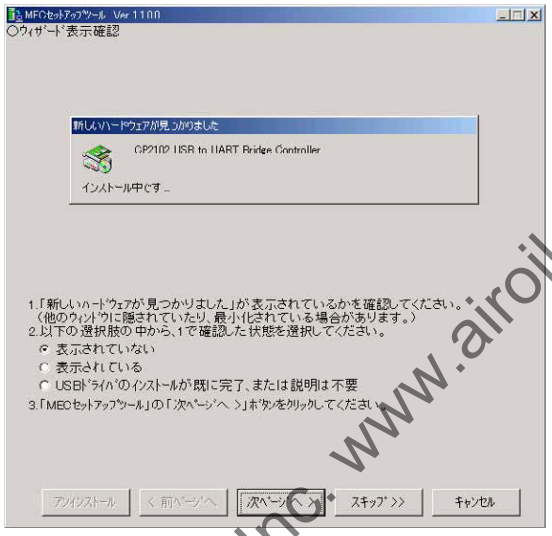


“IAI USB Copying Failed” Screen

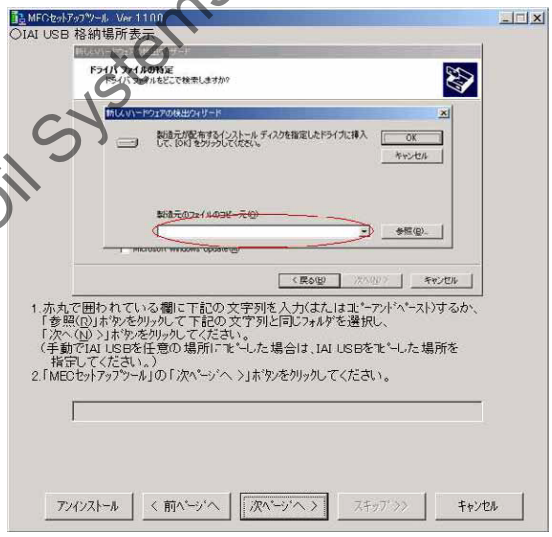
[2] The “Wizard Display Confirmation” page appears. Select an appropriate option in the MEC setup tool, and then click the [Next] button.

* If you don’t need an explanation of the “Found New Hardware Wizard,” click the [Skip] button. A page showing the “IAI USB Storage Location” will appear. On this page, click the [Next] button. The page you will be switched to varies depending on the status of installation.

- If the "Microsoft Windows Installer 3.0 installer" page is currently displayed, proceed to [20].
- If the "Microsoft .NET Framework 2.0 installer" page is currently displayed, proceed to [25].
- If the “MEC PC Software Installation” page is currently displayed, proceed to [30].



“Wizard Display Confirmation” Page



“IAI USB Storage Location Display” Page

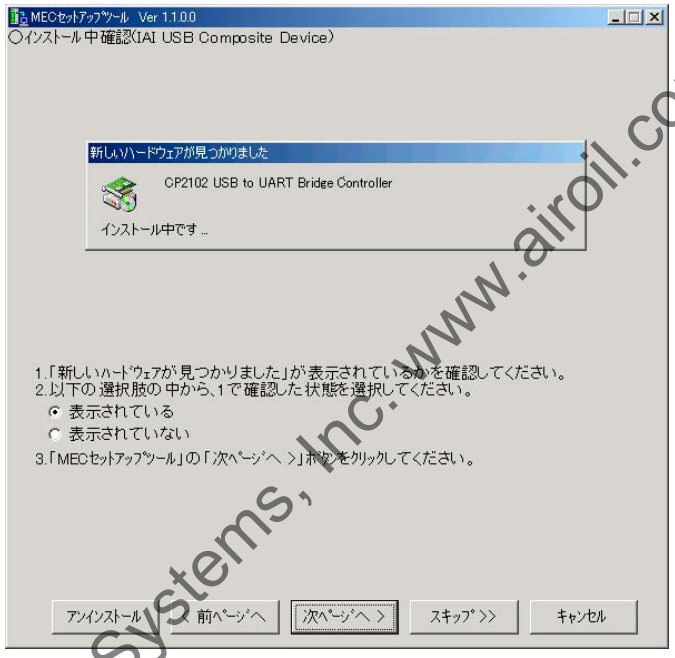
[3] The “Connection Confirmation” page appears. Connect the MEC controller. If the MEC controller is already connected, unplug the USB connector and then plug it again. When the above operation is complete, click the [Next] button.

“Connection Confirmation” Page

[4] The “Installation Progress Check (IAI USB Composite Device)” page appears. Click the [Next] button in the MEC setup tool.

* Depending on the condition, all USB drivers may be installed automatically. If all USB drivers were installed automatically, click the [Skip] button to skip the explanation screen for “Found New Hardware.”
Click the [Next] button on the “IAI USB Storage Location Display” page that opened in step [2]. The page you will be switched to varies depending on the status of installation.

- If the "Microsoft Windows Installer 3.0 installer" page is currently displayed, proceed to [20].
- If the "Microsoft .NET Framework 2.0 installer" page is currently displayed, proceed to [25].
- If the “MEC PC Software Installation” page is currently displayed, proceed to [30].

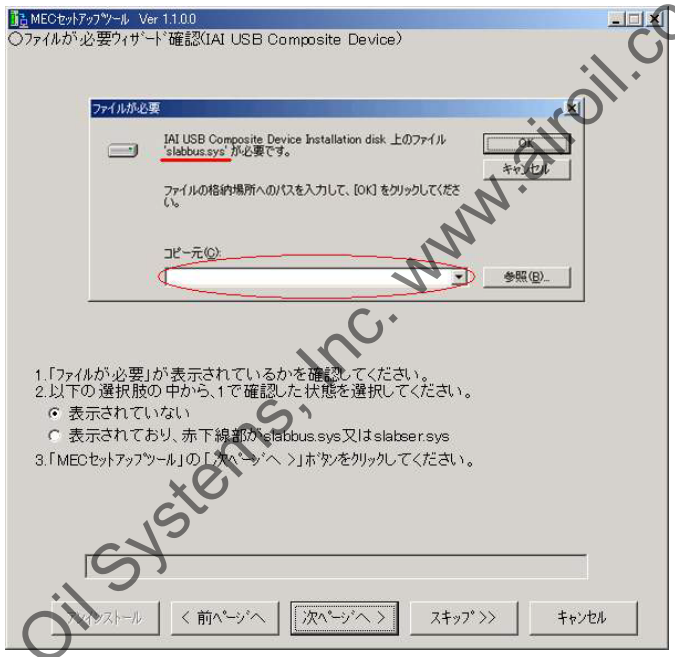


“Installation Progress Check (IAI USB Composite Device)” Page

[5] The “Requiring Files Wizard Confirmation (IAI USB Composite Device)” page appears. Check if this “Requiring Files” screen is displayed.

- If this screen is displayed, confirm that the file name with a red underline is slabbus.sys or slabser.sys, and then select an appropriate option in the MEC setup tool and click the [Skip] button. On the “IAI USB Storage Location Display” page to which the tool has skipped, enter the storage location of the IAI USB in the field circled in red.
  Click the [Next] button on the “IAI USB Storage Location Display” page that opened in step [2].
  The page you will be switched to varies depending on the status of installation.

  - If the "Microsoft Windows Installer 3.0 installer" page is currently displayed, proceed to [20].
  - If the "Microsoft .NET Framework 2.0 installer" page is currently displayed, proceed to [25].
  - If the “MEC PC Software Installation” page is currently displayed, proceed to [30].
  - If none of these screens are displayed, select an appropriate option in the MEC setup tool, and then click the [Next] button.

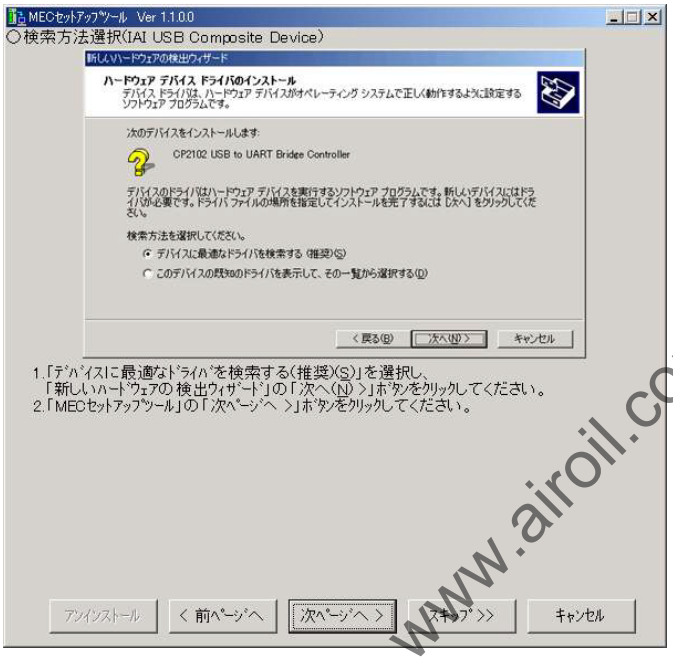


“Requiring Files Wizard (IAI USB Composite Device)” Page

[6] The “Found New Hardware Wizard Start Confirmation (IAI USB Composite Device)” page appears. Click the [Next (N)] button on this “Found New Hardware Wizard” screen. Next, select an appropriate option in the MEC setup tool, and then click the [Next] button.

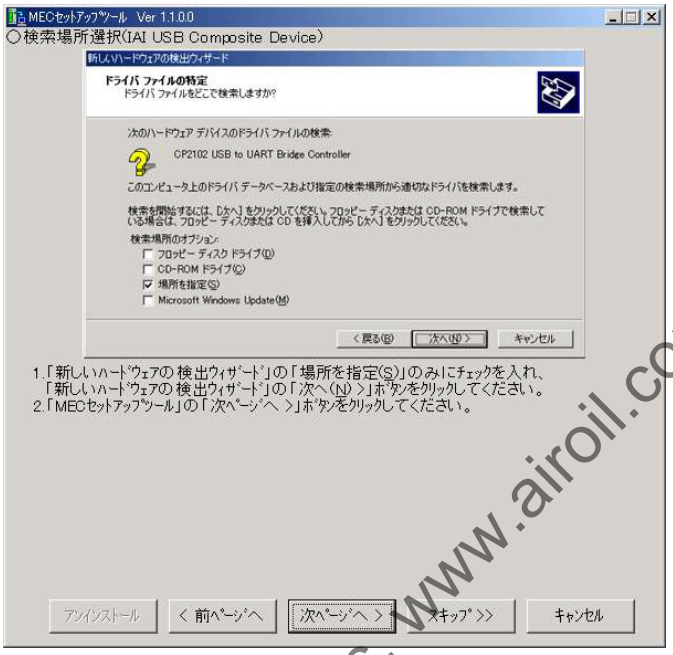
“Found New Hardware Wizard Start Confirmation (IAI USB Composite Device)” Page

[7] The “Search Method Selection (IAI USB Composite Device)” page appears. Select “Find an optimal driver for the device” on this “Found New Hardware Wizard” screen, and then click the [Next] button. Next, click the [Next] button in the MEC setup tool.



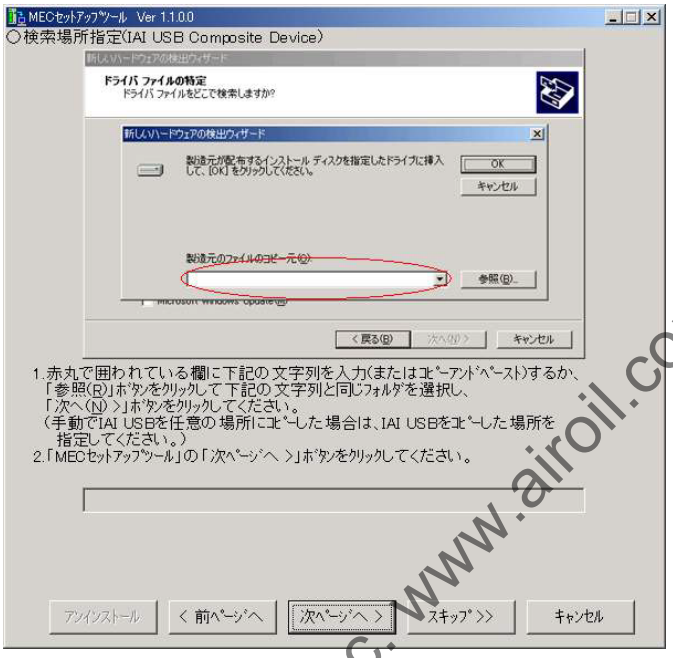
“Search Method Selection (IAI USB Composite Device)” Page

[8] The “Search Location Selection (IAI USB Composite Device)” page appears. Select the “Specify the location (S)” check box on this “Found New Hardware Wizard” screen, and then click the [Next (N)] button. Next, click the [Next] button in the MEC setup tool.



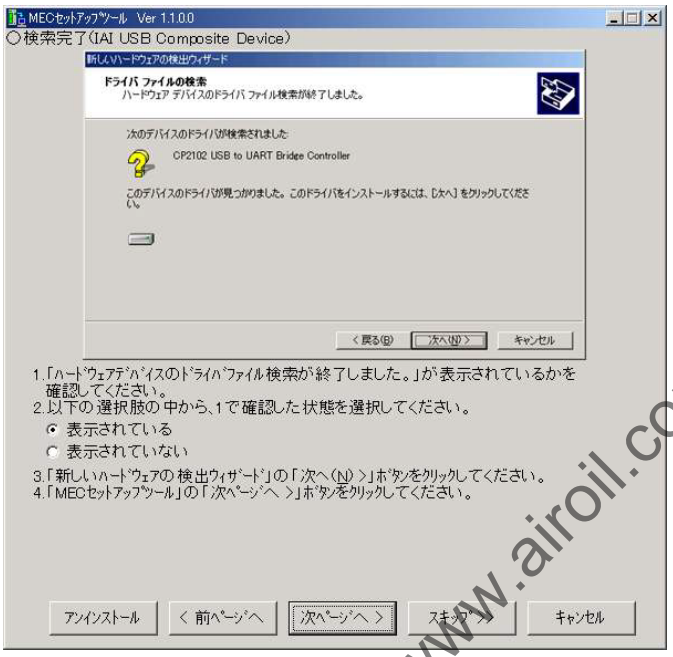
“Search Location Selection (IAI USB Composite Device)” Page

[9] The “Search Location Specification (IAI USB Composite Device)” page appears. In the field circled in red on this “Found New Hardware Wizard” screen, enter the location of the IAI USB shown in the MEC setup tool. When the location has been entered, click the [Next (N)] button on the “Found New Hardware Wizard” screen. Next, click the [Next] button in the MEC setup tool.



“Search Location Specification (IAI USB Composite Device)” Page

[10] The “Search Completion (IAI USB Composite Device)” page appears. Click the [Next (N)] button on this “Fond New Hardware Wizard” screen. Next, click the [Next] button in the MEC setup tool.

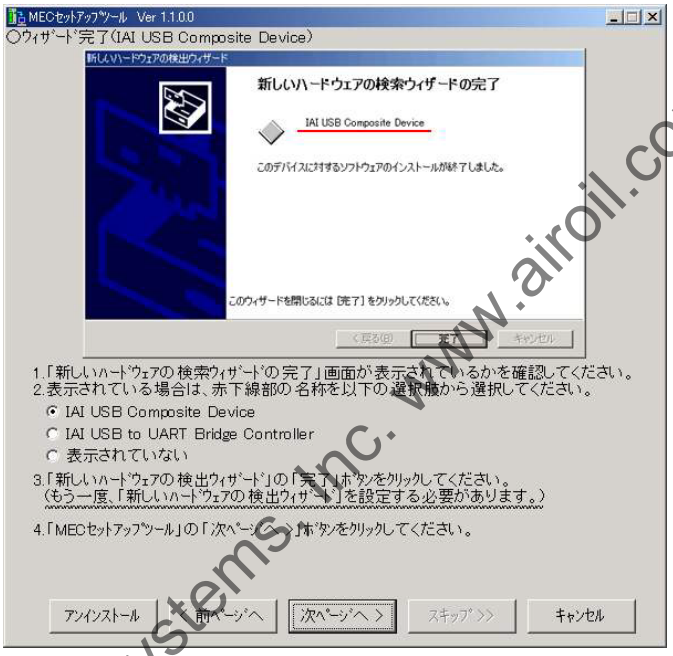


“Search Completion (IAI USB Composite Device)” Page

[11] The “Wizard Completion (IAI USB Composite Device)” page appears. Select the name indicated by a red underline, and then click the [Finish] button on this “Found New Hardware Wizard” screen. Next, click the [Next] button in the MEC setup tool.

- If you have selected “IAI USB Composite Device,” proceed to [12].
- If you have selected “IAI USB to UART Bridge Controller,” the page you will be switched to varies depending on the status of installation of Microsoft Windows Installer 3.0 or Microsoft .NET Framework 2.0.

  - If the "Microsoft Windows Installer 3.0 installer" page is currently displayed, proceed to [20].
  - If the "Microsoft .NET Framework 2.0 installer" page is currently displayed, proceed to [25].
  - If the “MEC PC Software Installation” page is currently displayed, proceed to [30].

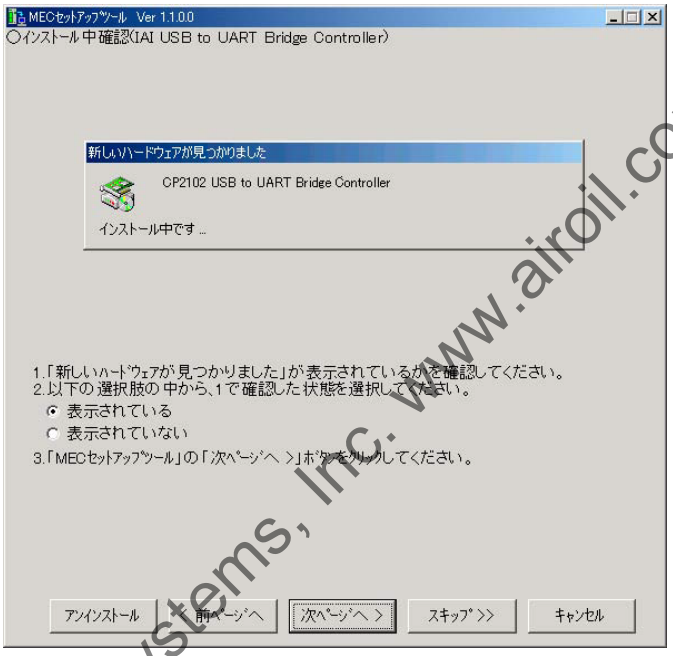


“Wizard Completion (IAI USB Composite Device)” Page

[12] The “Installation Progress Check (IAI USB to UART Bridge Controller)” page appears. Click the [Next] button in the MEC setup tool.

* Depending on the condition, all USB drivers may be installed automatically. If all USB drivers were installed automatically, click the [Skip] button to skip the explanation screen for “Found New Hardware.”
Click the [Next] button on the “IAI USB Storage Location Display” page that opened in step [2]. The page you will be switched to varies depending on the status of installation.

- If the "Microsoft Windows Installer 3.0 installer" page is currently displayed, proceed to [20].
- If the "Microsoft .NET Framework 2.0 installer" page is currently displayed, proceed to [25].
- If the “MEC PC Software Installation” page is currently displayed, proceed to [30].

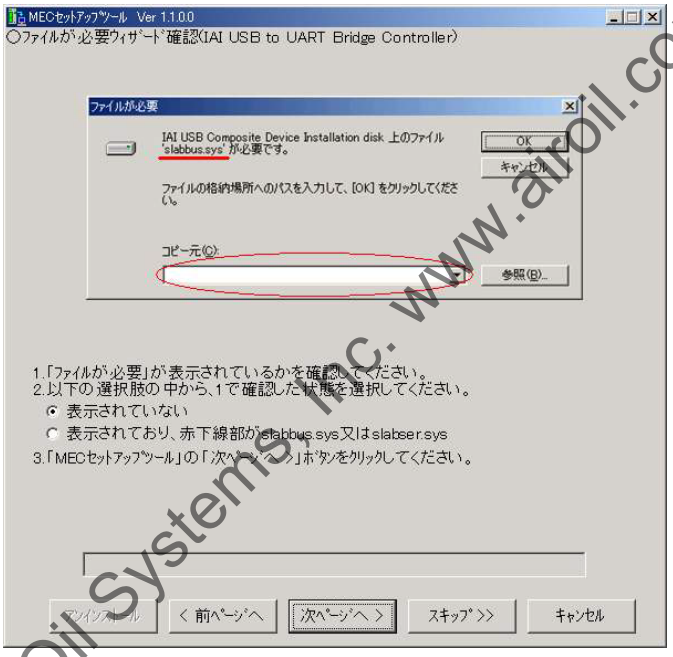


“Installation Progress Check (IAI USB to UART Bridge Controller)” Page

[13] The “Requiring Files Wizard Confirmation (IAI USB to UART Bridge Controller)” page appears. Check if this “Requiring Files” screen is displayed.

- If this screen is displayed, confirm that the file name with a red underline is slabbus.sys or slabser.sys, and then select an appropriate option in the MEC setup tool and click the [Skip] button. On the “IAI USB Storage Location Display” page to which the tool has skipped, enter the storage location of the IAI USB in the field circled in red.
  Click the [Next] button on the “IAI USB Storage Location Display” page that opened in step [2].
  The page you will be switched to varies depending on the status of installation.

  - If the "Microsoft Windows Installer 3.0 installer" page is currently displayed, proceed to [20].
  - If the "Microsoft .NET Framework 2.0 installer" page is currently displayed, proceed to [25].
  - If the “MEC PC Software Installation” page is currently displayed, proceed to [30].
  - If none of these screens are displayed, select an appropriate option in the MEC setup tool, and then click the [Next] button.

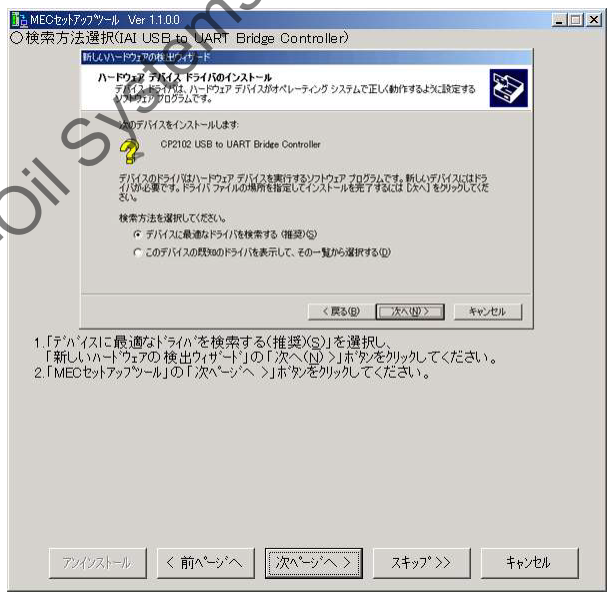


“Requiring Files Wizard (IAI USB to UART Bridge Controller)” Page

[14] The “Found New Hardware Wizard Start Confirmation (IAI USB to UART Bridge Controller)” page appears. Click the [Next (N)] button on this “Found New Hardware Wizard” screen. Next, select an appropriate option in the MEC setup tool, and then click the [Next] button.

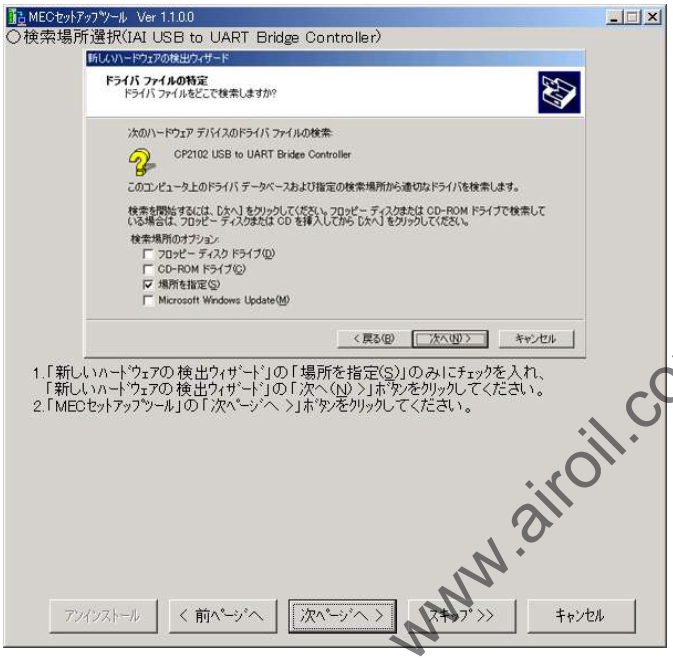
“Found New Hardware Wizard Start Confirmation (IAI USB to UART Bridge Controller)” Page

[15] The “Search Method Selection (IAI USB to UART Bridge Controller)” page appears. Select “Find an optimal driver for the device (S)” on this “Found New Hardware Wizard” screen, and then click the [Next (N)] button. Next, click the [Next] button in the MEC setup tool.



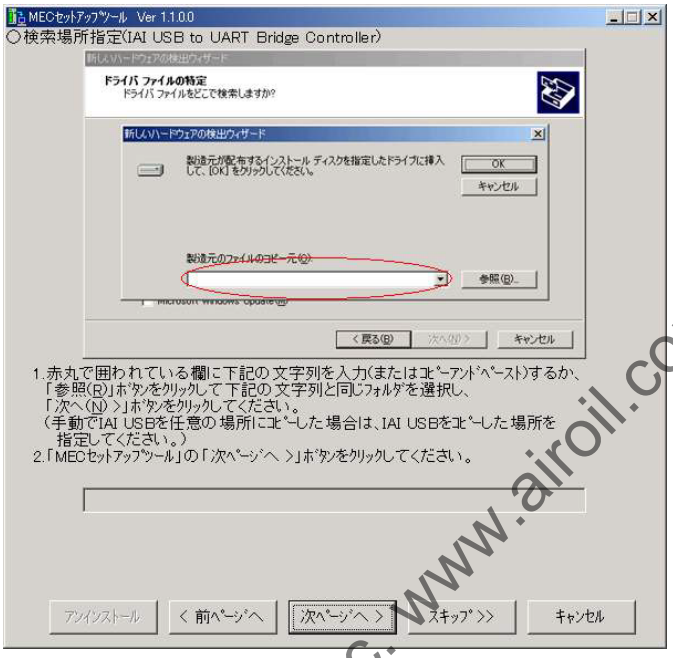
“Search Method Selection (IAI USB to UART Bridge Controller)” Page

[16] The “Search Location Selection (IAI USB to UART Bridge Controller)” page appears. Select the “Specify the location (S)” check box on this “Found New Hardware Wizard” screen, and then click the [Next (N)] button. Next, click the [Next] button in the MEC setup tool.



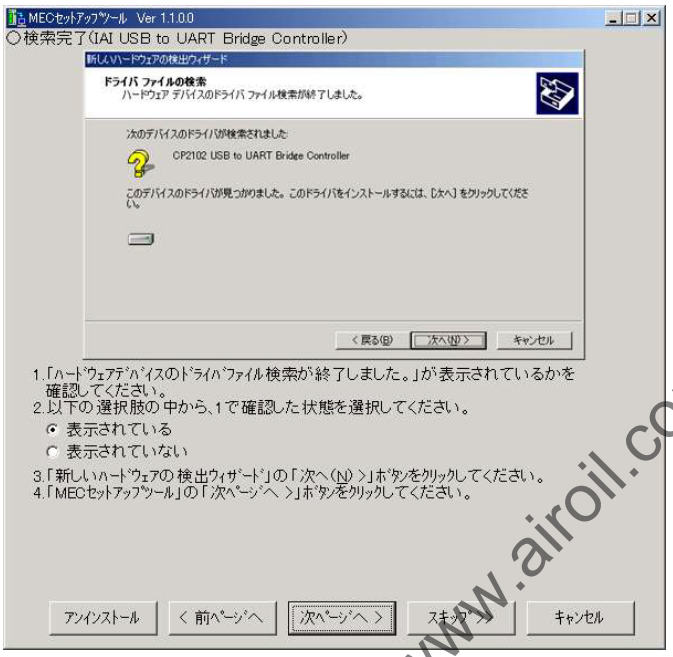
“Search Location Selection (IAI USB to UART Bridge Controller)” Page

[17] The “Search Location Specification (IAI USB to UART Bridge Controller)” page appears. In the field circled in red on this “Found New Hardware Wizard” screen, enter the location of the IAI USB shown in the MEC setup tool. When the location has been entered, click the [Next (N)] button on the “Found New Hardware Wizard” screen. Next, click the [Next] button in the MEC setup tool.



“Search Location Specification (IAI USB to UART Bridge Controller)” Page

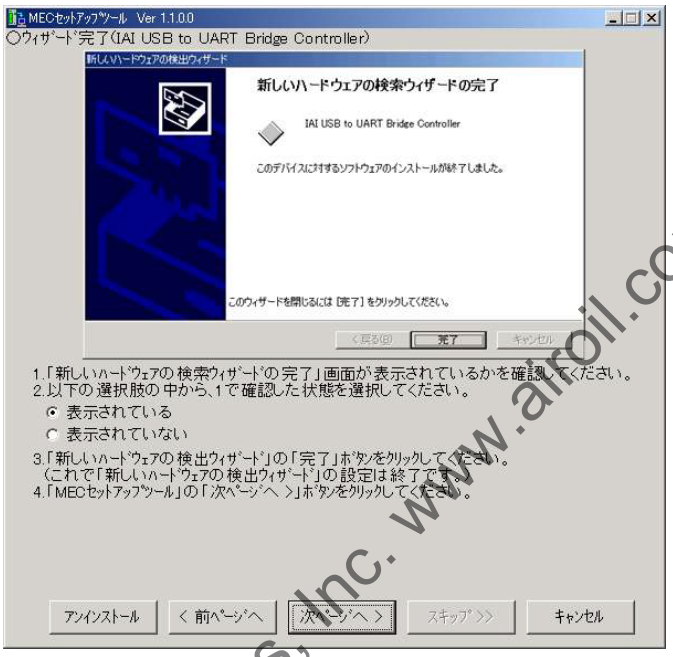
[18] The “Search Completion (IAI USB to UART Bridge Controller)” page appears. Click the [Next] button on this “Fond New Hardware Wizard” screen. Next, click the [Next] button in the MEC setup tool.



“Search Completion (IAI USB to UART Bridge Controller)” Page

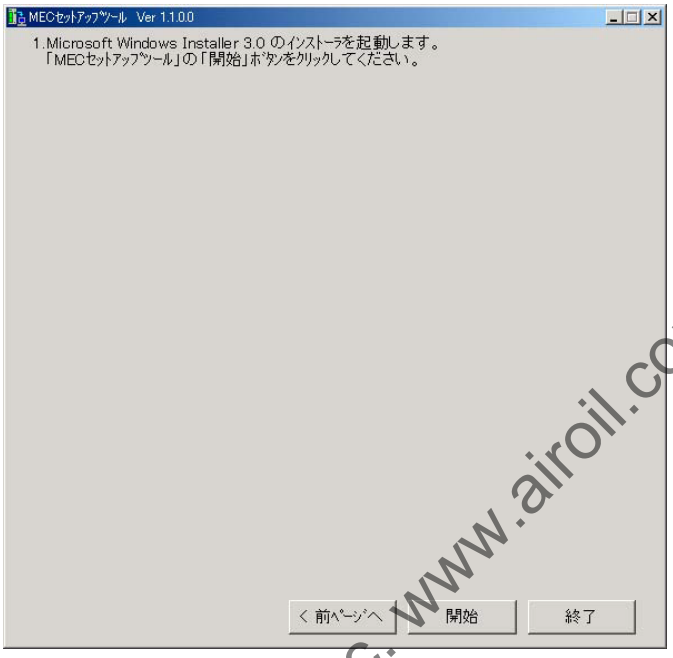
[19] The “Wizard Completion (IAI USB to UART Bridge Controller)” page appears. Click the [Finish] button on this “Found New Hardware Wizard” screen. Next, click the [Next] button in the MEC setup tool.

- If the "Microsoft Windows Installer 3.0 installer" page is currently displayed, proceed to [20].
- If the "Microsoft .NET Framework 2.0 installer" page is currently displayed, proceed to [25].
- If the “MEC PC Software Installation” page is currently displayed, proceed to [30].



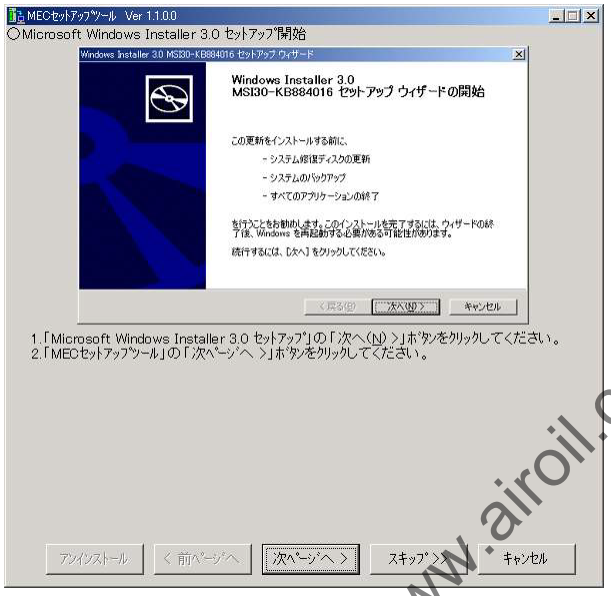
“Wizard Completion (IAI USB to UART Bridge Controller)” Page

[20] If Microsoft .NET Framework 2.0 required by the MEC PC software is not yet installed, the display changes to the “Microsoft Windows Installer 3.0 Installer Launch” page where you can start installing Microsoft Windows Installer 3.0 needed to install Microsoft .NET Framework 2.0. Click the [Start] button in the MEC setup tool.



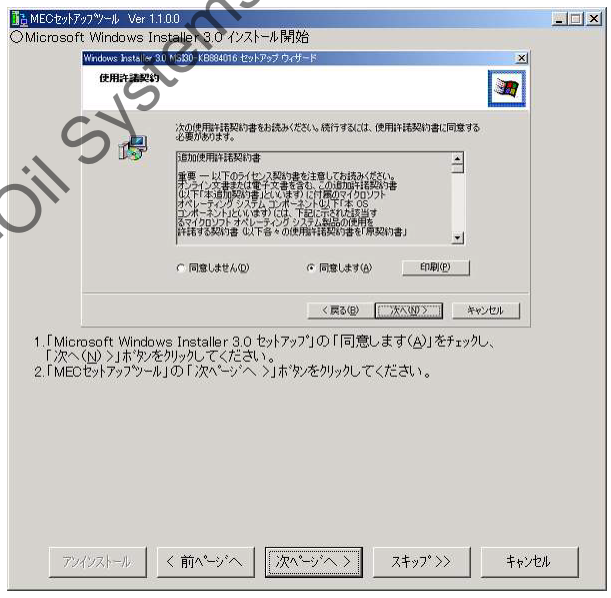
“Microsoft Windows Installer 3.0 Installer Launch” Page

[21] The “Microsoft Windows Installer 3.0 Setup Start” page appears and “Microsoft Windows Installer 3.0 Setup” is started. Click the [Next (N)] button on this “Microsoft Windows Installer 3.0 Setup” screen. Next, click the [Next] button in the MEC setup tool.



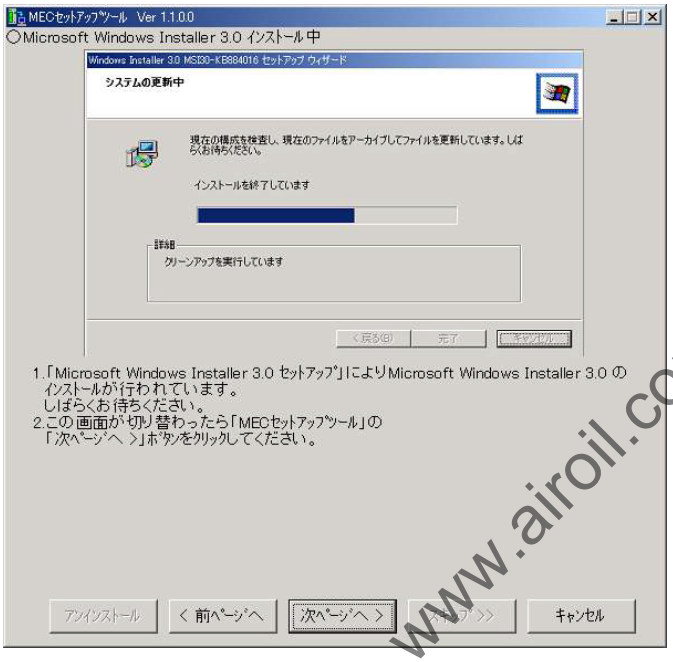
“Microsoft Windows Installer 3.0 Setup Start” Page

[22] The “Microsoft Windows Installer 3.0 Installation Start” page appears. Select the “I agree (A)” check box on this “Microsoft Windows Installer 3.0 Setup” screen, and then click the [Next (N)] button. Next, click the [Next] button in the MEC setup tool.



“Microsoft Windows Installer 3.0 Installation Start” Page

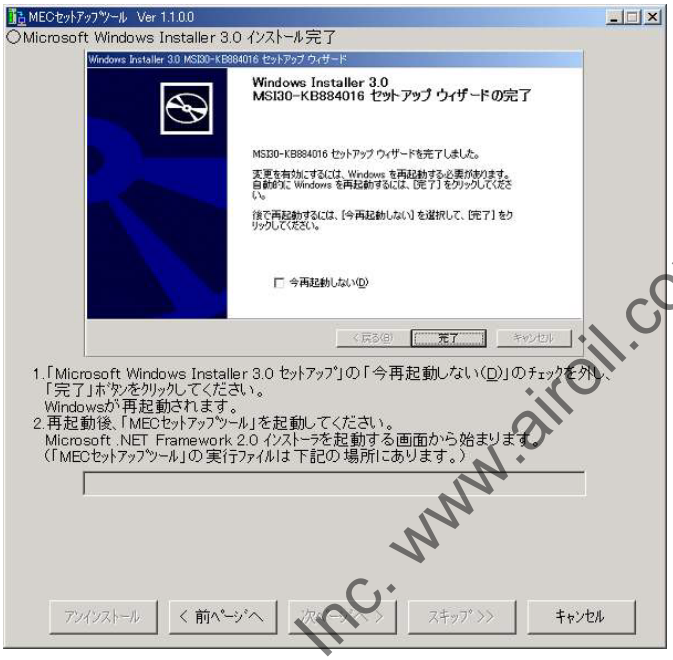
[23] The “Microsoft Windows Installer 3.0 Installation Progress” page appears. Wait for a while until this “Microsoft Windows Installer 3.0 Setup” screen indicating that the system is being updated changes to a different screen. Once the screen has changed, click the [Next] button in the MEC setup tool.



“Microsoft Windows Installer 3.0 Installation Progress” Page

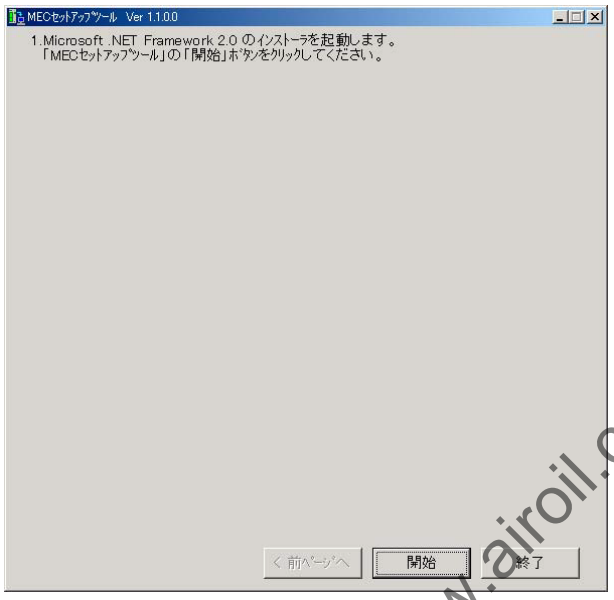
[24] The “Microsoft Windows Installer 3.0 Installation Completion” page appears. Clear the “Do not restart now (D)” check box on this “Microsoft Windows Installer 3.0 Setup” screen and click the [Finish] button. Microsoft Windows will restart. After Microsoft Windows has restarted, start the MEC setup tool.

* The location of the executable file of the MEC setup tool is shown in the MEC setup tool, so check this location before restarting the MEC setup tool.



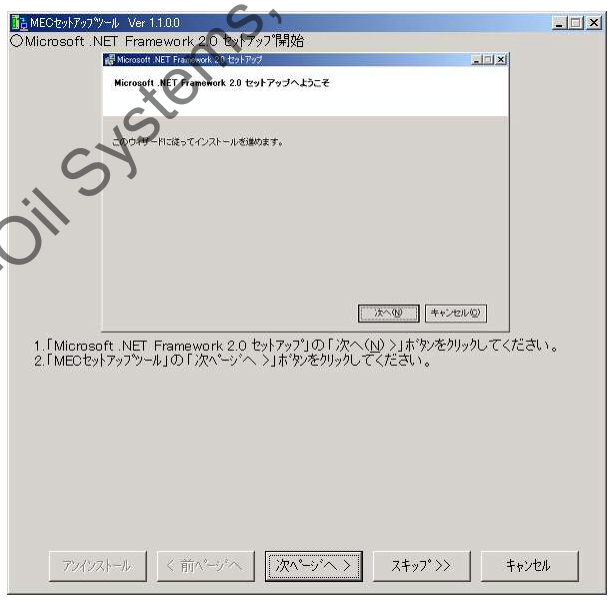
“Microsoft Windows Installer 3.0 Installation Completion” Page

[25] Once the MEC setup tool starts, the “Microsoft .NET Framework 2.0 Installer Launch” page appears. Click the [Start] button in the MEC setup tool.



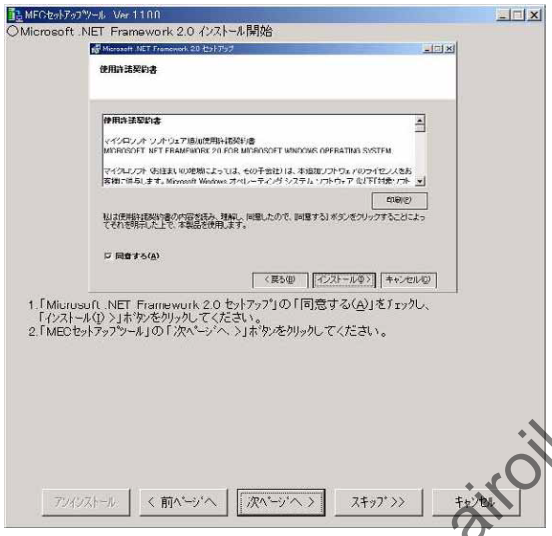
“Microsoft .NET Framework 2.0 Installer Launch” Page

[26] The “Microsoft .NET Framework 2.0 Setup Start” page appears.
Click the [Next (N)] button on this “Microsoft .NET Framework 2.0 Setup” screen, and then click the [Next] button in the MEC setup tool.



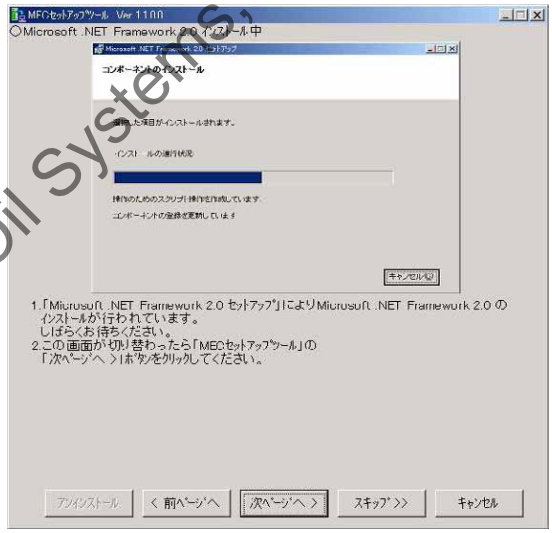
“Microsoft .NET Framework 2.0 Setup Start” Page

[27] The “Microsoft .NET Framework 2.0 Installation Start” page appears. Select the “I agree (A)” check box on this “Microsoft .NET Framework 2.0 Setup” screen, and then click the [Install (I)] button. Next, click the [Next] button in the MEC setup tool.



“Microsoft .NET Framework 2.0 Installation Start” Page

[28] The “Microsoft .NET Framework 2.0 Installation Progress” page appears. Wait for a while until this “Microsoft .NET Framework 2.0 Setup” screen indicating that this software component is being installed changes to a different screen. Once the screen has changed, click the [Next] button in the MEC setup tool.

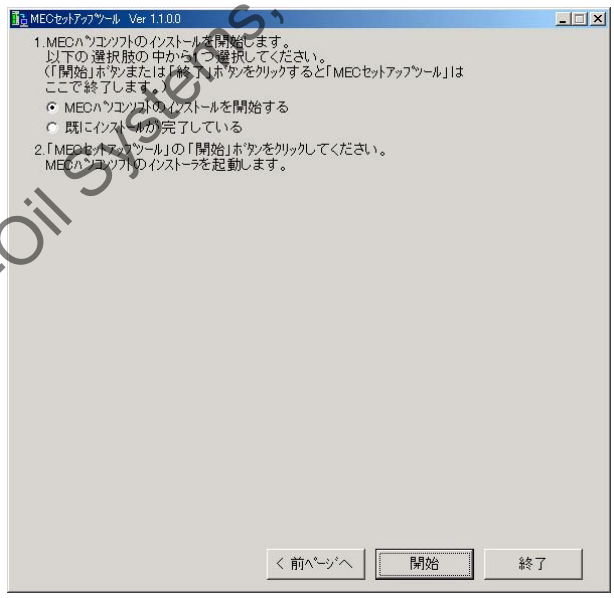


“Microsoft .NET Framework 2.0 Installation Progress” Page

[29] The “Microsoft .NET Framework 2.0 Installation Completion” page appears. Click the [Finish (F)] button on this “Microsoft .NET Framework 2.0 Setup” screen. Next, click the [Next] button in the MEC setup tool.

“Microsoft .NET Framework 2.0 Installation Completion” Page

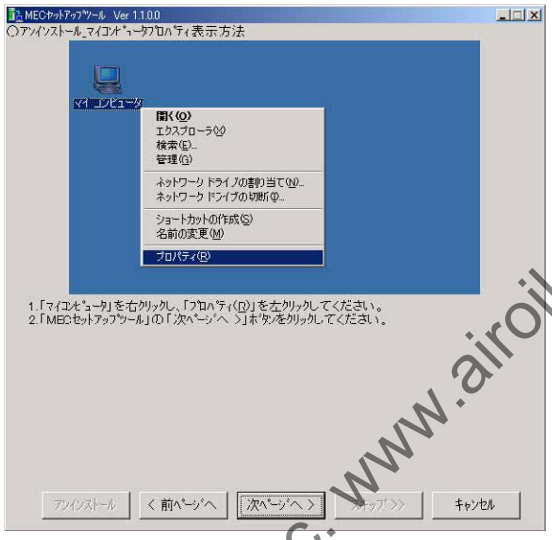
[30] The “MEC PC Software Installation” page appears. Select an appropriate option in the MEC setup tool, and then click the [Start] button.



“MEC PC Software Installation” Page

[2] How to uninstall the USB driver

[1] While the MEC controller is connected, click the [Uninstall] button in the MEC setup tool. The Device Manager will launch. If the Device Manager could not be launched, the “Uninstall_My Computer Properties Display Method” screen appears first.
Display the “My Computer Properties” page by following the onscreen instructions.
Next, the “Uninstall_Device Manager Display Method” page appears. Select the “Hardware” tab on the “System Properties” screen, and then click the [Device Manager (D)] button.

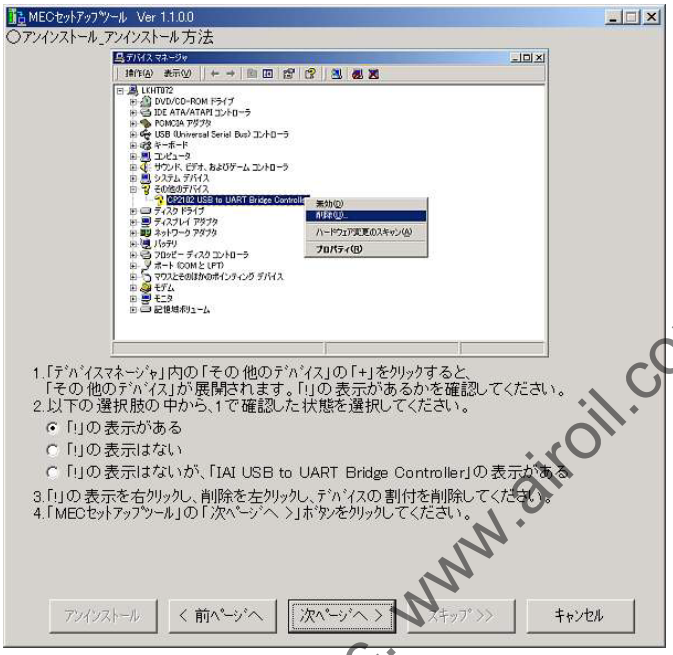


“Uninstall_My Computer Properties Display Method” Page

“Uninstall_Device Manager Display Method” Page

[2] "Uninstall_Uninstallation Method" page apperas. Click “+” on the left side of “Other Devices” to expand the other devices. Check if any of the devices has a “!” icon shown next to it.

- If any device has a “!” icon, right-click the device and select [Delete (U)] to delete the device. Next, select an appropriate option in the MEC setup tool, and then click the [Next] button.



"Uninstall_Uninstallation Method" page

[3] The “Wizard Display Confirmation” page appears and you go back to the start of installation.

1.2.3 How to Install the Software/Uninstall the USB Driver on a PC Running Windows Vista

[1] How to install the MEC PC software

(1) When installing from the CD-ROM

Set the CD-ROM containing this software in the CD-ROM drive.

The MEC setup tool will launch automatically.

* If the MEC setup tool does not launch automatically, click  in the CD-ROM. The MEC setup tool will launch.

