MiO-Programmer

PC Software for the MiO Controller

Instruction Manual

Rev. 1.41
For ***MiO-Programmer*** Ver. 1.42

MiO-Programmer License Agreement

Thank you for choosing ***MiO-Programmer***.

You must accept the following terms and conditions to use ***MiO-Programmer***, a software program developed by SUS Corporation (hereinafter referred to as "SUS"). If you do not accept these terms and conditions, please remove ***MiO-Programmer*** from your computer immediately.

1. This agreement comes into effect when you start using ***MiO-Programmer***.
2. The copyright on ***MiO-Programmer*** is held by SUS.
3. You are the only person entitled to use ***MiO-Programmer***. In addition, you may only use it for your own business purposes with SUS's ***MiO controller*** and ***SiO controllers***.
4. No part of ***MiO-Programmer*** or the accompanying documentation may be reproduced, modified, or transcribed without the prior written consent of SUS.
5. SUS assumes no liability for the consequences of your use of ***MiO-Programmer*** (see "***MiO-Programmer*** Disclaimer"). No compensation may be claimed against SUS for any damage resulting from the use of ***MiO-Programmer***.
6. If you breach any of these terms, or if there are serious circumstances that make it difficult to continue this agreement, SUS may immediately terminate the license.
7. SUS may change the specifications of ***MiO-Programmer*** without prior notice. In addition, SUS does not provide any warranty for ***MiO-Programmer***.

MiO-Programmer Disclaimer

SUS shall not be liable for any problems with or damage to your computer, peripheral devices, data, or other property resulting from your use of ***MiO-Programmer***. Please be aware of this before using ***MiO-Programmer***.

Trademarks

1. The Windows logo is a registered trademark of Microsoft Corporation in the United States and other countries.
2. Adobe Acrobat Reader is a trademark of Adobe Systems Incorporated.

Table of Contents

Introduction

MiO-Programmer is PC software that supports SUS Corporation's ***MiO controller*** and ***SiO controllers***.

It allows you to write program data and parameters to controllers easily and efficiently. You can also save your edited data to a file or print it.

You will find that this software makes the ***MiO controller*** and ***SiO controllers*** easier to use.

This manual covers *MiO-Programmer* version 1.42.
The version of *MiO-Programmer* can be found in the upper-left corner of the *MiO-Programmer* screen.
(See page 11.)

The information in this manual is subject to change without notice due to product improvement.
For the latest information, please visit our website at:
https://www.sus.co.jp/

The URL for the SiO controller is here.
https://fa.sus.co.jp/products/sio/

Precautions for Use

- Make sure that ***all controllers*** *are turned off* before connecting a communication cable to or disconnecting it from a computer with ***MiO-Programmer*** installed.

- To transmit data between your computer and the ***controllers***, use the USB cable specified by SUS.

- Do not turn off the ***controllers*** during data communication between your computer and the ***controllers***. Also, be sure to connect the USB cable securely to prevent it from coming off during data communication.

- Do not connect the computer to multiple controllers via USB cables to communicate data. Doing so may prevent proper communication.

- If you are using a USB flash drive to save data, **do not unplug it while the software is running.**

- Do not press any button repeatedly fast when registering program data, forcing output via the I/O monitor, or performing other tasks. Doing so may stop the communication.

Overview

Here is a brief overview of the features supported by ***MiO-Programmer***:

◆ Editing programs

You can edit program data.
Your edited data can be saved to a file or printed.

In addition, the data can be read, written, or collated via communication.

◆ Setting parameters

You can edit parameters such as the time intervals for ON/OFF cycle settings.

◆ Monitoring

You can monitor the I/O status. The output status can be forced on or off.

◆ Simulation

The program data you enter can be simulated on your computer.
This allows you to check inputs and outputs before connecting your computer to the controllers.

Operating Environment

The following environment is required to run ***MiO-Programmer***.

◆ Supported computer OS versions

Windows 7	(32/64-bit version)
Windows 8	(32/64-bit version)
Windows 8.1	(32/64-bit version)
Windows 10	(32/64-bit version)
Windows 11	

Note: Even on these operating systems, ***MiO-Programmer*** may not work properly, depending on your computer model.