(2) When you have downloaded the ZIP file

[1] Download the file containing this software “mec_v*_**_**_**.zip” from IAI’s website.

[2] Unzip the file using an appropriate tool.

[3] Among the extracted files, find the “MECSetupTool.exe” icon.

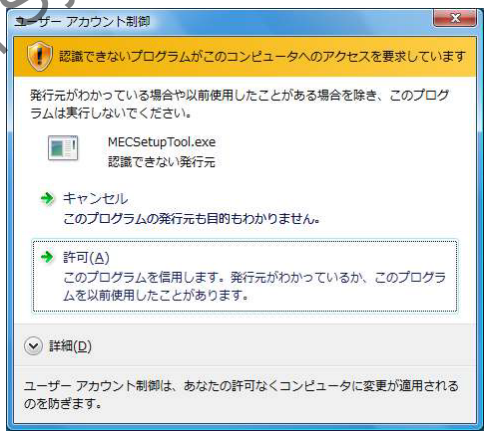
[4] Double-clicking  will launch the MEC setup tool.

(3) When you have downloaded the self-extracting file

[1] Download the file containing this software “mec_v*_**_**_**.exe” from IAI’s website.

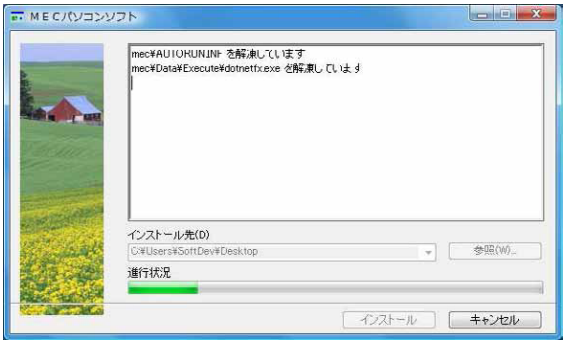
[2] Move the downloaded file to the desktop or other location of the PC in which the software will be installed.

* If the “User Account Control” screen is displayed, click [Allow (A)].



“User Account Control” Screen

[3] Double-click  , and the files needed to set up the MEC PC software will be extracted.



Progress Screen during File Extraction

[4] When all files have been extracted, the MEC setup tool launches automatically.

[5] Once you have extracted the files and set up the MEC PC software, the “MEC” folder created in the extraction process is no longer necessary. Delete this folder if you won't be using it in the future.

* “**” in the file name indicates the version number.

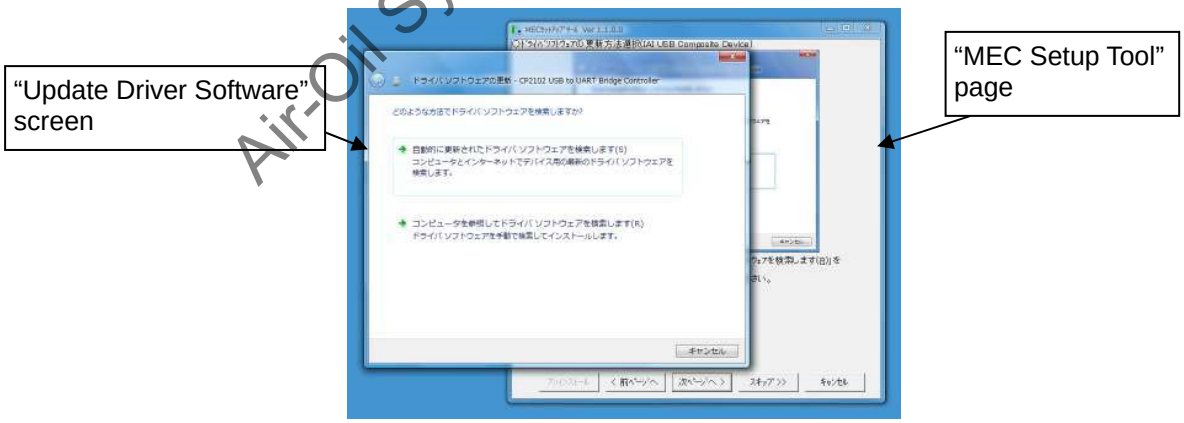
(4) How to use the MEC setup tool

In addition to installing the “MEC PC Software,” the MEC setup tool also provides the operating procedure to install the software.

When you install an “USB driver,” for example, as shown in the figure below, the “Update Driver Software” screen is displayed in a separate window.

While checking the “MEC Setup Tool” page, perform the steps on the “Update Driver Software” screen as instructed.

(Note) If the “MEC Setup Tool” page to verify the setup and the “Update Driver Software” screen to perform an operation are overlapping each other as shown in the figure below, click the screen for verification or the screen for operation to bring it to the front, and then verify the setup or perform an operation.



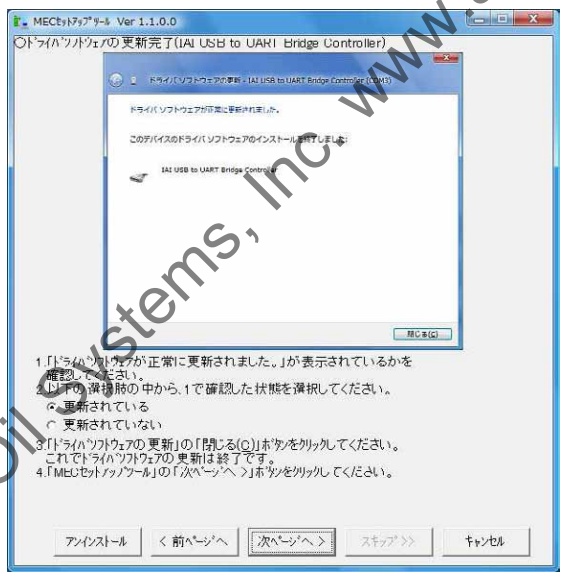
(5) Notes on installing the USB driver
When connecting the PC to multiple MEC controllers, all of the applicable MEC controllers must be connected one by one and the USB driver for each controller installed separately.

To install the USB driver for the second or subsequent MEC controller, click  to launch the “MEC Setup Tool.”
As you have done for the first MEC controller, install the USB driver according to the onscreen instructions provided by the “MEC Setup Tool.”
[Refer to (6), “Starting a MEC setup.”]
Note, however, that installation of the following software was completed with the first controller and they need not be installed again:

- MEC PC software

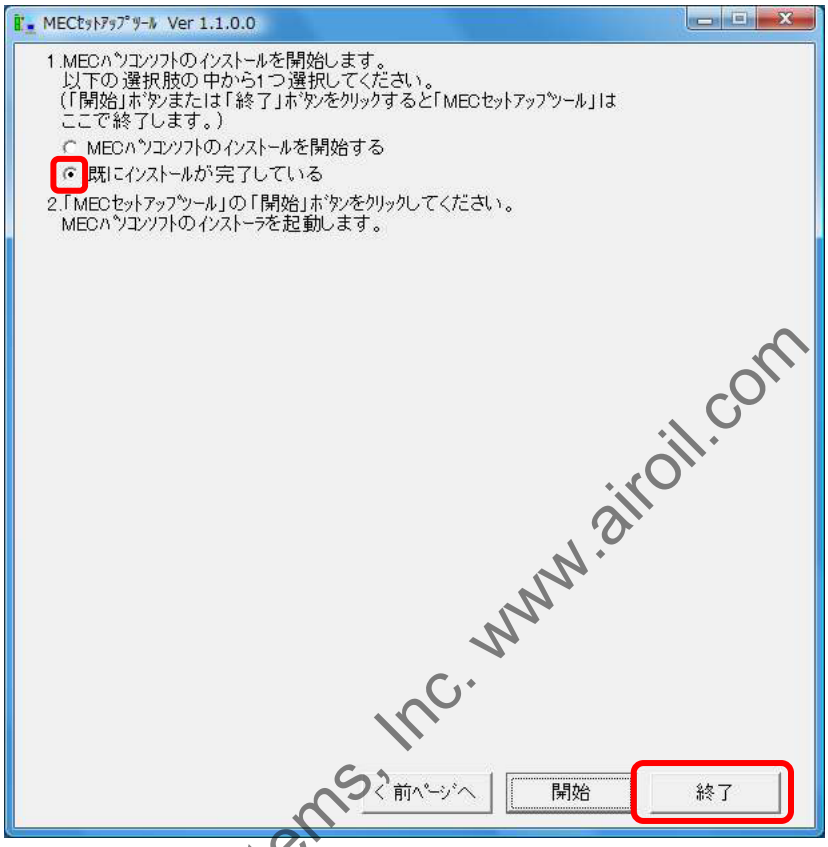
When all USB drivers have been installed, close the setup tool by following the procedure below:

[1] The “Completion of Driver Software Update (IAI USB to UART Bridge Controller)” page appears. Click the [Close (C)] button on the “Update Driver Software” screen. Select an option in the MEC setup tool, and click the [Next] button.



“Completion of Driver Software Update (IAI USB to UART Bridge Controller)” Page

[2] The “MEC PC Software Installation” page appears.
Select the “Installation completed” check box, and then click the [Close] button.
The “MEC Setup Tool” is closed.



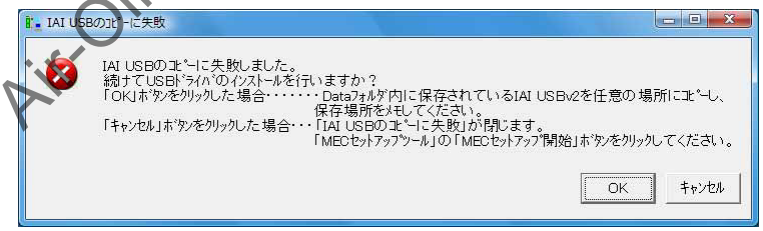
“MEC PC Installation” Page

(6) Starting a MEC setup

[1] The “Start MEC Setup Tool” page appears.
Click the [Start Setup] button. When the [Start Setup] button is clicked, the IAI USBv2 will be copied.

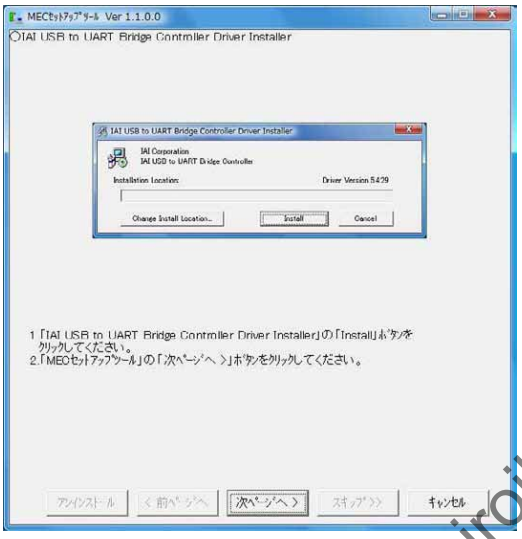
* If the copying fails, the “IAI USB copying failed” screen appears. If this screen appears, copy the IAI USBv2 folder in the Data folder to the PC. Write down and keep the location where the folder was saved as it may be required during a driver software update.
* The page you move to after clicking the [Start Setup] button varies depending on the installation status.
  - If the “IAI USB to UART Bridge Driver Installer” page is displayed, proceed to [2].
  - If the “Connection Confirmation” page is displayed, proceed to [6].

“Start MEC Setup Tool” Page



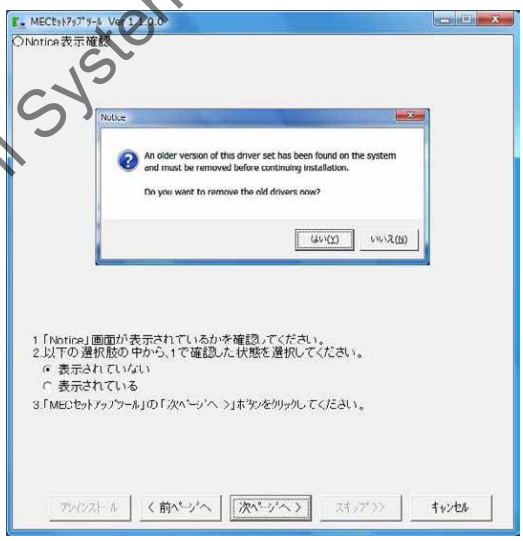
“IAI USB Copying Failed” Screen

[2] The “IAI USB to UART Bridge Driver Installer” page appears. Click the [Install] button on the “IAI USB to UART Bridge Driver Installer” screen, and then click the [Next] button in the MEC setup tool.



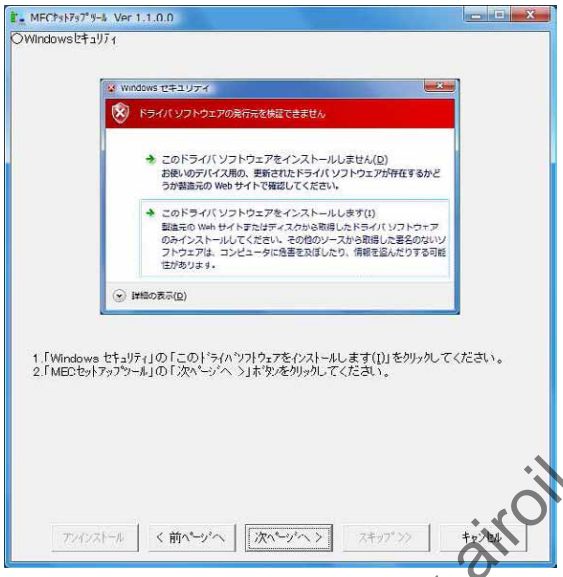
“IAI USB to URAT Bridge Driver Installer” Page

[3] The “Notice Display Confirmation” page appears. Confirm that the “Notice” screen is displayed.
- If it does not appear, click the [Next] button in the MEC setup tool.
- If it is displayed, click the [Yes (Y)] button on the “Notice” screen, and then click the [Next] button in the MEC setup tool.
  * The “Notice” screen is a screen on which you confirm to delete the IAI USB of a previous version in order to install the latest IAI USBv2. When the IAI USB of a previous version is deleted, the driver must be reassigned to the IAI product that it had been assigned to.



“Notice Display Confirmation” Page

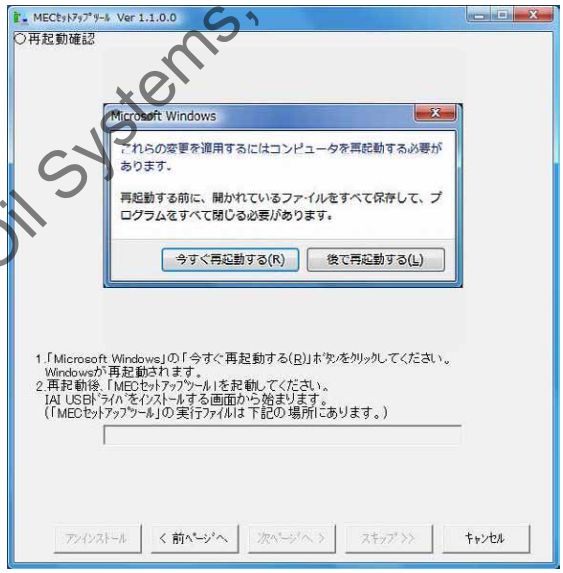
[4] The “Windows Security” page appears. Click [Install this driver software (I)] on the “Windows Security” screen, and then click the [Next] button in the MEC setup tool.



“Windows Security” Page

[5] The “Confirm to Restart” page appears. Click the [Restart Now (R)] button on the “Microsoft Windows” screen. Windows will be restarted. After Windows is restarted, start the MEC setup tool.

* The location of the MEC setup tool execution file is displayed in the MEC setup tool. Check it before restarting Windows.



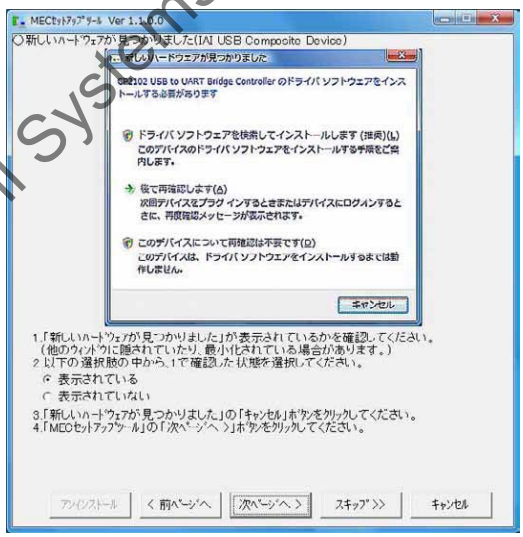
“Confirm to Restart” Page

[6] When the MEC setup tool is started, the “Connection Confirmation” page appears. Connect a MEC controller. If a MEC controller is already connected, remove the USB cable and insert it again. When these operations are completed, click the [Next] button.

“Connection Confirmation” Page

[7] The “Found New Hardware (IAI USB Composite Device)” page appears. Confirm that the “Found New Hardware” screen is displayed.

- If it is displayed, click the [Cancel] button on the “Found New Hardware” screen, and then click the [Next] button of the MEC PC software.
- If it is not displayed, click the [Next] button in the MEC setup tool.

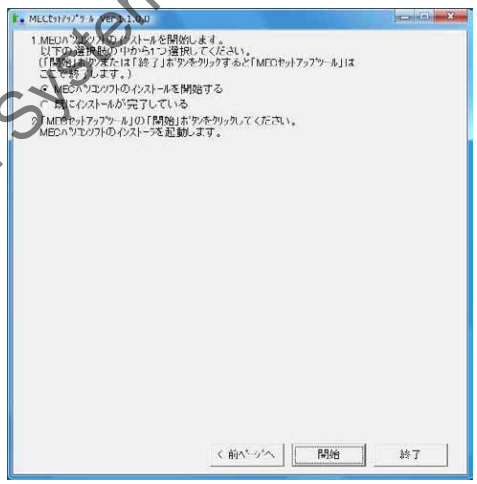


“Found New Hardware (IAI USB Composite Device)” Page

[8] The Device manager will launch and the “How to Start Updating Driver Software (IAI USB Composite Device)” page appears.
- If no other device is displayed or “CP2102 USB to UART Bridge Controller” is not displayed, select an option in the MEC setup tool, and then click the [Next] button. Proceed to [9].
- If “CP2102 USB to UART Bridge Controller” is displayed, right-click “CP2102 USB to UART Bridge Controller” and click "Update Driver Software (P).” Select an option in the MEC setup tool, and then click the [Next] button. Proceed to [10].

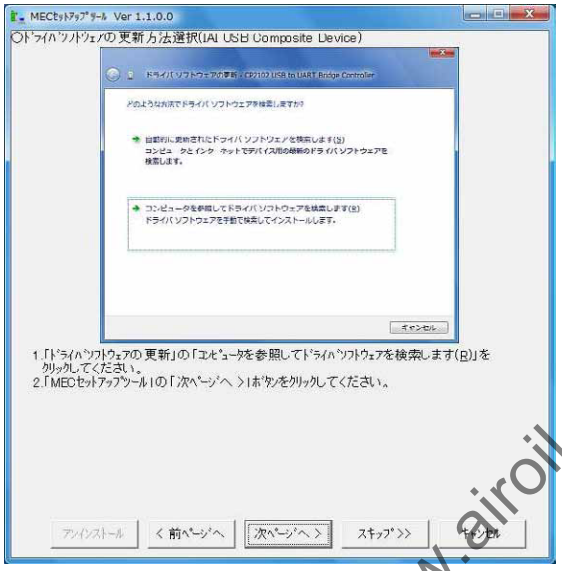
“Installation Method Selection (IAI USB Composite Device)” Page

[9] The “MEC PC Software Installation” page appears. Select an option in the MEC setup tool, and then click the [Start] button. The MEC PC software installer will launch, and the MEC setup tool will be closed. Proceed to the page in this operation manual where the MEC PC software explanation is provided.



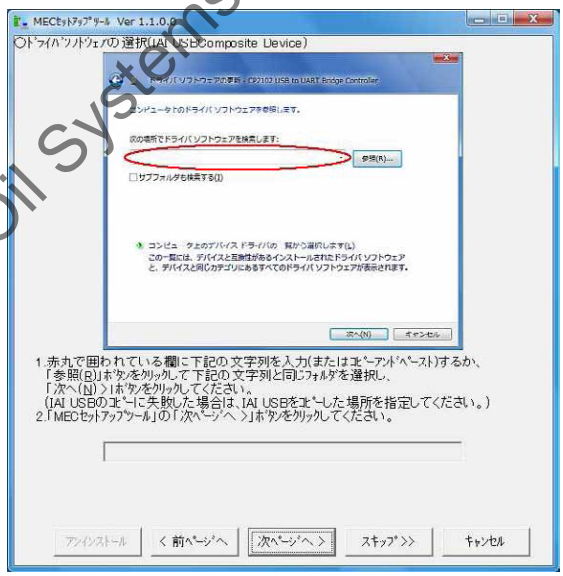
“MEC PC Software Installation” Page

[10] The “Driver Software Update Method Selection (IAI USB Composite Device)” page appears. On the “Update Driver Software” screen, click the [Browse my computer for driver software (R)] button. Click the [Next] button in the MEC setup tool.



“Driver Software Update Method Selection (IAI USB Composite Device)” Page

[11] The “Driver Software Selection (IAI USB Composite Device)” page appears. Enter the file save location that is displayed in the MEC setup tool in the area circled in red on the “Update Driver Software” screen, and then click the [Next (N)] button. Click the [Next] button in the MEC setup tool.
* If incorrect characters are entered, you cannot proceed to the next step.



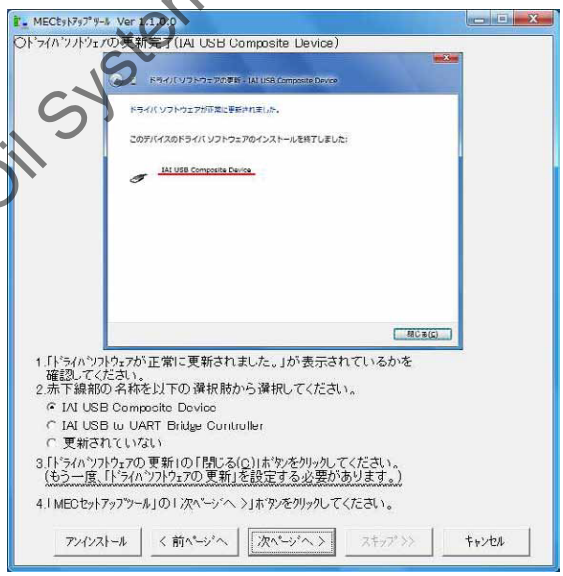
“Driver Software Selection (IAI USB Composite Device)” Page

[12] The “Windows Security (IAI USB Composite Device)” page appears. On the “Windows Security” screen, click [Install this driver software (I)]. Select an option in the MEC setup tool, and then click the [Next] button.

“Windows Security (IAI USB Composite Device)” Page

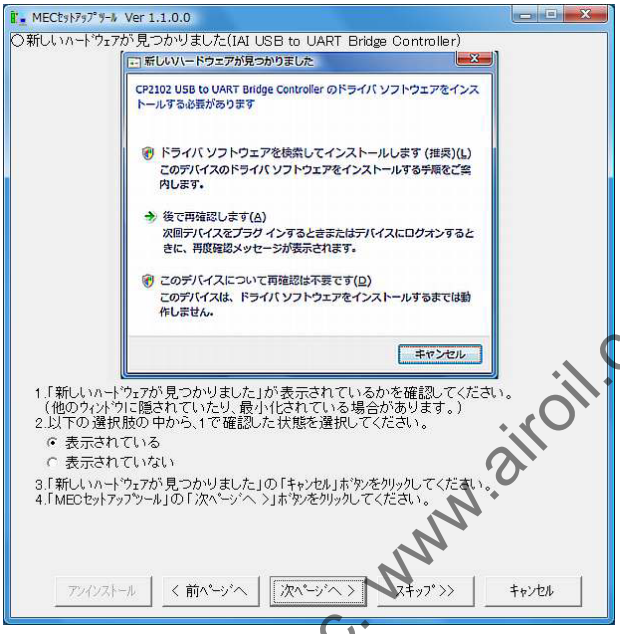
[13] The “Completion of Driver Software Update (IAI USB Composite Device)” page appears. Select the name underlined in red, and then click the [Close (C)] button on the “Update Driver Software” screen. Select an option in the MEC setup tool, and then click the [Next] button.

- If you selected “IAI USB Composite Device,” proceed to [14].
- If you selected “IAI USB to UART Bridge Controller,” proceed to [20].



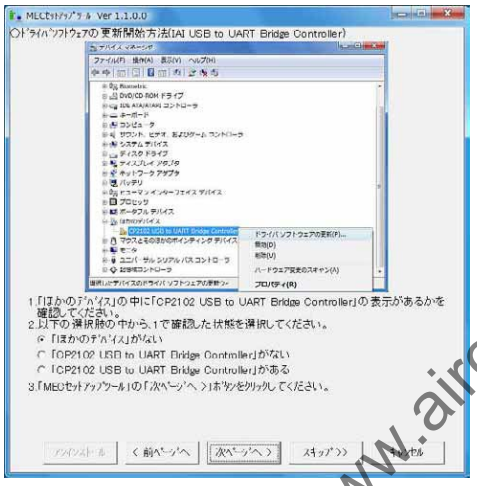
“Completion of Driver Software Update (IAI USB Composite Device)” Page

[14] The “Found New Hardware (IAI USB to UART Bridge Controller)” page appears. Confirm that the “Found New Hardware” screen is displayed.
- If it is displayed, click the [Cancel] button on the “Found New Hardware” screen, and then click the [Next] button of the MEC PC software.
- If it is not displayed, click the [Next] button in the MEC setup tool.



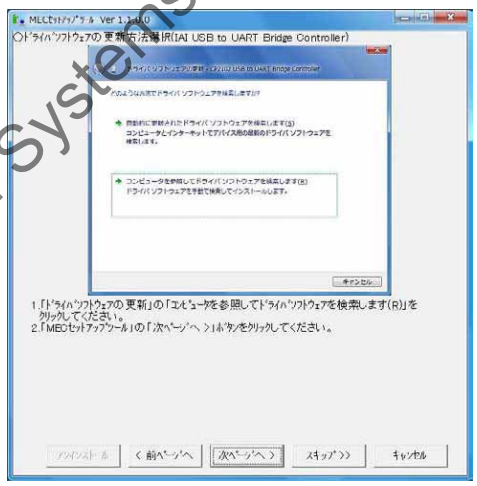
“Found New Hardware (IAI USB to UART Bridge Controller)” Page

[15] The Device manager will launch and the “How to Start Updating Driver Software (IAI USB to UART Bridge Controller)” page appears.
- If “CP2102 USB to UART Bridge Controller” is not displayed, select an option in the MEC setup tool, and then click the [Next] button. Proceed to [20].
- If “CP2102 USB to UART Bridge Controller” is displayed, right-click “CP2102 USB to UART Bridge Controller” and click “Update Driver Software (P).” Select an option in the MEC setup tool, and then click the [Next] button. Proceed to [16].



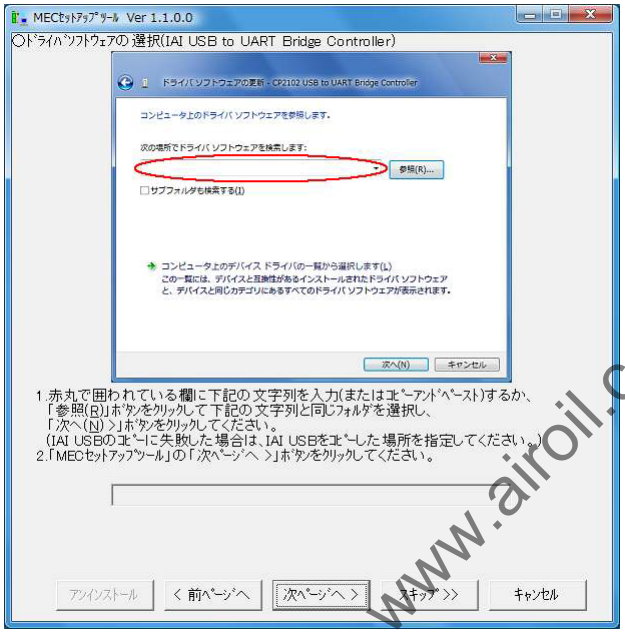
“How to Start Updating Driver Software (IAI USB to UART Bridge Controller)” Page

[16] The “Driver Software Update Method Selection (IAI USB to UART Bridge Controller)” page appears. On the “Update Driver Software” screen, click the [Browse my computer for driver software (R)] button. Click the [Next] button in the MEC setup tool.



“Driver Software Update Method Selection (IAI USB to UART Bridge Controller)” Page

[17] The “Driver Software Selection (IAI USB to UART Bridge Controller)” page appears. Enter the file save location that is displayed in the MEC setup tool in the area circled in red on the “Update Driver Software” screen, and then click the [Next (N)] button. Click the [Next] button in the MEC setup tool.
* If incorrect characters are entered, you cannot proceed to the next step.

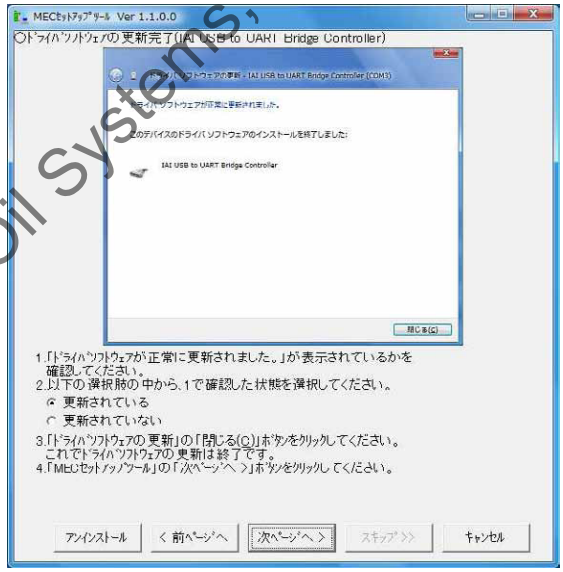


“Driver Software Selection (IAI USB to UART Bridge Controller)” Page

[18] The “Windows Security (IAI USB to UART Bridge Controller)” page appears. On the “Windows Security” screen, click [Install this driver software (I)]. Select an option in the MEC setup tool, and then click the [Next] button.

“Windows Security (IAI USB to UART Bridge Controller)” Page

[19] The “Completion of Driver Software Update (IAI USB to UART Bridge Controller)” page appears. Click the [Close (C)] button on the “Update Driver Software” screen. Select an option in the MEC setup tool, and click the [Next] button.



“Completion of Driver Software Update (IAI USB to UART Bridge Controller)” Page

[20] The “MEC PC Software Installation” page appears. Select an option in the MEC setup tool, and then click the [Start] button. The MEC PC software installer will launch, and the MEC setup tool will be closed.

“MEC PC Software Installation” Page

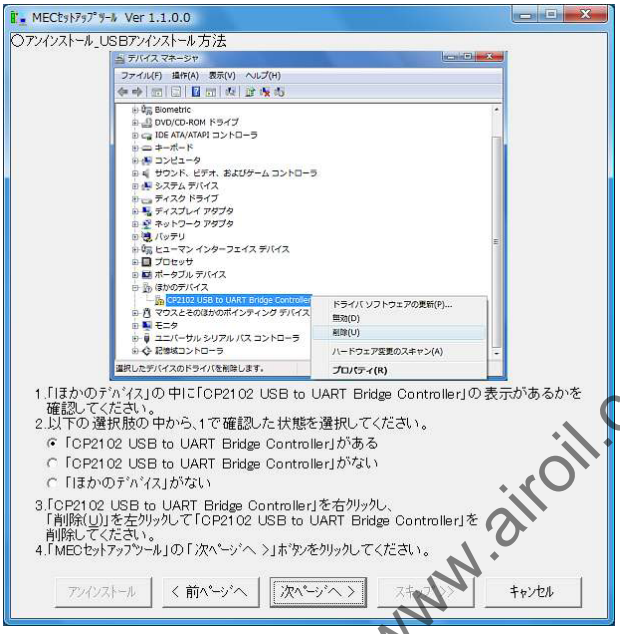
[2] How to uninstall the USB driver

[1] While the MEC controller is connected, click the [Uninstall] button in the MEC setup tool. The Device Manager will launch. If the Device Manager could not be launched, the “Uninstall_My Computer Properties Display Method” page appears first.
Display the My Computer Properties screen by following the onscreen instructions.
Next, the “Uninstall_Device Manager Display Method” page appears.
Click the [Device Manager (M)] button.

“Uninstall_My Computer Properties Display Method” Page

“Uninstall_Device Manager Display Method” Page

[2] The Device Manager launches, and the “Uninstall_USB Uninstallation Method” page appears. Right-click “CP2102 USB to UART Bridge Controller,” and then click “Delete (U)” to delete the USB driver assignment. Click the [Next] button in the MEC setup tool.



“Uninstall_USB Uninstallation Method” Page

[3] The “Connection Confirmation” page appears, and you will return to the installation.

1.2.4 How to Install the Software/Uninstall the USB Driver on a PC Running Windows 7

[1] How to install the MEC PC software

(1) When installing from the CD-ROM

Set the CD-ROM containing this software in the CD-ROM drive.

The MEC setup tool will launch automatically.

* If the MEC setup tool does not launch automatically, click  in the CD-ROM. The MEC setup tool will launch.

(2) When you have downloaded the ZIP file

[1] Download the file containing this software “mec_v*_**_**_**.zip” from IAI’s website.

[2] Unzip the file using an appropriate tool.

[3] Among the extracted files, find the “MECSetupTool.exe” icon.

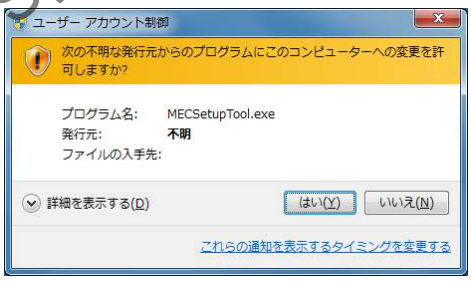
[4] Double-clicking  will launch the MEC setup tool.

(3) When you have downloaded the self-extracting file

[1] Download the file containing this software “mec_v*_**_**_**.exe” from IAI’s website.

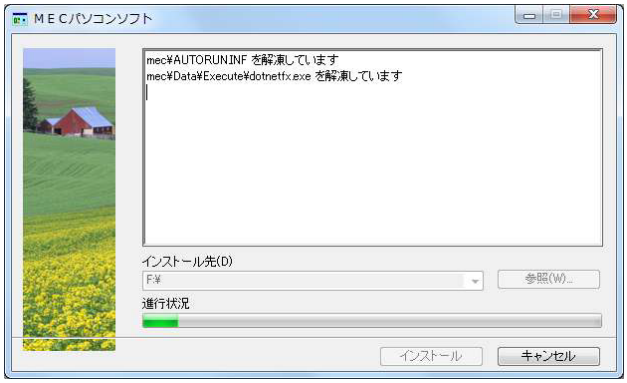
[2] Move the downloaded file to the desktop or other location of the PC in which the software will be installed.

* If the “User Account Control” screen is displayed, click [Yes (Y)].



”User Account Control” Screen

[3] Double-click  , and the files needed to set up the MEC PC software will be extracted.

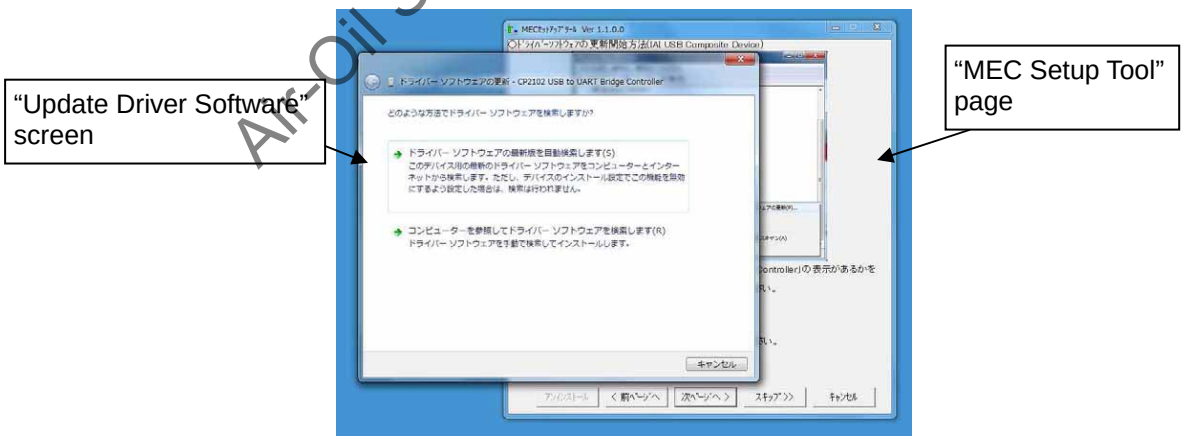


Progress Screen during File Extraction

[4] When all files have been extracted, the MEC setup tool launches automatically.
[5] Once you have extracted the files and set up the MEC PC software, the "MEC" folder created in the extraction process is no longer necessary. Delete this folder if you won't be using it in the future.

* "**" in the file name indicates the version number.

(4) How to use the MEC setup tool
In addition to installing the "MEC PC Software," the MEC setup tool also provides the operating procedure to install the software.
When you install an "USB driver," for example, as shown in the figure below, the "Update Driver Software" screen is displayed in a separate window.
While checking the "MEC Setup Tool" page, perform the steps on the "Update Driver Software" screen as instructed.
(Note) If the "MEC Setup Tool" page to verify the setup and the "Update Driver Software" screen to perform an operation are overlapping each other as shown in the figure below, click the screen for verification or the screen for operation to bring it to the front, and then verify the setup or perform an operation.



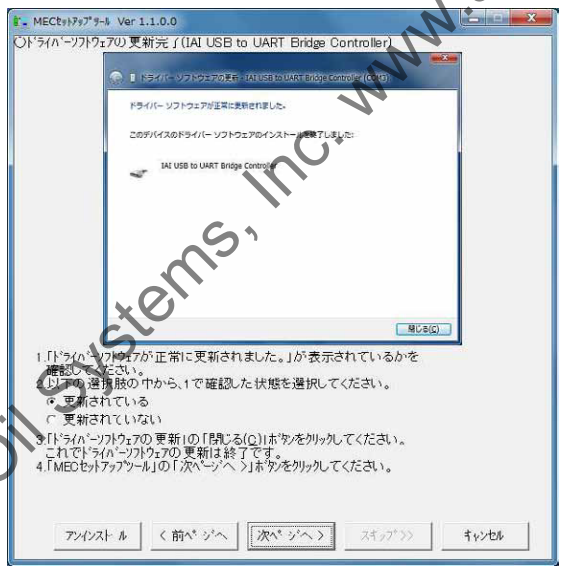
(5) Notes on installing the USB driver
When connecting the PC to multiple MEC controllers, all of the applicable MEC controllers must be connected one by one and the USB driver for each controller installed separately.

To install the USB driver for the second or subsequent MEC controller, click  to launch the “MEC Setup Tool.”
As you have done for the first MEC controller, install the USB driver according to the onscreen instructions provided by the “MEC Setup Tool.”
[Refer to (6), “Starting a MEC setup.”]
Note, however, that installation of the following software was completed with the first controller and they need not be installed again:

- MEC PC software

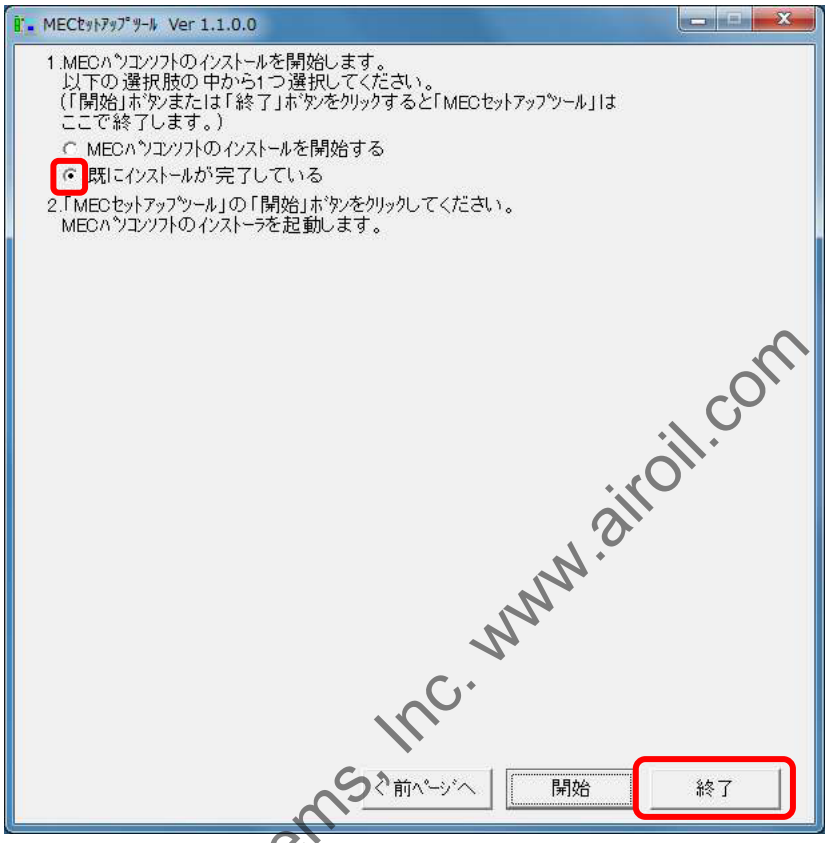
When all USB drivers have been installed, close the setup tool by following the procedure below:

[1] The “Completion of Driver Software Update (IAI USB to UART Bridge Controller)” page appears. Click the [Close (C)] button on the “Update Driver Software” screen. Select an option in the MEC setup tool, and click the [Next] button.



“Completion of Driver Software Update (IAI USB to UART Bridge Controller)” Page

[2] The “MEC PC Software Installation” page appears. Select the “Installation completed” check box, and then click the [Close] button.
The “MEC Setup Tool” is closed.



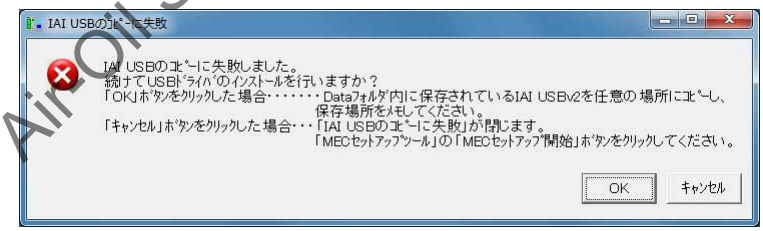
“MEC PC Installation” Page

(6) Starting a MEC setup

[1] The “Start MEC Setup Tool” page appears. Click the [Start Setup] button. When the [Start Setup] button is clicked, the IAI USBv2 will be copied.

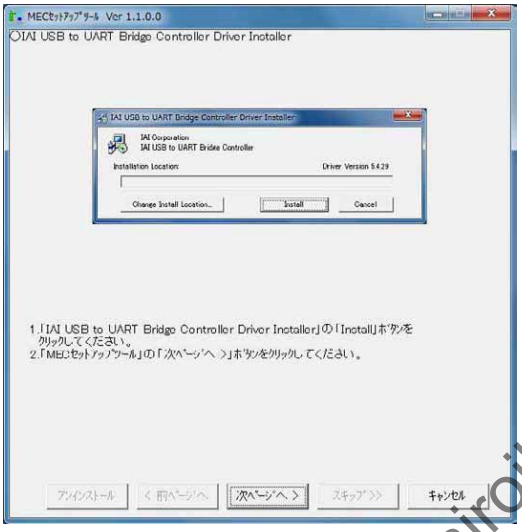
* If the copying fails, the “IAI USB copying failed” screen appears. If this screen appears, copy the IAI USBv2 folder in the Data folder to the PC. Write down and keep the location where the folder was saved as it may be required during a driver software update.
* The page you move to after clicking the [Start Setup] button varies depending on the installation status.
  - If the “IAI USB to UART Bridge Driver Installer” page is displayed, proceed to [2].
  - If the “Connection Confirmation” page is displayed, proceed to [6].

“Start MEC Setup Tool” Page



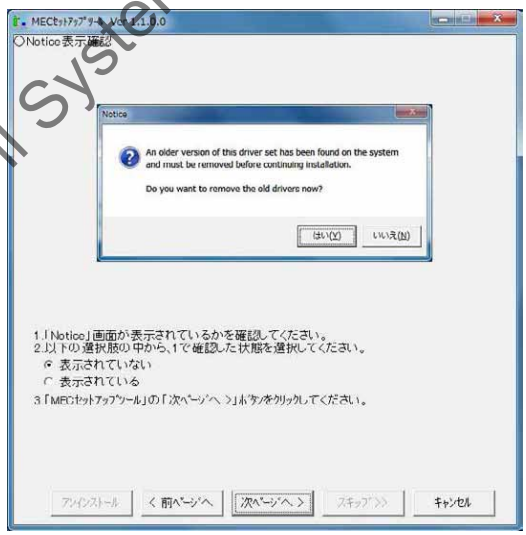
“IAI USB Copying Failed” Screen

[2] The “IAI USB to UART Bridge Driver Installer” page appears. Click the [Install] button on the “IAI USB to UART Bridge Driver Installer” screen, and then click the [Next] button in the MEC setup tool.



“IAI USB to URAT Bridge Driver Installer” Page

[3] The “Notice Display Confirmation” page appears. Confirm that the “Notice” screen is displayed.
- If it does not appear, click the [Next] button in the MEC setup tool.
- If it is displayed, click the [Yes (Y)] button on the “Notice” screen, and then click the [Next] button in the MEC setup tool.
  * The “Notice” screen is a screen on which you confirm to delete the IAI USB of a previous version in order to install the latest IAI USBv2. When the IAI USB of a previous version is deleted, the driver must be reassigned to the IAI product that it had been assigned to.



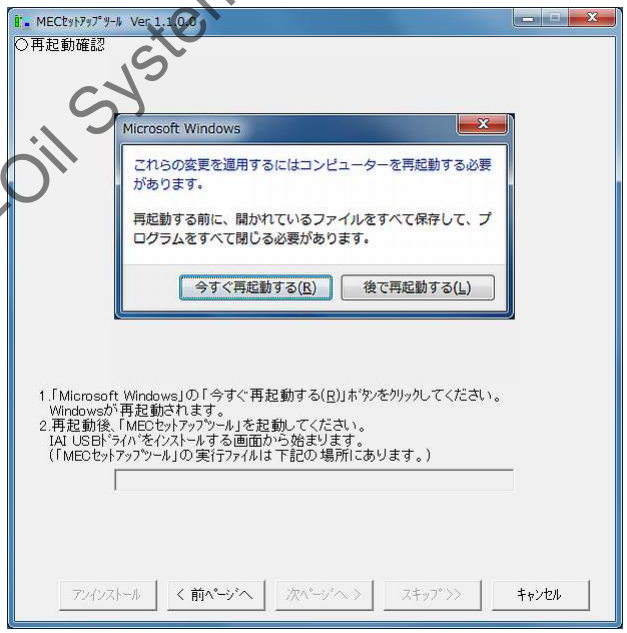
“Notice Display Confirmation” Page

[4] The “Windows Security” page appears. Click [Install this driver software (I)] on the “Windows Security” screen, and then click the [Next] button in the MEC setup tool.

“Windows Security” Page

[5] The “Confirm to Restart” page appears. Click the [Restart Now (R)] button on the “Microsoft Windows” screen. Windows will be restarted. After Windows is restarted, start the MEC setup tool.

* The location of the MEC setup tool execution file is displayed in the MEC setup tool. Check it before restarting Windows.



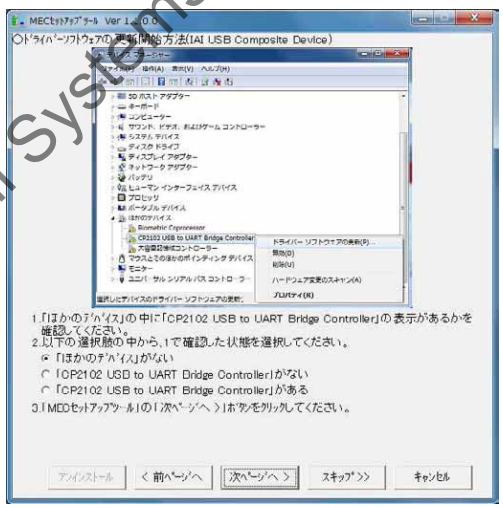
“Confirm to Restart” Page

[6] When the MEC setup tool is started, the “Connection Confirmation” page appears. Connect a MEC controller. If a MEC controller is already connected, remove the USB cable and insert it again. When these operations are completed, click the [Next] button.

“Connection Confirmation” Page

[7] The Device manager will launch and the “How to Start Updating Driver Software (IAI USB Composite Device)” page appears.

- If no other device is displayed or “CP2102 USB to UART Bridge Controller” is not displayed, select an option in the MEC setup tool, and then click the [Next] button. Proceed to [8].
- If “CP2102 USB to UART Bridge Controller” is displayed, right-click “CP2102 USB to UART Bridge Controller” and click "Update Driver Software (P).” Select an option in the MEC setup tool, and then click the [Next] button. Proceed to [9].

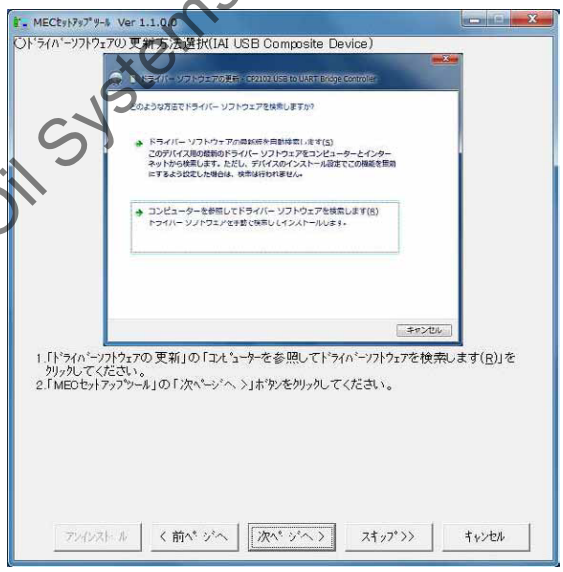


“How to Start Updating Driver Software (IAI USB Composite Device)” Page

[8] The “MEC PC Software Installation” page appears. Select an option in the MEC setup tool, and then click the [Start] button. The MEC PC software installer will launch, and the MEC setup tool will be closed. Proceed to the page in this operation manual where the MEC PC software explanation is provided.

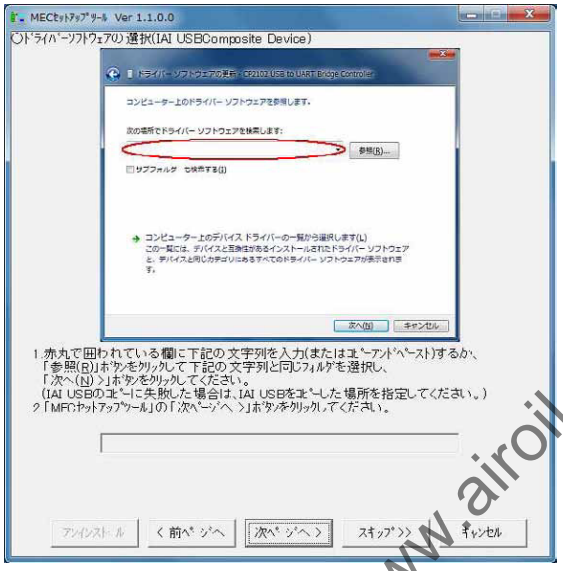
“MEC PC Software Installation” Page

[9] The “Driver Software Update Method Selection (IAI USB Composite Device)” page appears. On the “Update Driver Software” screen, click the [Browse my computer for driver software (R)] button. Click the [Next] button in the MEC setup tool.



“Driver Software Update Method Selection (IAI USB Composite Device)” Page

[10] The “Driver Software Selection (IAI USB Composite Device)” page appears. Enter the file save location that is displayed in the MEC setup tool in the area circled in red on the “Update Driver Software” screen, and then click the [Next (N)] button. Click the [Next] button in the MEC setup tool.
* If incorrect characters are entered, you cannot proceed to the next step.

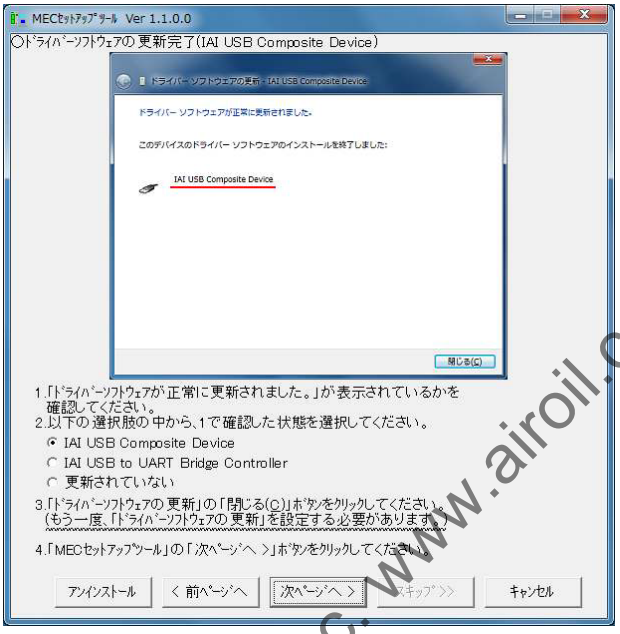


“Driver Software Selection (IAI USB Composite Device)” Page

[11] The “Windows Security (IAI USB Composite Device)” page appears. On the “Windows Security” screen, click [Install this driver software (I)]. Select an option in the MEC setup tool, and then click the [Next] button.

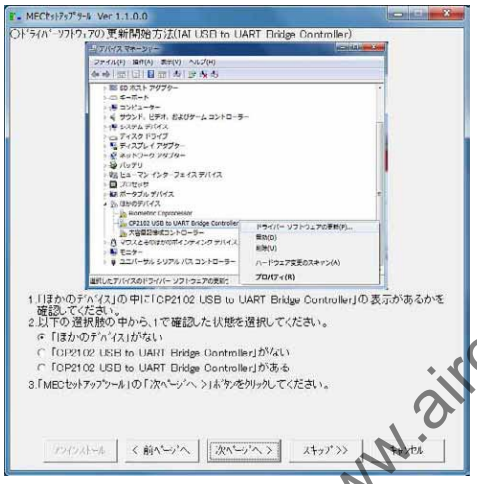
“Windows Security (IAI USB Composite Device)” Page

[12] The “Completion of Driver Software Update (IAI USB Composite Device)” page appears. Select the name underlined in red, and then click the [Close (C)] button on the “Update Driver Software” screen. Select an option in the MEC setup tool, and then click the [Next] button.
- If you selected “IAI USB Composite Device,” proceed to [13].
- If you selected “IAI USB to UART Bridge Controller,” proceed to [18].



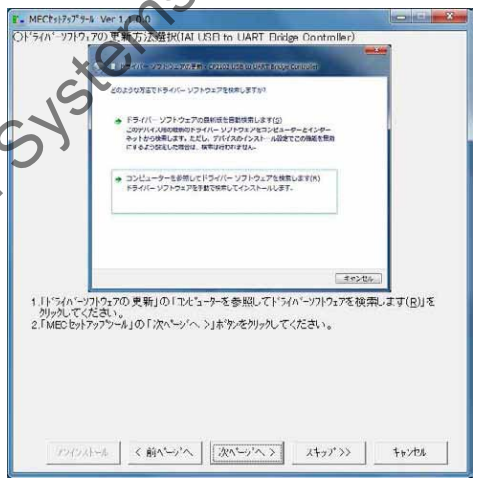
“Completion of Driver Software Update (IAI USB Composite Device)” Page

[13] The Device manager will launch and the “How to Start Updating Driver Software (IAI USB to UART Bridge Controller)” page appears.
- If “CP2102 USB to UART Bridge Controller” is not displayed, select an option in the MEC setup tool, and then click the [Next] button. Proceed to [18].
- If “CP2102 USB to UART Bridge Controller” is displayed, right-click “CP2102 USB to UART Bridge Controller” and click “Update Driver Software (P).” Select an option in the MEC setup tool, and then click the [Next] button. Proceed to [14].



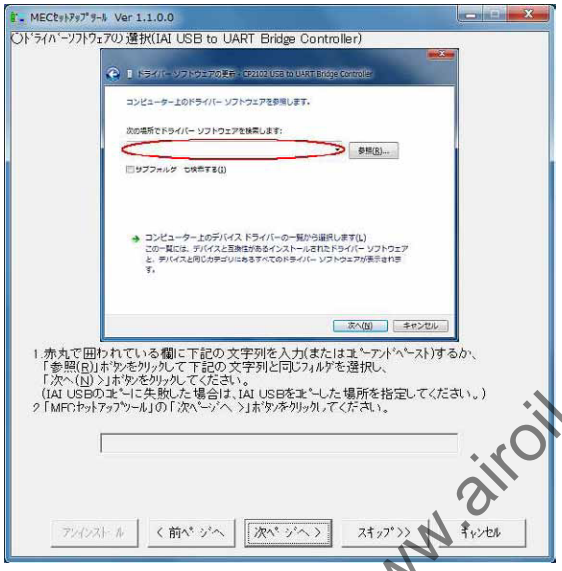
”How to Start Updating Driver Software (IAI USB to UART Bridge Controller)” Page

[14] The “Driver Software Update Method Selection (IAI USB to UART Bridge Controller)” page appears. On the “Update Driver Software” screen, click the [Browse my computer for driver software (R)] button. Click the [Next] button in the MEC setup tool.



“Driver Software Update Method Selection (IAI USB to UART Bridge Controller)” Page

[15] The “Driver Software Selection (IAI USB to UART Bridge Controller)” page appears. Enter the file save location that is displayed in the MEC setup tool in the area circled in red on the “Update Driver Software” screen, and then click the [Next (N)] button. Click the [Next] button in the MEC setup tool.
* If incorrect characters are entered, you cannot proceed to the next step.

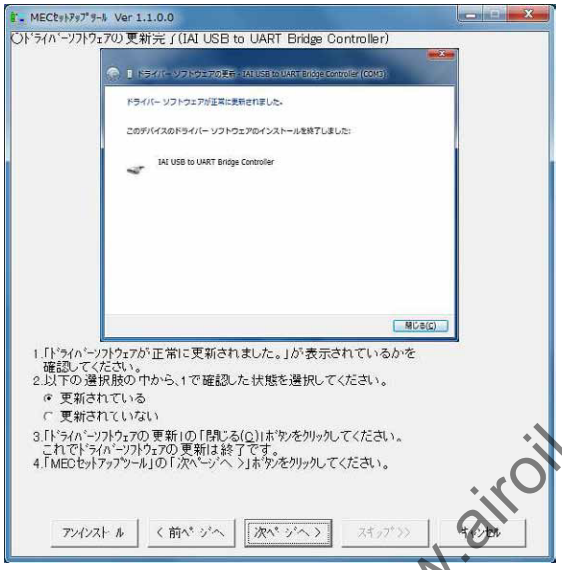


“Driver Software Selection (IAI USB to UART Bridge Controller)” Page

[16] The “Windows Security (IAI USB to UART Bridge Controller)” page appears. On the “Windows Security” screen, click [Install this driver software (I)]. Select an option in the MEC setup tool, and then click the [Next] button.

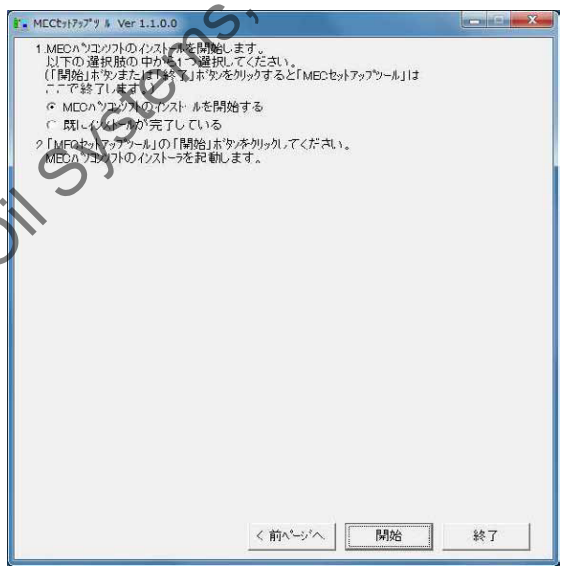
“Windows Security (IAI USB to UART Bridge Controller)” Page

[17] The “Completion of Driver Software Update (IAI USB to UART Bridge Controller)” page appears. Click the [Close (C)] button on the “Update Driver Software” screen. Select an option in the MEC setup tool, and click the [Next] button.



“Completion of Driver Software Update (IAI USB to UART Bridge Controller)” Page

[18] The “MEC PC Software Installation” page appears. Select an option in the MEC setup tool, and then click the [Start] button. The MEC PC software installer will launch, and the MEC setup tool will be closed.

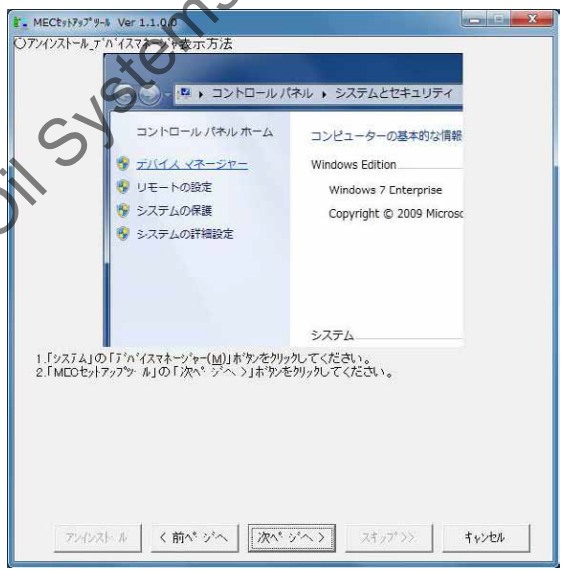


“MEC PC Software Installation” Page

[2] How to uninstall the USB driver

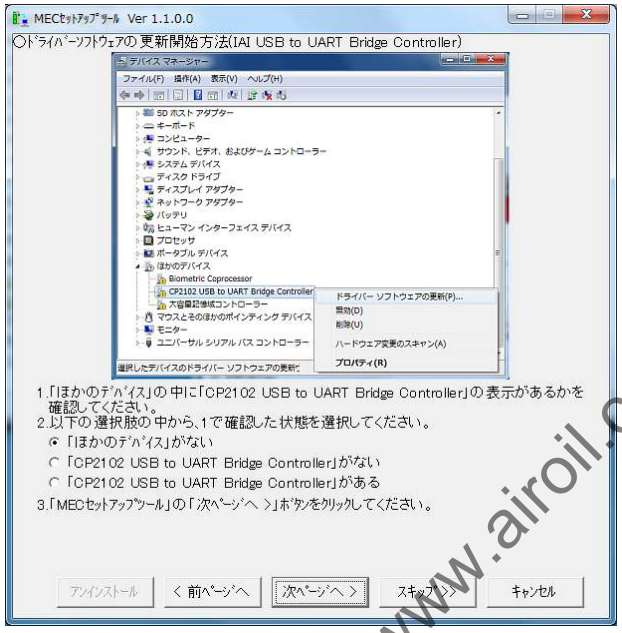
[1] While the MEC controller is connected, click the [Uninstall] button in the MEC setup tool. The Device Manager will launch. If the Device Manager could not be launched, the “Uninstall_My Computer Properties Display Method” page appears first.
Display the My Computer Properties screen by following the onscreen instructions.
Next, the “Uninstall_Device Manager Display Method” page appears.
Click the [Device Manager] button.

“Uninstall_My Computer Properties Display Method” Page



“Uninstall_Device Manager Display Method” Page

[2] The Device Manager launches, and the “Uninstall_USB Uninstallation Method” page appears. Right-click “CP2102 USB to UART Bridge Controller,” and then click “Delete (U)” to delete the USB driver assignment. Click the [Next] button in the MEC setup tool.

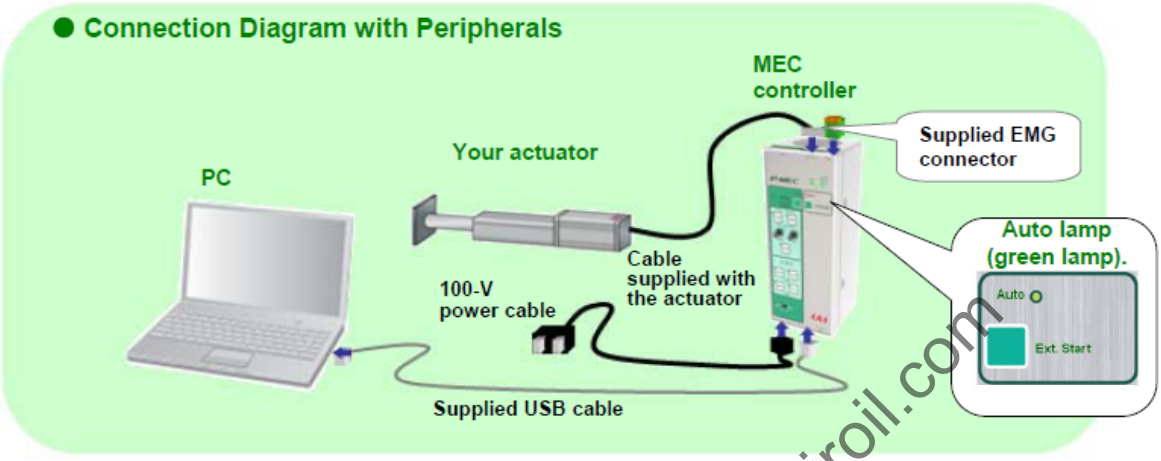


“Uninstall_USB Uninstallation Method” Page

[3] The “Connection Confirmation” page appears, and you will return to the installation.

1.3 Launching the MEC PC Software

[1] Turn off the controller power and PC power and connect the following devices as shown below.



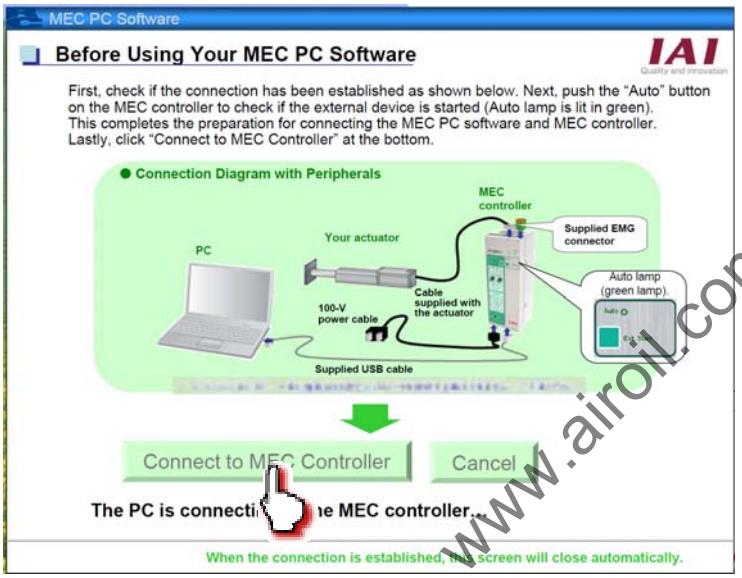
[2] When all devices have been connected, turn on the controller power and PC power.
[3] Click the MEC PC software icon to start the MEC PC software.
The “Initial Screen” appears which then automatically switches to the “Introduction” screen. Click [Enter].

Initial Screen

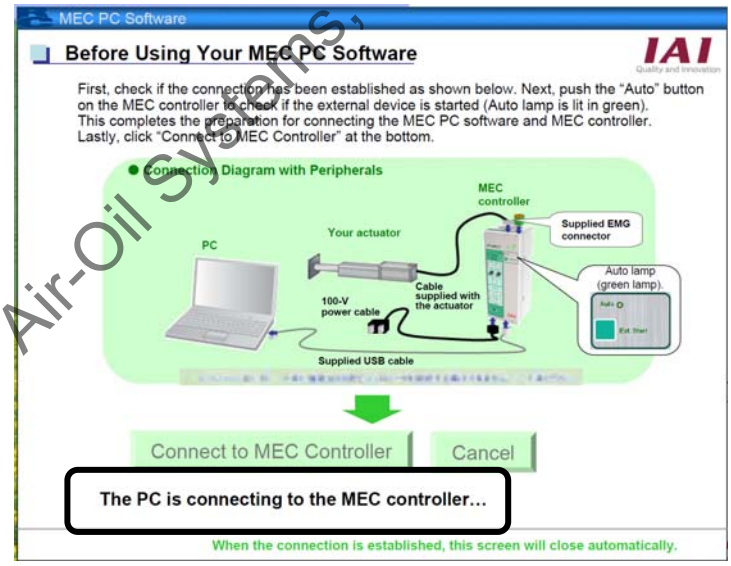
Introduction Screen

[4] Check if the Auto lamp on the MEC controller is illuminating in green. If you see a steady green light, you are now ready to connect the MEC PC software and MEC controller.

[5] Click [Connect to MEC Controller].
Connection of the PC and MEC controller is started and the message “The PC is connecting to MEC controller…” appears.
Clicking [Cancel] cancels the connection. Even if the connection is cancelled, the screen will not change.

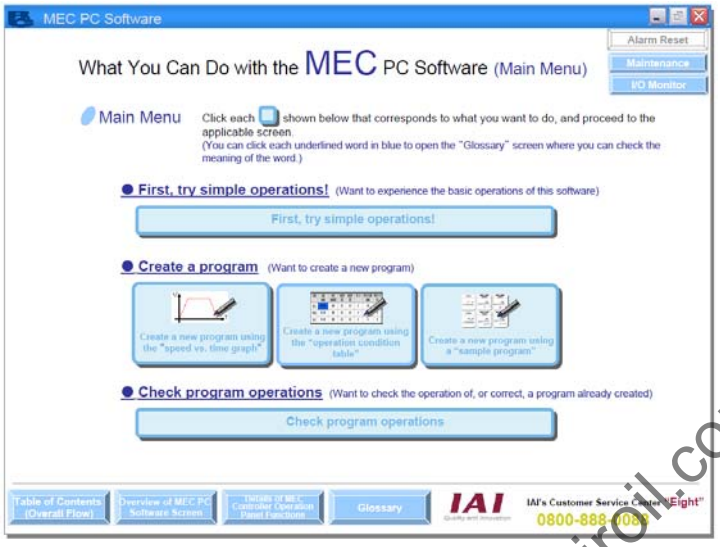


PC and MEC Controller Connection Screen



PC and MEC Controller Connection Screen

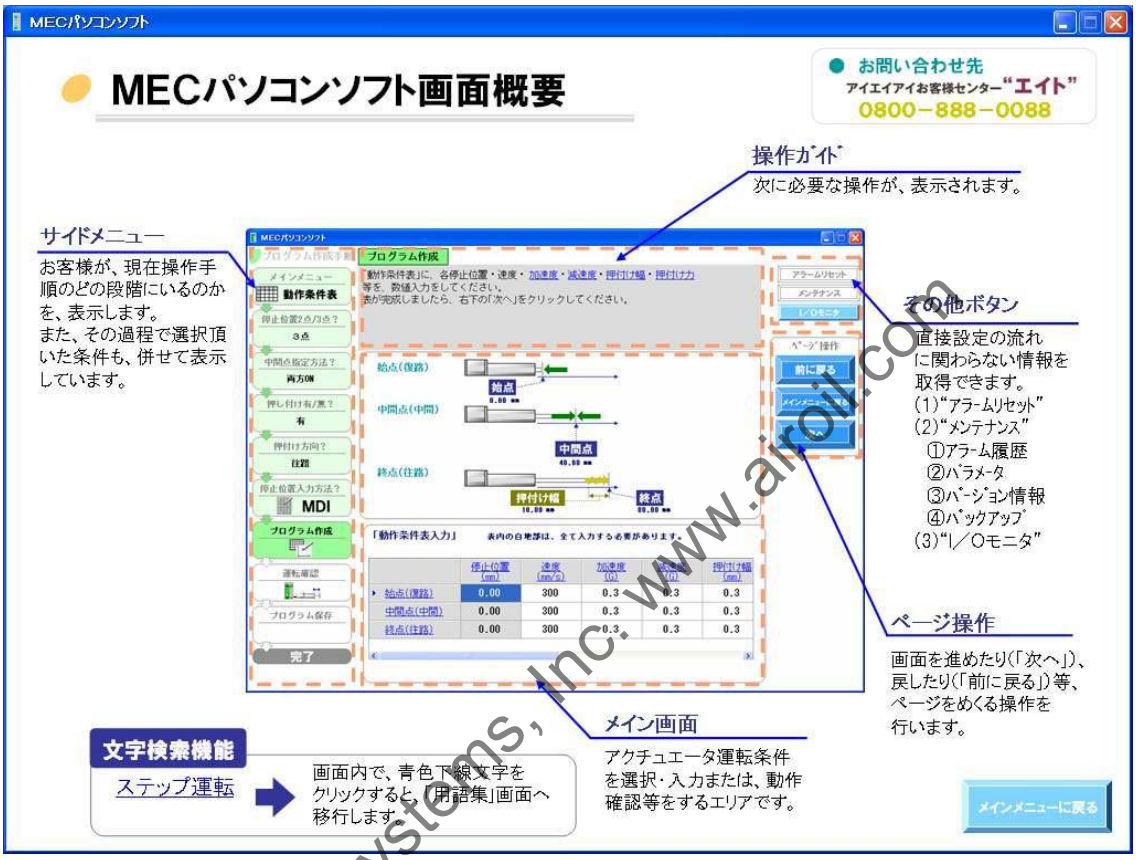
[6] When the connection is complete, the menu screen appears.



Menu Screen

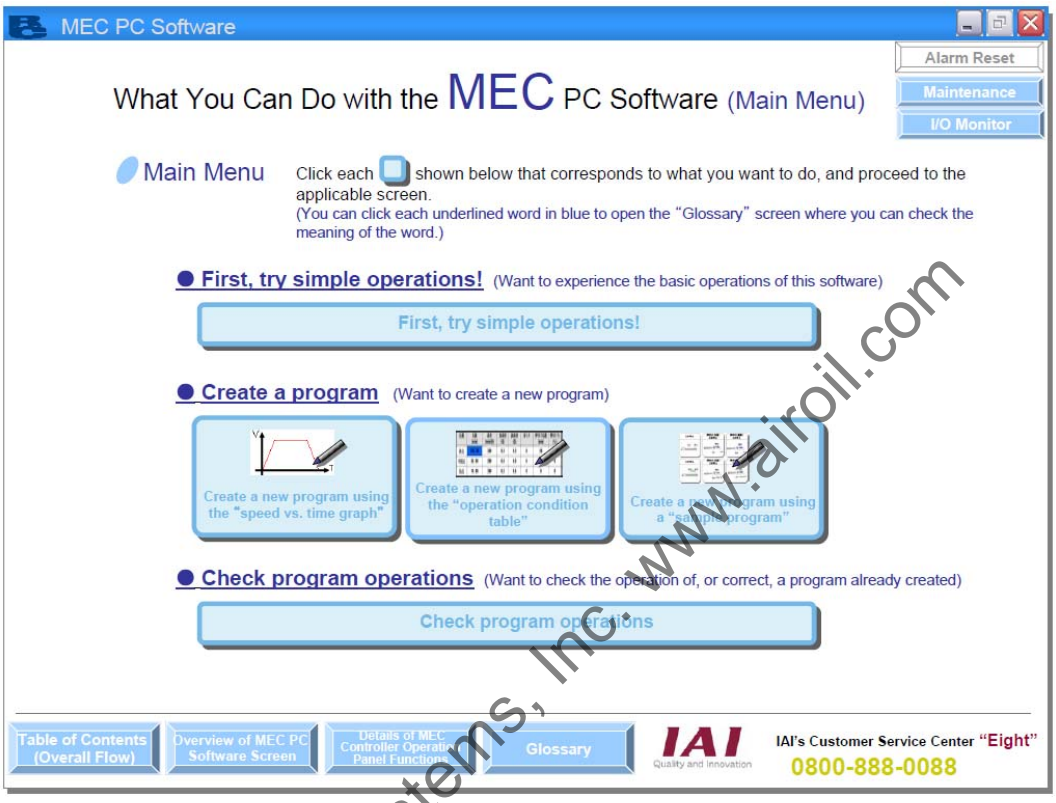
2. Overview of MEC PC Software Screen

The operating screen of the MEC PC software is shown below. You can display this screen by clicking [Overview of MEC PC Software Screen] from the main menu.



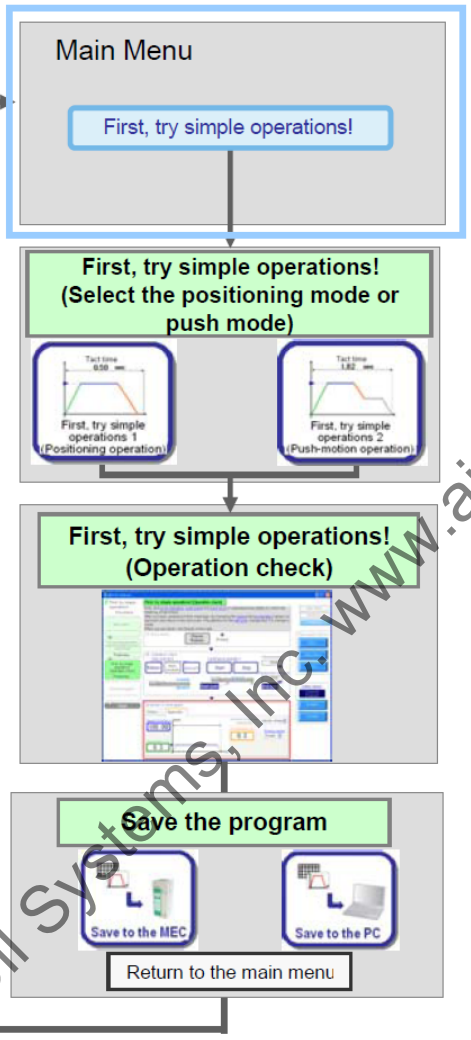
3. What You Can Do with the MEC PC Software (Operations from the Main Menu)

Select the items appropriate for the purpose in the main menu.



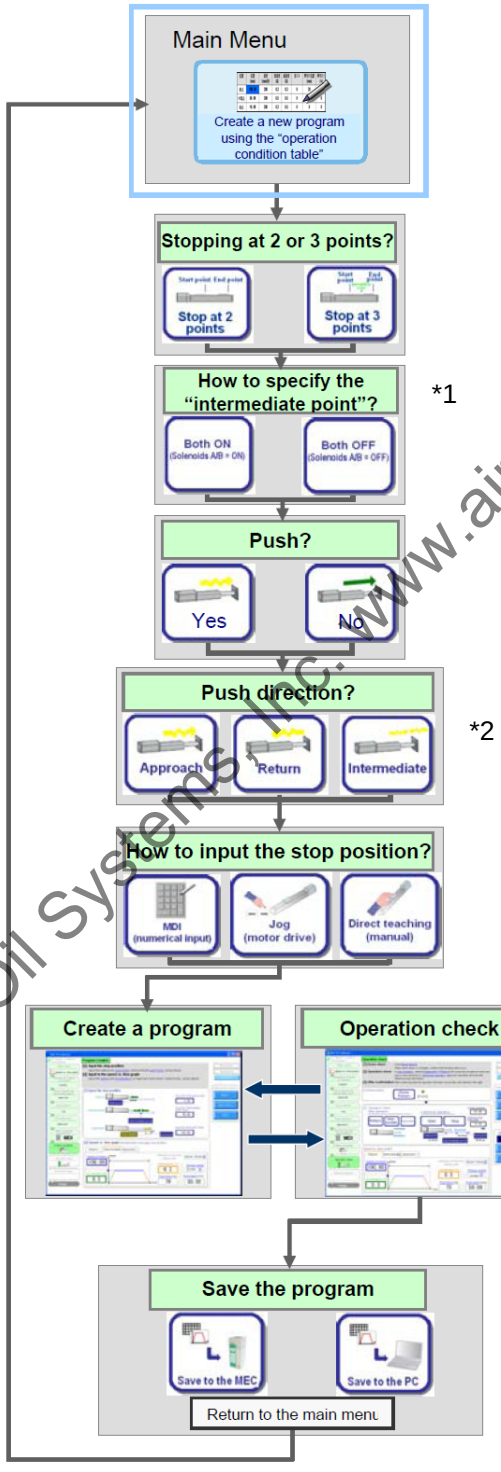
The operation flow of each menu is explained.

3.1 First, Try Moving an Actuator



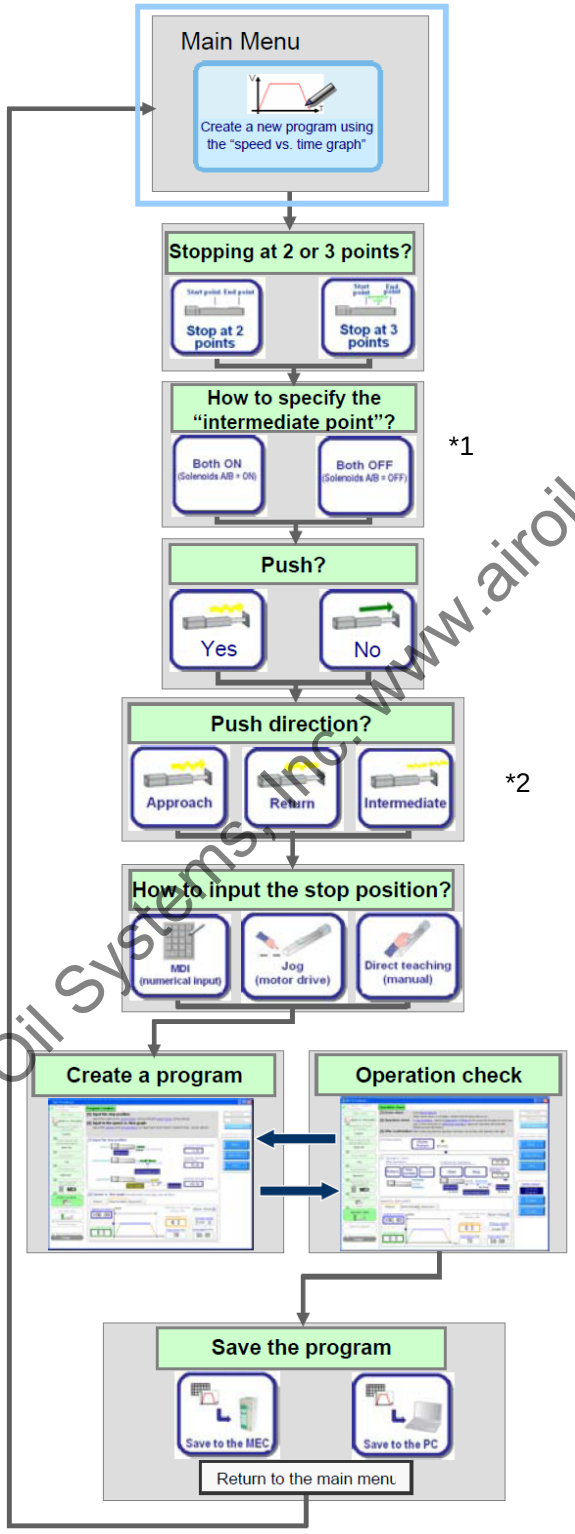
3.2 Creating a Program

3.2.1 Using the “Operation Condition Table”



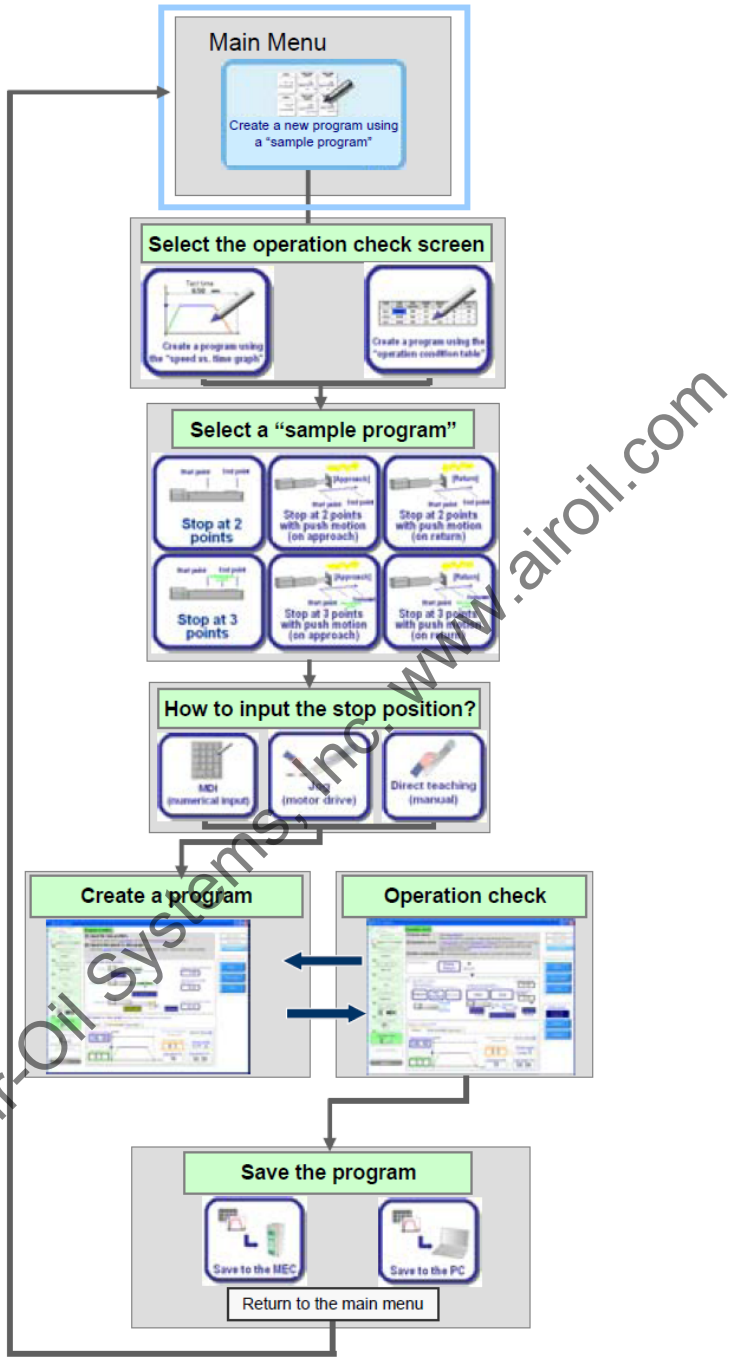
*1 This screen is not displayed if “Stop at 2 points” is selected as the specification for stopping positions.
*2 This screen is not displayed if “NO” is selected for push motion.

3.2.2 Using the “Speed vs. Time Graph”

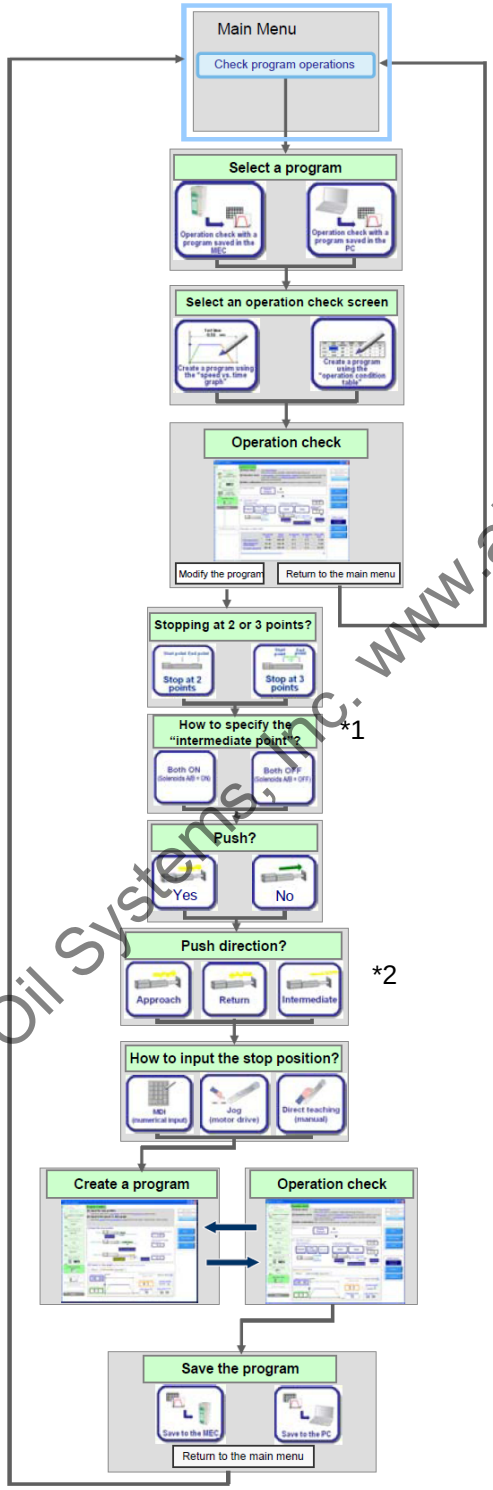


*1 This screen is not displayed if “Stop at 2 points” is selected as the specification for stopping positions.
*2 This screen is not displayed if “NO” is selected for push motion.

3.2.3 Using the “Sample Program”



3.3 Checking the Program Operation



*1 This screen is not displayed if “Stop at 2 points” is selected as the specification for stopping positions.
*2 This screen is not displayed if “NO” is selected for push motion.

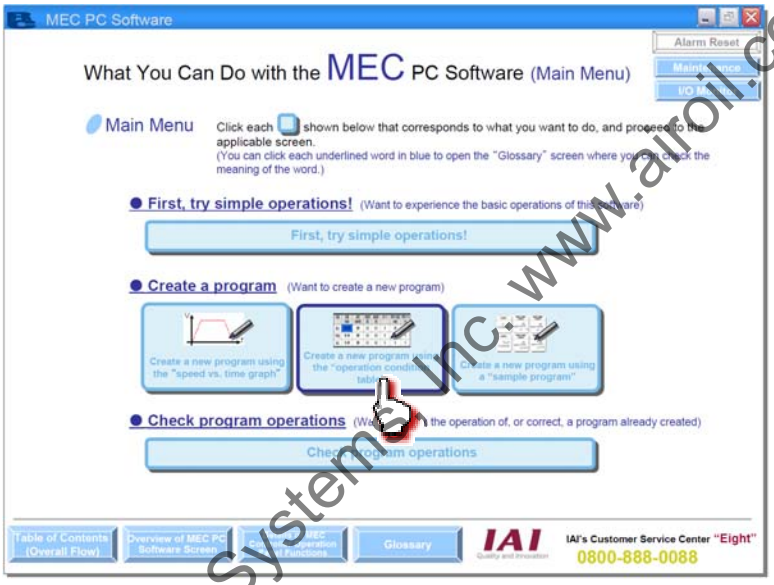
4. Creating a Program

Programs to move actuators can be created by one of the following two methods:

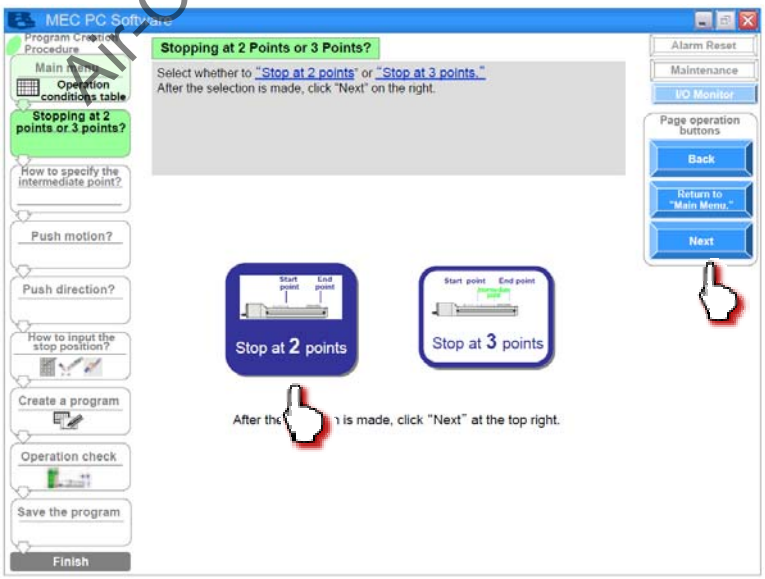
- Create an operation condition table to move the actuator
  [Refer to 4.1, “Creating an Operation Condition Table to Move the Actuator.”]
- Create a speed vs. time graph to move the actuator
  [Refer to 4.3, “Creating a Speed vs. Time Graph to Move the Actuator.”]
- Move the actuator using a sample program
  [Refer to 4.4, “Moving the Actuator Using a Sample Program.”]

4.1 Creating an Operation Condition Table to Move the Actuator

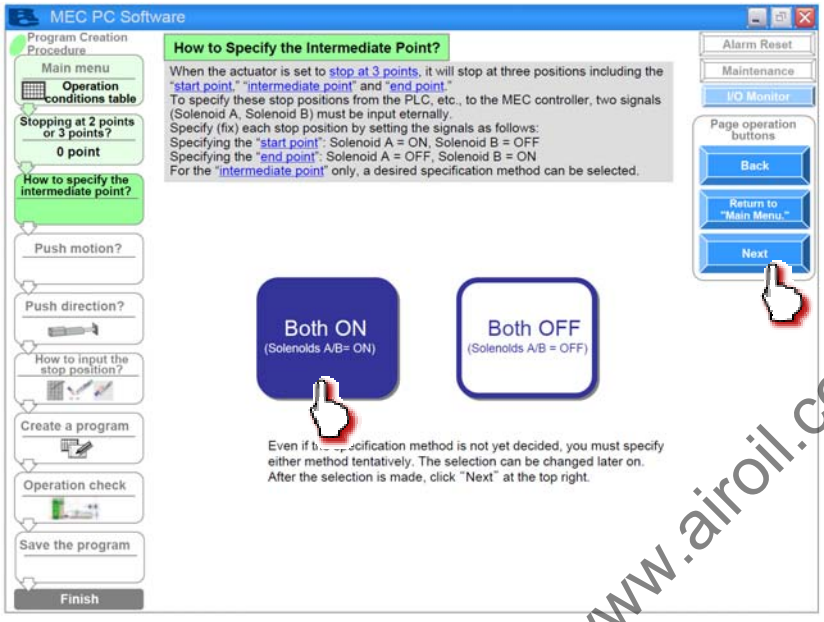
In this method, you set the operation conditions of the actuator in the operation condition table to move the actuator.
Click [Create a new program using the "operation condition table"] from the main menu.
Set the necessary conditions according to the onscreen instructions.



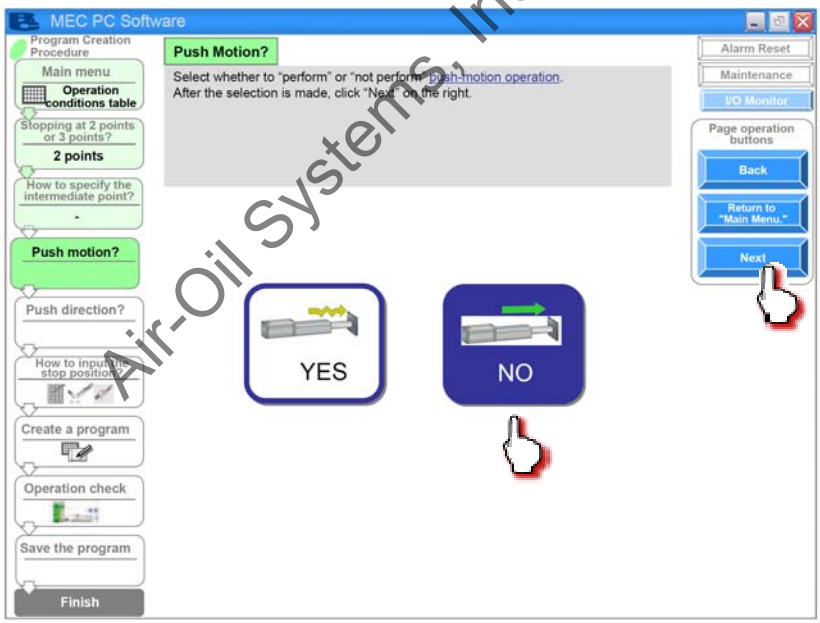
[1] Select the number of stopping positions by clicking [Stop at 2 points] of [Stop at 3 points]. Once you have made the selection, click [Next].



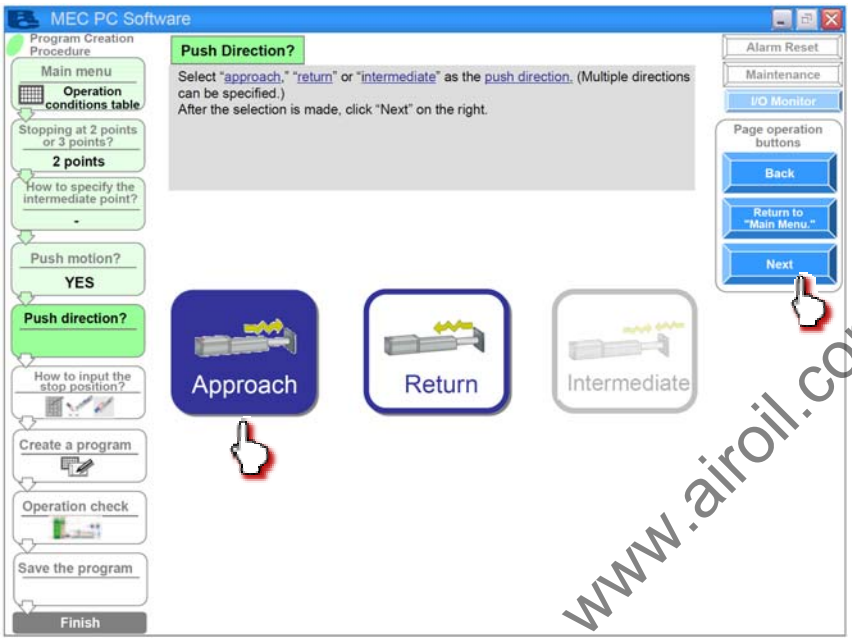
[2] If you have selected “Stop at 3 points,” select whether to turn both of solenoids A and B (ST0 and ST1 signals) OFF or turn both solenoids ON for the positioning to the intermediate point.
Once you have made the selection, click [Next].



[3] Select whether to “YES” or “NO” for push motion.
Once you have made the selection, click [Next].

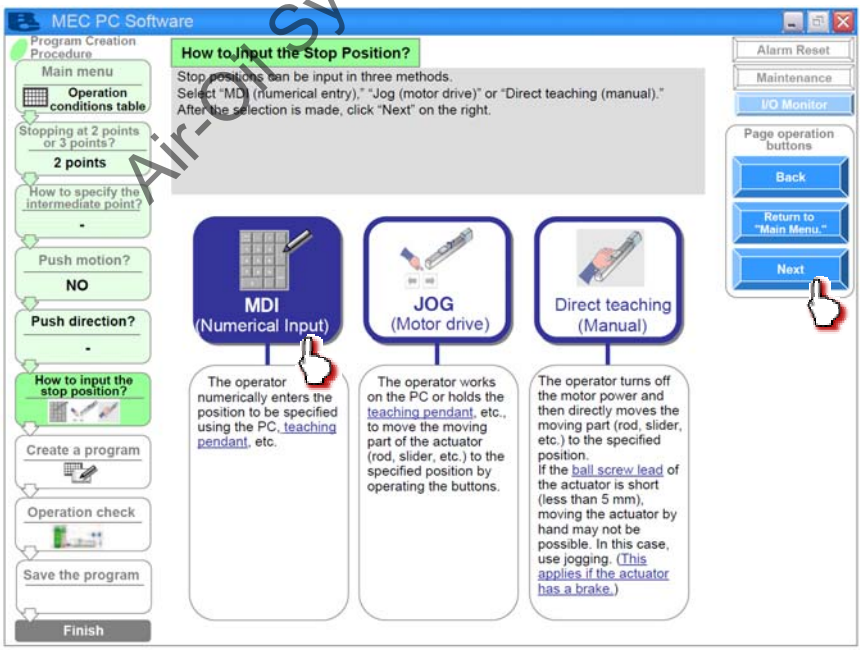


[4] If you have selected “PUSH” to perform push-motion operation, select “Approach” or “Return” as the push direction.
If the actuator is stopping at 3 points, you can also select “Intermediate point.”
Once you have made the selection, click [Next].