◆ CPU and memory

2 GHz or faster CPU and 4 GB or more of system memory recommended

◆ Hard disk space

512 MB or more of free space

◆ Display

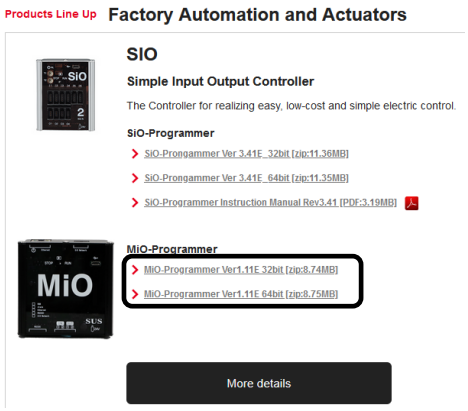
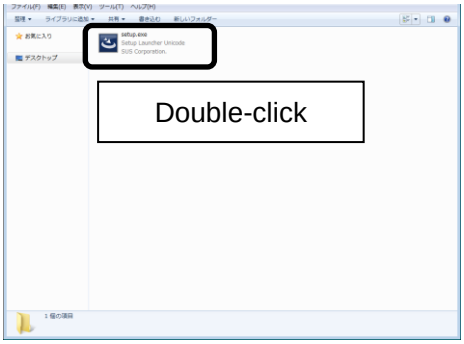
Resolution: 1280 × 768 or more

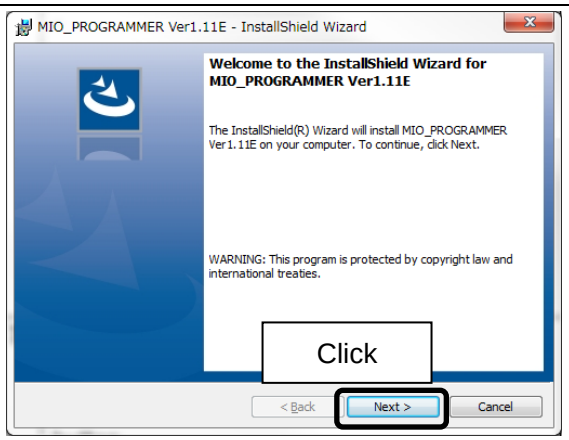
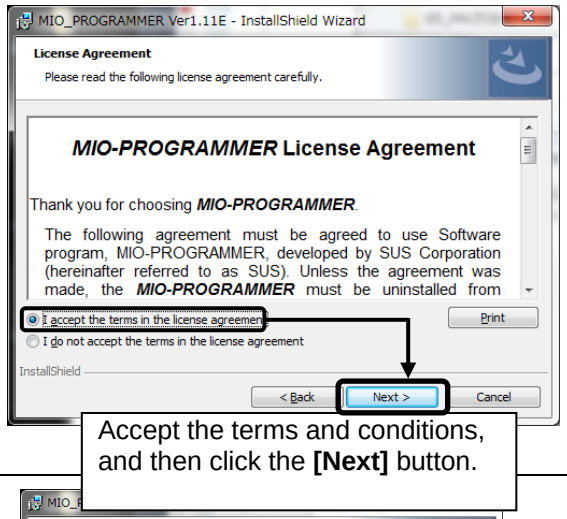
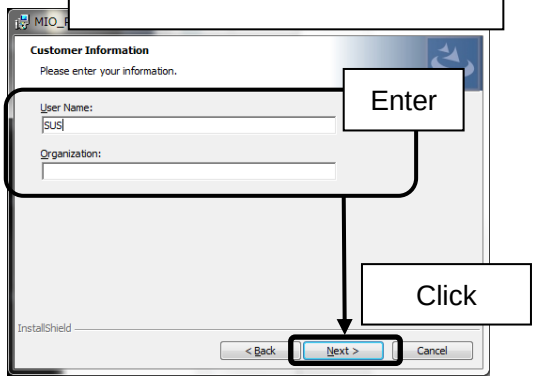
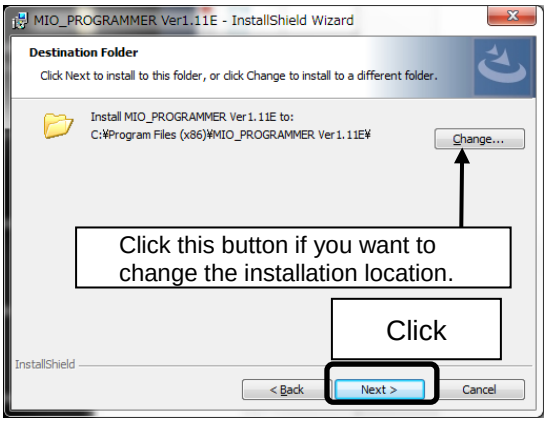
◆ Other