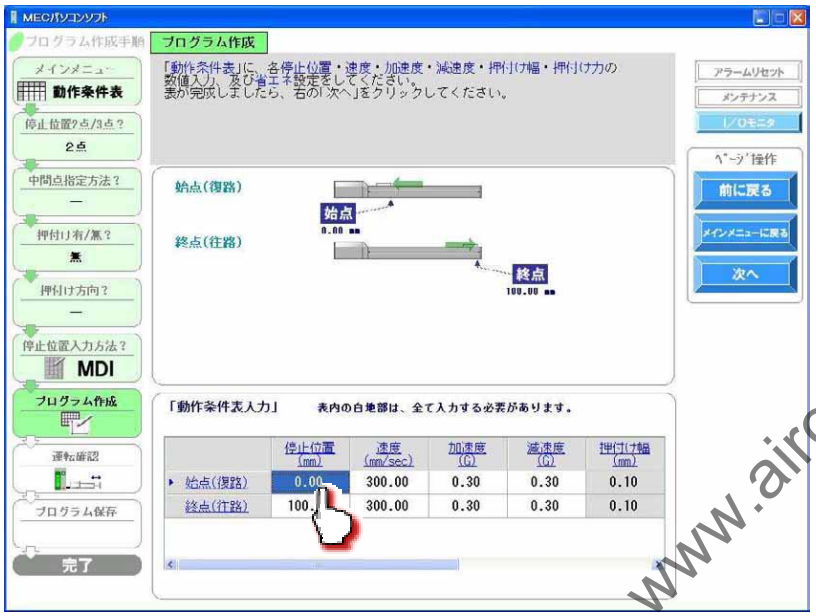


[5] Select the stopping position input method from among “MDI (Numerical input),” “JOG (Motor drive)” and “Direct teaching (Manual).”

[Stopping position input by MDI (Numerical input)]
Select “MDI (Numerical input).”
Once you have made the selection, click [Next].



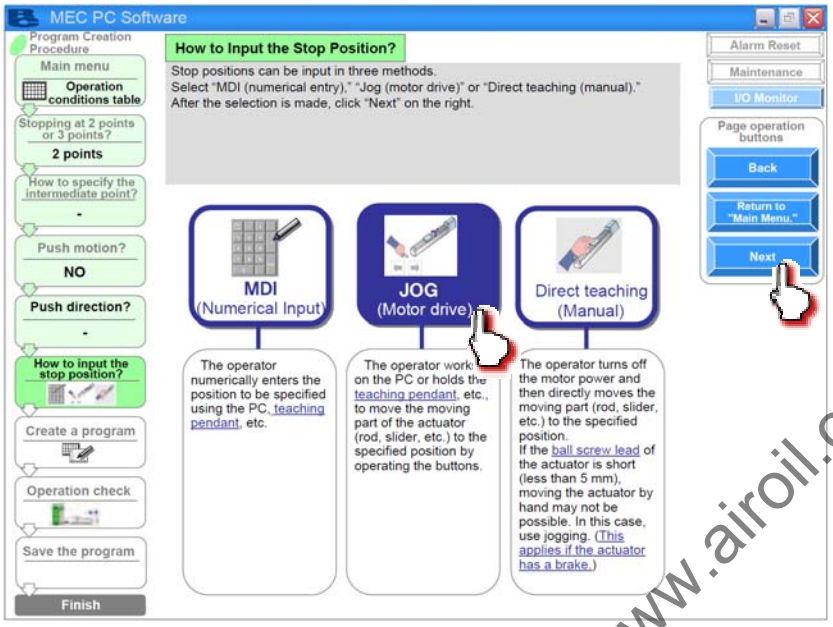
Set values in the stopping position fields of the operation condition table.
[Refer to 4.2, “Setting the Operation Conditions.”]
When setting a value of the stopping position corresponding to the end point, click the field of the operation condition table you want to set, as shown below. Enter a value from the keyboard and then press the ENTER key. The value will be input.



[Stopping position input by jogging]

Select “JOG (Motor drive).”

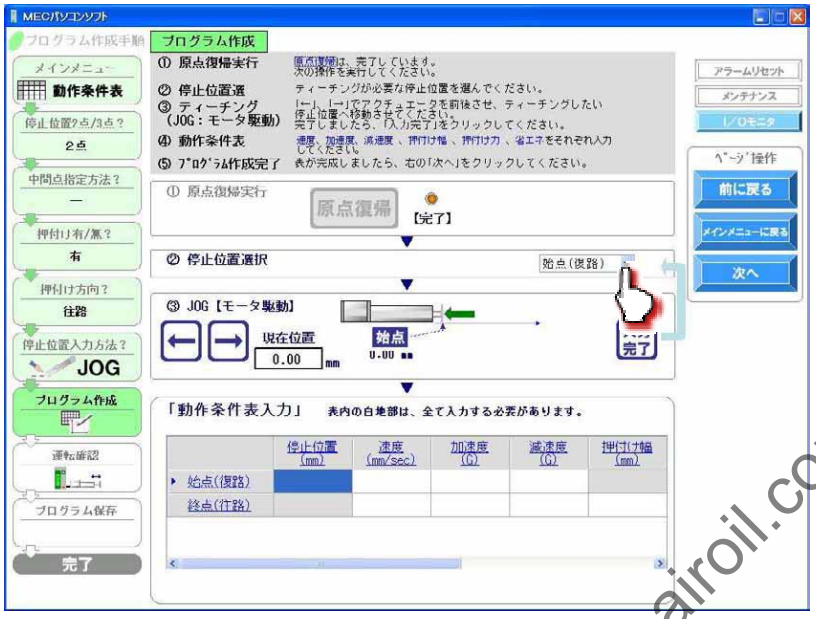
Once you have made the selection, click [Next].



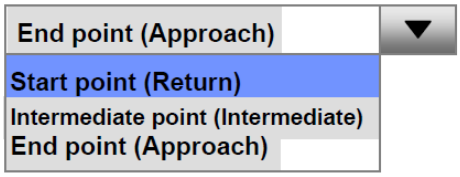
Click [Home Return] to perform home return.

When the home return is complete, the lamp next to the button comes on and the text below it changes to [Complete].

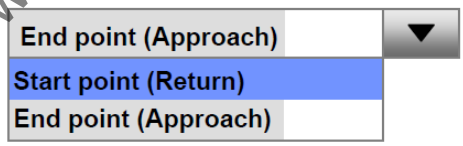
Select the stopping position you must teach the actuator.



When stopping at 3 points



When stopping at 2 points

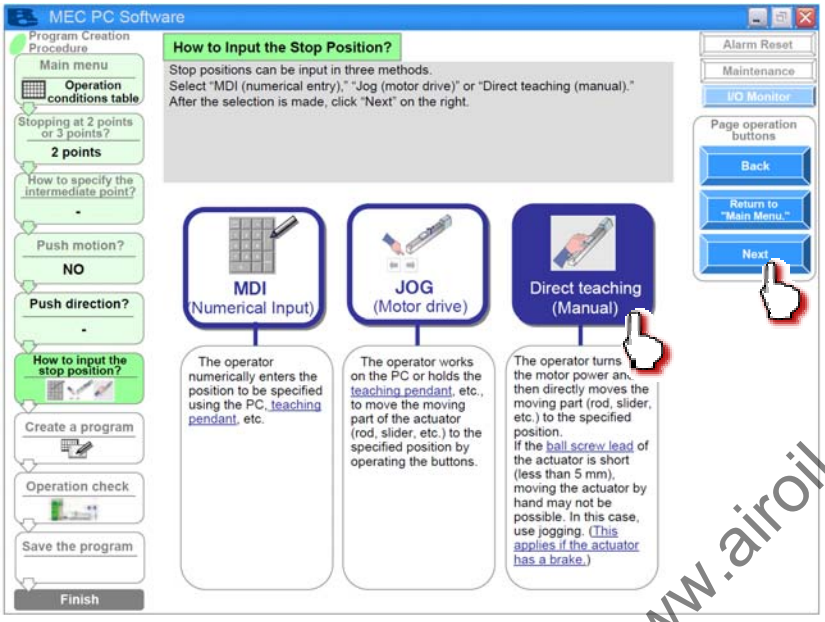


Click [←]/[→] to move the actuator to the stopping position.
Click [Input Complete]. The current position is saved as the stopping position you have selected.

[Stopping position input by direct teaching (manual)]

Select “Direct teaching (Manual).”

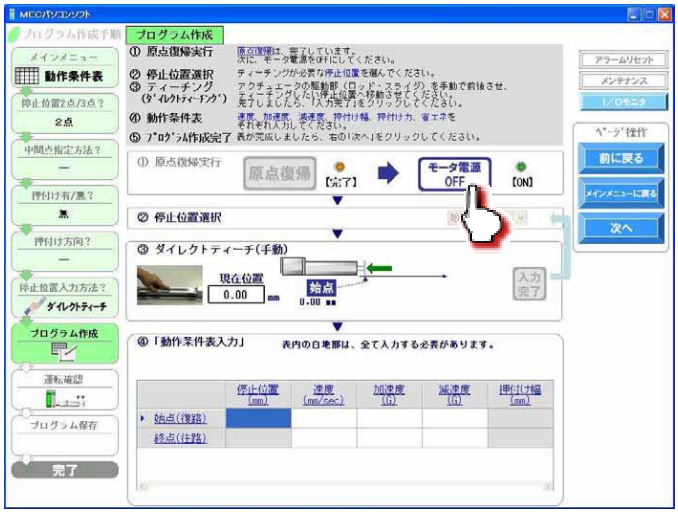
Once you have made the selection, click [Next].



Click [Home Return] to perform home return.

When the home return is complete, the lamp next to the button comes on and the text below it changes to [Complete].

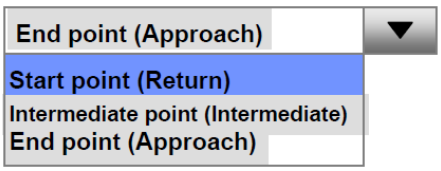
Click [Motor Power OFF] to turn off the motor power.
The motor power (servo) turns off.



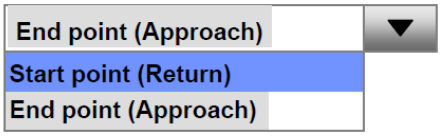
⚠ Caution:
If you are releasing the brake of a vertically installed actuator, be careful not to let your hand pinched or the work part damaged by the actuator falling due to its own weight.

Select the stopping position you must teach the actuator.

When stopping at 3 points

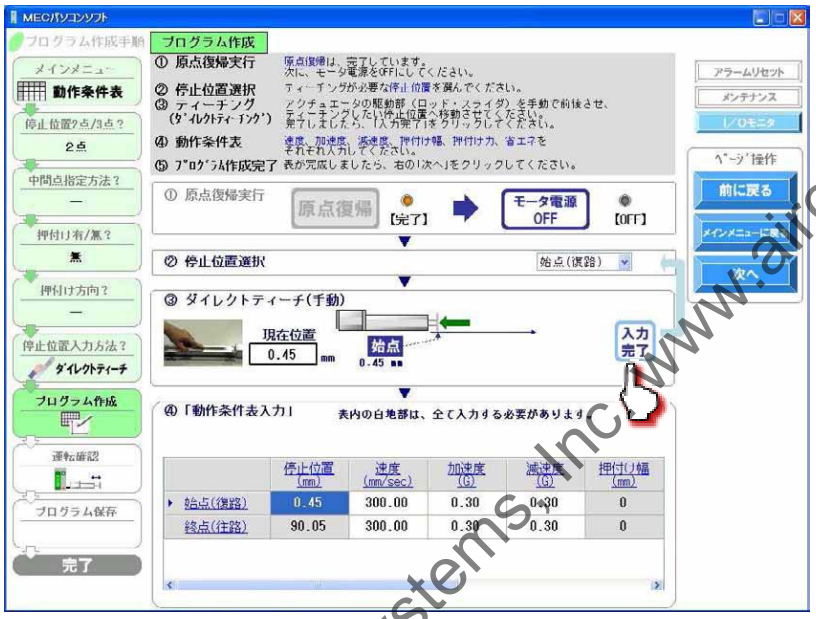


When stopping at 2 points



Manually move the actuator to the stopping position.

The position is shown in the current position field.
Click [Input Complete]. The current position is saved as the stopping position you have selected.

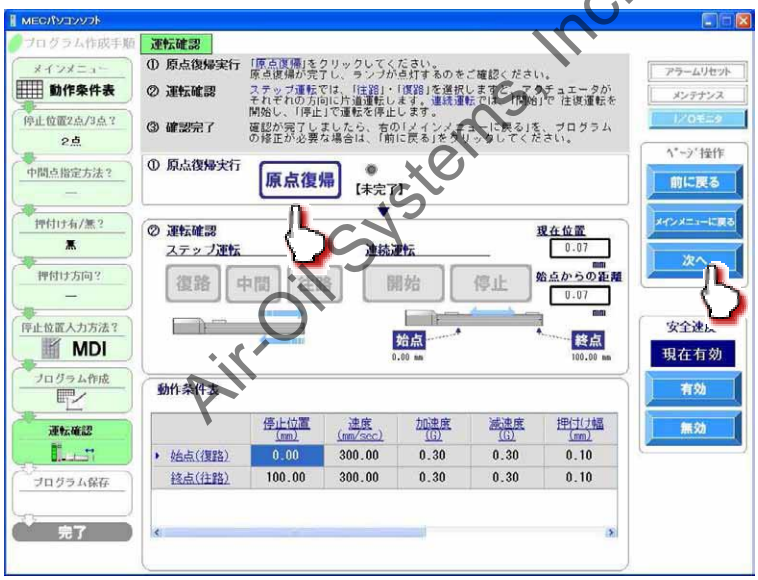


[6] Set the values of speed, acceleration, deceleration, push band, push force and energy saving setting, as necessary, in the applicable fields of the operation condition table.
[Refer to 4.2, “Setting the Operation Conditions.”]
For example, assume you want to set the value of the stopping position corresponding to the start point. In this case, click the field of the operation condition table you want to set, as shown below. Enter a value from the keyboard and then press the ENTER key. The value will be input.

When all necessary values have been input, be sure to click [Next].
When [Next] is clicked, the confirmation message appears with the message “Do you want to start transferring data?”
Click [Yes]. Clicking [Yes] transfers the values in the operation condition table to the controller.
(Note) The values in the operation condition table will not be transferred to the controller if [No] is clicked.

The following message appears while the data is being transferred.
When the transfer is complete, the display changes to the next screen for operation check.

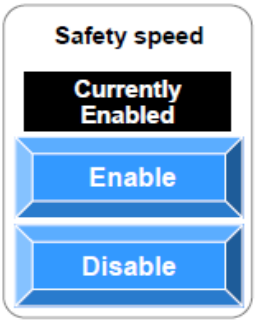
[7] Now you are ready to operate the actuator, so let's perform operation check.
If home return is not completed yet, click [Home Return] to perform home return.
If operation check is not performed, click [Next] to proceed to saving the program.



When the home return is complete, the lamp next to the button comes on and the text below it changes to [Complete].

[8] Perform operation check.
Two types of operations are available, step operation and continuous operation.
When the operation check is complete, click [Next].

[Safety Speed Setting]

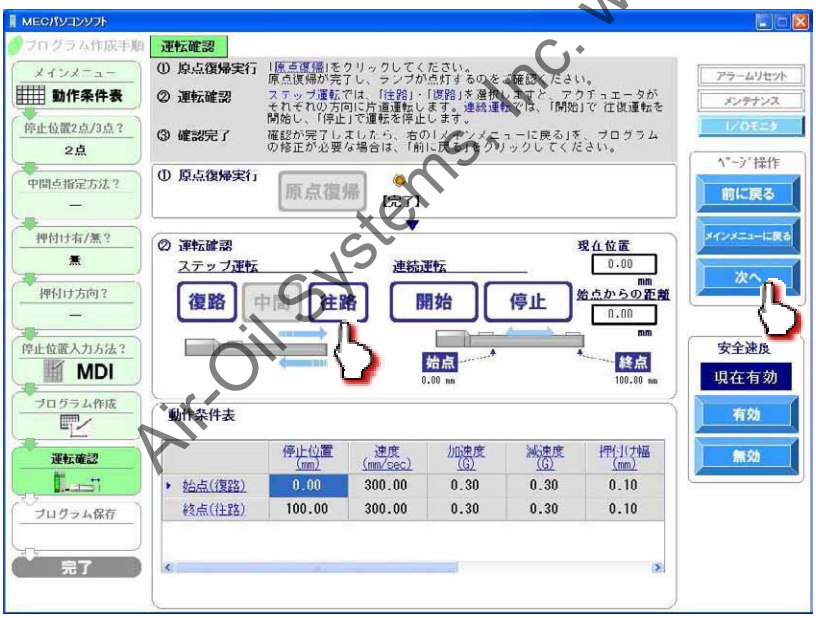


Enable: Click [Enable] if you want to operate the actuator at the safety speed*1.
Disable: Click [Disable] if you want to operate the actuator at a speed above the safety speed*1.

*1 Safety speed: The maximum speed is set to 100 mm/s or below.

[Step operation]

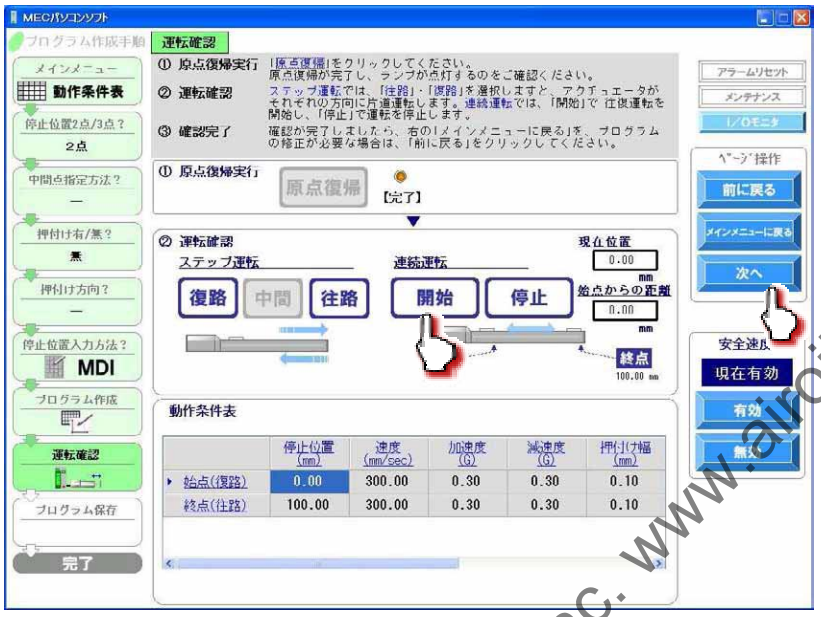
Approach (end point): Click [Approach] to move the actuator toward the end point.
Return (start point): Click [Return] to move the actuator toward the start point.
Intermediate point: Click [Intermediate] to move the actuator toward the intermediate point in a program where the actuator stops at 3 points.



[Continuous operation]

Start: Click [Start] to move the actuator forward and backward continuously (between the end point and start point) in a program where the actuator stops at 2 points. Similarly, click [Start] to move the actuator forward and backward continuously (between the end point and start point via the intermediate point) in a program where the actuator stops at 3 points.

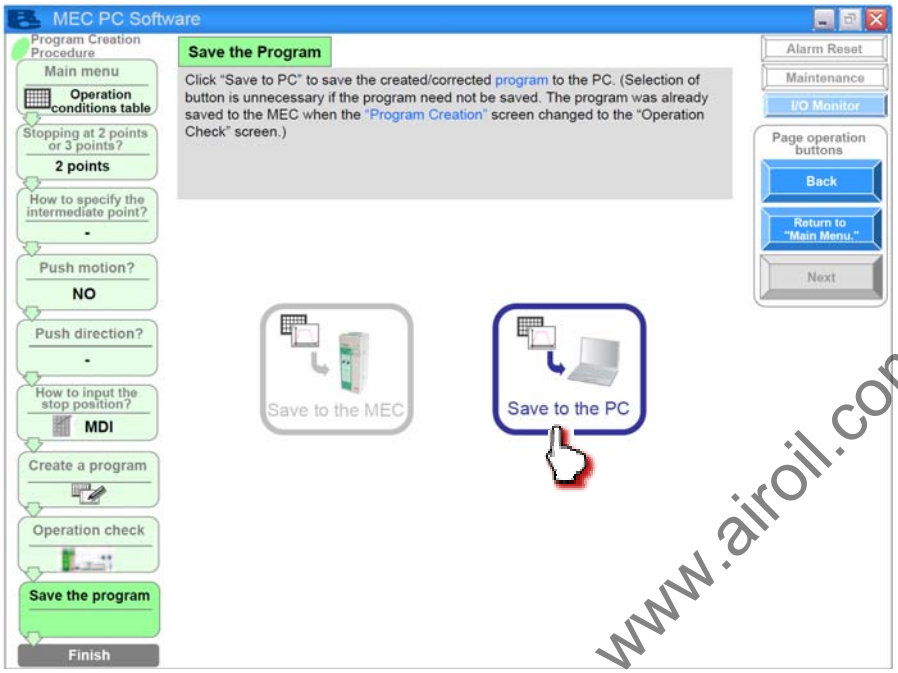
Stop: Click [Stop] to stop the continuous operation.



[9] Saving the program

[Saving to the PC]

To save the program (operation condition table) you have created to the PC, click “Save to the PC.”



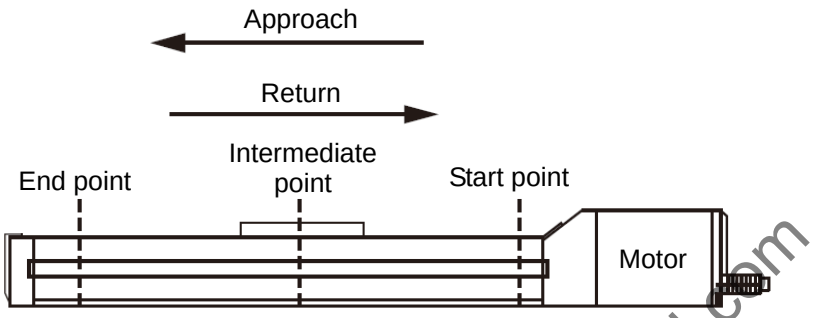
The “Save As” screen appears.

Enter a desired file name and click [Save (S)], and the program (operation condition table) you have created will be saved to the PC.

Once the program has been saved, click [Return to the "Main Menu."]. The screen returns to the main menu.

4.2 Setting the Operation Conditions

Each controller has an operation condition table like the one shown below in is memory.
Positioning is performed according to the data in this operation condition table.
Values are set using the operation panel on the front face of the controller, or the MEC PC software or other teaching tool.



Positioning Information

Stopping position	[1] Position [mm]	[2] Speed [mm/s]	[3] Acceleration [G]	[4] Deceleration [G]	[5] Push force [%]	[6] Push band [mm]	[7] Energy saving
Start point (approach)	10.00	50.00	0.1	0.1	0	0	Enable
Intermediate point (intermediate)	50.00	50.00	0.1	0.1	70	1.00	Enable
End point (return)	100.00	50.00	0.1	0.1	0	0	Enable

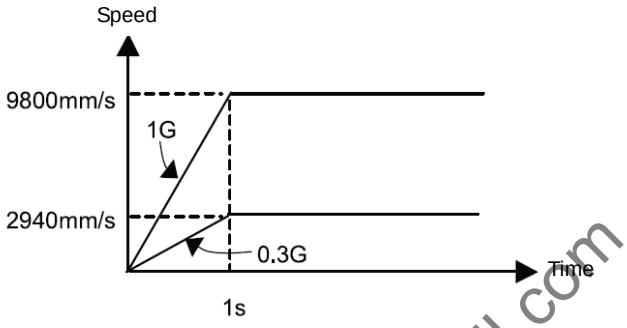
[1] Position [mm]: This is the position at which the actuator will stop at the completion of positioning. Set a position from the home. The following positions have the relationship shown below:
Start point < Intermediate point < End point

[2] Speed [mm/s]: Set the speed (mm/s) at which the actuator will move.
The maximum speed varies from one actuator to another. Refer to the catalog or operation manual of your actuator.

[3] Acceleration [G]: Set the acceleration at start.

[4] Deceleration [G] Set the deceleration (G) at stop.

(Reference) Acceleration is explained. The same concept applies to deceleration, as well.
1 G = 9800 mm/s^2: Acceleration where the actuator can accelerate to 9800 mm/s in 1 second.
0.3 G: Acceleration where the actuator can accelerate to 9800 mm/s x 0.3 = 2940 mm/s in 1 second



⚠ Caution:

Setting the acceleration/deceleration

(1) Make sure the acceleration/deceleration you have set does not exceed the rated acceleration/deceleration specified in the catalog or operation manual. If the set acceleration/deceleration exceeds the rated acceleration/deceleration, the life of the actuator may become significantly shorter.

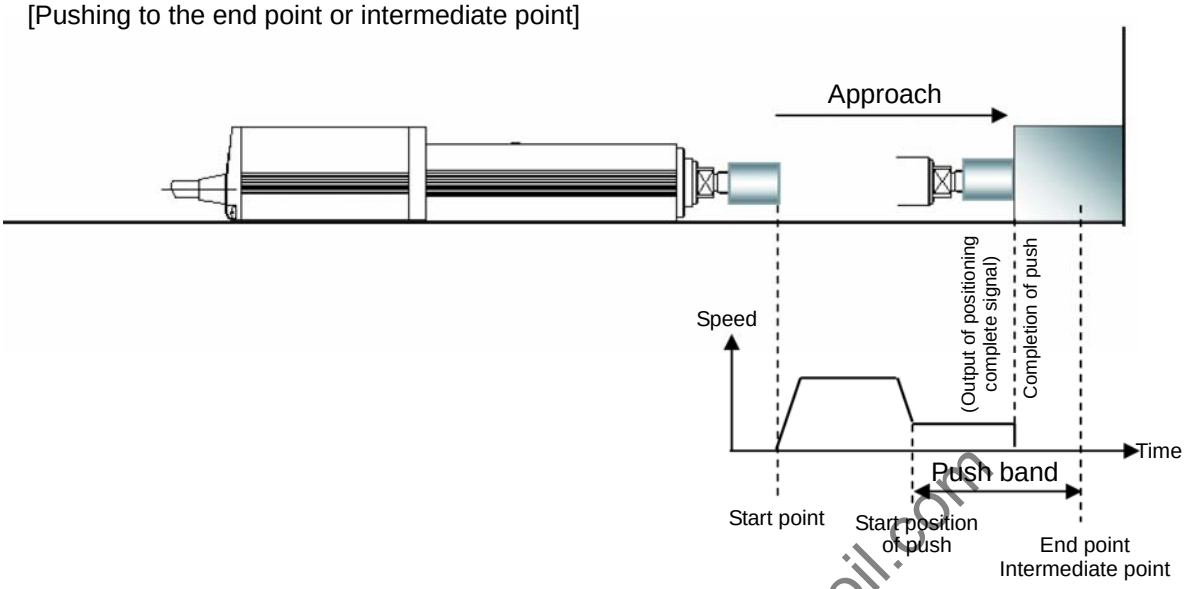
(2) If the actuator or work part receives shock or generates vibration, lower the acceleration/deceleration. If the actuator is used continuously in such condition subject to shock/vibration, the life of the actuator will become significantly shorter.

(3) If the transferring mass is significantly smaller than the rated loading capacity of the actuator, an acceleration/deceleration greater than the rating may be set. Increasing the acceleration/deceleration is a way to reduce the tact time, so contact IAI for details. When you do so, let us know the weight, shape and installation method of the work part as well as the installation condition (horizontal or vertical) of the actuator.

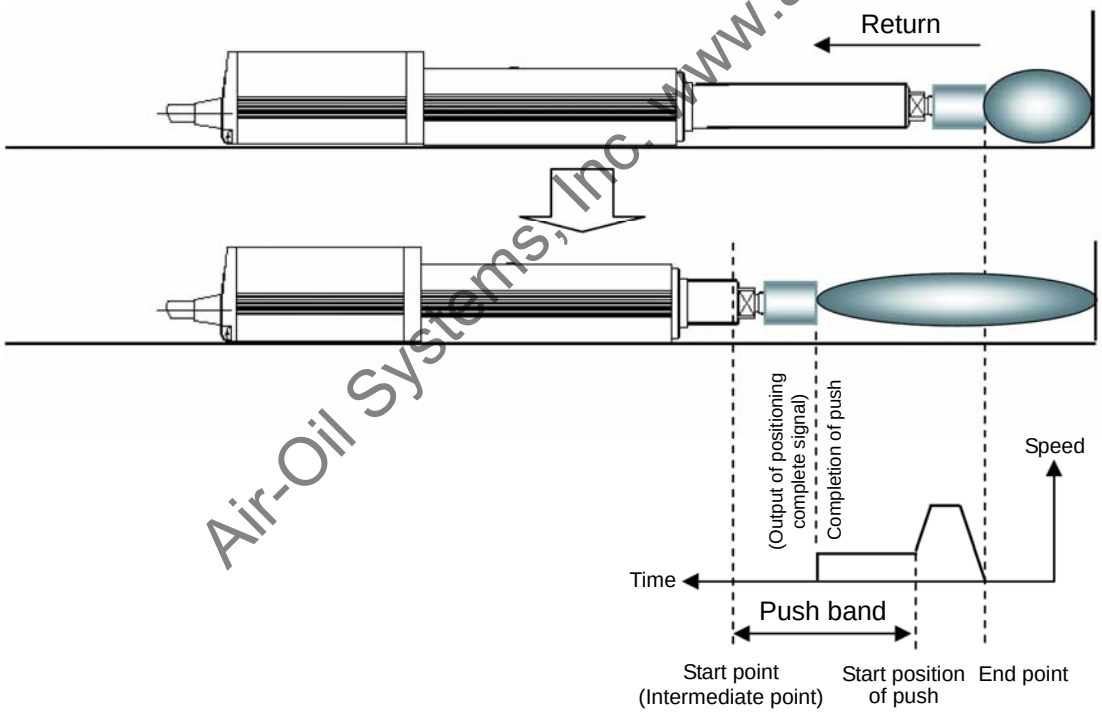
[5] Push force [%]: Set the push torque (current-limiting value) of the push-motion operation in %. If the current-limiting value (%) is increased, the push force increases. When it is set to 0, it becomes the positioning operation.
For the relationship between push force and current limiting value (%), refer to the catalog or MEC controller operation manual.

[6] Push band [mm]: Set the distance the actuator will travel during push-motion operation.
When push-motion operation is performed, the actuator moves at the speed and rated torque set as part of the positioning information, just like in normal positioning operation, until the remaining travel enters the range set here. Once the remaining travels is in this range, the actuator moves by pushing the work part until the position set in [1].
The speed at which the actuator moves during push-motion operation is set as the push speed in parameter No. 7. (For the speeds of the push-motion operation, refer to the specifications of the connectable actuators provided in the appendix of the MEC controller operation manual.) Do not specify any setting that exceeds this speed. If the setting in [2] is at or below the push speed, the push-motion operation is performed at the set speed. Actuator operations are illustrated in the figure below when a push-motion operation is performed toward the end point, start point and intermediate point.

[Pushing to the end point or intermediate point]



[Pushing (= pulling) to the start point or intermediate point]

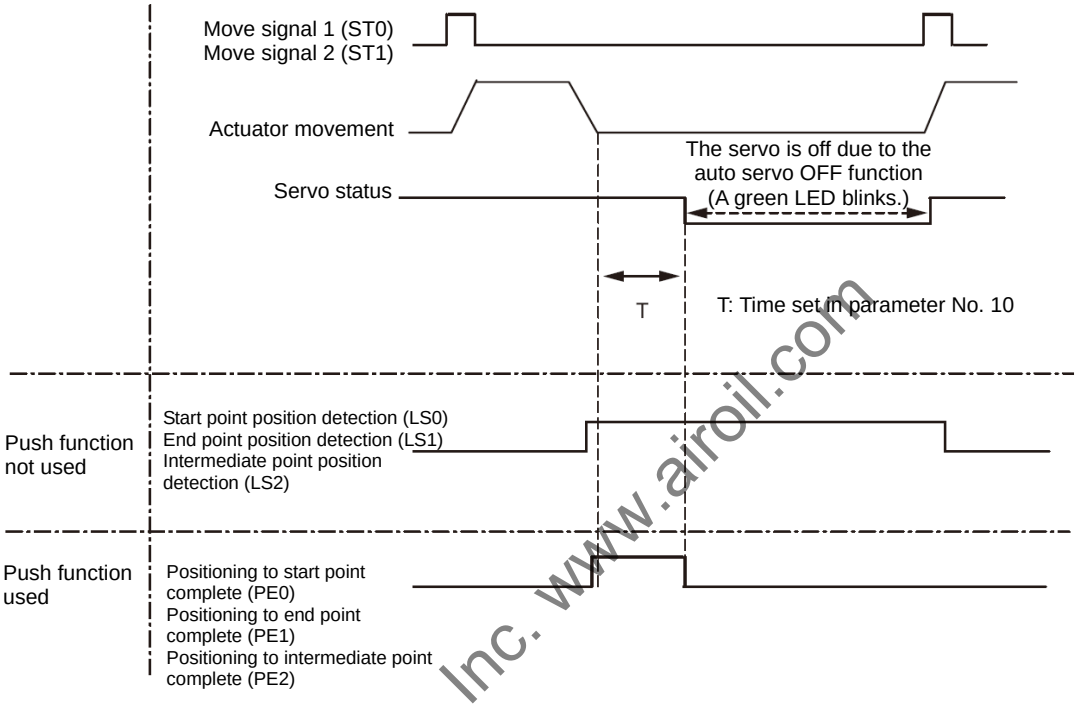


[7] Energy saving function: When the energy saving function is enabled, the motor power (servo) will turn off automatically after a specified time to save the power consumed after completion of positioning.
Set this time beforehand using a parameter.

Parameter No.	Parameter name	Default	Setting range
10	Auto servo OFF delay time [SEC]	1	0 to 9999

[Auto motor power (servo) OFF*1]

When a specified time elapses after positioning has completed, the motor power (servo) turns off automatically. Once the next positioning command is issued, the motor (servo) will turn on automatically and the actuator will perform positioning operation. This way, power consumption can be reduced because no holding current is supplied while the actuator is at standstill.



[Position detection output signal status when the push function is not used]

Even if the motor power (servo) turns off, the start point position detection signal (LS0), end point position detection signal (LS1) or intermediate point position detection signal (LS2) will turn ON according to the applicable position, just like when the sensors are used, as long as the actuator position is within the positioning band (parameter No. 1). Accordingly, the position detection signal, once it has turned ON, will remain ON if the actuator does not move after the completion of positioning.

[Positioning complete signal status when the push motion is used]

In push-motion operation, the motor power (servo) does not turn off automatically while the actuator is pushing the work part. If the actuator has missed the work part, the motor power (servo) turns off automatically. Once the motor power (servo) turns off, the positioning complete status is lost. Accordingly, all of the push complete signal 0 (PE0), push complete signal 1 (PE1) and push complete signal 2 (PE2) will turn OFF.

⚠ Caution:

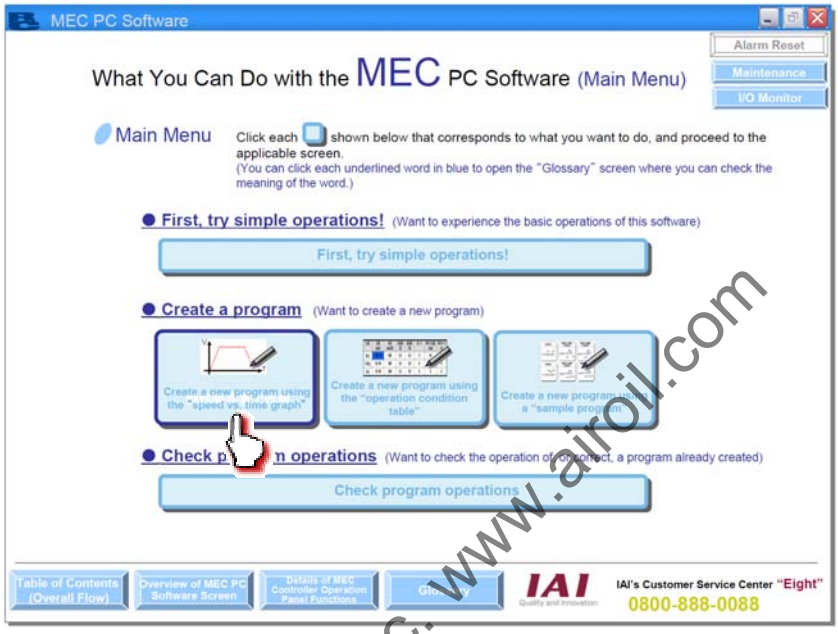
There is no holding torque while the servo is off due to the auto servo OFF function. Because the actuator will move if an external force is applied in this condition, pay due attention to contact and safety when setting this function.

*1 In the operation check performed in the MEC PC software, the auto motor power (servo) OFF function is not implemented. This function is enabled only during PIO operation.

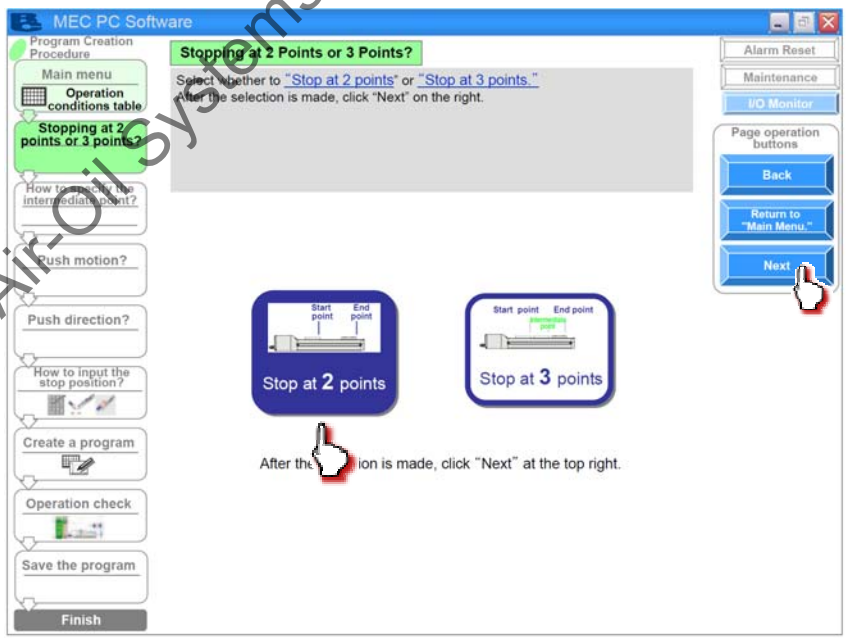
4.3 Creating a Speed vs. Time Graph to Move the Actuator

In this method, you create a speed vs. time graph to move the actuator.

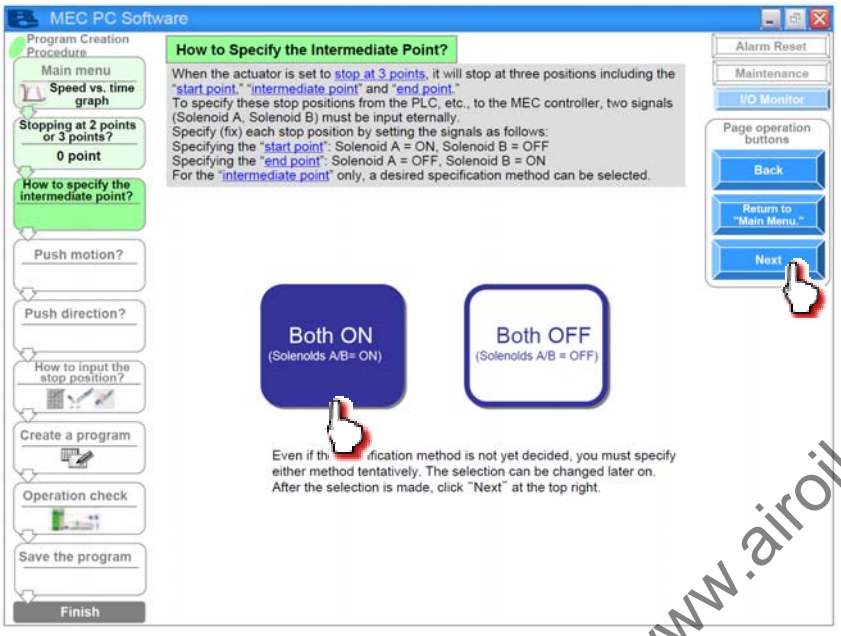
Click [Cerate a new program using the "speed vs. time graph"] from the main menu. Set the necessary items according to the onscreen instructions.



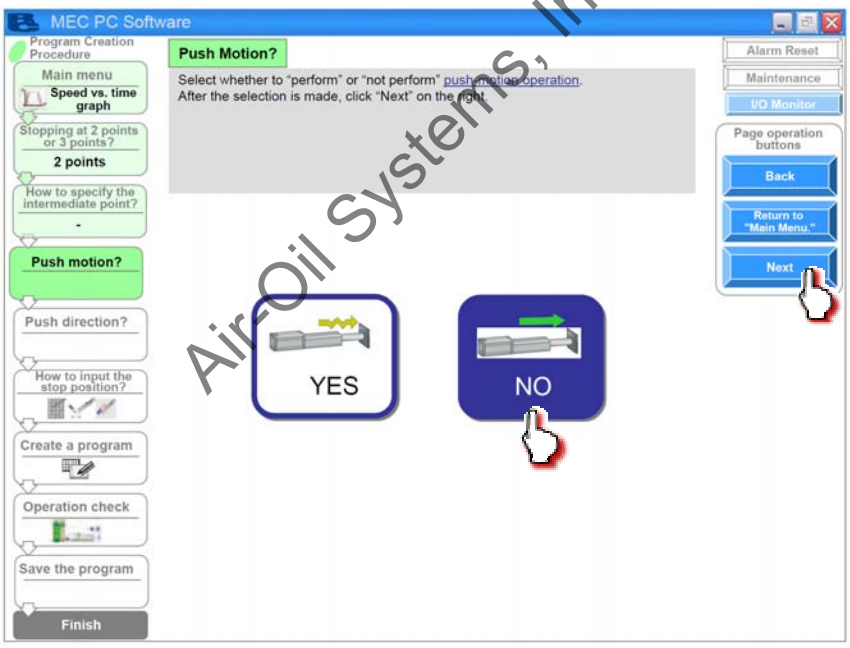
[1] Select the number of stopping positions by clicking [Stop at 2 points] of [Stop at 3 points]. Once you have made the selection, click [Next].



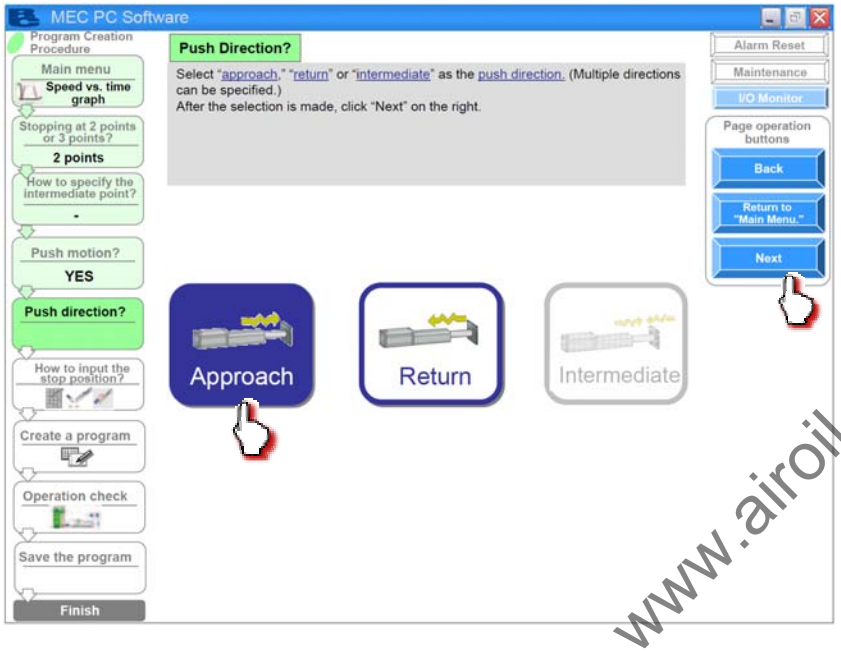
[2] If you have selected “Stop at 3 points,” select whether to turn both of solenoids A and B (ST0 and ST1 signals) OFF or turn both solenoids ON for the positioning to the intermediate point.
Once you have made the selection, click [Next].



[3] Select whether to “YES” or “NO” for push motion.
Once you have made the selection, click [Next].

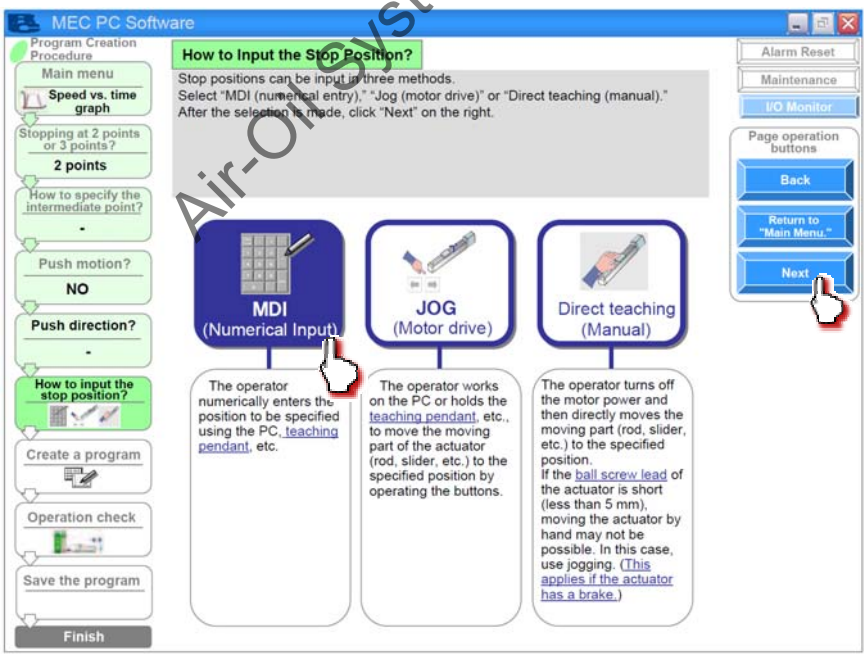


[4] If you have selected “PUSH” to perform push-motion operation, select “Approach” or “Return” as the push direction.
If the actuator is stopping at 3 points, you can also select “Intermediate point.”
Once you have made the selection, click [Next].

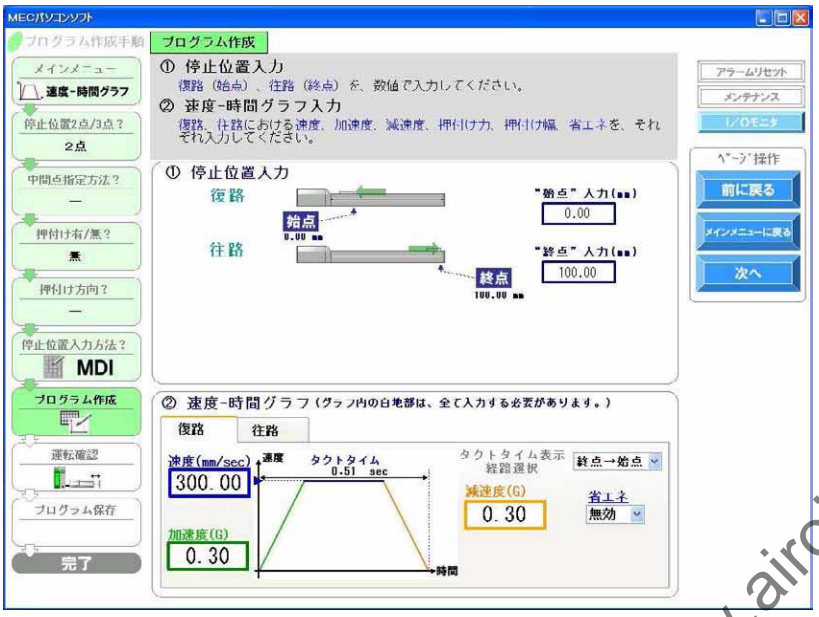


[5] Select the stopping position input method from among “MDI (Numerical input),” “JOG (Motor drive)” and “Direct teaching (Manual).”

[Stopping position input by MDI (Numerical input)]
Select “MDI (Numerical input).”
Once you have made the selection, click [Next].



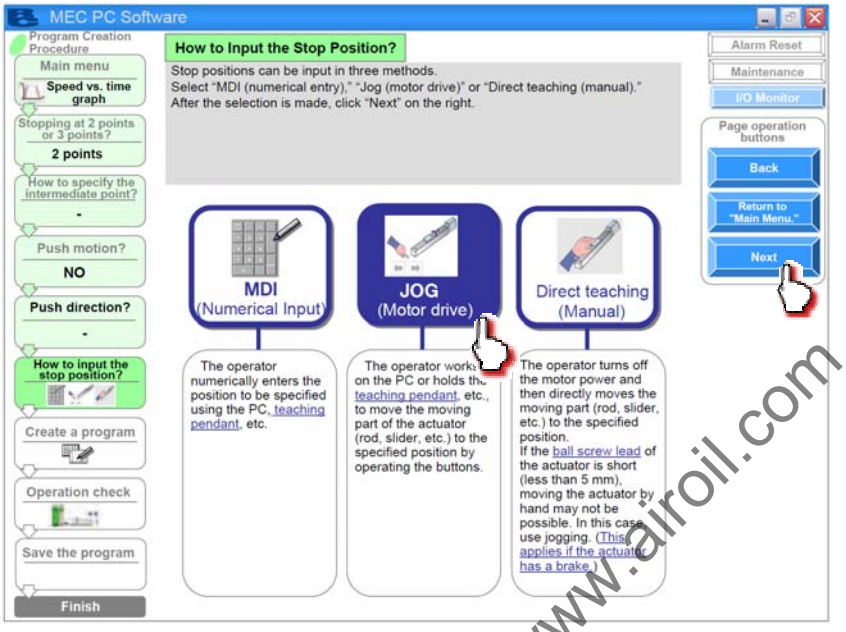
Set values for the stopping positions applicable to the “speed vs. time graph.”



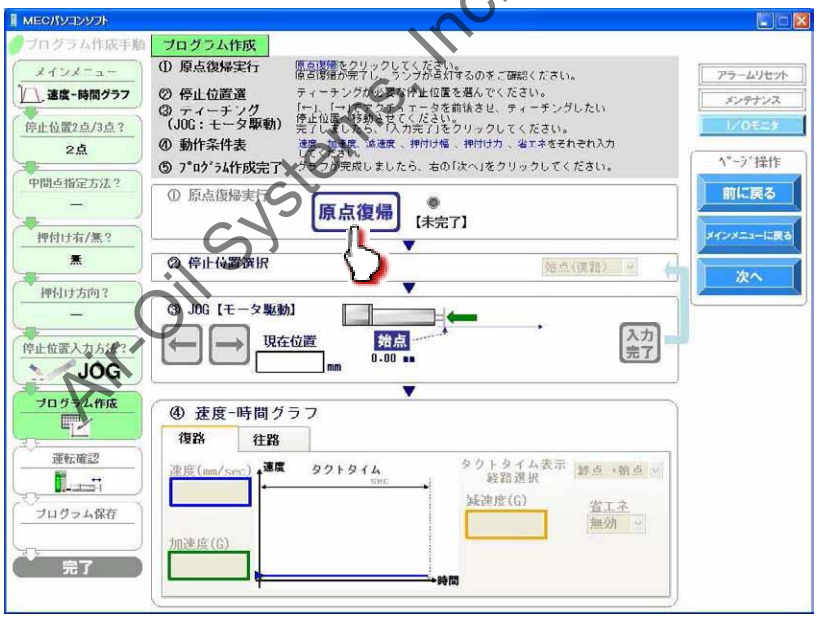
[Stopping position input by jogging]

Select “JOG (Motor drive).”

Once you have made the selection, click [Next].

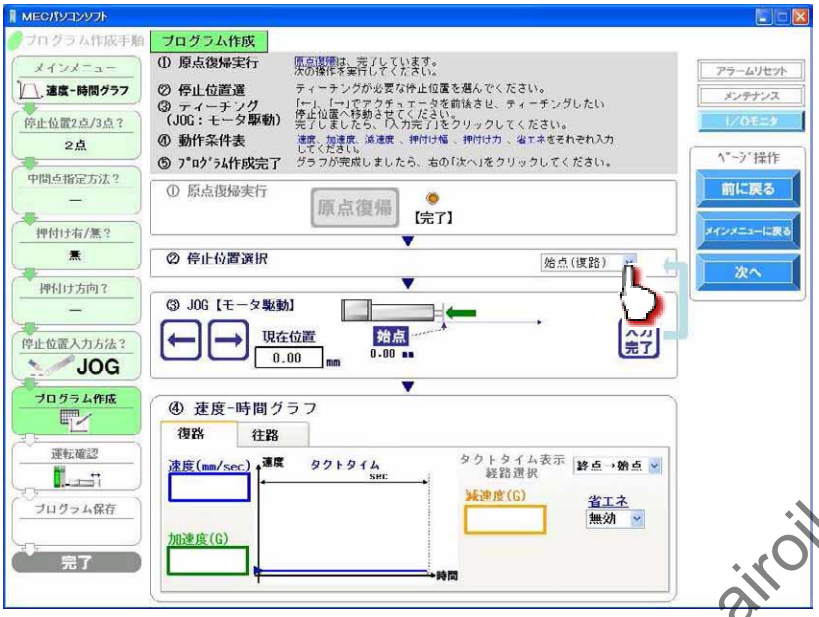


Click [Home Return] to perform home return.

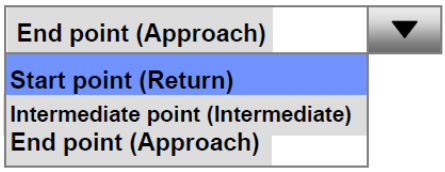


When the home return is complete, the lamp next to the button comes on and the text below it changes to [Complete].

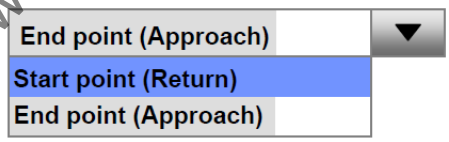
Select the stopping position you must teach the actuator.



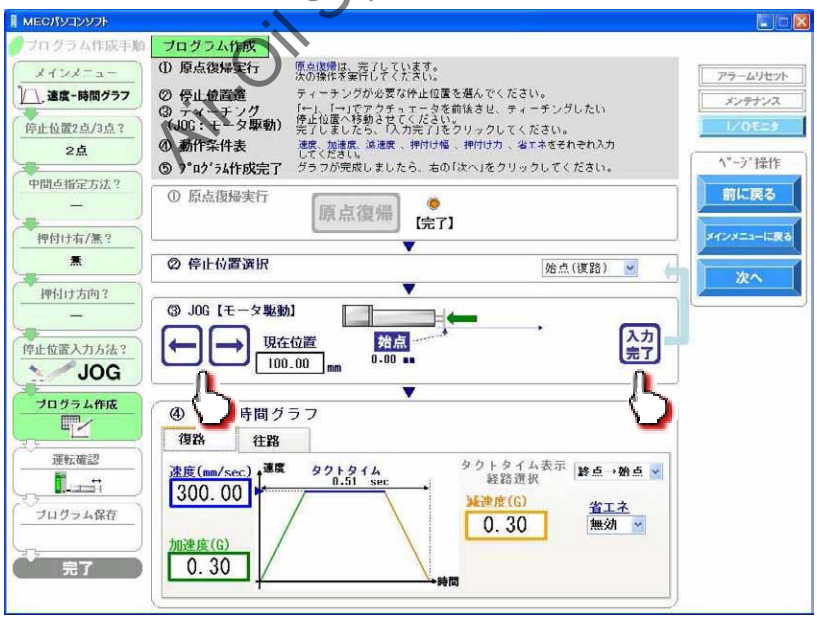
When stopping at 3 points



When stopping at 2 points



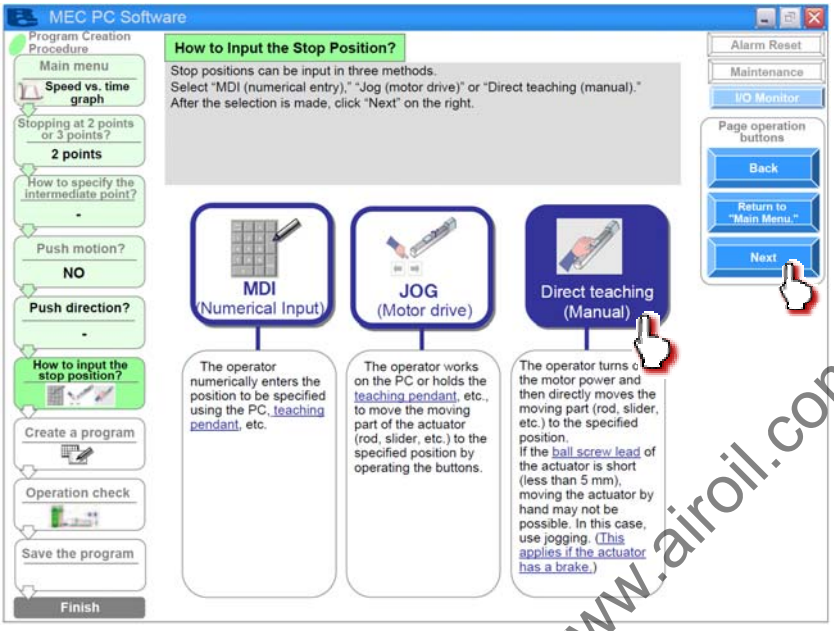
Click [←]/[→] to move the actuator to the stopping position.
Click [Input Complete]. The current position is saved as the stopping position you have selected.



[Stopping position input by direct teaching (manual)]

Select “Direct teaching (Manual).”

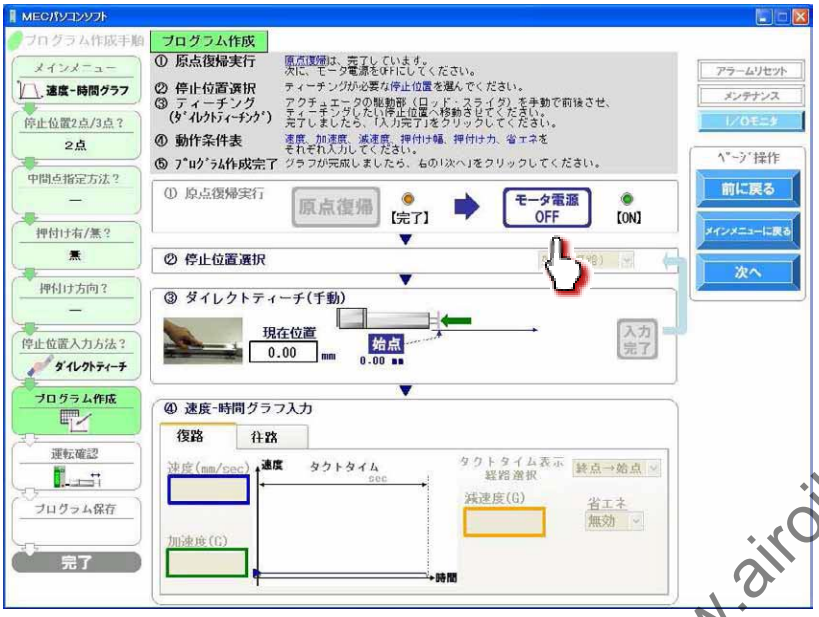
Once you have made the selection, click [Next].



Click [Home Return] to perform home return.

When the home return is complete, the lamp next to the button comes on and the text below it changes to [Complete].

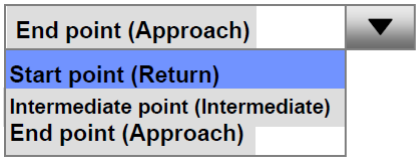
Click [Motor Power OFF] to turn off the motor power.
The motor power (servo) turns off.



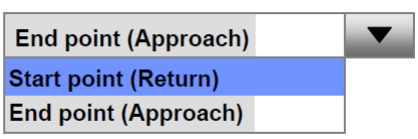
> ⚠ Caution:
> If you are releasing the brake of a vertically installed actuator, be careful not to let your hand pinched or the work part damaged by the actuator falling due to its own weight.

Select the stopping position you must teach the actuator.

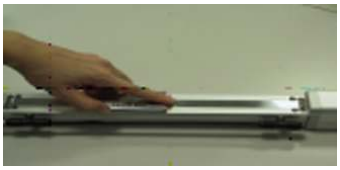
When stopping at 3 points



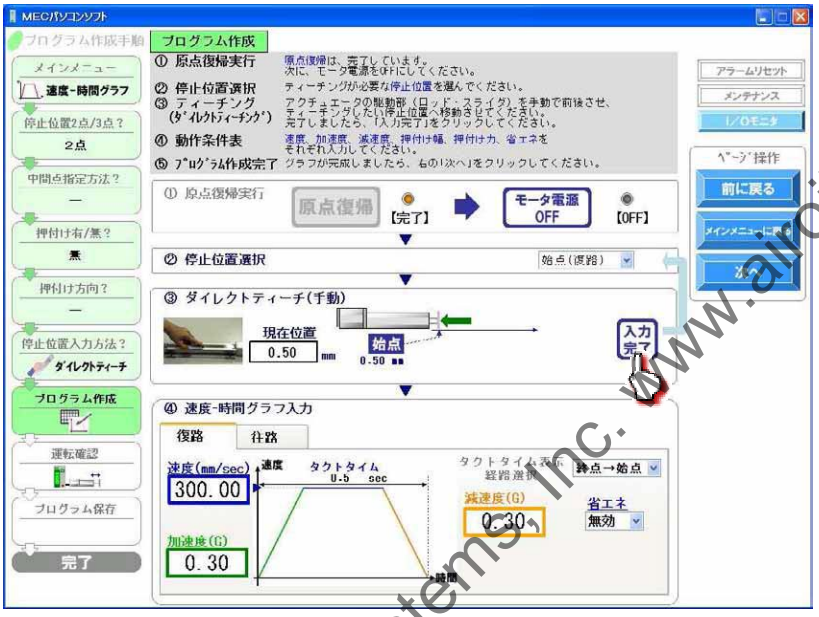
When stopping at 2 points



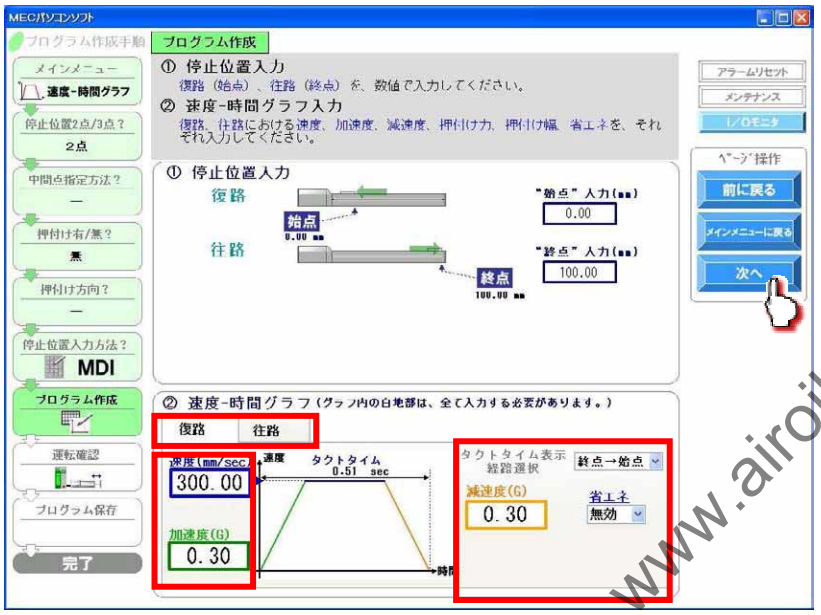
Manually move the actuator to the stopping position.



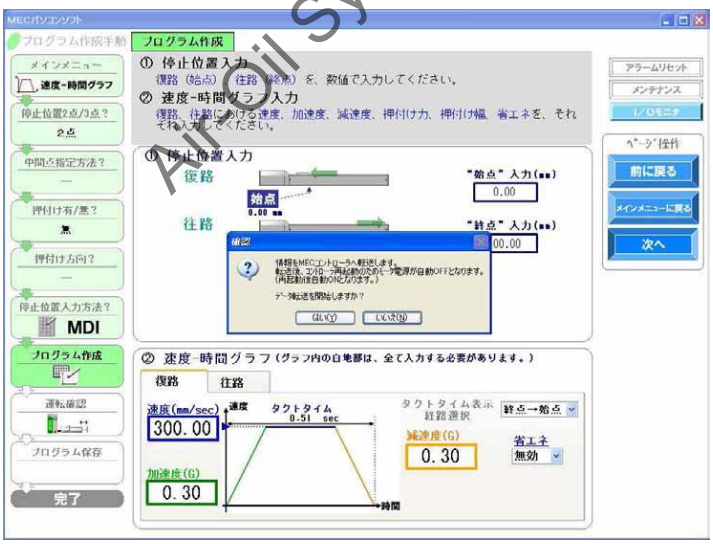
The position is shown in the current position field.
Click [Input Complete]. The current position is saved as the stopping position you have selected.



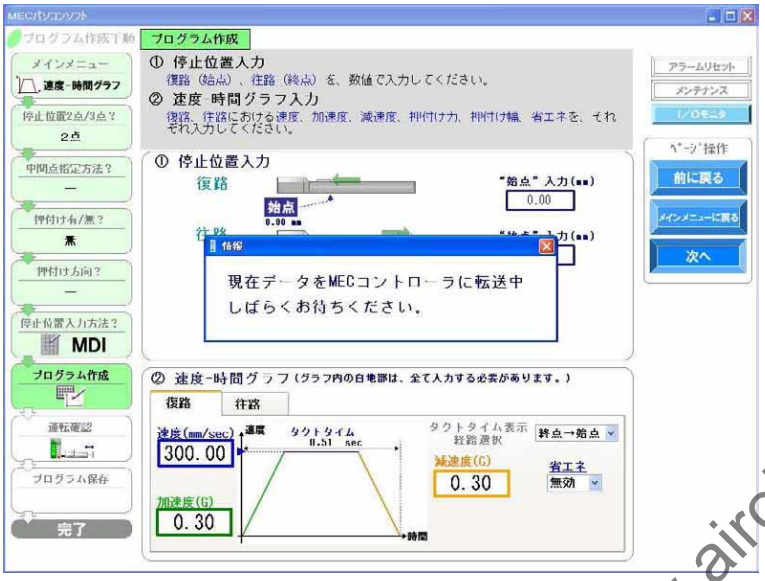
[6] Select either the approach or return. If the actuator is stopping at 3 points, you can also select an intermediate point. Set values for the speed, acceleration, deceleration, push band and push force applicable to the speed vs. time graph. Select whether to enable or disable energy saving.
Use the displayed tact time as a reference.
(The screen is based on MDI (Numerical input).)



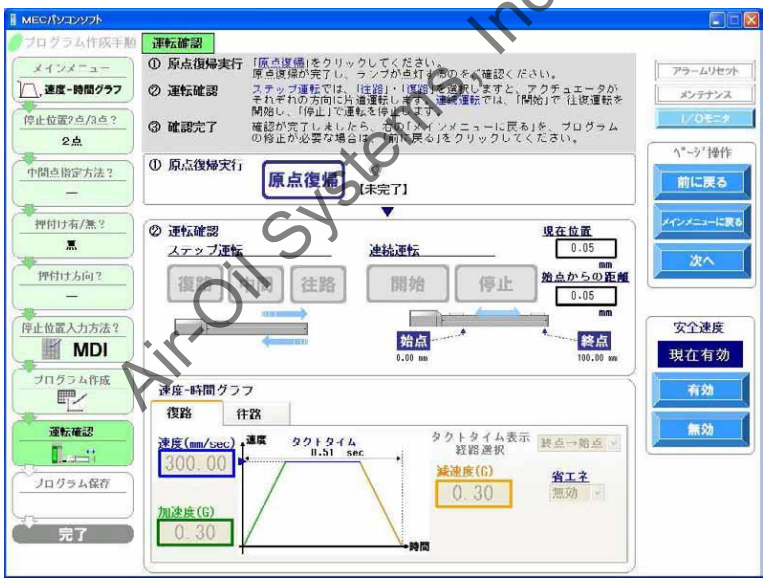
When all necessary values have been input, be sure to click [Next].
When [Next] is clicked, the confirmation message appears with the message “Do you want to start transferring data?”
Click [Yes]. Clicking [Yes] transfers the values in the operation condition table to the controller.
(Note) The values in the operation condition table will not be transferred to the controller if [No] is clicked.



The following message appears while the data is being transferred.
When the transfer is complete, the display changes to the next screen for operation check.



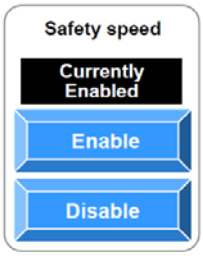
[7] Now you are ready to operate the actuator, so let's perform operation check.
If home return is not completed yet, click [Home Return] to perform home return.
If operation check is not performed, click [Next] to proceed to saving the program.



When the home return is complete, the lamp next to the button comes on and the text below it changes to [Complete].

[8] Perform operation.
Two types of operations are available, step operation and continuous operation.
When the operation check is complete, click [Next].

[Safety Speed Setting]



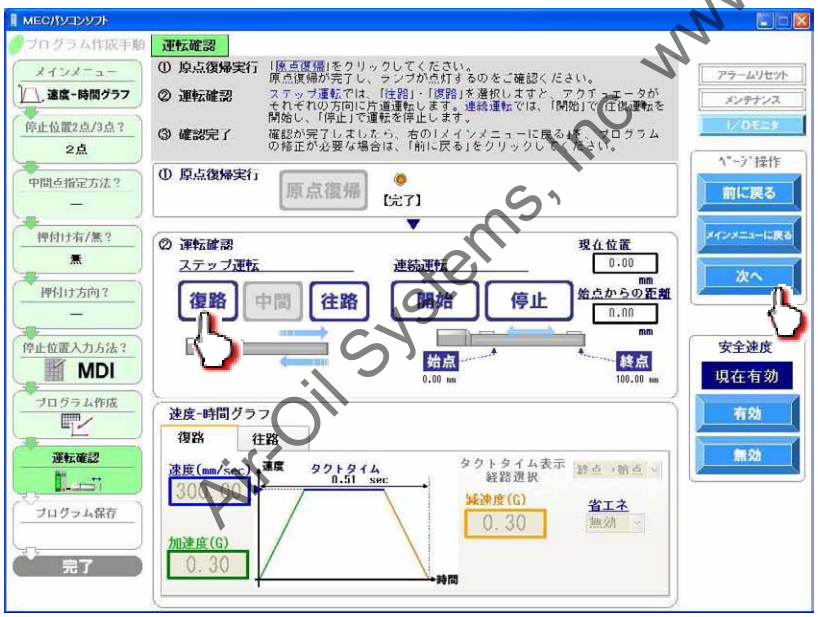
Enable: Click [Enable] if you want to operate the actuator at the safety speed*1.

Disable: Click [Disable] if you want to operate the actuator at a speed above the safety speed*1.

*1 Safety speed: The maximum speed is set to 100 mm/s.

[Step operation]

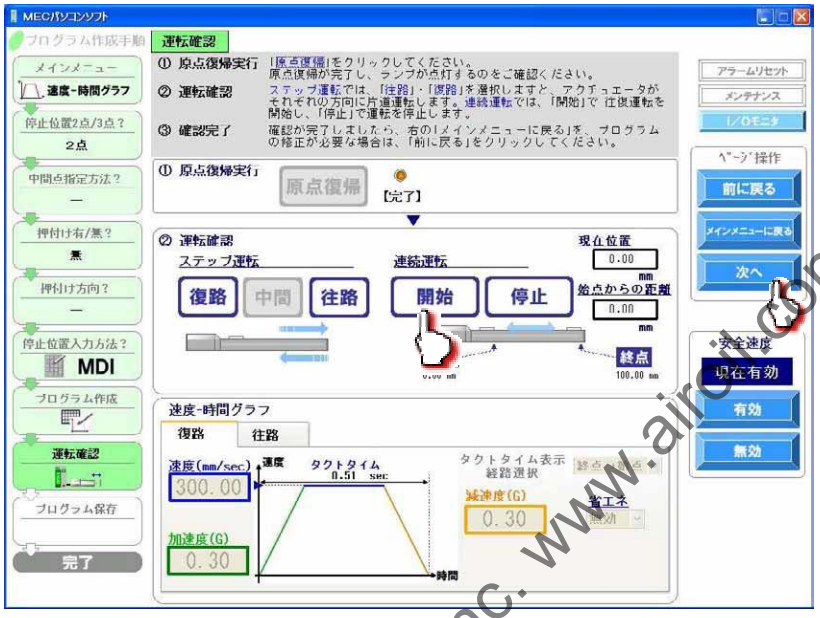
Approach (end point): Click [Approach] to move the actuator toward the end point.
Return (start point): Click [Return] to move the actuator toward the start point.
Intermediate point: Click [Intermediate] to move the actuator toward the intermediate point in a program where the actuator stops at 3 points.



[Continuous operation]

Start: Click [Start] to move the actuator forward and backward continuously (between the end point and start point) in a program where the actuator stops at 2 points. Similarly, click [Start] to move the actuator forward and backward continuously (between the end point and start point via the intermediate point).

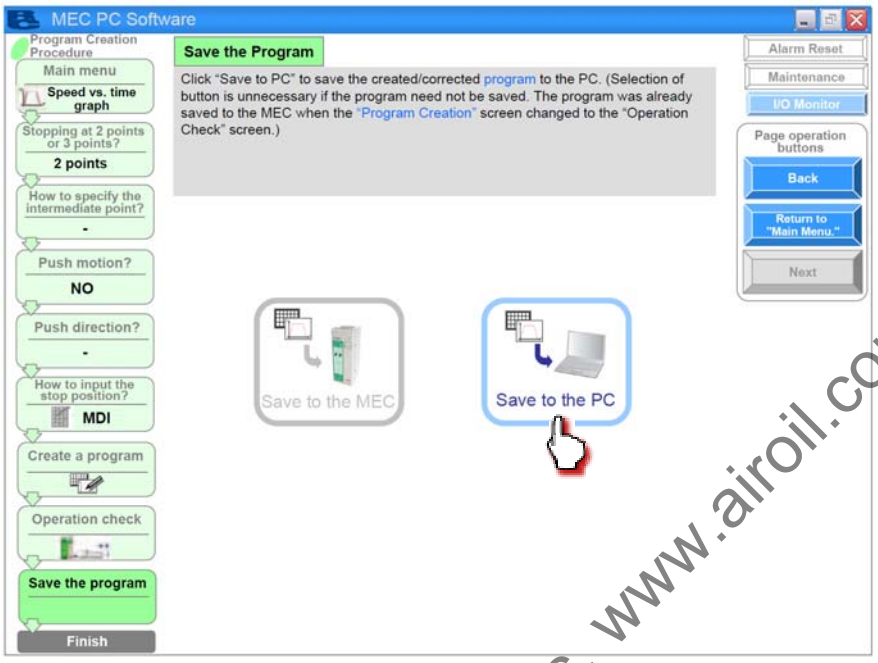
Stop: Click [Stop] to stop the continuous operation.



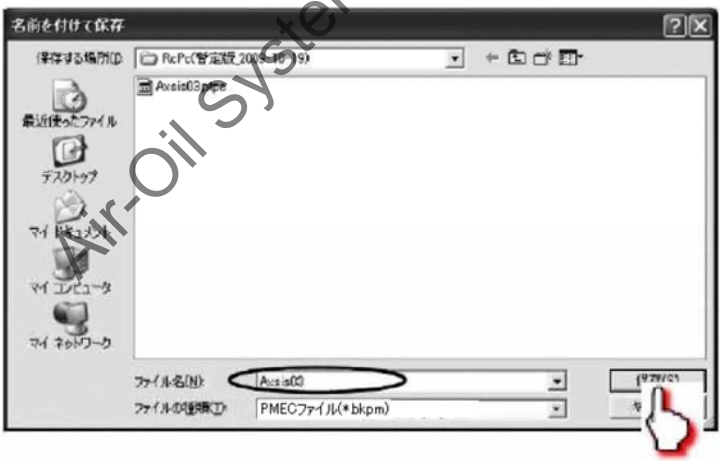
[9] Saving the program

[Saving to the PC]

To save the program (operation condition table) you have created to the PC, click “Save to the PC.”



The “Save As” screen appears.
Enter a desired file name and click [Save (S)], and the program (operation condition table) you have created will be saved to the PC.

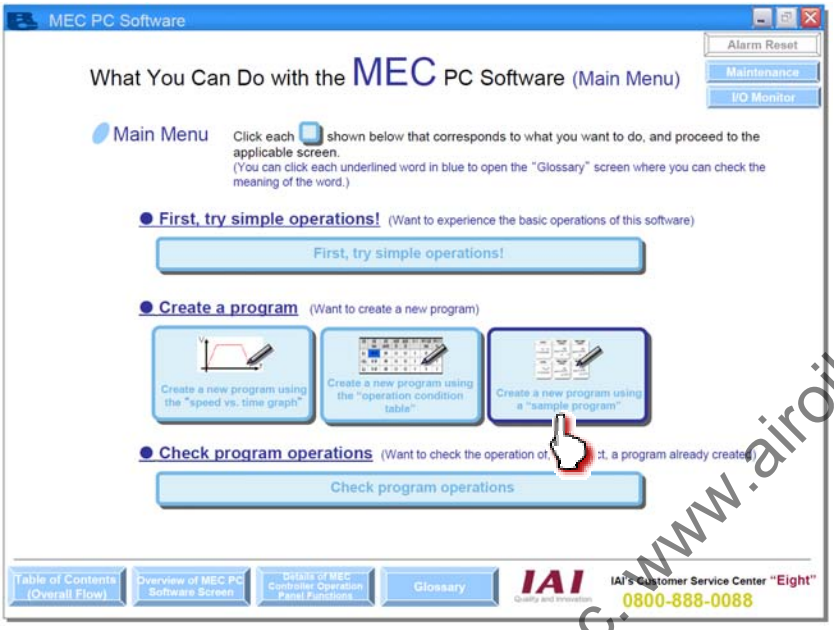


Once the program has been saved, click [Return to the "Main Menu."]. The screen returns to the main menu.

4.4 Moving the Actuator Using a Sample Program

In this method, you move the actuator using a sample program.

Click [Create a new program using a "sample program"] from the main menu.
Set the necessary conditions according to the onscreen instructions.



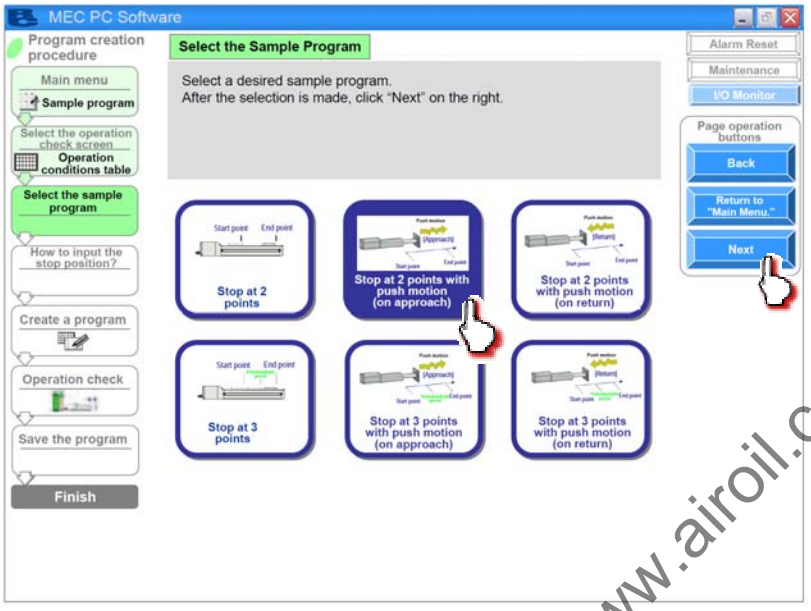
You can choose one of the following methods to create a program using a sample program:

- Create an operation condition table
- Create a speed vs. time graph

[Creating an operation condition table]

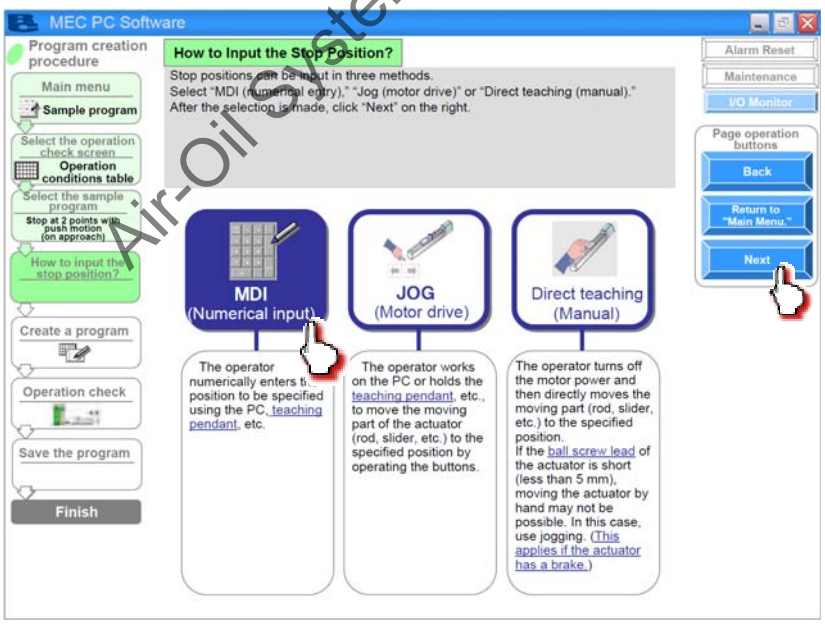
[1] Click [Create a program using the "operation condition table"]. Click [Next].

[2] Select and click one of six sample programs.
The screen shows an example where “Stop at 2 points with push motion (on approach)” is selected. Click [Next].

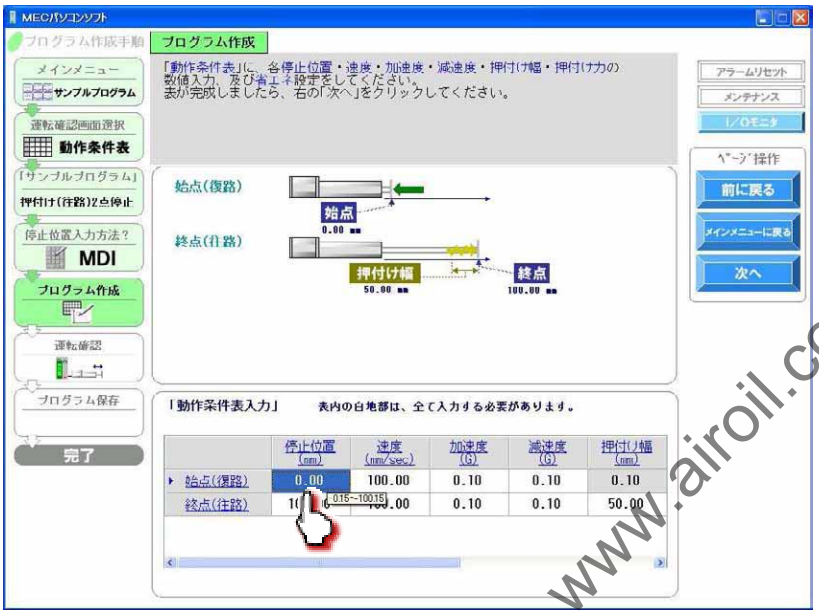


[3] Select the stopping position input method from among “MDI (Numerical input),” “JOG (Motor drive)” and “Direct teaching (Manual).”

[Stopping position input by MDI (Numerical input)]
Select “MDI (Numerical input).”
Once you have made the selection, click [Next].



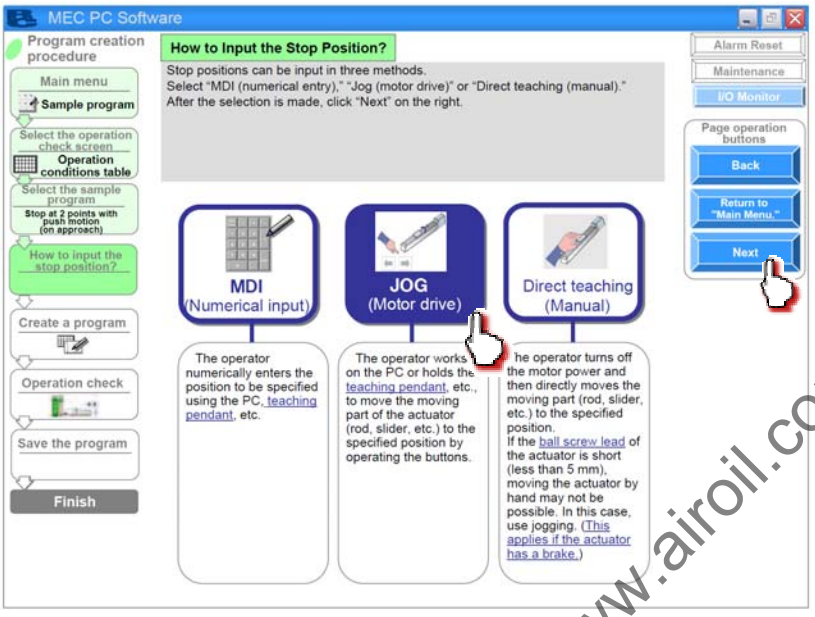
Set values in the stopping position fields of the operation condition table.
[Refer to 4.2, “Setting the Operation Conditions.”]
When setting a value of the stopping position corresponding to the end point, click the field of the operation condition table you want to set, as shown below. Enter a value from the keyboard and then press the ENTER key. The value will be input.



[Stopping position input by jogging]

Select “JOG (Motor drive).”

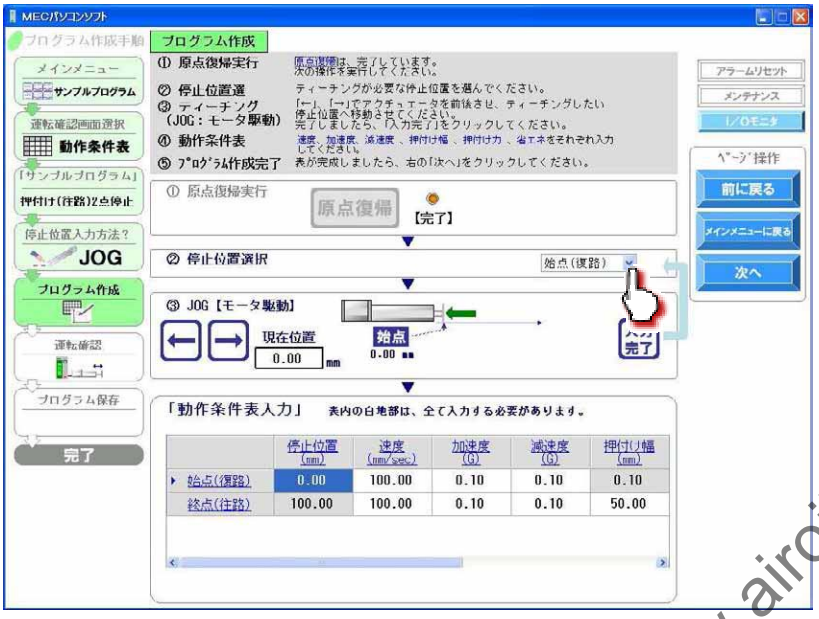
Once you have made the selection, click [Next].



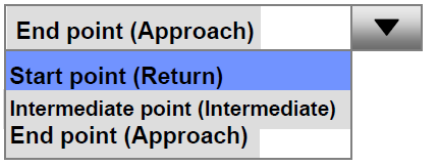
Click [Home Return] to perform home return.

When the home return is complete, the lamp next to the button comes on and the text below it changes to [Complete].

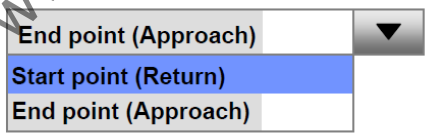
Select the stopping position you must teach the actuator.



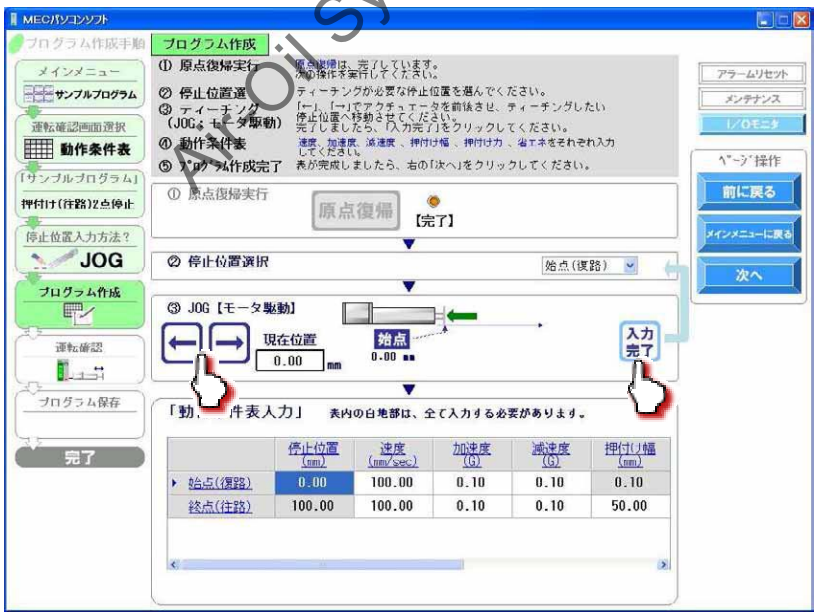
When stopping at 3 points



When stopping at 2 points



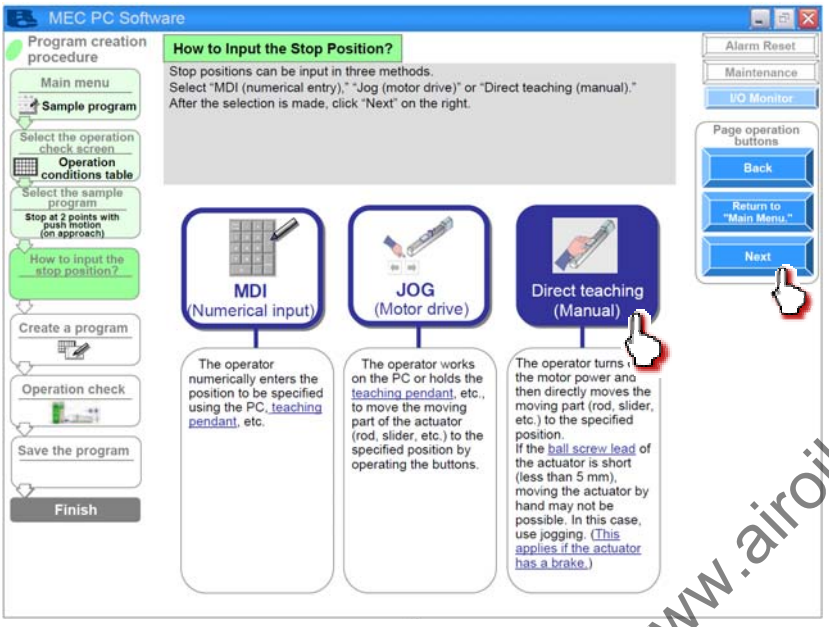
Click [←]/[→] to move the actuator to the stopping position.
Click [Input Complete]. The current position is saved as the stopping position you have selected.



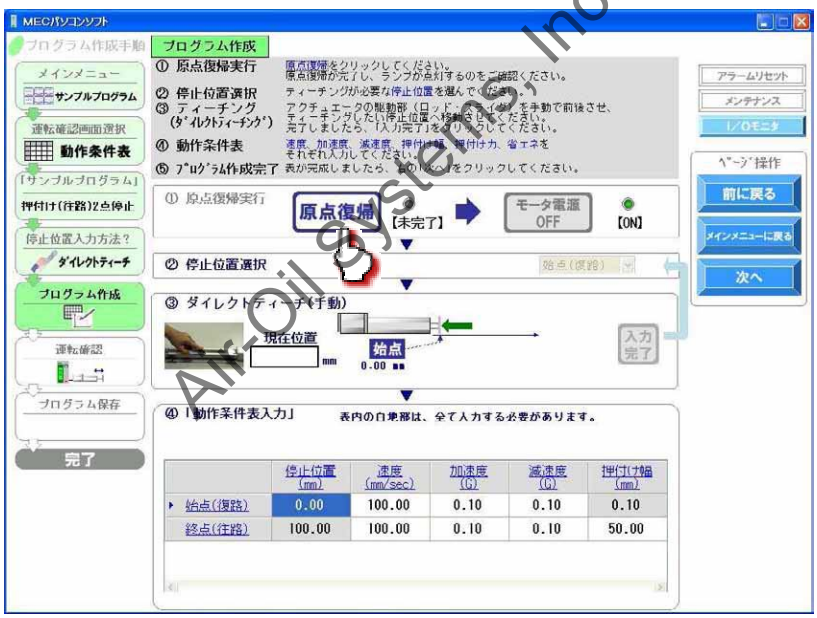
[Stopping position input by direct teaching (manual)]

Select “Direct teaching (Manual).”

Once you have made the selection, click [Next].

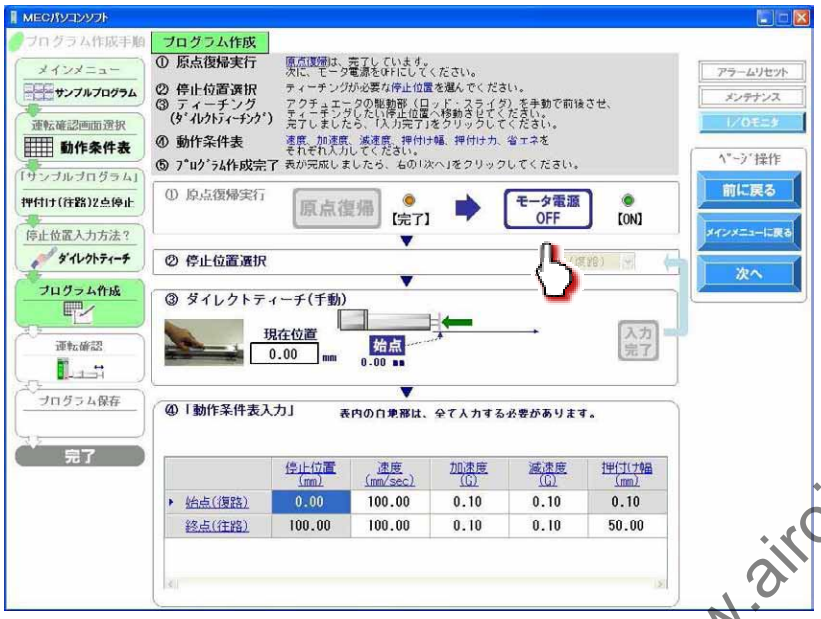


Click [Home Return] to perform home return.



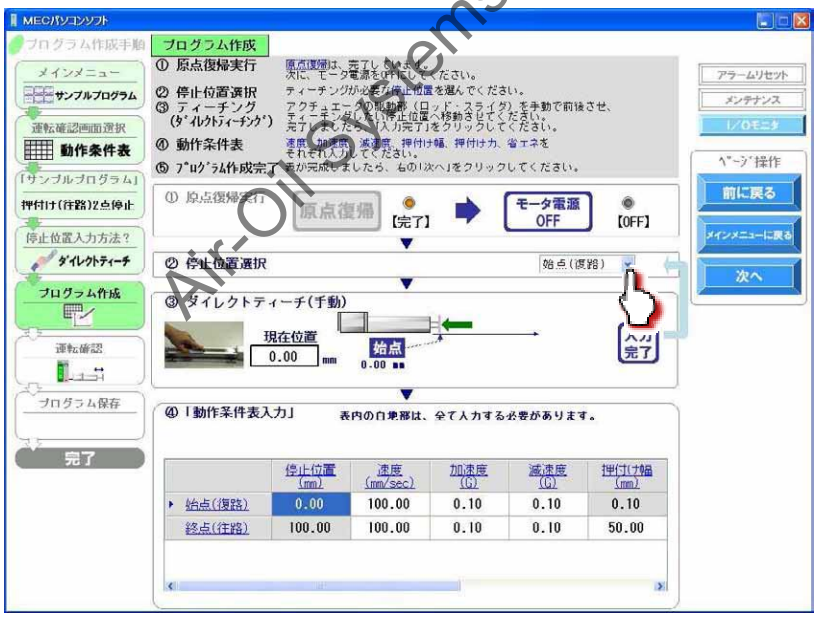
When the home return is complete, the lamp next to the button comes on and the text below it changes to [Complete].

Click [Motor Power OFF] to turn off the motor power.
The motor power (servo) turns off.

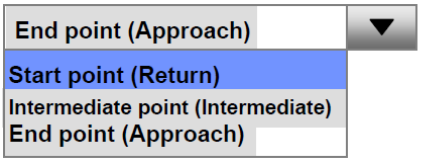


⚠ Caution:
If you are releasing the brake of a vertically installed actuator, be careful not to let your hand pinched or the work part damaged by the actuator falling due to its own weight.

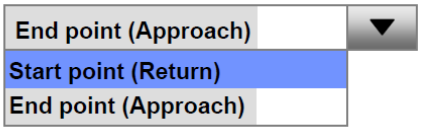
Select the stopping position you must teach the actuator.