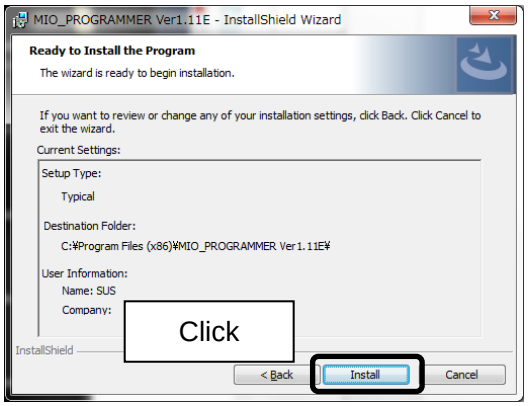
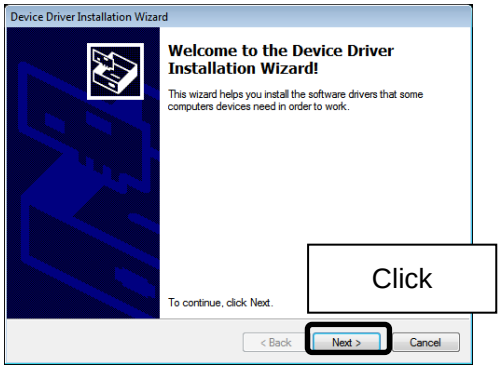
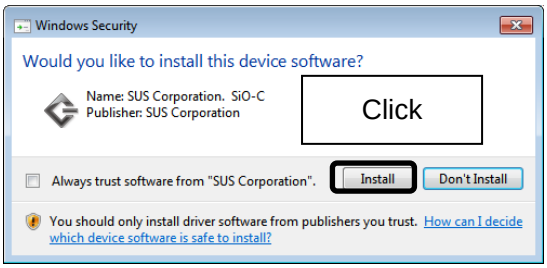
USB 2.0 port

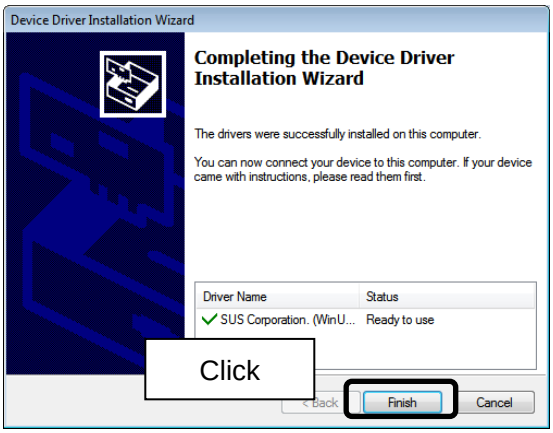
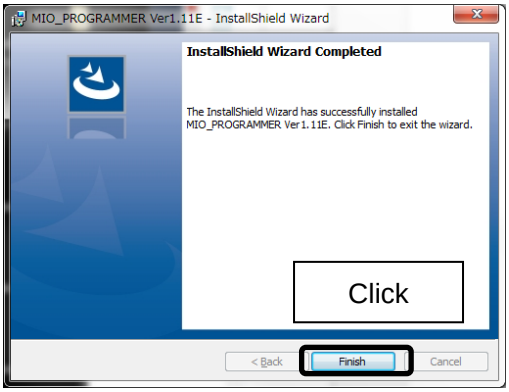
Installing MiO-Programmer

MiO-Programmer is installed and used on the hard disk of the personal computer.
Please close other applications before installing.
This section describes how to install MiO-Programmer using a Web browser as an example.