When stopping at 3 points

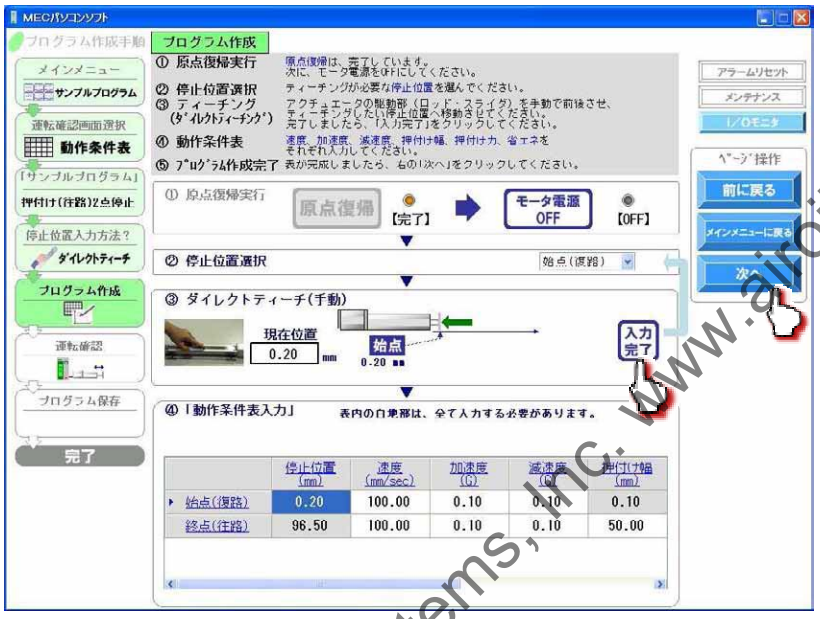


When stopping at 2 points



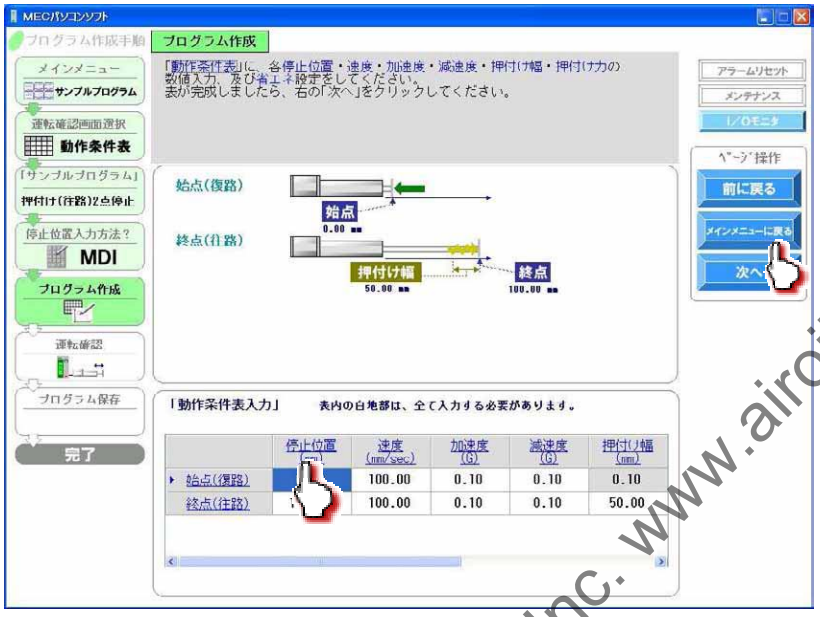
Manually move the actuator to the stopping position.

The position is shown in the current position field.
Click [Input Complete]. The current position is saved as the stopping position you have selected.



[4] Set the values of speed, acceleration, deceleration, push band, push force and energy saving setting, as necessary, in the applicable fields of the operation condition table.
[Refer to 4.2, “Setting the Operation Conditions.”]

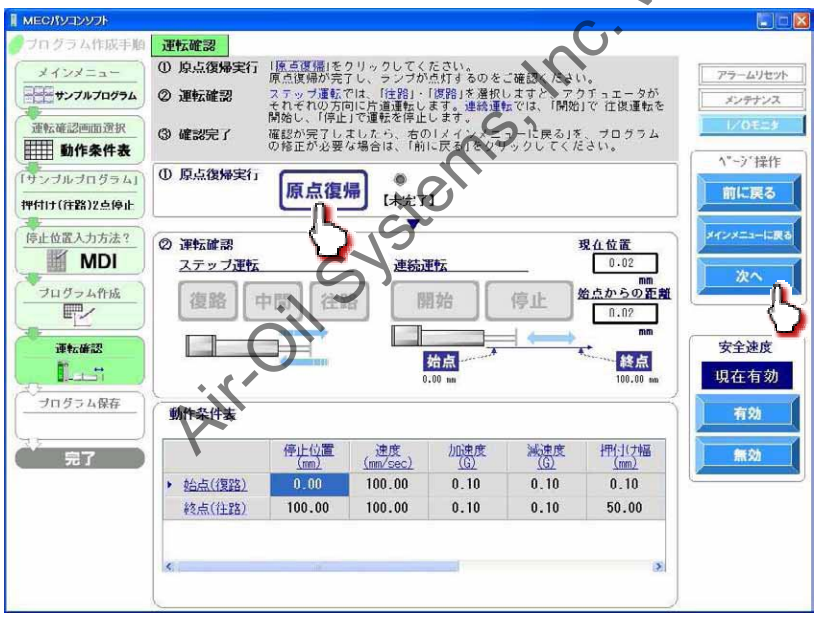
For example, assume you want to set the value of the stopping position corresponding to the start point. In this case, click the field of the operation condition table you want to set, as shown below. Enter a value from the keyboard and then press the ENTER key. The value will be input.



When all necessary values have been input, be sure to click [Next].
When [Next] is clicked, the confirmation message appears with the message “Do you want to start transferring data?”
Click [Yes]. Clicking [Yes] transfers the values in the operation condition table to the controller.
(Note) The values in the operation condition table will not be transferred to the controller if [No] is clicked.

The following message appears while the data is being transferred.
When the transfer is complete, the display changes to the next screen for operation check.

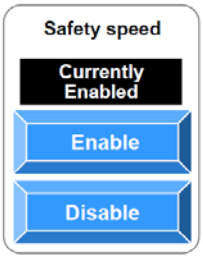
[5] Now you are ready to operate the actuator, so let's perform operation check.
If home return is not completed yet, click [Home Return] to perform home return.
If operation check is not performed, click [Next] to proceed to saving the program.



When the home return is complete, the lamp next to the button comes on and the text below it changes to [Complete].

[6] Perform operation.
Two types of operations are available, step operation and continuous operation.
When the operation check is complete, click [Next].

[Safety Speed Setting]



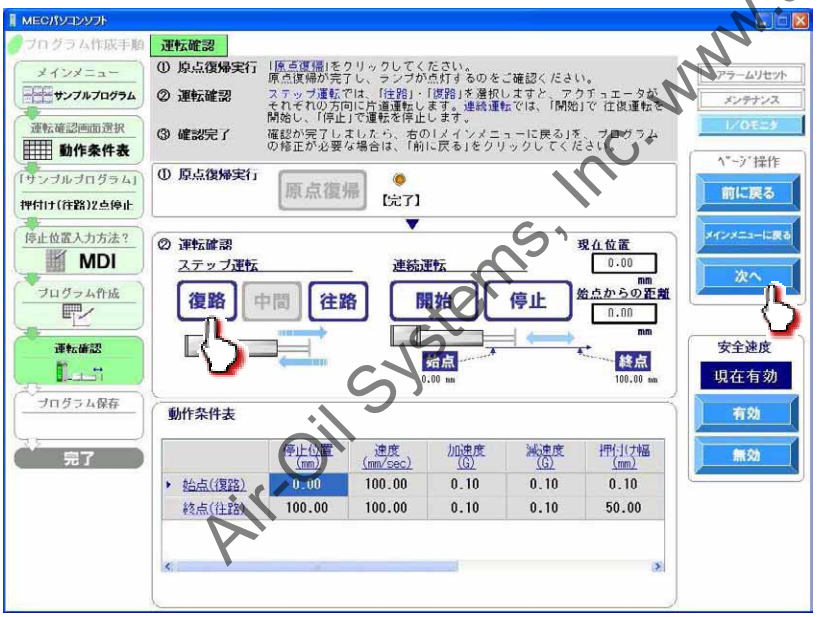
Enable: Click [Enable] if you want to operate the actuator at the safety speed*1.

Disable: Click [Disable] if you want to operate the actuator at a speed above the safety speed*1.

*1 Safety speed: The maximum speed is set to 100 mm/s.

[Step operation]

Approach (end point): Click [Approach] to move the actuator toward the end point.
Return (start point): Click [Return] to move the actuator toward the start point.
Intermediate point: Click [Intermediate] to move the actuator toward the intermediate point in a program where the actuator stops at 3 points.



[Continuous operation]

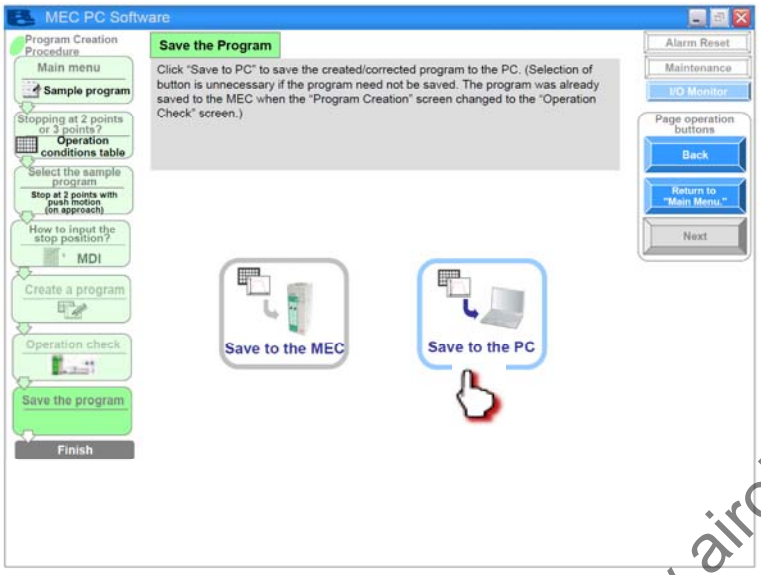
Start: Click [Start] to move the actuator forward and backward continuously (between the end point and start point) in a program where the actuator stops at 2 points. Similarly, click [Start] to move the actuator forward and backward continuously (between the end point and start point via the intermediate point) in a program where the actuator stops at 3 points.

Stop: Click [Stop] to stop the continuous operation.

[7] Saving the program

[Saving to the PC]

To save the program (operation condition table) you have created to the PC, click “Save to the PC.”



The “Save As” screen appears.

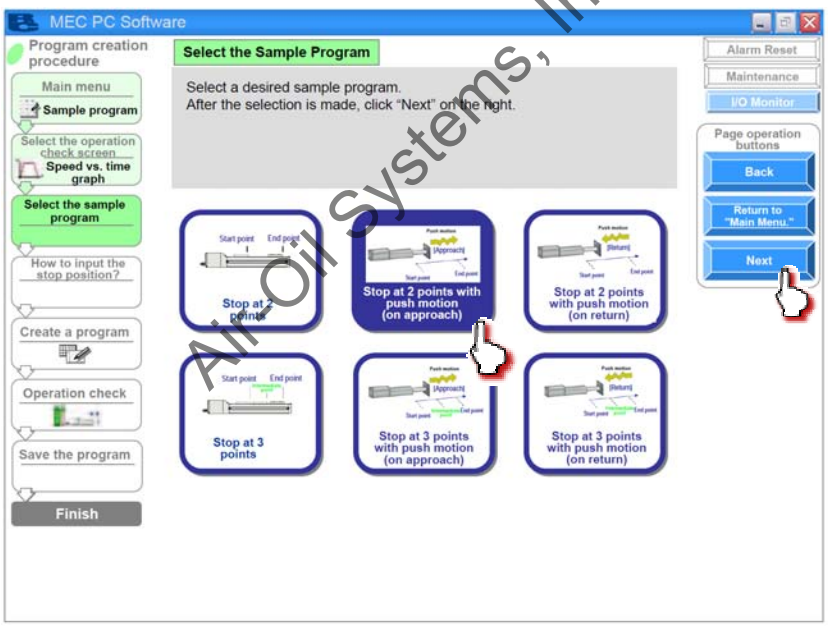
Enter a desired file name and click [Save (S)], and the program (operation condition table) you have created will be saved to the PC.

Once the program has been saved, click [Return to the "Main Menu."]. The screen returns to the main menu.

[Creating a speed vs. time graph]

[1] Click [Create a program using the "speed vs. time graph"]. Click [Next].

[2] Select and click one of six sample programs.
The screen shows an example where “Stop at 2 points with push motion (on approach)” is selected. Click [Next].

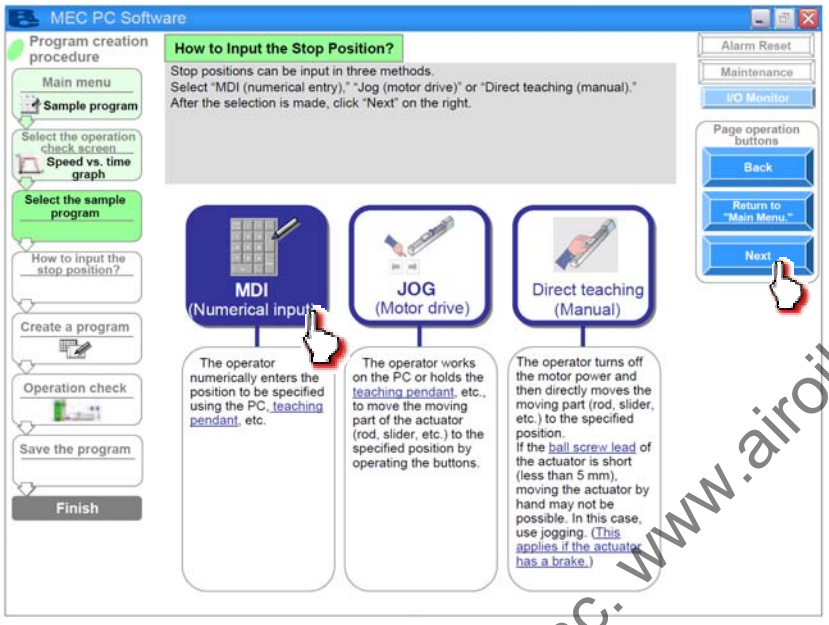


[3] Select the stopping position input method from among “MDI (Numerical input),” “JOG (Motor drive)” and “Direct teaching (Manual).”

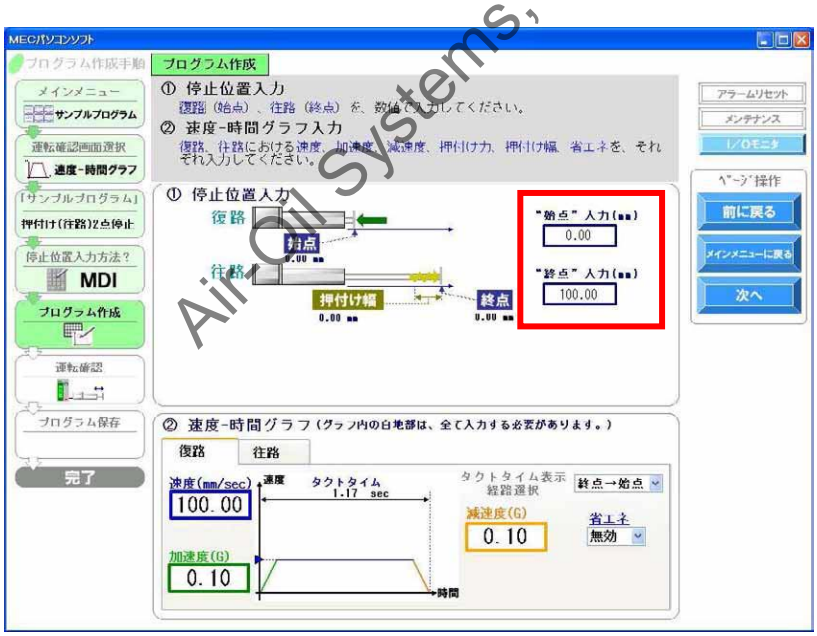
[Stopping position input by MDI (Numerical input)]

Select “MDI (Numerical input).”

Once you have made the selection, click [Next].



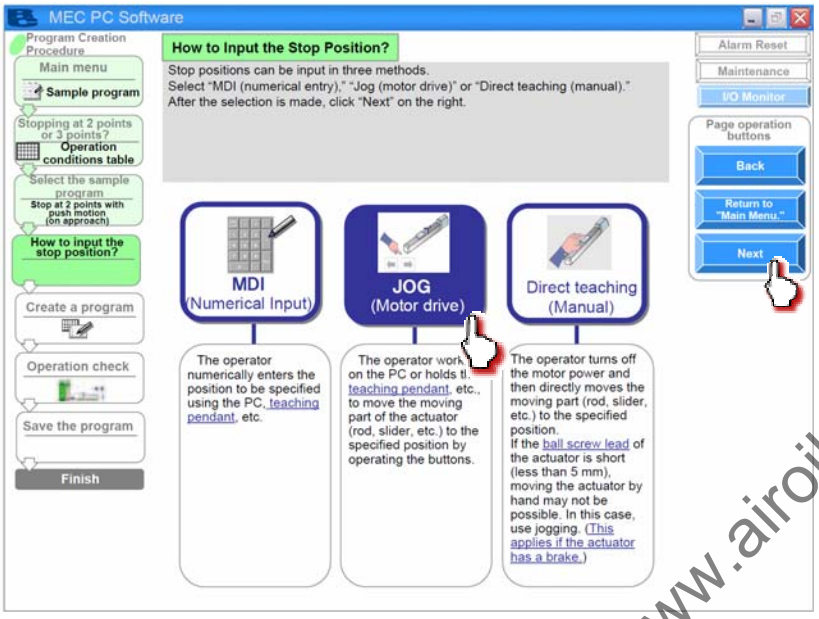
Set values in the stopping position fields of the "speed vs. time graph."



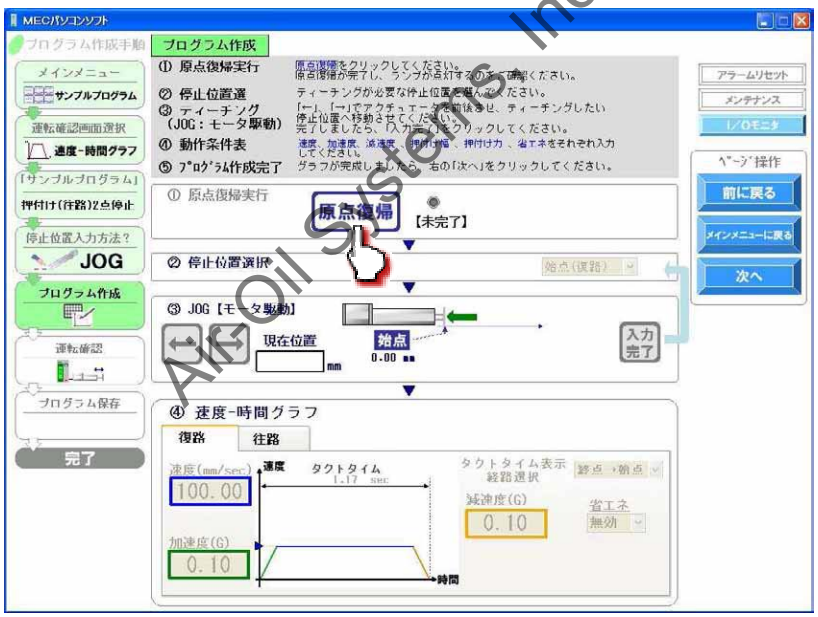
[Stopping position input by jogging]

Select “JOG (Motor drive).”

Once you have made the selection, click [Next].

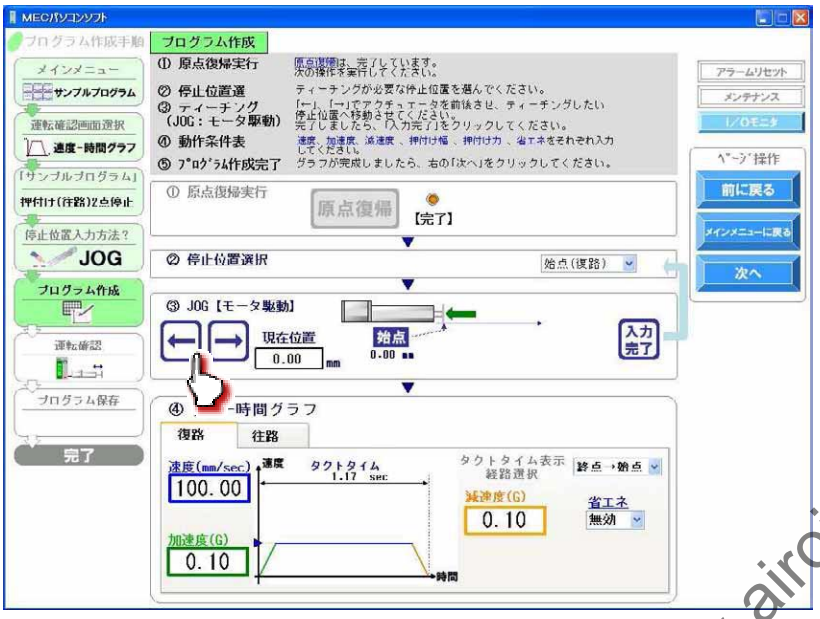


Click [Home Return] to perform home return.

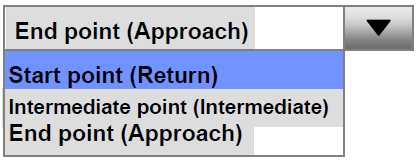


When the home return is complete, the lamp next to the button comes on and the text below it changes to [Complete].

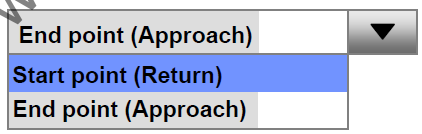
Select the stopping position you must teach the actuator.



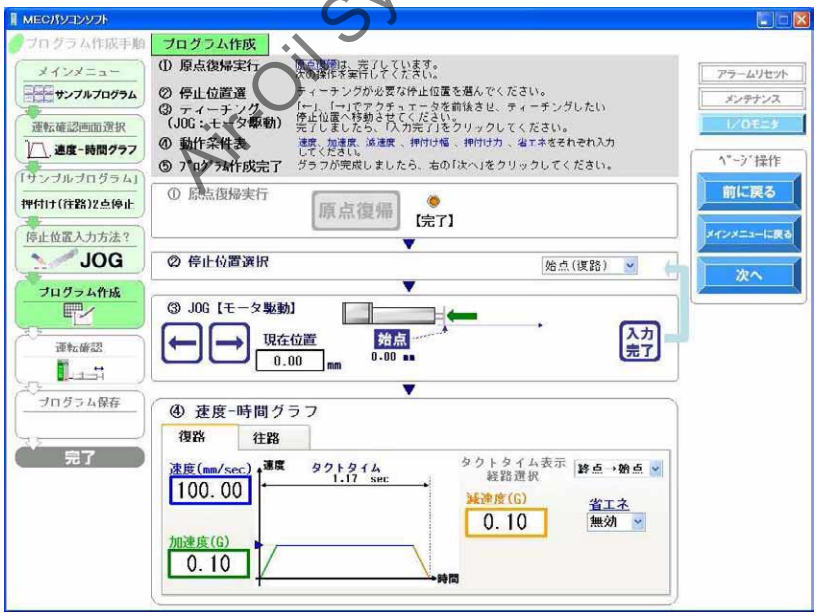
When stopping at 3 points



When stopping at 2 points



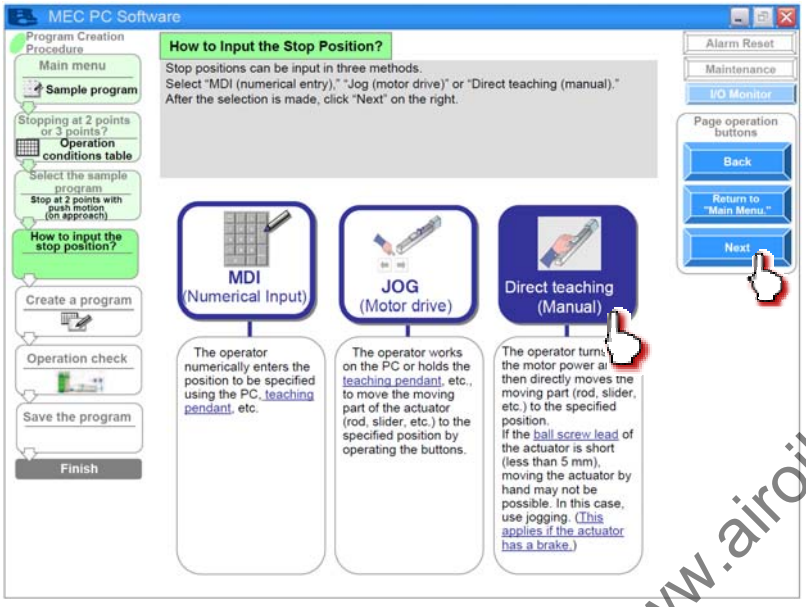
Click [←]/[→] to move the actuator to the stopping position.
Click [Input Complete]. The current position is saved as the stopping position you have selected.



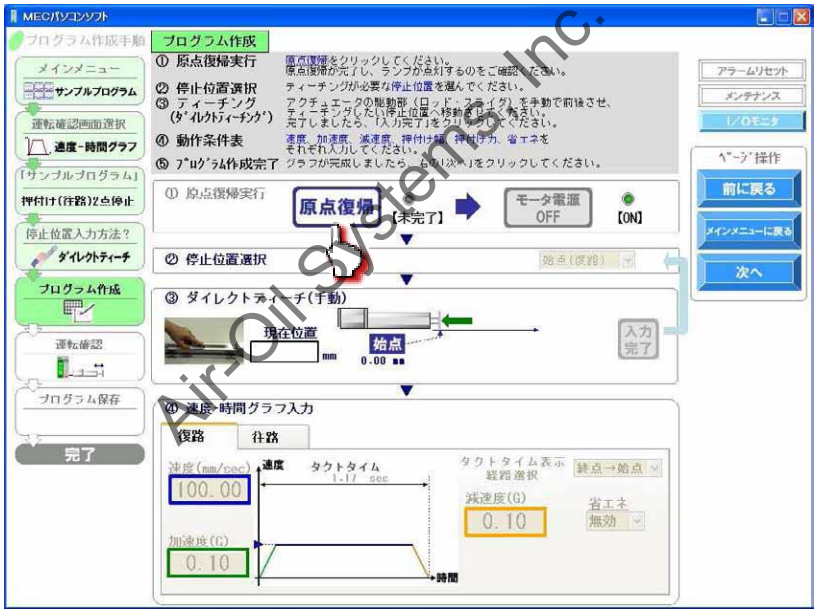
[Stopping position input by direct teaching (manual)]

Select “Direct teaching (Manual).”

Once you have made the selection, click [Next].

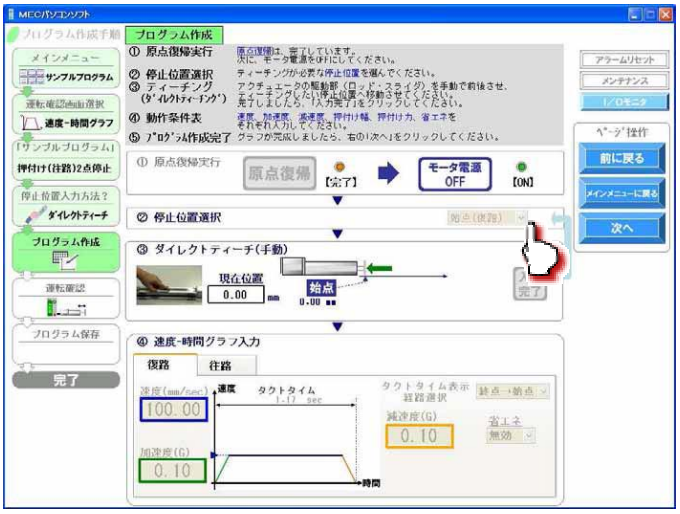


Click [Home Return] to perform home return.



When the home return is complete, the lamp next to the button comes on and the text below it changes to [Complete

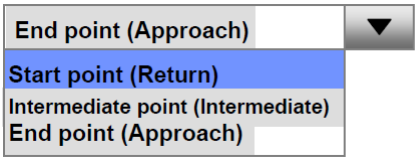
Click [Motor Power OFF] to turn off the motor power.
The motor power (servo) turns off.



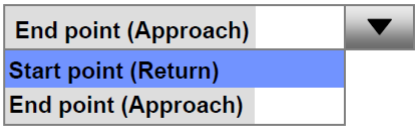
⚠ Caution:
If you are releasing the brake of a vertically installed actuator, be careful not to let your hand pinched or the work part damaged by the actuator falling due to its own weight.

Select the stopping position you must teach the actuator.

When stopping at 3 points

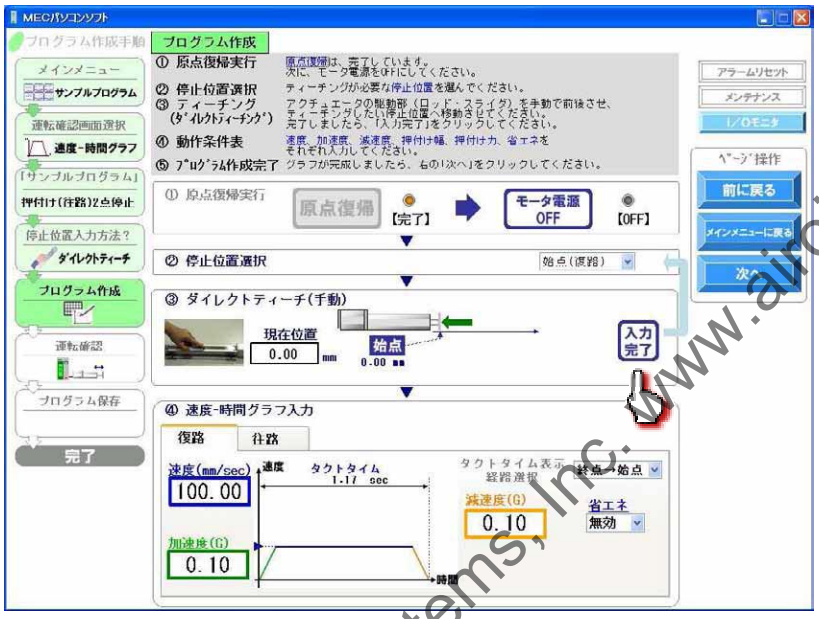


When stopping at 2 points

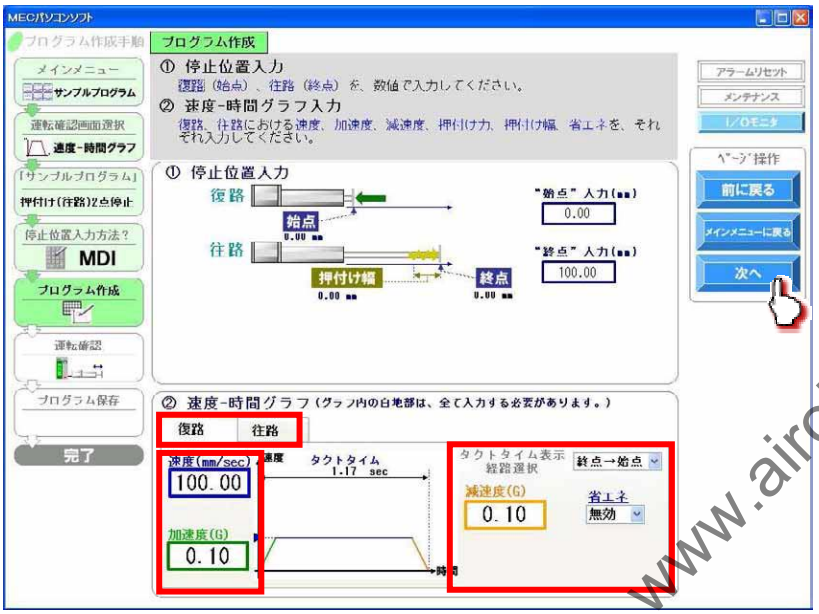


Manually move the actuator to the stopping position.

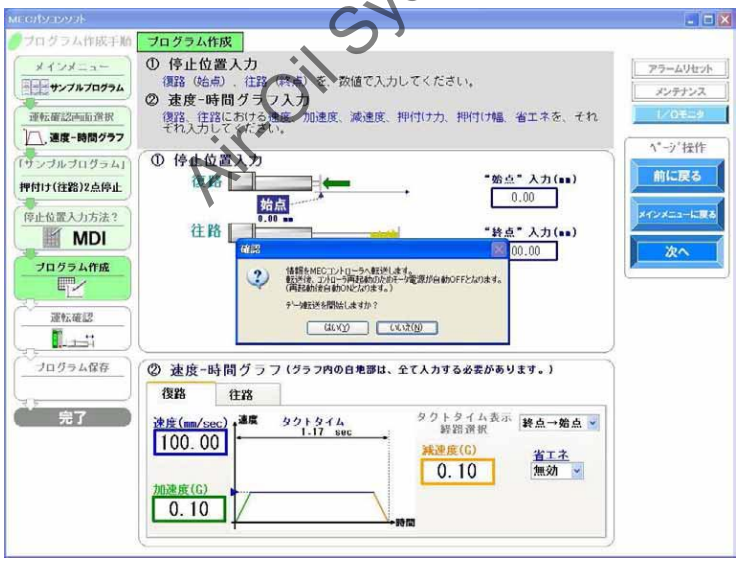
The position is shown in the current position field.
Click [Input Complete]. The current position is saved as the stopping position you have selected.



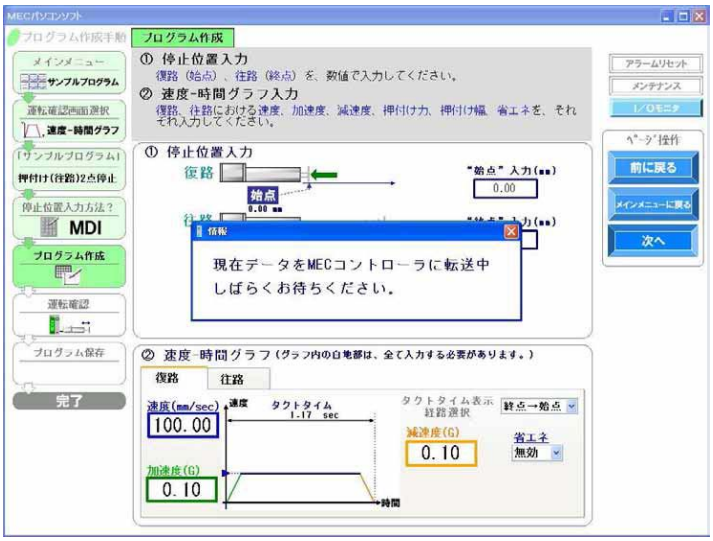
[4] Select either the approach or return. If the actuator is stopping at 3 points, you can also select an intermediate point. Set values for the speed, acceleration, deceleration, push band and push force applicable to the speed vs. time graph. Select whether to enable or disable energy saving.
Use the displayed tact time as a reference.
(The screen is based on MDI (Numerical input).)



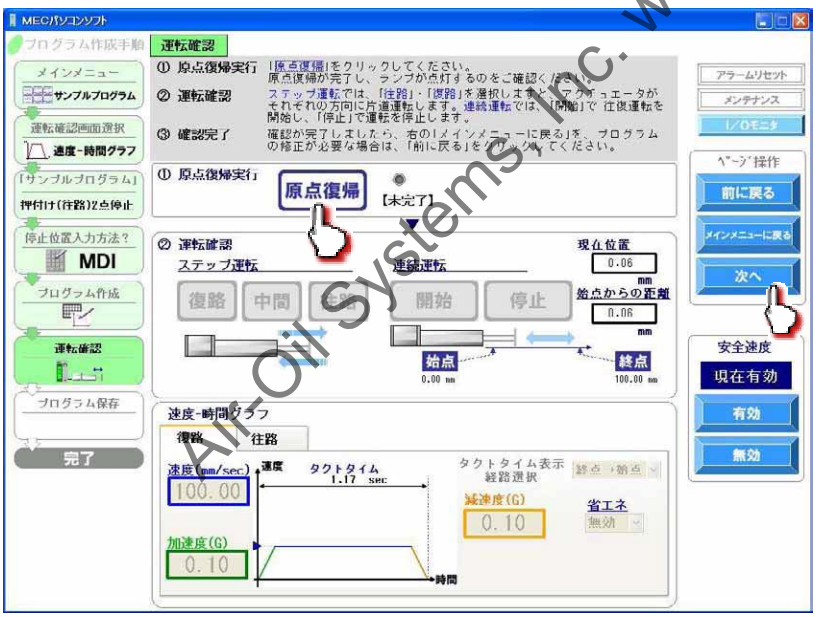
When all necessary values have been input, be sure to click [Next].
When [Next] is clicked, the confirmation message appears with the message “Do you want to start transferring data?”
Click [Yes]. Clicking [Yes] transfers the values in the operation condition table to the controller.
(Note) The values in the operation condition table will not be transferred to the controller if [No] is clicked.



The following message appears while the data is being transferred.
When the transfer is complete, the display changes to the next screen for operation check.



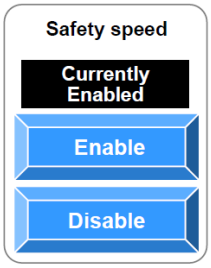
[5] Now you are ready to operate the actuator, so let's perform operation check.
If home return is not completed yet, click [Home Return] to perform home return.
If operation check is not performed, click [Next] to proceed to saving the program.



When the home return is complete, the lamp next to the button comes on and the text below it changes to [Complete].

[6] Perform operation.
Two types of operations are available, step operation and continuous operation.
When the operation check is complete, click [Next].

[Safety Speed Setting]

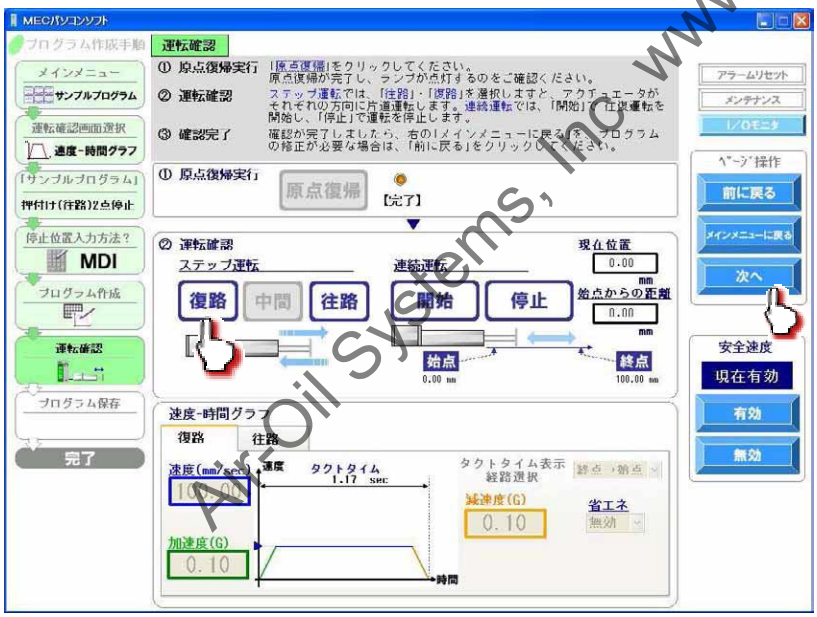


Enable: Click [Enable] if you want to operate the actuator at the safety speed*1.
Disable: Click [Disable] if you want to operate the actuator at a speed above the safety speed*1.

*1 Safety speed: The maximum speed is set to 100 mm/s or below.

[Step operation]

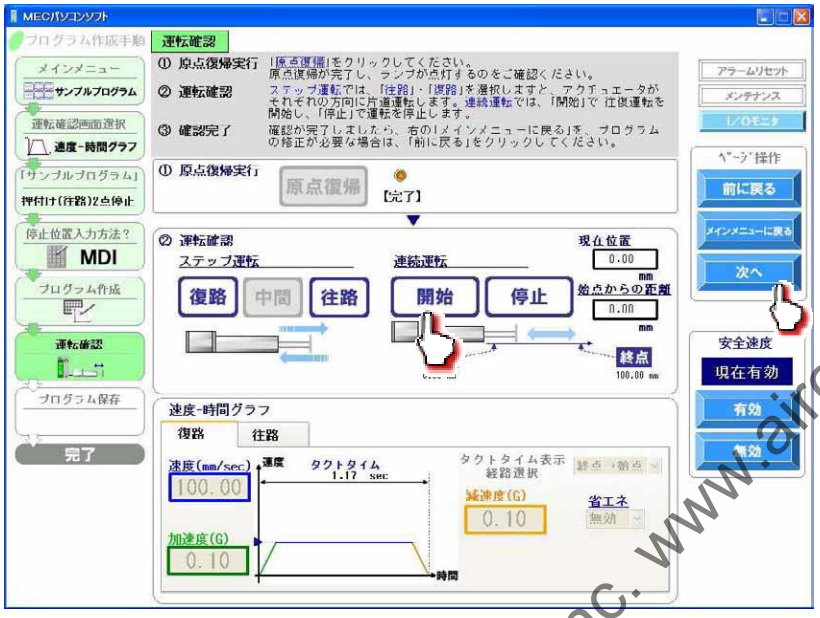
Approach (end point): Click [Approach] to move the actuator toward the end point.
Return (start point): Click [Return] to move the actuator toward the start point.
Intermediate point: Click [Intermediate] to move the actuator toward the intermediate point in a program where the actuator stops at 3 points.



[Continuous operation]

Start: Click [Start] to move the actuator forward and backward continuously (between the end point and start point) in a program where the actuator stops at 2 points. Similarly, click [Start] to move the actuator forward and backward continuously (between the end point and start point via the intermediate point

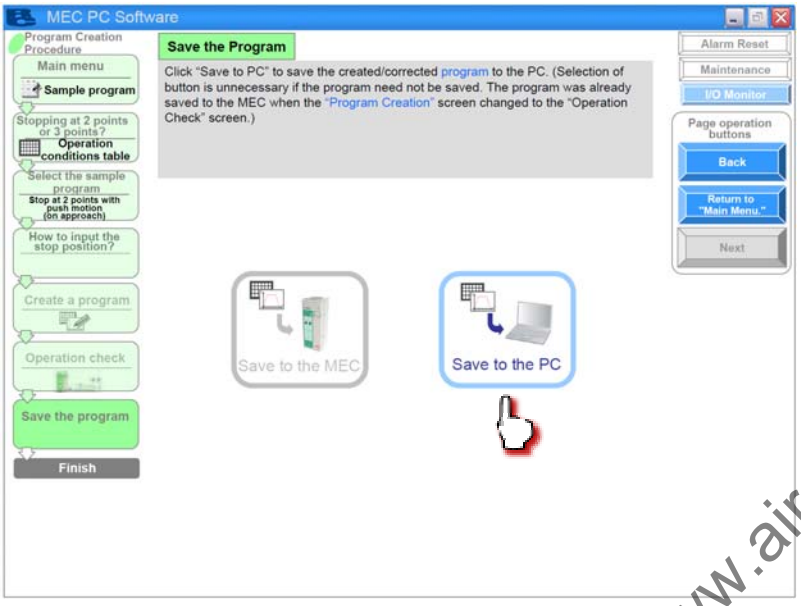
Stop: Click [Stop] to stop the continuous operation.



[7] Saving the program

[Saving to the PC]

To save the program (operation condition table) you have created to the PC, click “Save to the PC.”



The “Save As” screen appears.

Enter a desired file name and click [Save (S)], and the program (operation condition table) you have created will be saved to the PC.

Once the program has been saved, click [Return to the "Main Menu."]. The screen returns to the main menu.

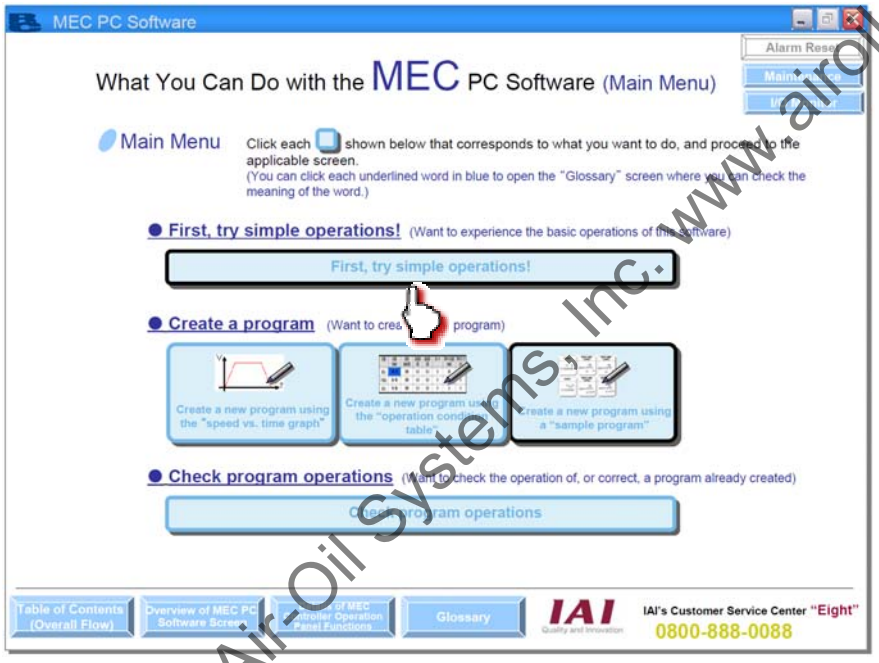
5. First, Try Simple Operations

Try moving an actuator according to the values set in the operation condition table in the controller.
You can choose positioning operation or push-motion operation.
Although the operation conditions are initially fixed when this menu item is selected, the speed, acceleration, deceleration, push force and energy saving setting can be changed afterward.

[Initial operation conditions]

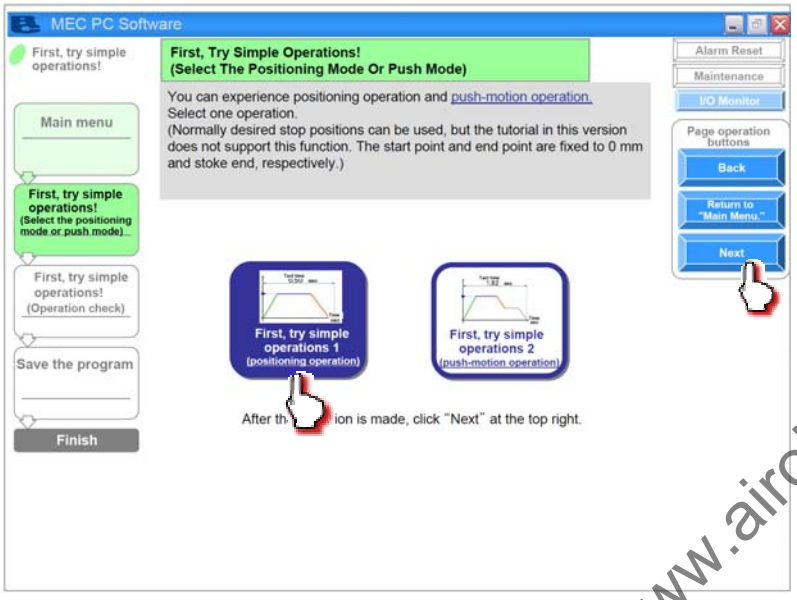
Stopping position:	Full-stroke position
Speed, acceleration, deceleration:	1/3 of defaults (factory defaults)
Push band:	1/2 of full stroke
Push force:	30%
Energy saving:	Disabled

Click “First, try simple operations!” from the main menu. Move your actuator according to the onscreen instructions

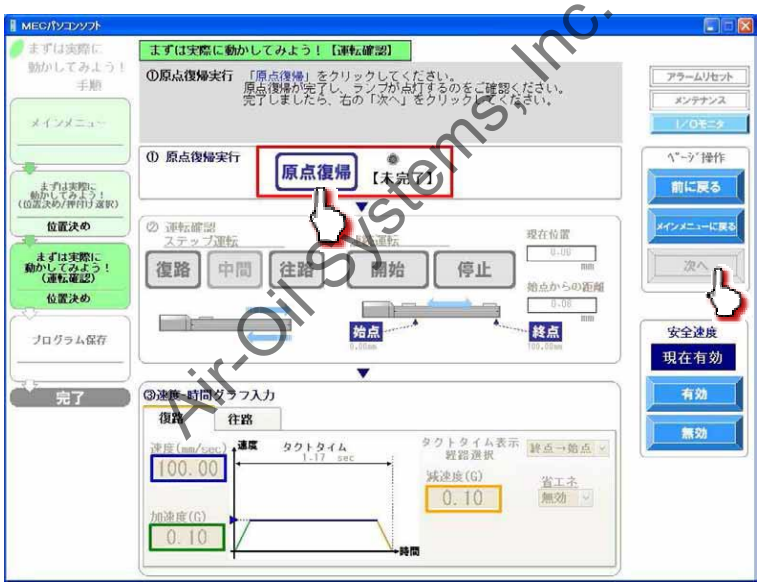


5.1 Performing Positioning Operation

[1] Click “First, try simple operations 1 (positioning operation).”
Then, click [Next].



[2] Click [Home Return] to perform home return.

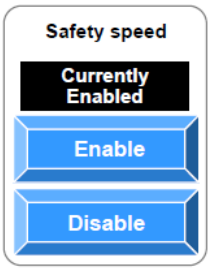


When the home return is complete, the lamp next to the button comes on and the text below it changes to [Complete].

When the home return is complete, click [Next].

[3] First, try moving your actuator.
Two types of operations are available, step operation and continuous operation.
When the operation check is complete, click [Next].

[Safety Speed Setting]

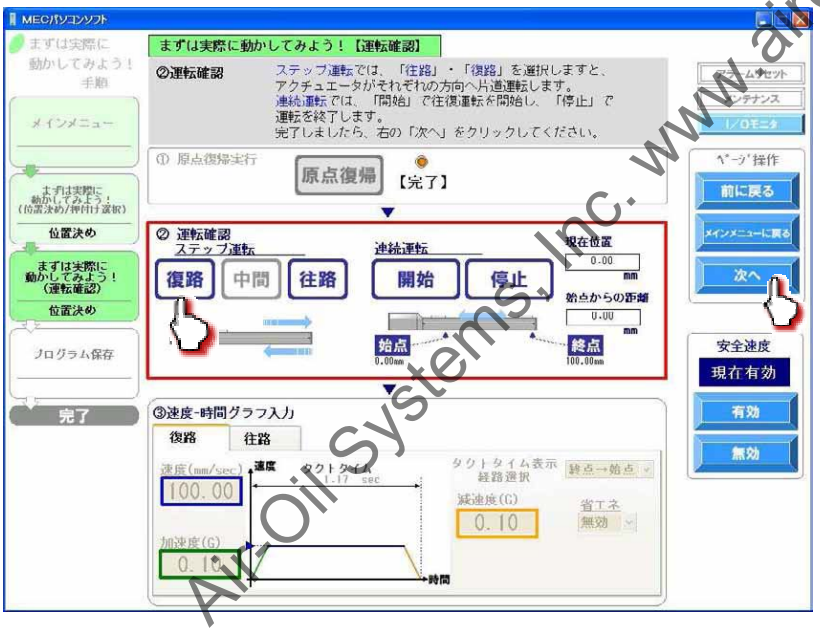


Enable: Click [Enable] if you want to operate the actuator at the safety speed*1.
Disable: Click [Disable] if you want to operate the actuator at a speed above the safety speed*1.

*1 Safety speed: The maximum speed is set to 100 mm/s or below.

[Step operation]

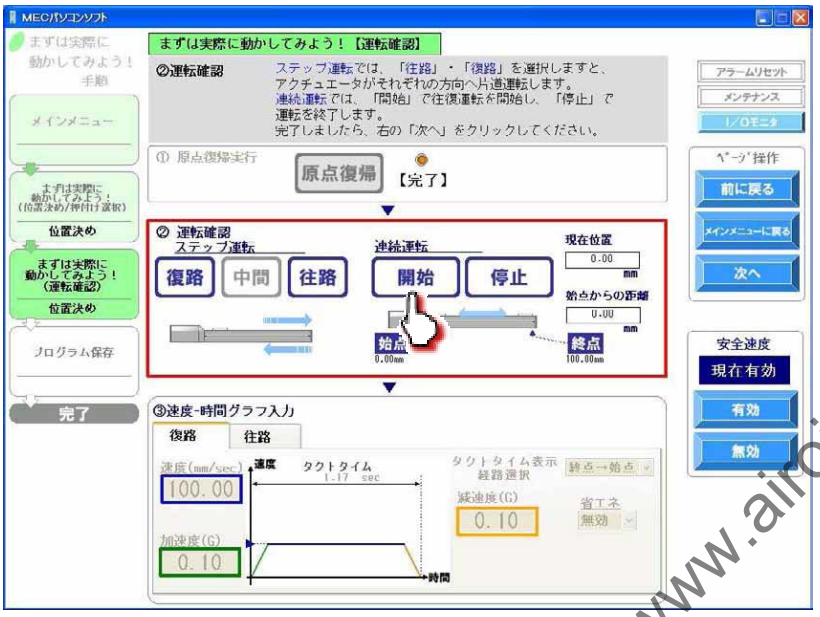
Approach (end point): Click [Approach] to move the actuator toward the end point.
Return (start point): Click [Return] to move the actuator toward the start point.



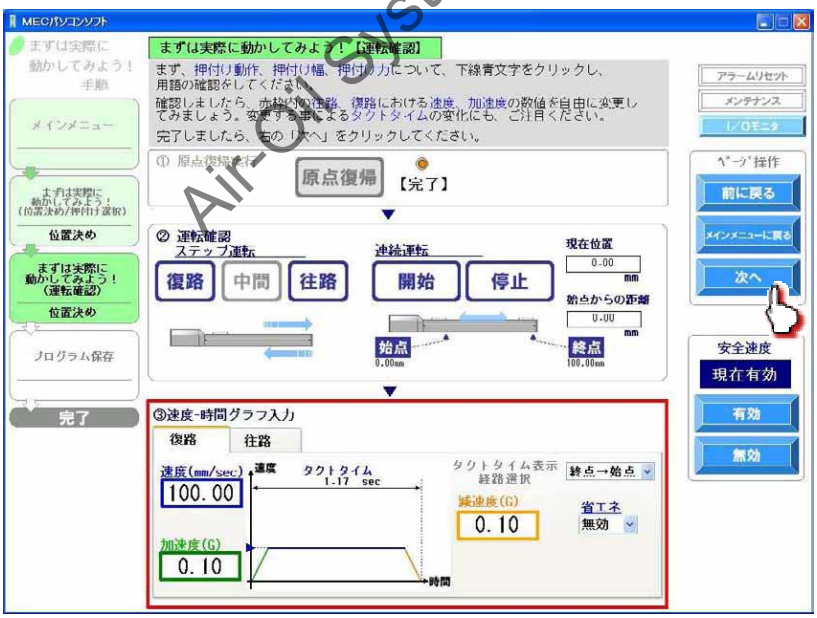
[Continuous operation]

Start: Click [Start] to move the actuator forward and backward continuously (between the end point and start point) in a program where the actuator stops at 2 points

Stop: Click [Stop] to stop the continuous operation.



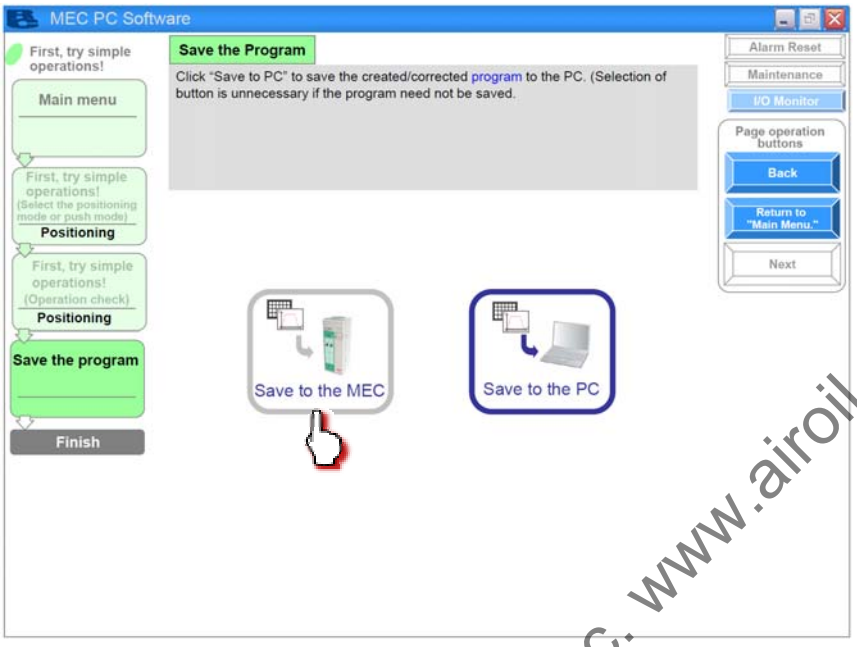
[4] On this screen, you can change the speed, acceleration, deceleration and energy saving settings. Select either the approach or return.
Change the speed, acceleration, deceleration and energy saving settings.
After the changes have been made, perform step operation and continuous operation to check how the actuator operates.
When the operation check is complete, click [Next].



[5] Saving the program

[Saving to the MEC]

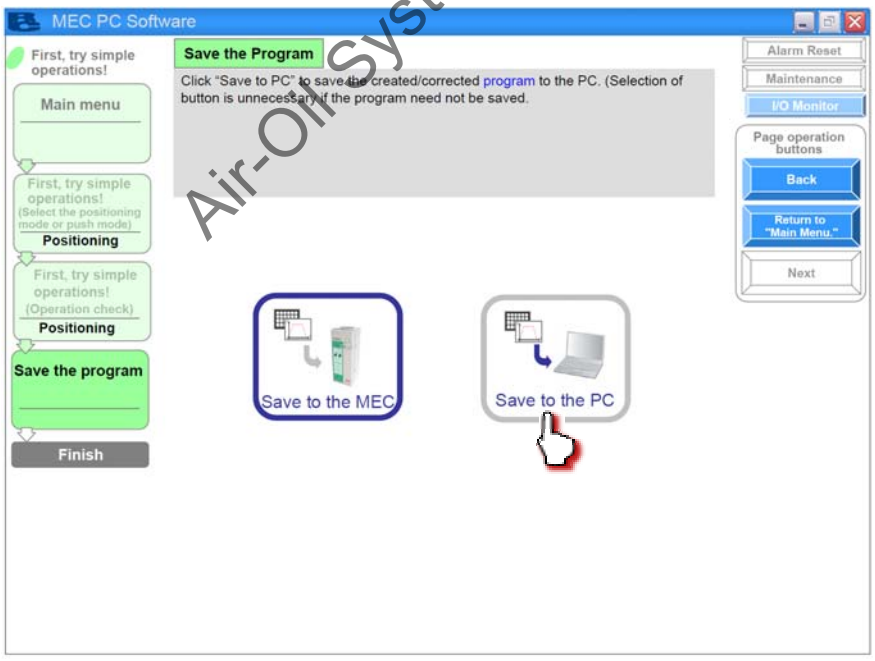
To move the actuator by reflecting the speed and other operation conditions you have just changed, click [Save to the MEC]. Turn off the power and then turn it back on. The actuator will move according to the new operation conditions such as speed.



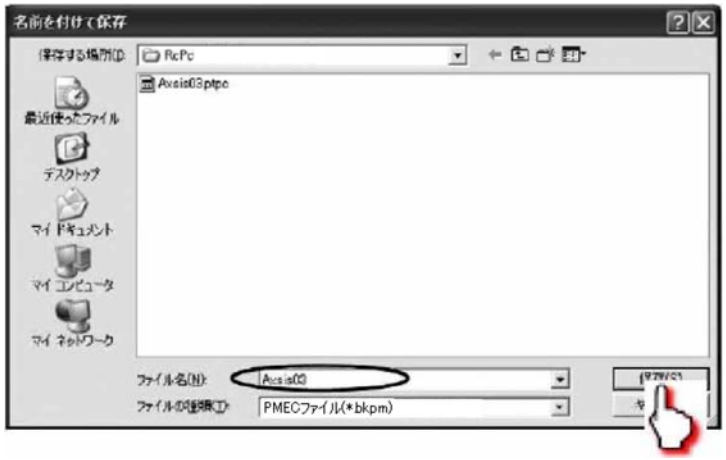
[6] Saving the program

[Saving to the PC]

To save to the PC the changes you have made to the speed and other operation conditions, click [Save to the PC].



The “Save As” screen appears.
Enter a desired file name and click [Save (S)], and the program (operation condition table) you have created will be saved to the PC.

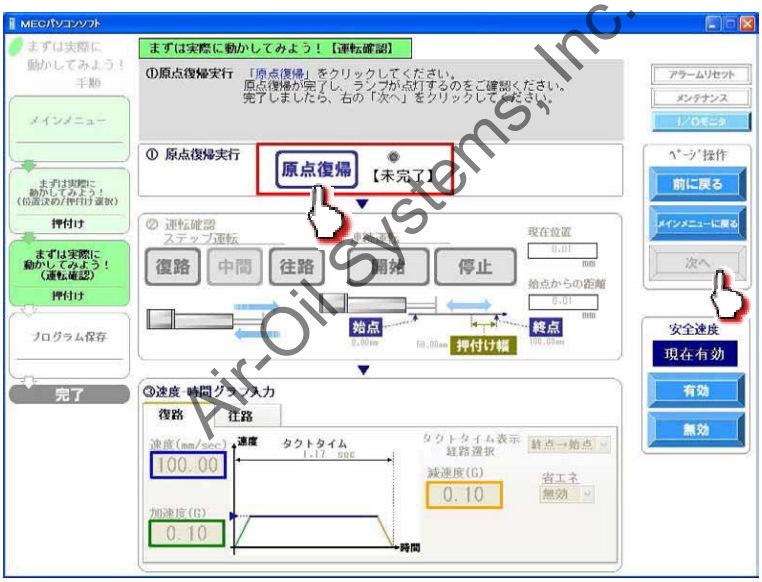


Once the program has been saved, click [Return to the "Main Menu."]. The screen returns to the main menu.

5.2 Performing Push-motion Operation

[1] Click “First, try simple operations 2 (push-motion operation).” Then, click [Next].

[2] Click [Home Return] to perform home return.

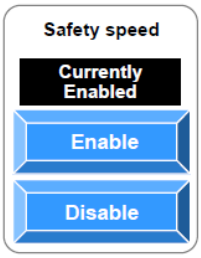


When the home return is complete, the lamp next to the button comes on and the text below it changes to [Complete].

When the home return is complete, click [Next].

[3] First, try moving your actuator.
Two types of operations are available, step operation and continuous operation.
When the operation check is complete, click [Next].

[Safety Speed Setting]

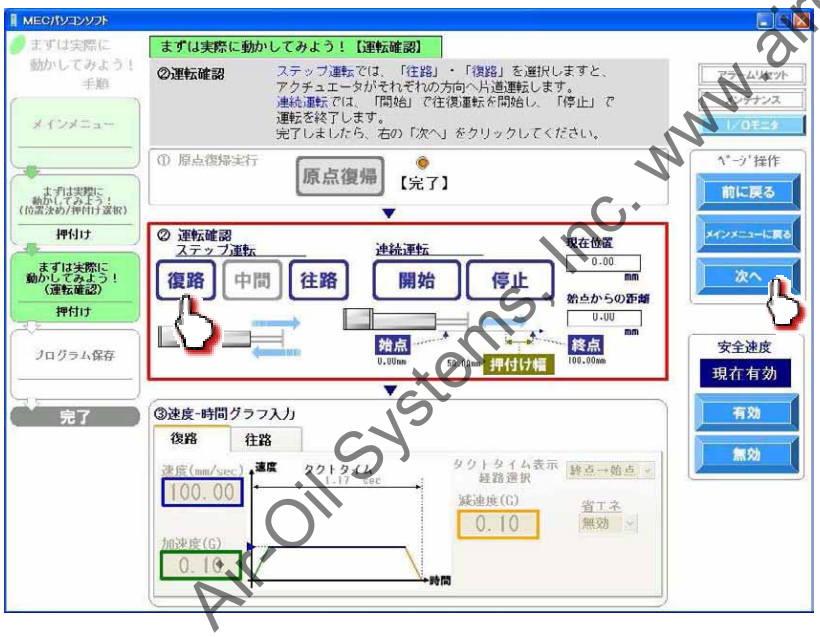


Enable: Click [Enable] if you want to operate the actuator at the safety speed*1.
Disable: Click [Disable] if you want to operate the actuator at a speed above the safety speed*1.

*1 Safety speed: The maximum speed is set to 100 mm/s or below.

[Step operation]

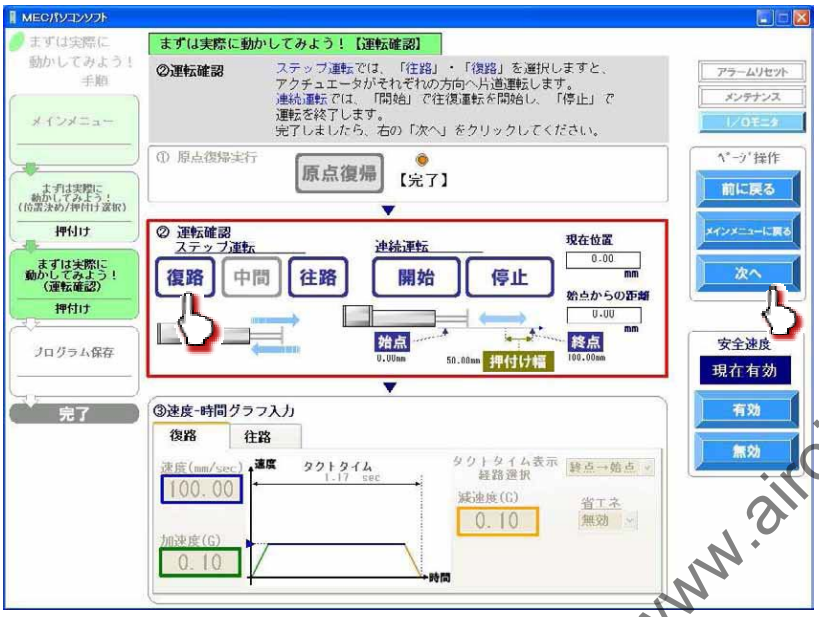
Approach (end point): Click [Approach] to move the actuator toward the end point.
Return (start point): Click [Return] to move the actuator toward the start point.



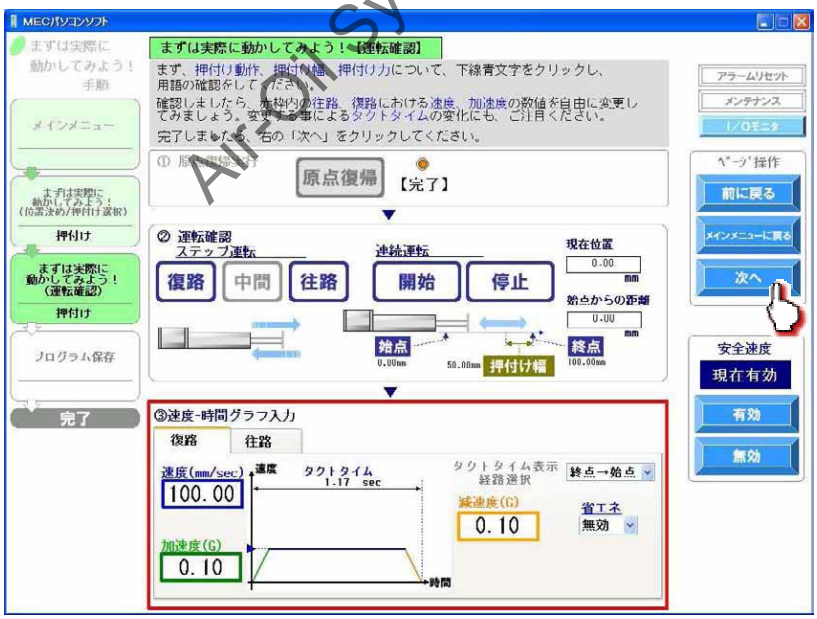
[Continuous operation]

Start: Click [Start] to move the actuator forward and backward continuously (between the end point and start point) in a program where the actuator stops at 2 points.

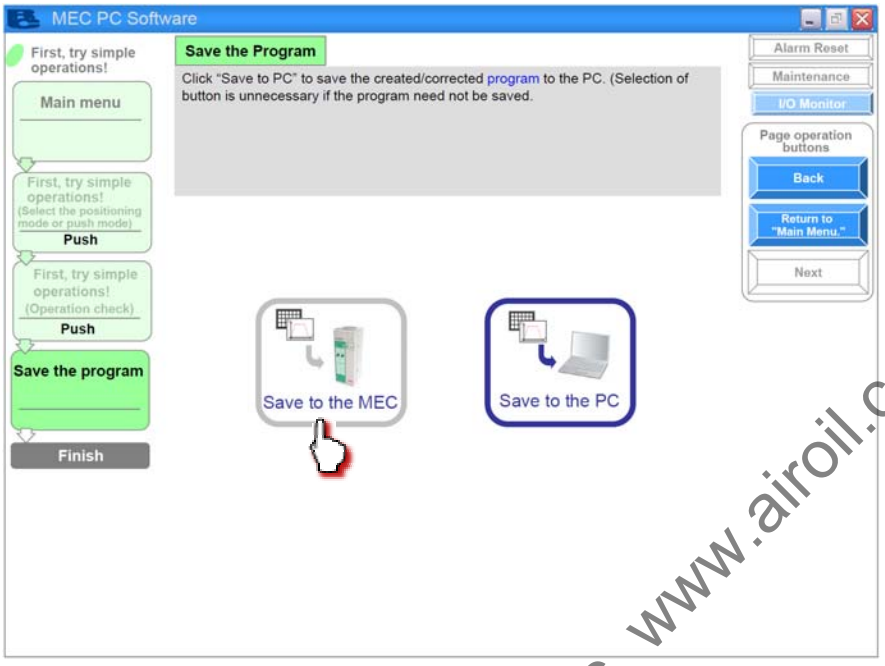
Stop: Click [Stop] to stop the continuous operation.



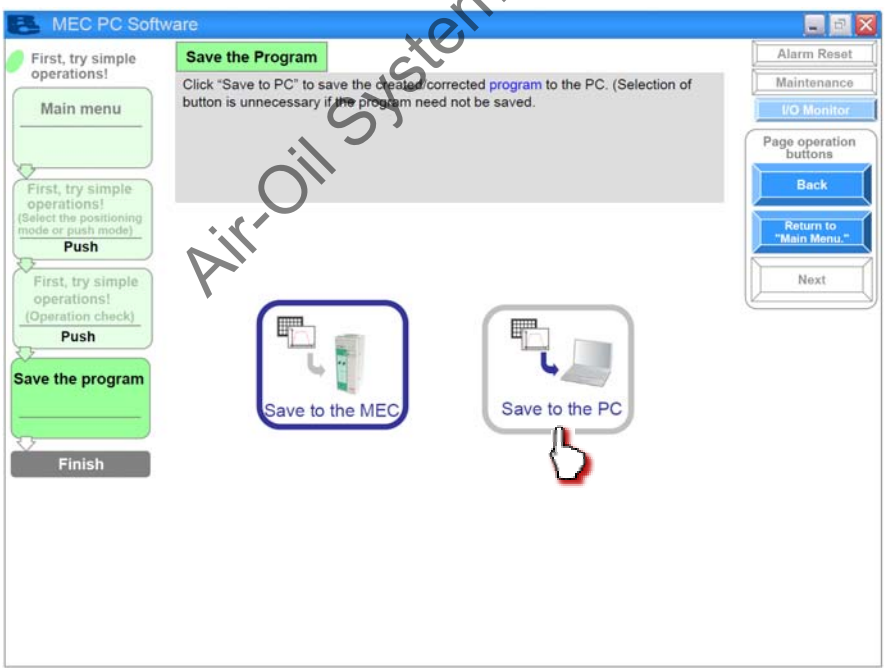
[4] On this screen, you can change the speed, acceleration, deceleration, push band (only for the approach), push force (only for the approach) and energy saving settings. Select either the approach or return.
Change the speed, acceleration, deceleration, push band (only for the forward path), push force (only for the forward path) and energy saving settings.
After the changes have been made, perform step operation and continuous operation to check how the actuator operates.
When the operation check is complete, click [Next].



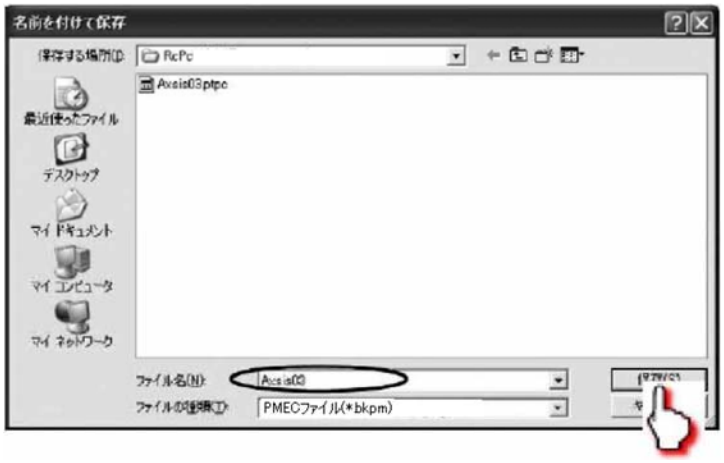
[5] Saving the program [Saving to the MEC]
To operate the MEC controller by reflecting the speed and other operation conditions you have just changed, click [Save to the MEC]. Turn off the power and then turn it back on. The controller will operate according to the new operation conditions such as speed.



[6] [Saving to the PC]
To save to the PC the changes you have made to the speed and other operation conditions, click [Save to the PC].



The “Save As” screen appears.
Enter a desired file name and click [Save (S)], and the program (operation condition table) you have created will be saved to the PC.

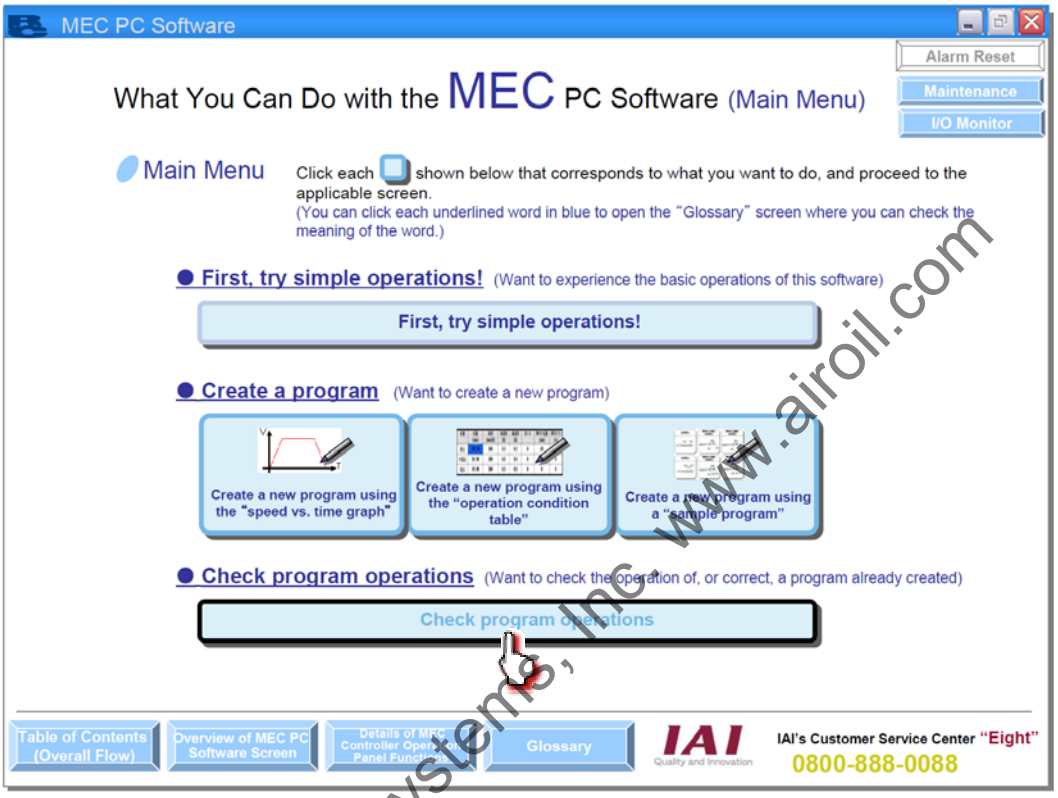


Once the program has been saved, click [Return to the "Main Menu."]. The screen returns to the main menu.

6. Checking the Program Operation

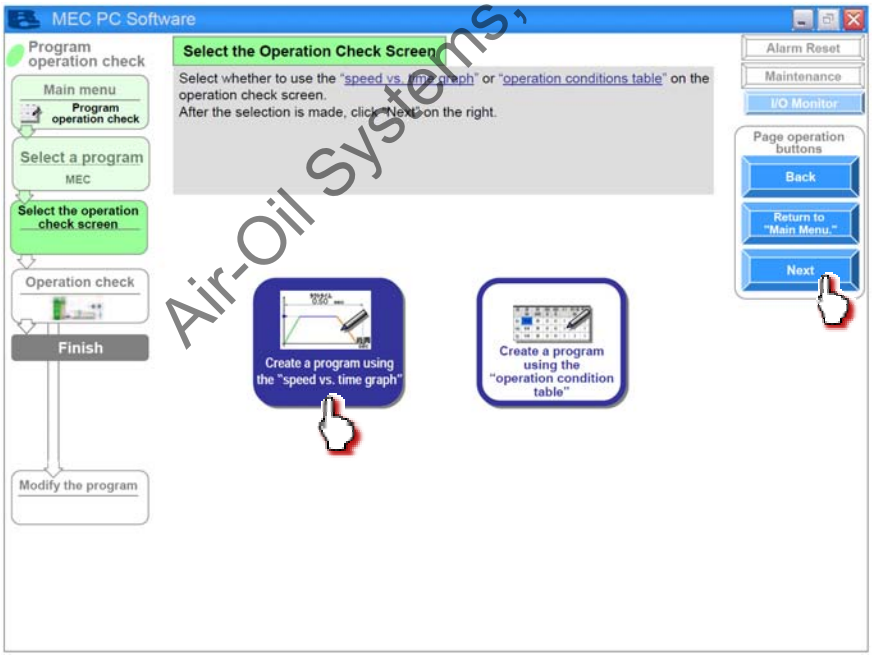
6.1 Checking the Operation of a Program Saved in the MEC

You can check the operation of, or modify, a program you have created.
Click [Check program operations] from the main menu. Check the operation according to the onscreen instructions.

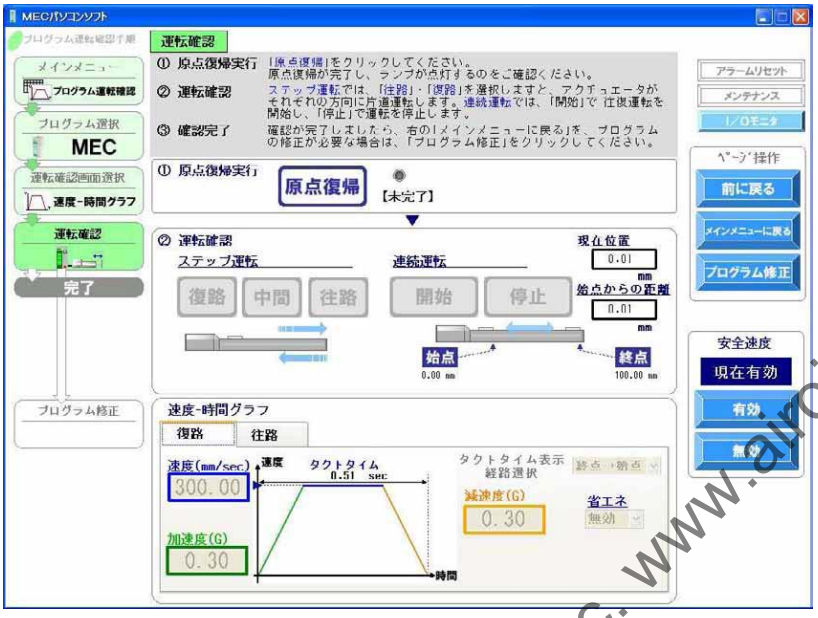


[1] Click [Operation check with a program saved in the MEC].
The programs (operation condition settings) currently saved in the MEC controller are read to the PC.
Click [Next].

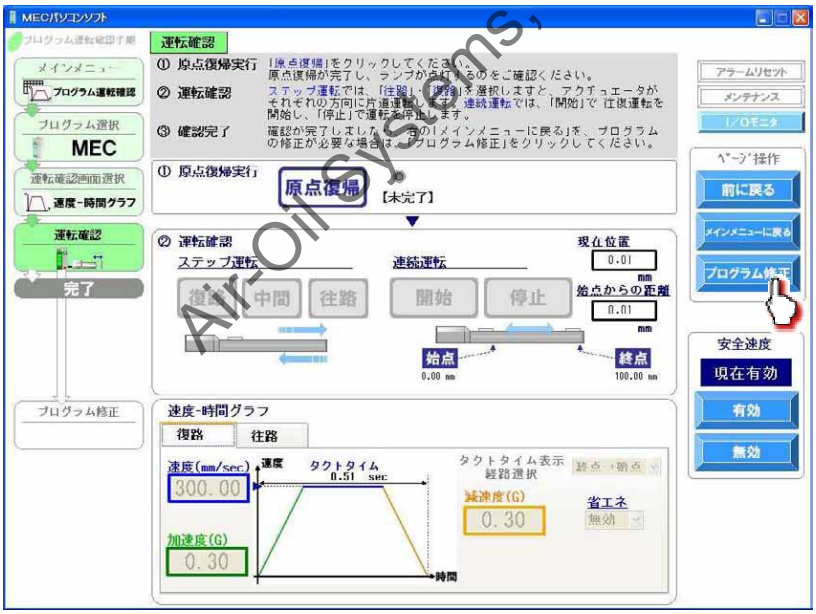
[2] Select and click a desired display mode of the operation check screen. Click [Next].



[3] The selected screen opens.
[When “Speed vs. time graph” was selected]
A speed vs. time graph is displayed.
You can use this graph to perform operation check.
The operating procedures are the same as those explained in 4.3, “Creating a Speed vs. Time Graph to Move the Actuator.”

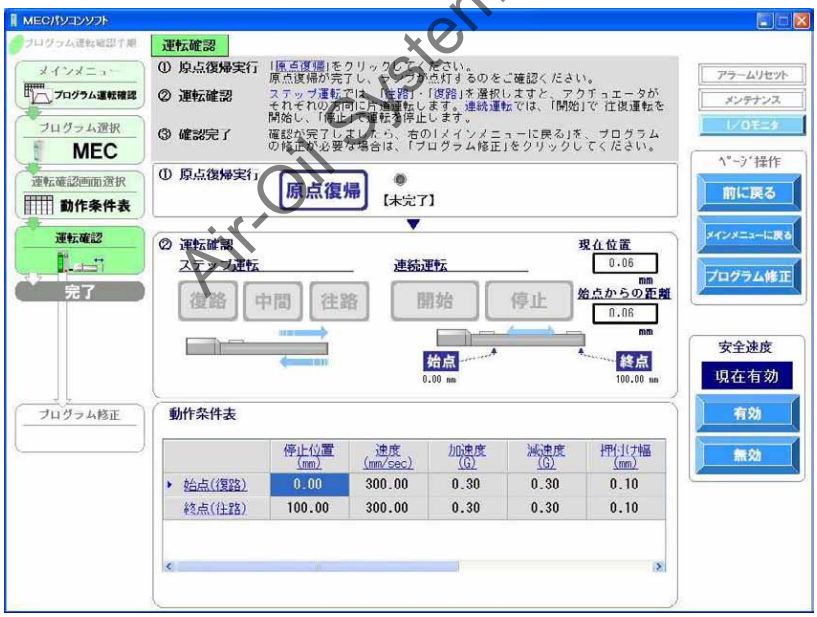


To correct the program, click [Modify the program].

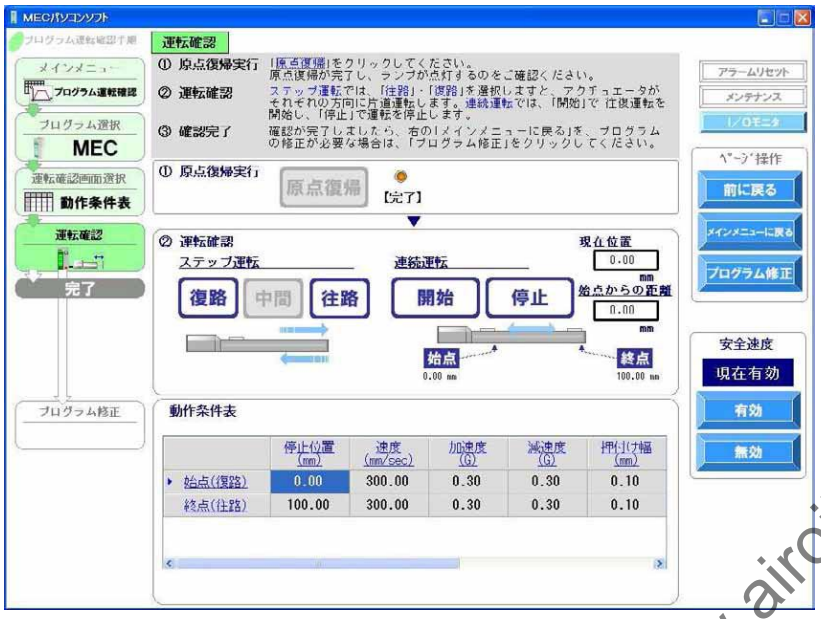


The display switches to the program edit screen.
The operating procedures are the same as those explained in 4.3, “Creating a Speed vs. Time Graph to Move the Actuator.”

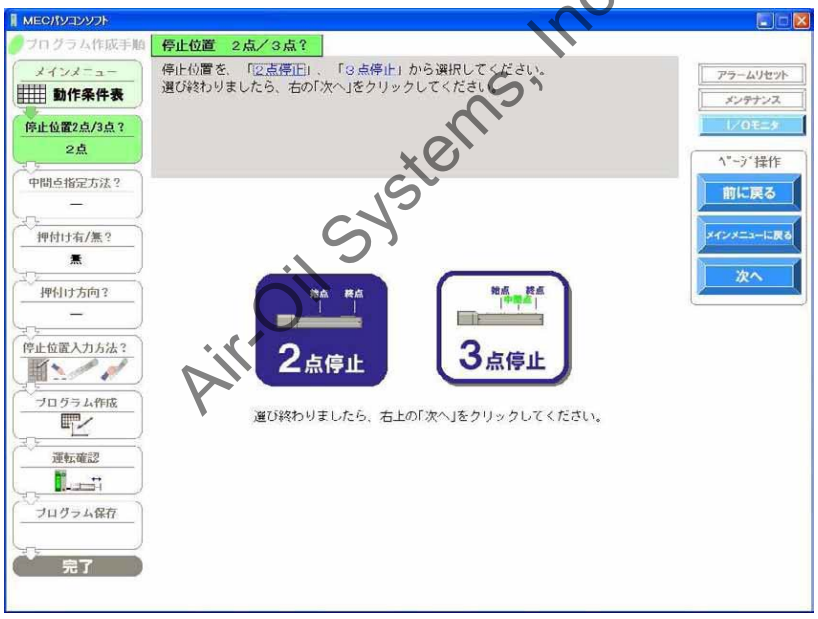
[When “Operation condition table” was selected]
An operation condition table appears.
You can use this table to perform operation check.
The operating procedures are the same as those explained in 4.1, “Creating an Operation Condition Table to Move the Actuator.”



To correct the program, click [Modify the program].

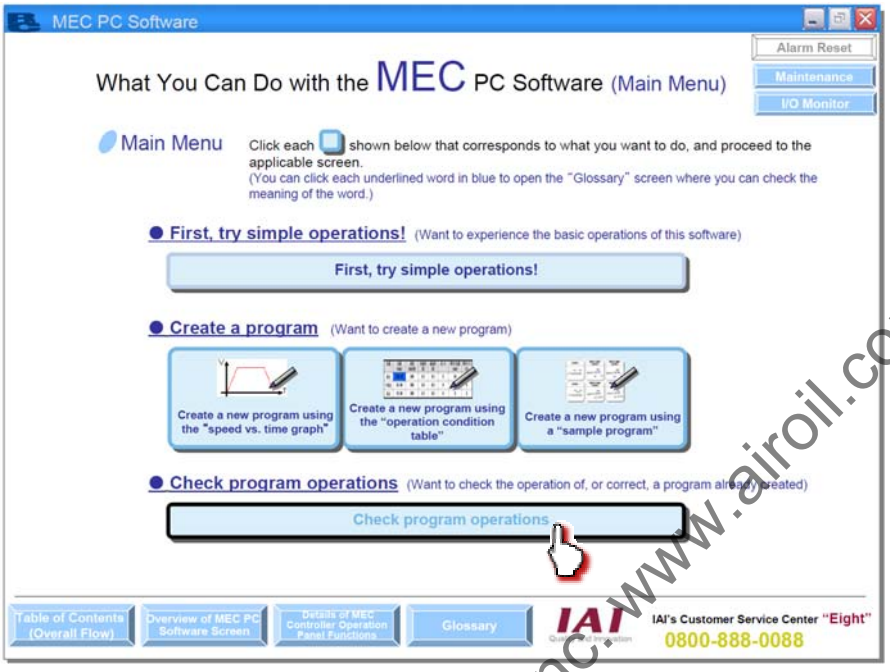


The display switches to the program edit screen.
The operating procedures are the same as those explained in 4.1, “Creating an Operation Condition Table to Move the Actuator.””

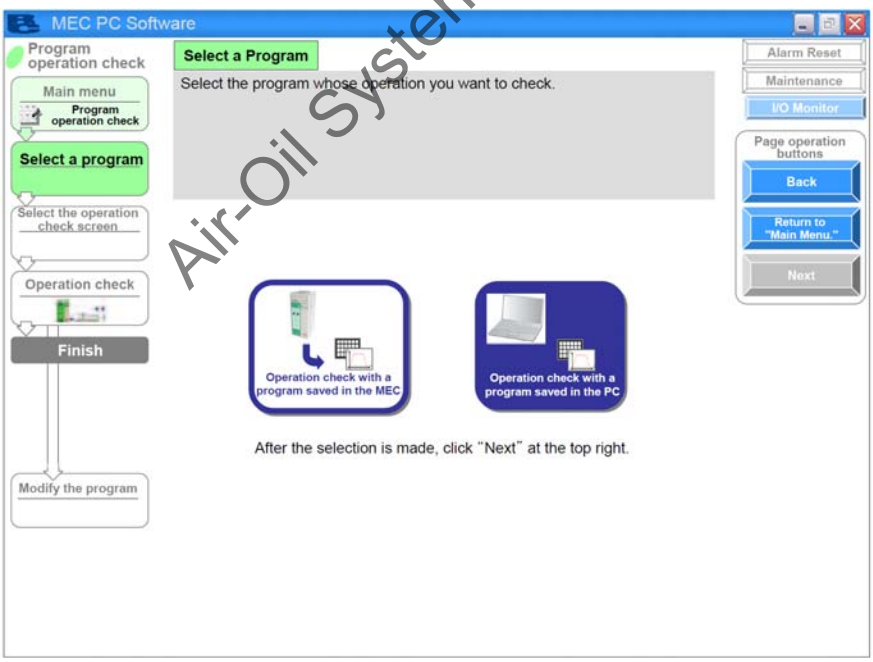


6.2 Checking the Operation of a Program Saved in the PC

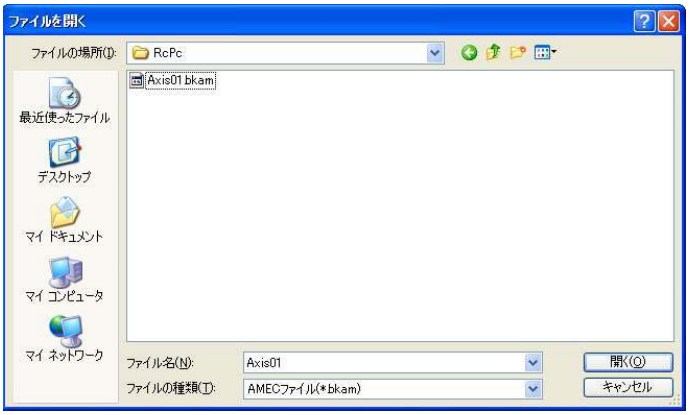
You can check the operation of, or modify, a program you have created.
Click [Check program operations] from the main menu. Check the operation according to the onscreen instructions.



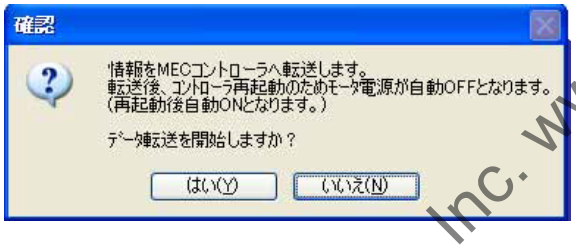
[1] Click [Operation check with a program saved in the PC].



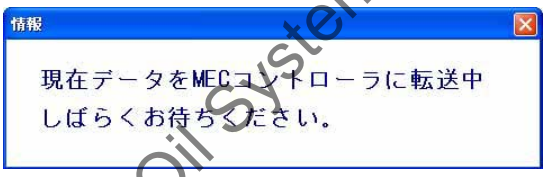
The “Open File” screen appears.
Select a desired file name, and then click [Open].



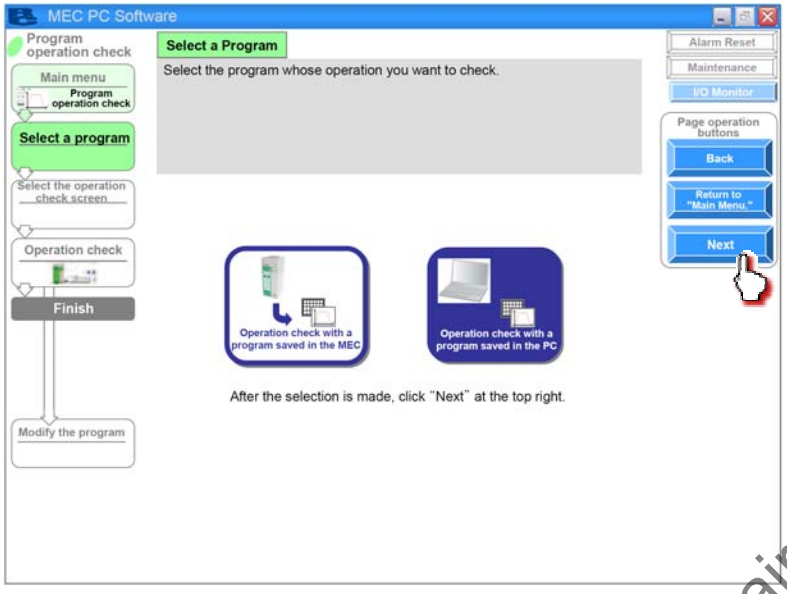
On the confirmation dialog box, click [Yes]. The program (operation condition settings) is transferred to the MEC controller from the PC.
(Note) If [No] is clicked, the program will not be saved to the MEC controller.



The following message appears while the data is being transferred.

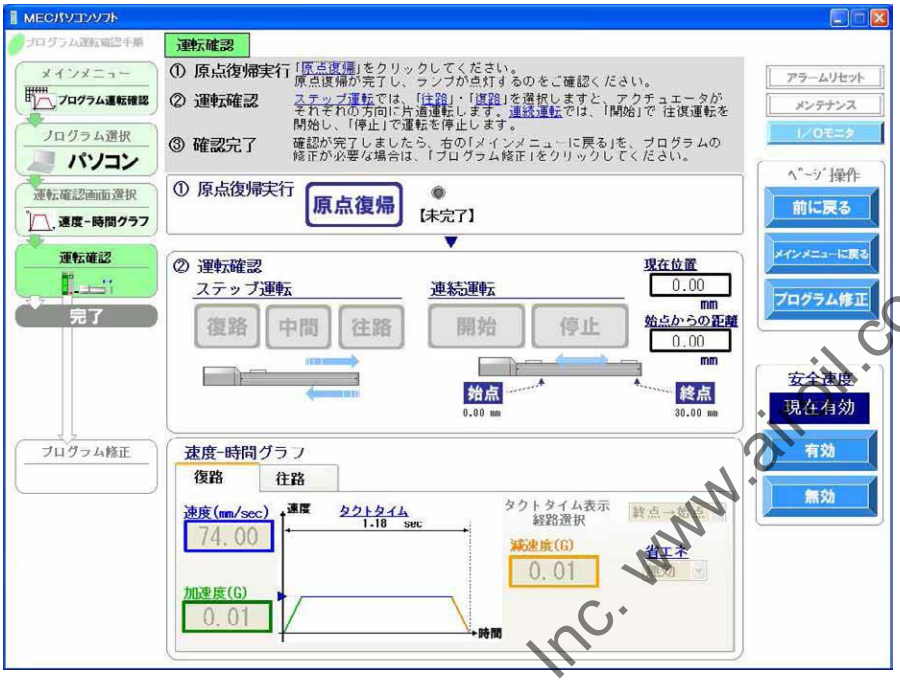


[2] Click [Next].

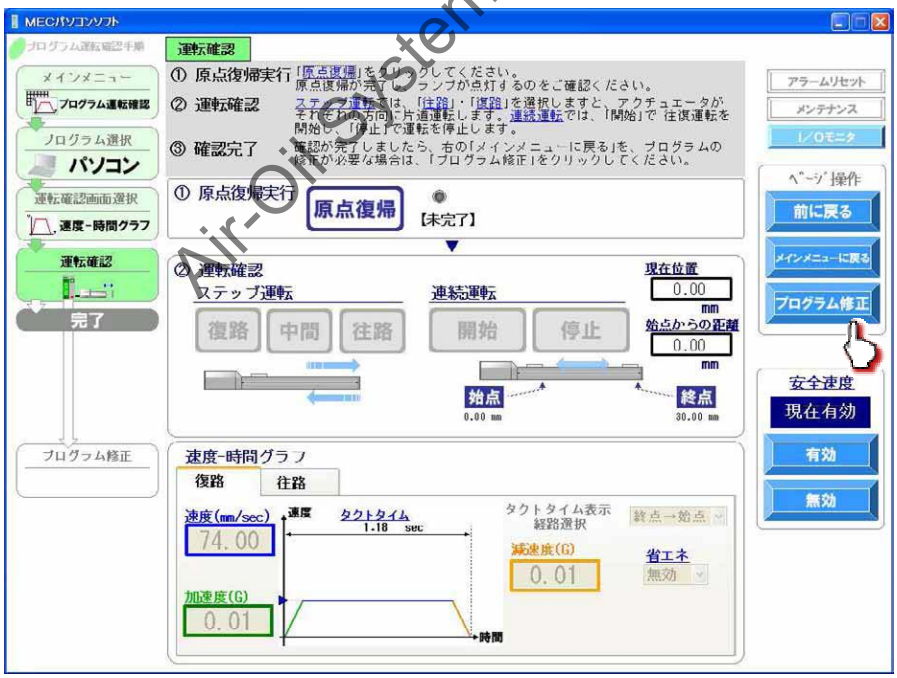


[3] Select and click a desired display mode of the operation check screen. Click [Next].

[4] The selected screen opens.
[When “Speed vs. time graph” was selected]
A speed vs. time graph is displayed.
You can use this graph to perform operation check.
The operating procedures are the same as those explained in 4.3, “Creating a Speed vs. Time Graph to Move the Actuator.”

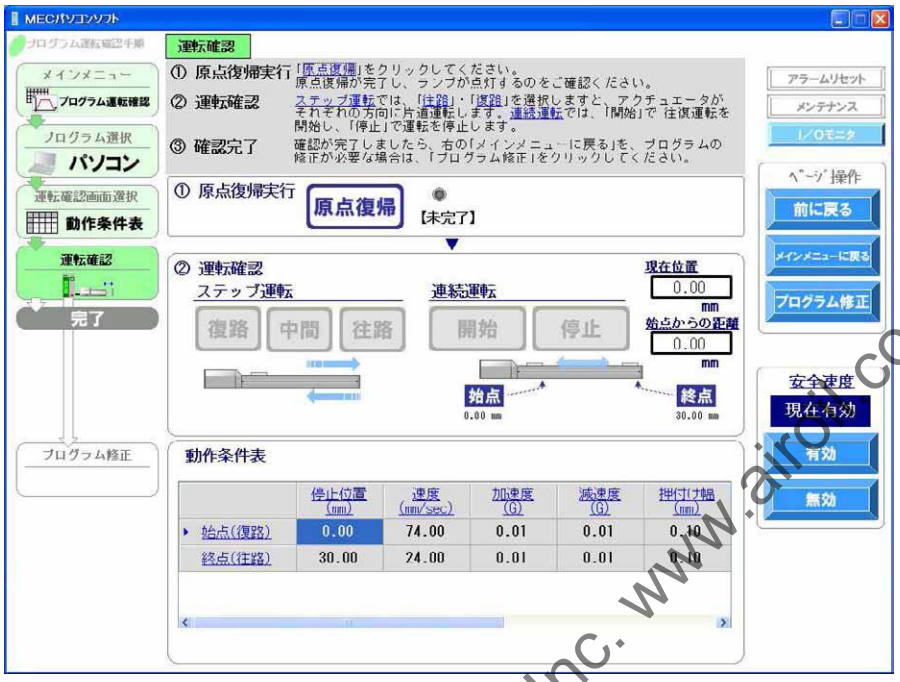


To correct the program, click [Modify the program].

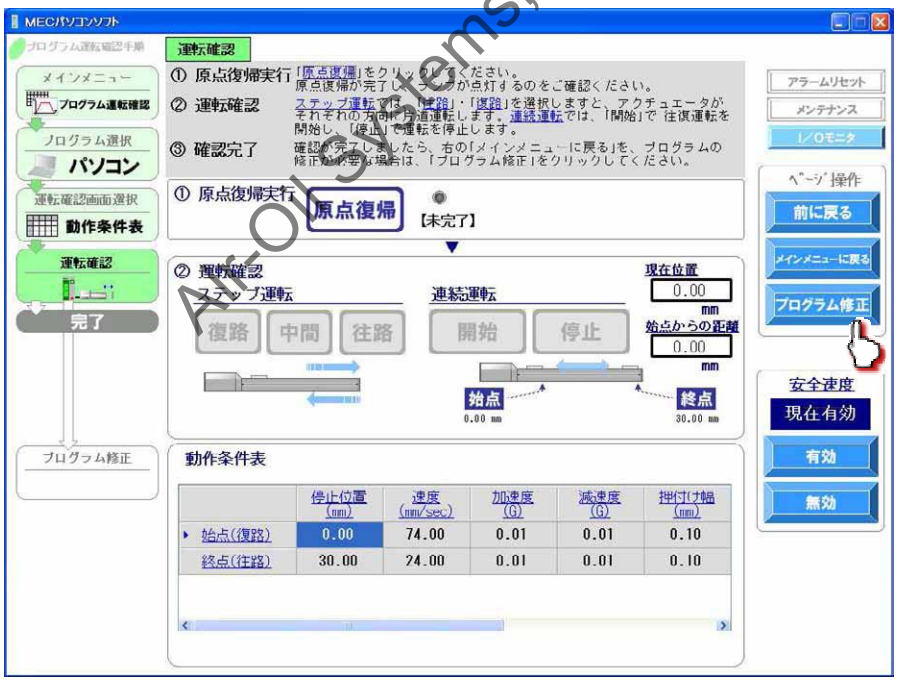


The display switches to the program edit screen.
The operating procedures are the same as those explained in 4.3, “Creating a Speed vs. Time Graph to Move the Actuator.”

[When “Operation condition table” was selected]
An operation condition table appears.
You can use this table to perform operation check.
The operating procedures are the same as those explained in 4.1, “Creating an Operation Condition Table to Move the Actuator.”



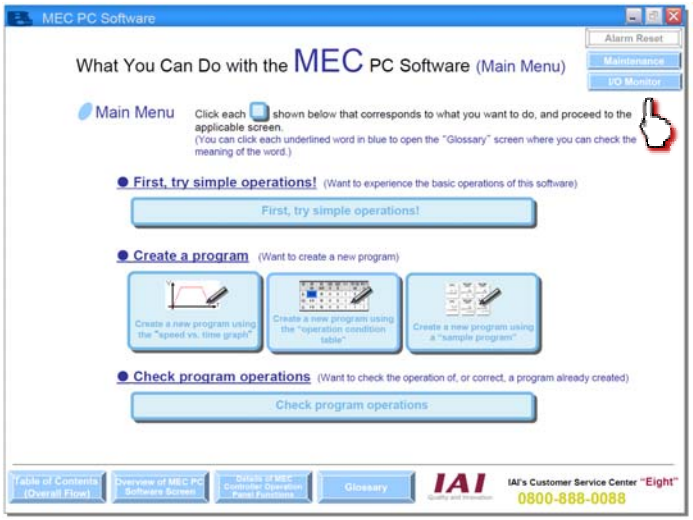
To correct the program, click [Modify the program].



The display switches to the program edit screen.
The operating procedures are the same as those explained in 4.1, “Creating an Operation Condition Table to Move the Actuator.”

7. Monitoring I/Os

To display the I/O monitor screen, click [I/O Monitor] on the menu screen.



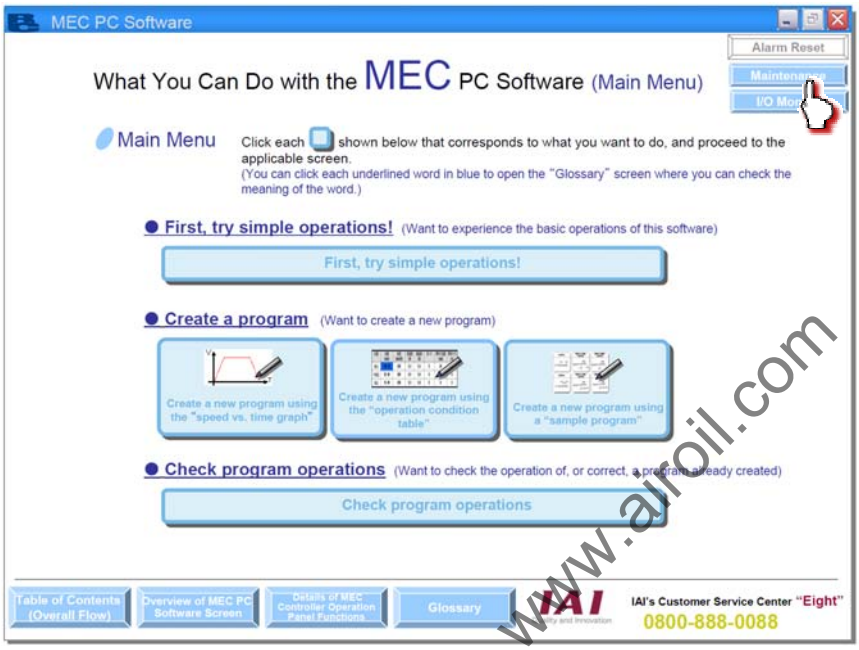
To check the input/output signals, you can monitor the input and output ports.
Click [Output Test].

A warning dialog box appears. Click [Yes].
This forcibly turns OFF the signals.

Click to select the port you want to turn ON the output of, to forcibly turn ON the signal.

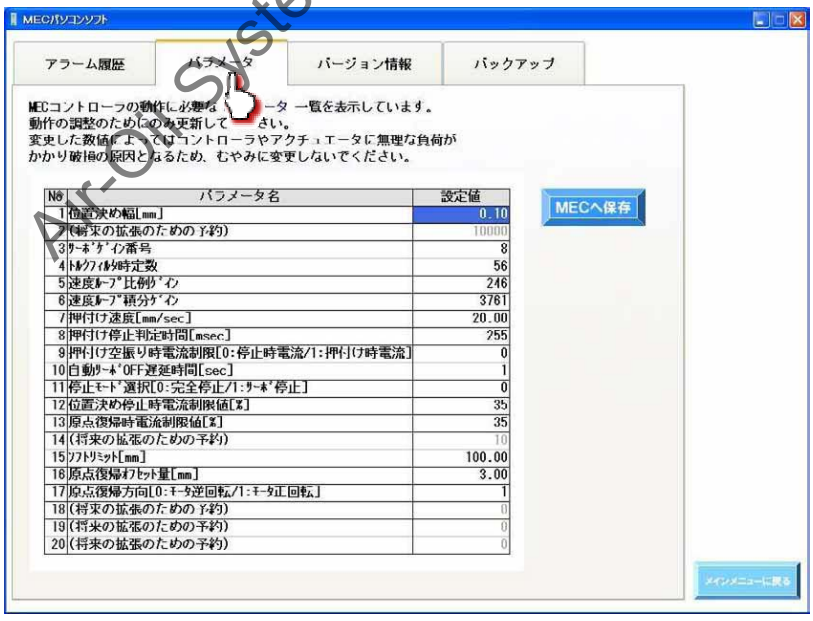
8. Editing Parameters

To load parameter data from the controller and change parameters, click [Maintenance] on the menu screen.



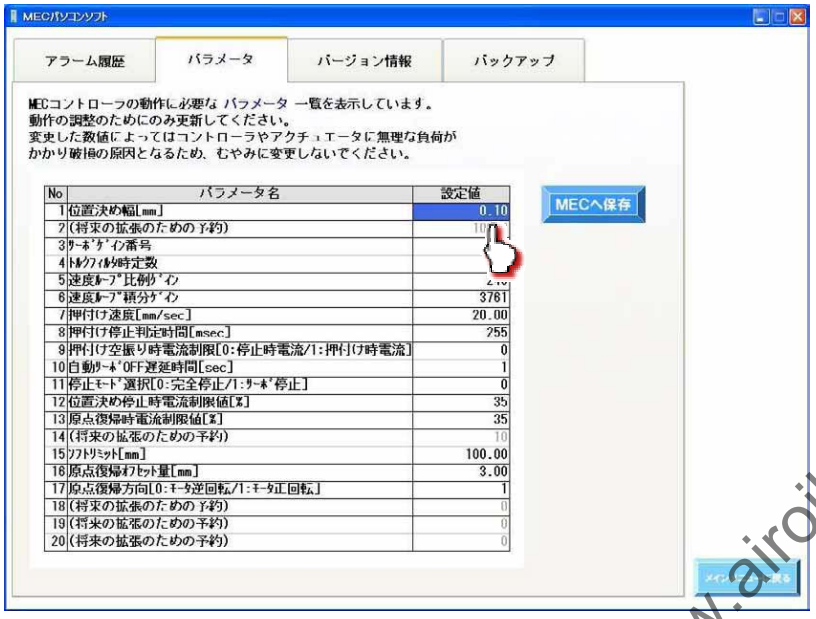
Menu Screen

[1] The maintenance screen appears.
Click the [Parameters] tab. The parameter screen appears.



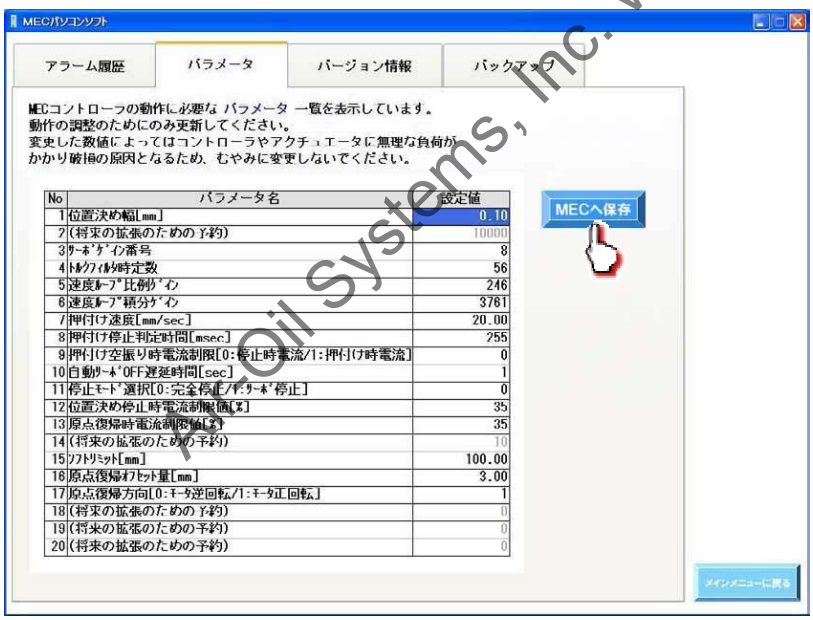
No	パラメータ名	設定値
1	位置決め幅[mm]	0.10
2	(将来の拡張のための予約)	10000
3	ｻｰﾎﾞｹﾞｲﾝ番号	8
4	ﾄﾙｸﾌｨﾙﾀ時定数	56
5	速度ﾙｰﾌﾟ比例ｹﾞｲﾝ	246
6	速度ﾙｰﾌﾟ積分ｹﾞｲﾝ	3761
7	押付け速度[mm/sec]	20.00
8	押付け停止判定時間[msec]	255
9	押付け空振り時電流制限[0:停止時電流/1:押付け時電流]	0
10	自動ｻｰﾎﾞOFF遅延時間[sec]	1
11	停止ﾓｰﾄﾞ選択[0:完全停止/1:ｻｰﾎﾞ停止]	0
12	位置決め停止時電流制限値[%]	35
13	原点復帰時電流制限値[%]	35
14	(将来の拡張のための予約)	10
15	ｿﾌﾄﾘﾐｯﾄ[mm]	100.00
16	原点復帰ｵﾌｾｯﾄ量[mm]	3.00
17	原点復帰方向[0:ﾓｰﾀ逆回転/1:ﾓｰﾀ正回転]	1
18	(将来の拡張のための予約)	0
19	(将来の拡張のための予約)	0
20	(将来の拡張のための予約)	0

[2] Click the set value of the parameter you want to change, enter a new value from the keyboard, and then press the ENTER key to input the value.



No	パラメータ名	設定値
1	位置決め幅[mm]	0.10
2	(将来の拡張のための予約)	10000
3	ｹｰﾎﾞﾀﾞｲﾝ番号	8
4	ﾄﾙｸﾌｨﾙﾀ時定数	56
5	速度ﾙｰﾌﾟ比例ｹﾞｲﾝ	246
6	速度ﾙｰﾌﾟ積分ｹﾞｲﾝ	3761
7	押付け速度[mm/sec]	20.00
8	押付け停止判定時間[msec]	255
9	押付け空振り時電流制限[0:停止時電流/1:押付け時電流]	0
10	自動ｻｰﾎﾞOFF遅延時間[sec]	1
11	停止ﾓｰﾄﾞ選択[0:完全停止/1:ｻｰﾎﾞ停止]	0
12	位置決め停止時電流制限値[%]	35
13	原点復帰時電流制限値[%]	35
14	(将来の拡張のための予約)	10
15	ｿﾌﾄﾘﾐｯﾄ[mm]	100.00
16	原点復帰ｵﾌｾｯﾄ量[mm]	3.00
17	原点復帰方向[0:ﾓｰﾀ逆回転/1:ﾓｰﾀ正回転]	1
18	(将来の拡張のための予約)	0
19	(将来の拡張のための予約)	0
20	(将来の拡張のための予約)	0

[3] Click [Save to the MEC].
The new parameter wetting is saved to the MEC controller.



No	パラメータ名	設定値
1	位置決め幅[mm]	0.10
2	(将来の拡張のための予約)	10000
3	ｹｰﾎﾞﾀﾞｲﾝ番号	8
4	ﾄﾙｸﾌｨﾙﾀ時定数	56
5	速度ﾙｰﾌﾟ比例ｹﾞｲﾝ	246
6	速度ﾙｰﾌﾟ積分ｹﾞｲﾝ	3761
7	押付け速度[mm/sec]	20.00
8	押付け停止判定時間[msec]	255
9	押付け空振り時電流制限[0:停止時電流/1:押付け時電流]	0
10	自動ｻｰﾎﾞOFF遅延時間[sec]	1
11	停止ﾓｰﾄﾞ選択[0:完全停止/1:ｻｰﾎﾞ停止]	0
12	位置決め停止時電流制限値[%]	35
13	原点復帰時電流制限値[%]	35
14	(将来の拡張のための予約)	10
15	ｿﾌﾄﾘﾐｯﾄ[mm]	100.00
16	原点復帰ｵﾌｾｯﾄ量[mm]	3.00
17	原点復帰方向[0:ﾓｰﾀ逆回転/1:ﾓｰﾀ正回転]	1
18	(将来の拡張のための予約)	0
19	(将来の拡張のための予約)	0
20	(将来の拡張のための予約)	0

Click [Return to Main Menu] to return to the main menu.

9. Alarm Display

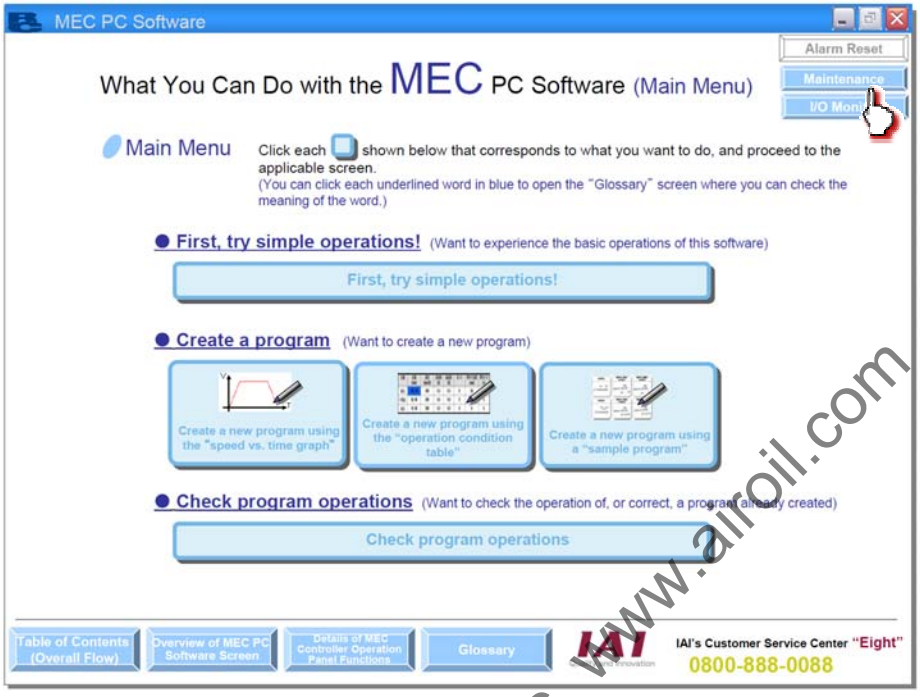
9.1 Alarm Display upon Generation of Alarm

When an alarm generates, [Alarm] changes to red.
At the same time, a message indicating the nature of the alarm and remedial action appears.
Take an appropriate action according to the message.
When [OK] on this message dialog box is clicked, the message dialog box closes.

When this button turns red, an alarm code is displayed

9.2 Alarm History

To display the alarm history, click [Maintenance] on the menu screen.



9.2.1 Displaying the Alarm History

[1] Click the [Alarm History] tab. The alarm history appears.
The last detected warning code, 16 most recent alarm codes and addresses where a runtime error generated (for use in the manufacturer's investigation), detailed codes and times when warnings/alarms generated are displayed.
(Note) A power ON log entry (no error) indicates that the controller power was turned on. This is not an error. The time of generation indicates an elapsed time after this power ON log entry (no error).

Clicking [Refresh] refreshes the display to the latest information.
Clicking [Clear History] clears the history.

履歴	ｺｰﾄﾞ	メッセージ	ｱﾄﾞﾚｽ	詳細	発生時間
最終検出	FFF	ﾊﾟﾜｰｵﾝﾛｸﾞ(ﾉｰｴﾗｰ)	----	----	----:--:--
1回前	0E8	A,B相断線	----	----	0000:00:00
2回前	FFF	ﾊﾟﾜｰｵﾝﾛｸﾞ(ﾉｰｴﾗｰ)	----	----	----:--:--
3回前	0E8	A,B相断線	----	----	0000:00:00
4回前	FFF	ﾊﾟﾜｰｵﾝﾛｸﾞ(ﾉｰｴﾗｰ)	----	----	----:--:--
5回前	0E8	A,B相断線	----	----	0000:01:38
6回前	FFF	ﾊﾟﾜｰｵﾝﾛｸﾞ(ﾉｰｴﾗｰ)	----	----	----:--:--
7回前	000		----	----	----:--:--
8回前	000		----	----	----:--:--
9回前	000		----	----	----:--:--
10回前	000		----	----	----:--:--
11回前	000		----	----	----:--:--
12回前	000		----	----	----:--:--
13回前	000		----	----	----:--:--
14回前	000		----	----	----:--:--
15回前	000		----	----	----:--:--

Click [Return to Main Menu] to return to the main menu.

9.2.2 Saving the Alarm History

[1] You can save the alarm history by clicking [Save History].
(Version 1.00.05.00 or later)

[2] The “Save As” screen appears.
Enter a desired file name and click [Save (S)], and the alarm history will be saved.

9.2.3 Printing the Alarm History

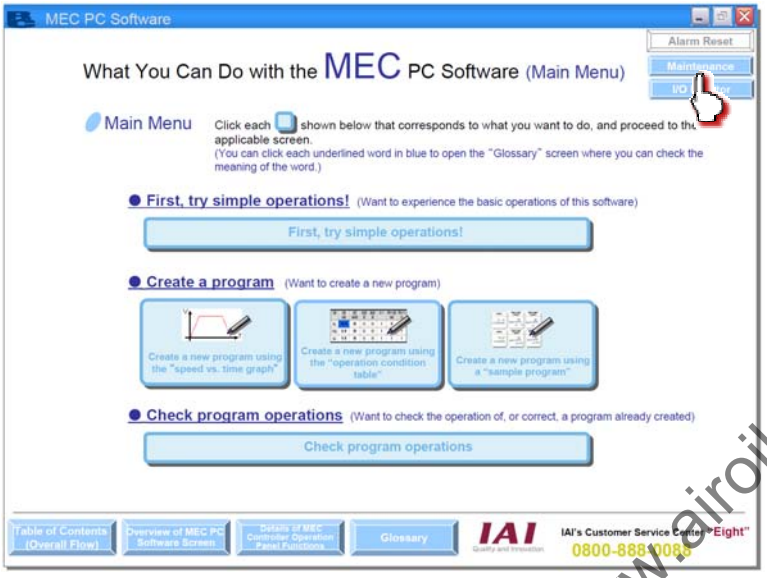
[1] You can print the alarm history by clicking [Printing History].
(Version 1.00.05.00 or later)

[2] The print setup screen appears.
To change the margins and orientation, change the settings and then click [Print], and the alarm history will be printed accordingly.

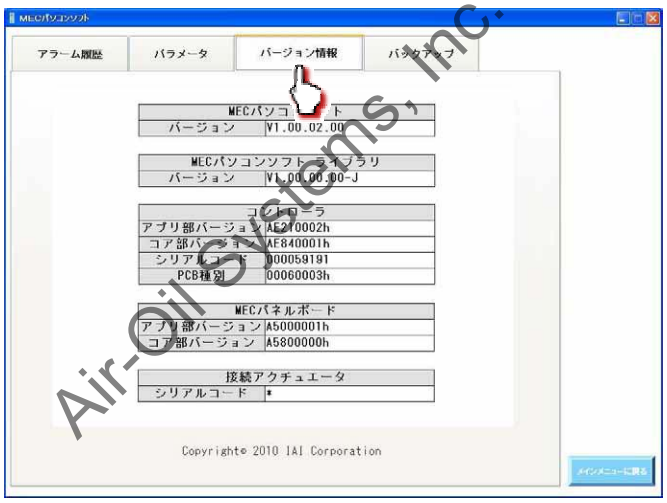
[3] When the printing is complete, the printing complete screen appears. Click [OK].

10. Displaying the Version Information

To display the version information, click [Maintenance] on the menu screen.

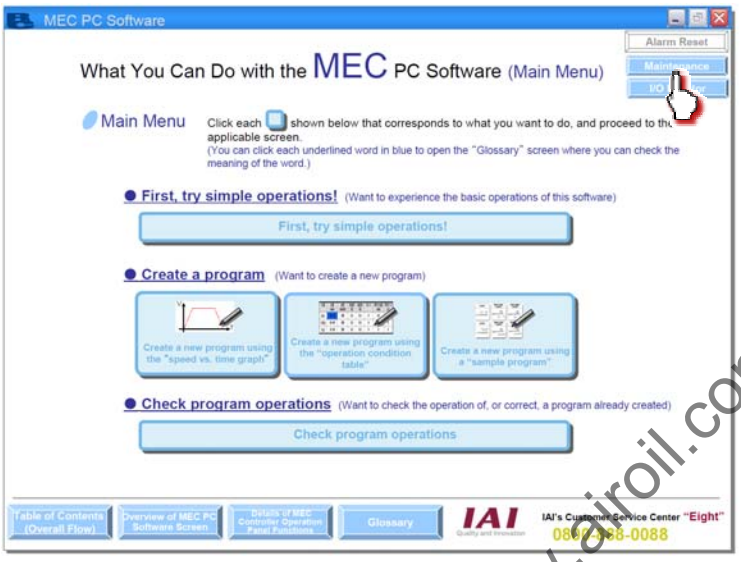


Click the [Version Information] tab. The versions of your MEC PC software, controller, etc., are displayed.



11. Backup

To backup the programs and parameters, click [Maintenance] on the menu screen.



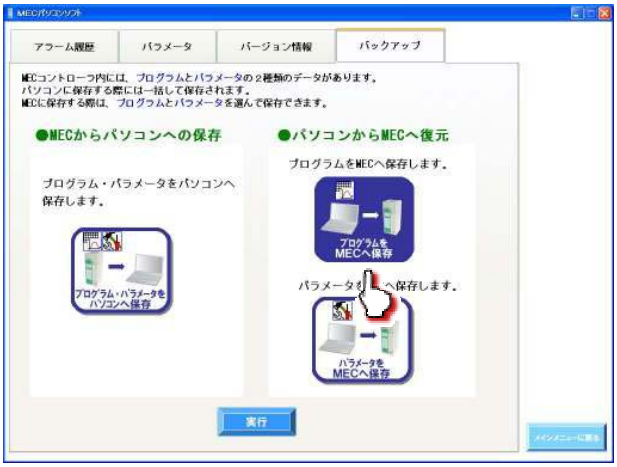
Click the [Backup] tab. The backup operation screen appears.

(1) Saving the programs and parameters to the PC
To save the programs and parameters to the PC, select [Save programs/parameters to the PC], and then click [Execute].

The “Save As” screen appears.
Enter a desired file name and click [Save (S)], and the programs you have created will be saved to the PC.

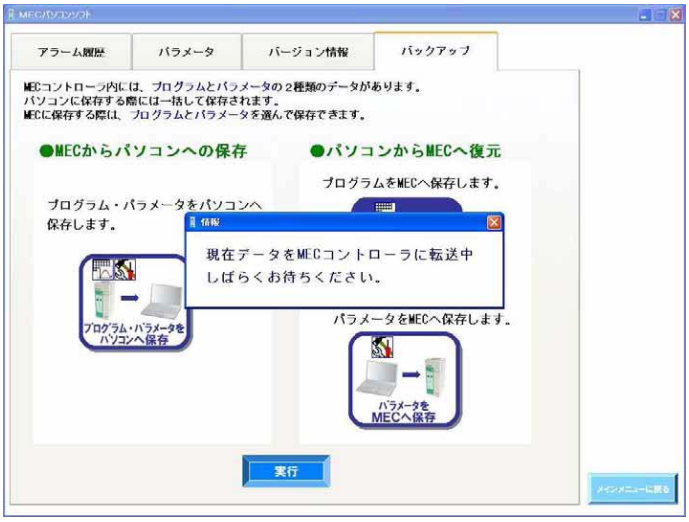
Once the program has been saved, click [Return to the "Main Menu."]. The screen returns to the main menu screen.

(2) Saving the programs from the PC to the controller
To save the programs from the PC to the controller, select [Save program to MEC], and then click [Execute].



Click [Yes] to save the programs to the MEC controller.
(Note) If [No] is clicked, the programs will not be saved to the MEC controller.

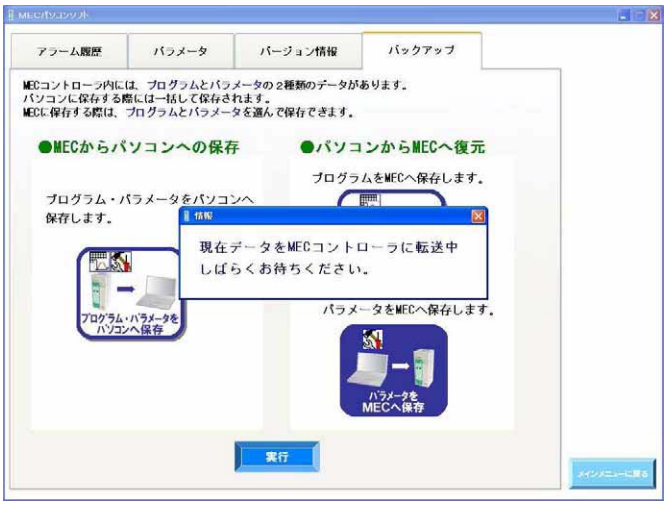
The following message appears while the data is being transferred.



(3) Saving the parameters from the PC to the controller
To save the parameters from the PC to the controller, select [Save parameters to the MEC], and then click [Execute].

Click [Yes] to save the parameter to the MEC controller.
(Note) If [No] is clicked, the programs will not be saved to the MEC controller

The following message appears while the data is being transferred.

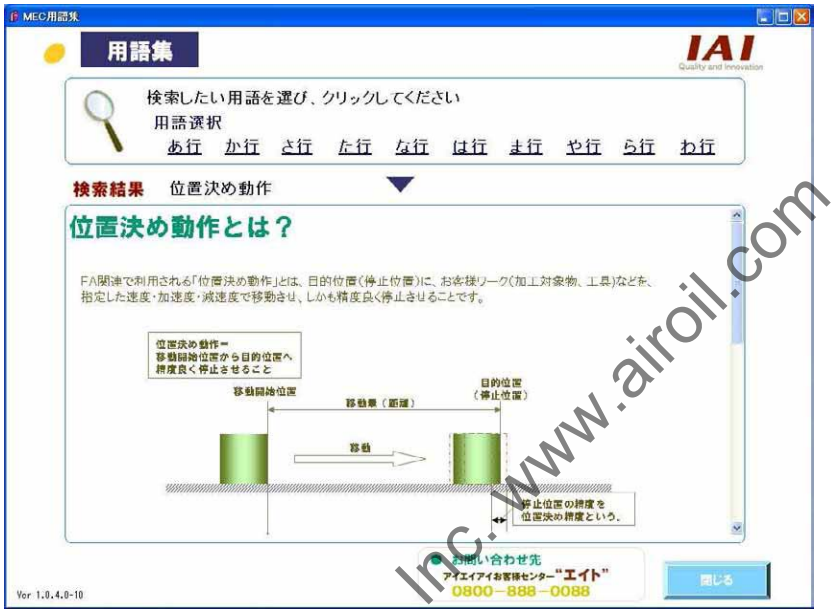


12. Term Search Function

Clicking a desired text with a blue underline on each screen opens the “Glossary” screen.
You can also access the “Glossary” screen by clicking [Glossary] on the main menu screen.

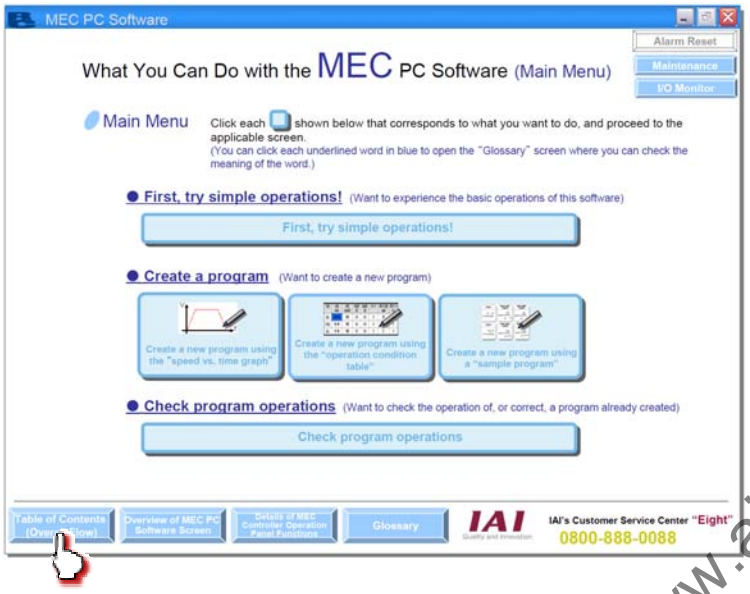
[Glossary]

Move the mouse cursor to an appropriate group in the term selection area and click the term you want to check. An explanation of the selected term is displayed.

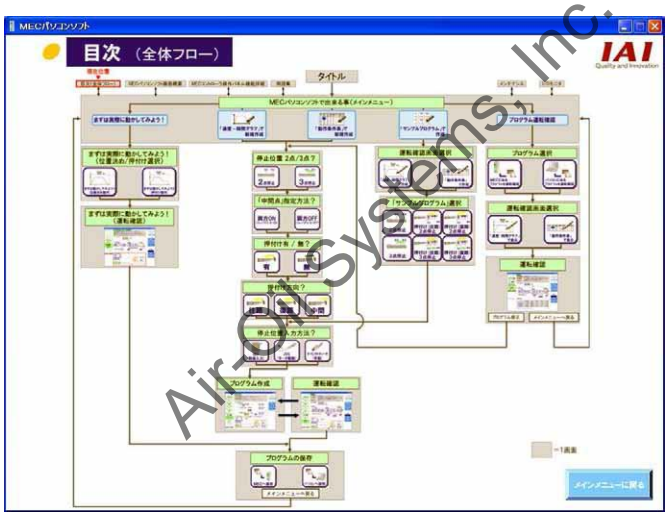


13. Displaying the Table of Contents (Overall Flow)

To display the Table of Contents (Overall Flow), click [Table of Contents (Overall Flow)] in the Main Menu.

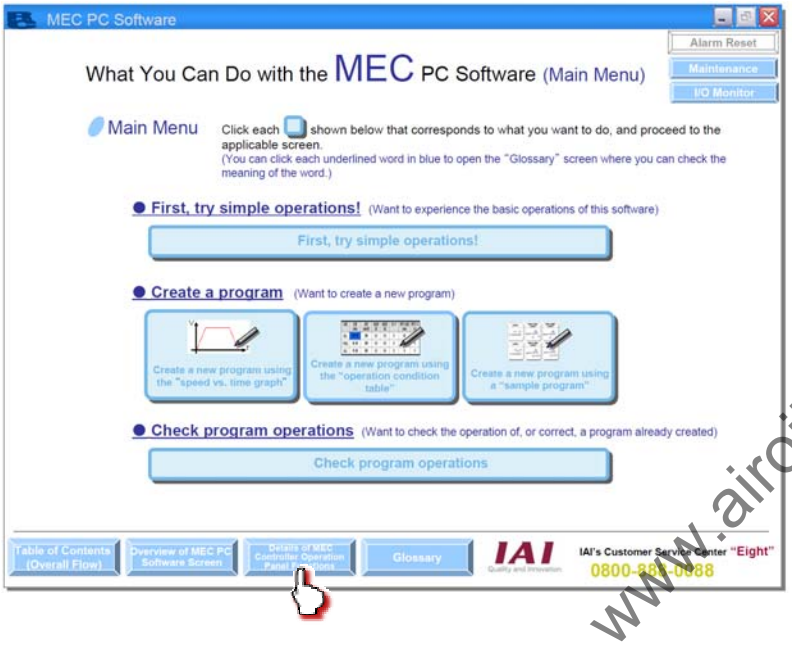


The table of contents (overall flow) appears.

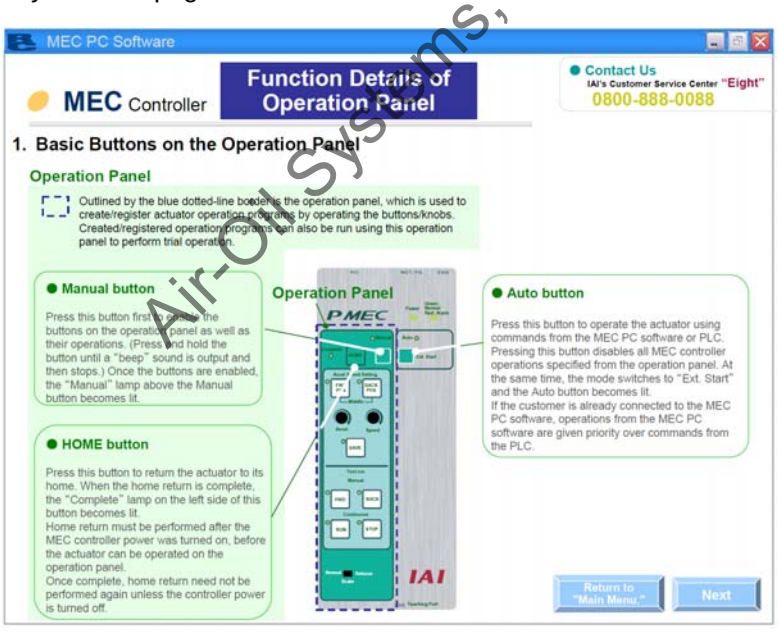


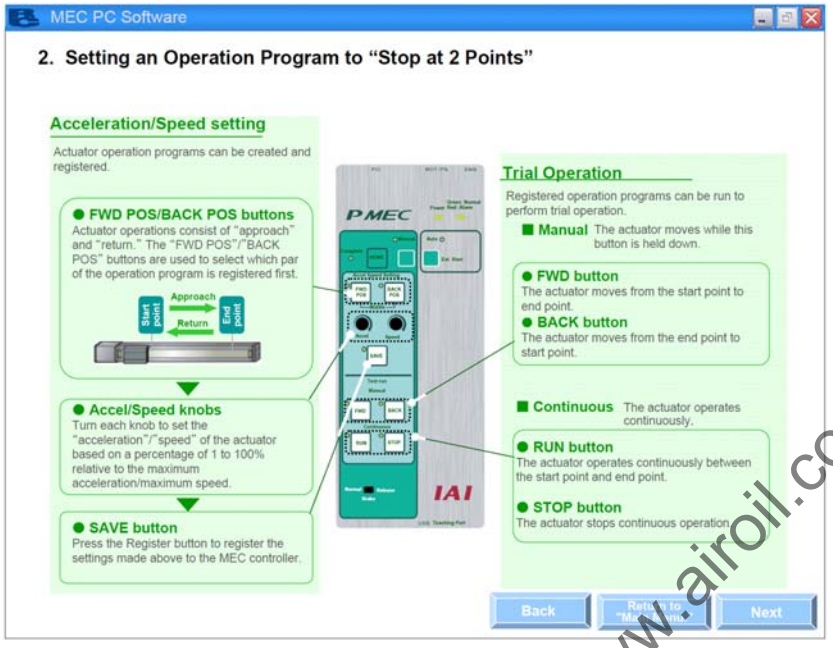
14. Displaying the Function Details of the MEC Controller Operation Panel

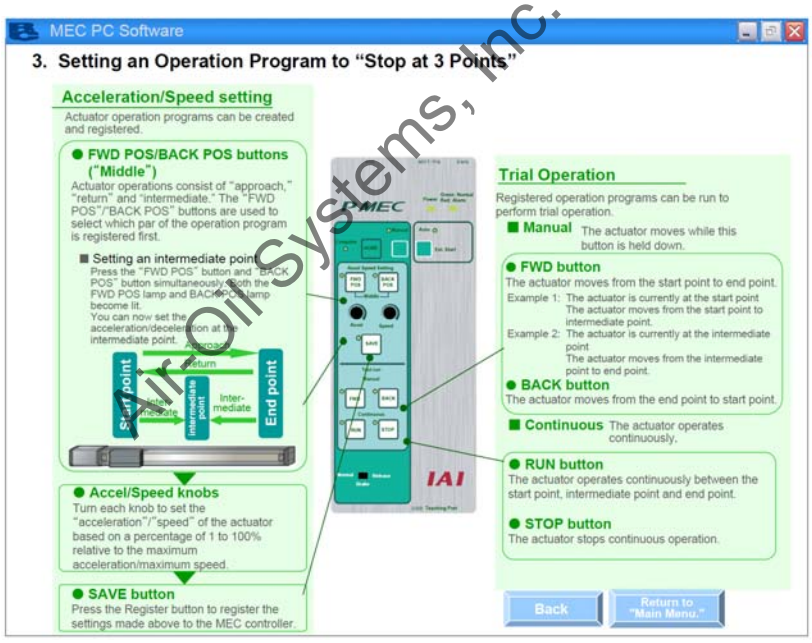
To display the details of the MEC controller operation panel functions, click [Details of MEC Controller Operation Panel Functions] in the Main Menu.



The function details of the MEC controller operation panel are displayed over three pages. Click [Next] to display the next page.





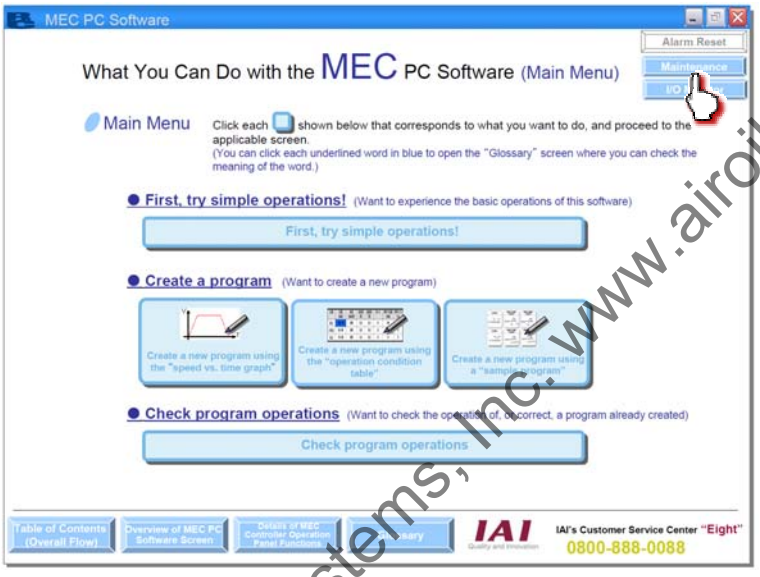


15. Appendix

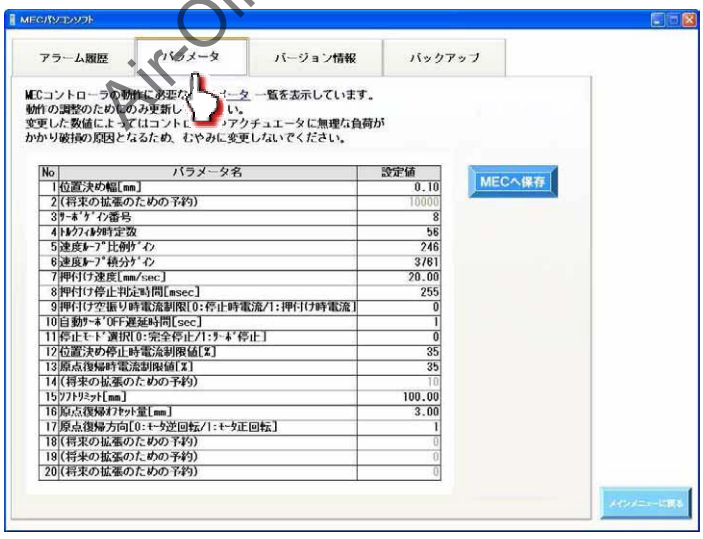
How to Initialize the Parameters (to Their Factory Defaults)
The parameters can be reset to their factory defaults according to the procedure specified below.
(Version 1.00.05.00 or later)

> ⚠ Caution:
> This should be the last resort when an alarm cannot be reset by resetting the software or turning on/off the power. Take note that initializing the parameters (to their factory defaults) restores the factory set parameters by discarding all changes you have made to the parameters.

Click [Maintenance] on the menu screen.

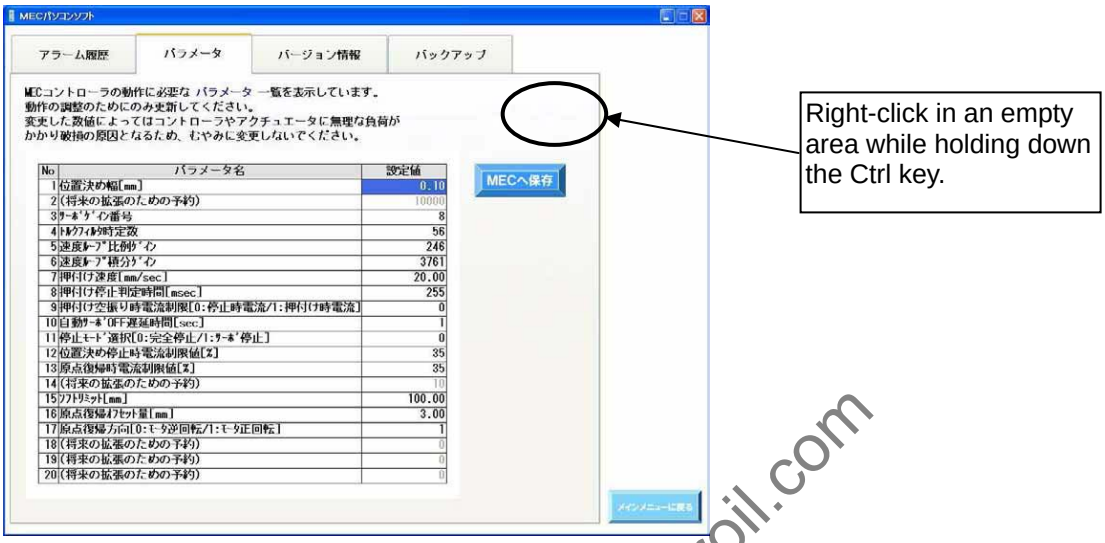


[1] The maintenance screen appears.
Click the [Parameters] tab. The parameter screen appears.

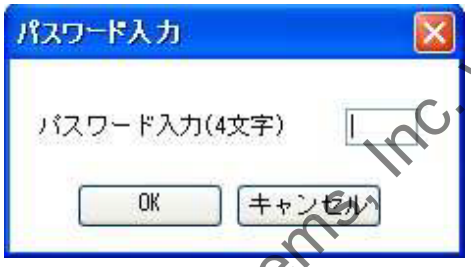


No	パラメータ名	設定値
1	位置決め幅[mm]	0.10
2	(将来の拡張のための予約)	10000
3	ｻｰﾎﾞｹﾞｲﾝ番号	8
4	ﾄﾙｸﾌｨﾙﾀ時定数	56
5	速度ﾙｰﾌﾟ比例ｹﾞｲﾝ	246
6	速度ﾙｰﾌﾟ積分ｹﾞｲﾝ	3761
7	押付け速度[mm/sec]	20.00
8	押付け停止判定時間[msec]	255
9	押付け空振り時電流制限[0:停止時電流/1:押付け時電流]	0
10	自動ｻｰﾎﾞOFF遅延時間[sec]	1
11	停止ﾓｰﾄﾞ選択[0:完全停止/1:ｻｰﾎﾞ停止]	0
12	位置決め停止時電流制限値[%]	35
13	原点復帰時電流制限値[%]	35
14	(将来の拡張のための予約)	10
15	ｿﾌﾄﾘﾐｯﾄ[mm]	100.00
16	原点復帰ｵﾌｾｯﾄ量[mm]	3.00
17	原点復帰方向[0:ﾓｰﾀ逆回転/1:ﾓｰﾀ正回転]	1
18	(将来の拡張のための予約)	0
19	(将来の拡張のための予約)	0
20	(将来の拡張のための予約)	0

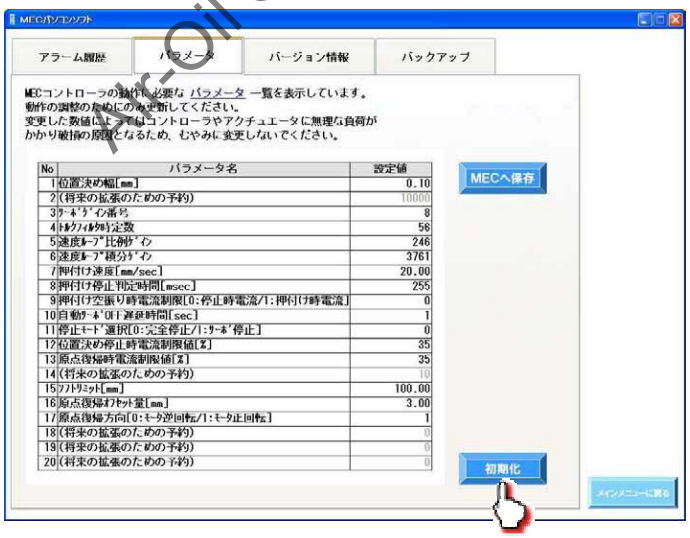
[2] Right-click in an empty area as shown below while holding down the Ctrl key.



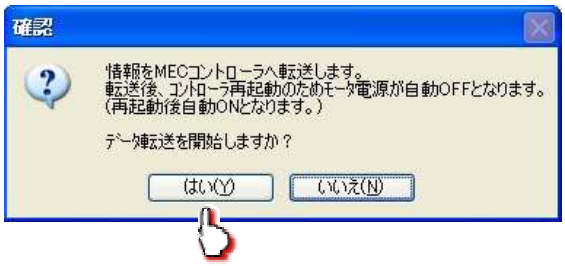
[3] The “password entry screen” appears. Enter the password 5119.



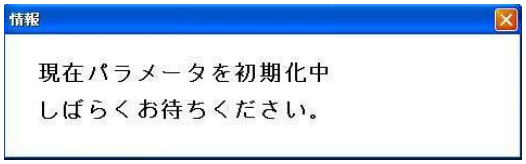
[4] The [Initialize] button appears. Click the [Initialize] button.



[5] The confirmation screen for parameter initialization (to factory defaults) appears. Clicking [Yes] initializes the parameters.



The following message appears while the initialization is in progress.



Change History

Revision Date	Description of Revision
March 2010	First edition
March 2010	Second edition P9 to 38 Added methods to start the installer when “ZIP file was downloaded” and “Self-extracting file was downloaded.”
May 2010	Third edition Added an operation flow for each menu in 3.1, 3.2 and 3.3. Changed operations in 8, “Editing Parameters.” Added 9.1, “Alarm Display upon Generation of Alarm.” Added 9.2.2, “Saving the Alarm History.” Added 9.2.3, “Printing the Alarm History.” Added 10, “Displaying the Version Information.” Added 11, “Backup.” Added 13, “Displaying the Table of Contents (Overall Flow).” Added 14, “Displaying the Function Details of the MEC Controller Operation Panel.” 15, “Appendix”
July 2010	Fourth edition Added 1.2.3, "How to Install the Software/Uninstall the USB Driver on a PC Running Windows Vista." Added 1.2.4, "How to Install the Software/Uninstall the USB Driver on a PC Running Windows 7."

Catalog No.: ME0248-4A

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