1	Read the ***MiO-Programmer*** license agreement on SUS Corporation's website (https://global.sus.co.jp/business/#snets). Accepting the terms and conditions will take you to the download page. Download (and save) the ***MiO-Programmer*** setup program to your computer. It is available as a compressed file for download. The file name is **"MiOPROGRAMME_V###.zip".** Note: The "###" represents the version number.	
2	Unzip the downloaded (saved) zip file. Double-click "**setup.exe**" in the unzipped folder to start installation.	

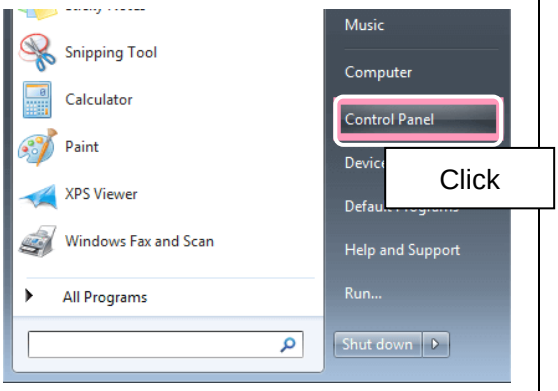
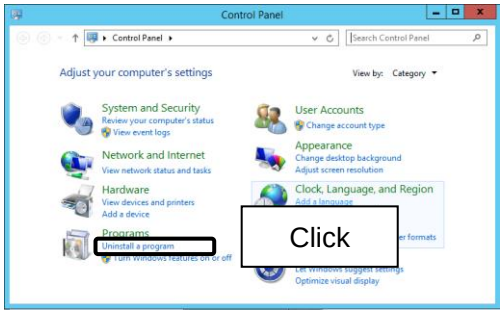
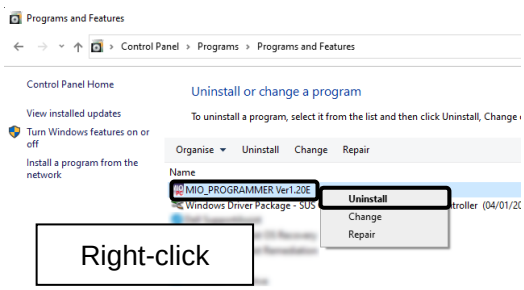
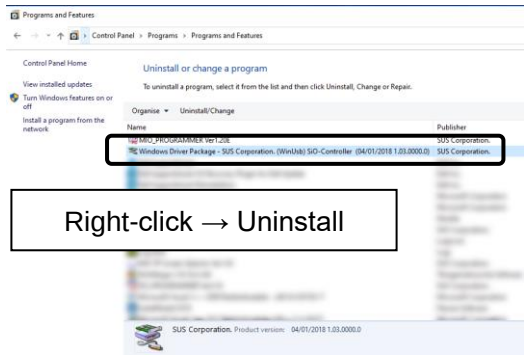
6	When the setup wizard appears, click the **[Next]** button.	
7	Read the ***MiO-Programmer*** license agreement and accept the terms and conditions. Then click the **[Next]** button. Note: If you do not accept the terms and conditions, you cannot proceed with the installation.	
8	Enter your user name and organization name, and then click the **[Next]** button.	
9	By default, a folder named "MIO_PROGRAMMER###" is created in the "Program Files" folder as the installation location. To use the default folder, click the **[Next]** button. To use a different folder, click the **[Change]** button and specify the desired folder. Note: The "###" represents the version number.	

10	Verify that the installation location and the user and organization (company) names you entered are correct. Then click the **[Install]** button.	
11	The Device Driver Installation Wizard appears. Click **[(Next)]**.	
12	When a dialog box like the one shown on the right appears, click **[(Install)]**.	

13	When the device driver has been installed, click **[(Finish)]**.	
14	The MiO-Programmer installation wizard switches to the Installation Complete window. Click **[Finish]**.	
15	After the installation is complete, you can delete “MiO-PROGRAMMER_V###.zip” and the unzipped files (e.g., “setup.exe”).	

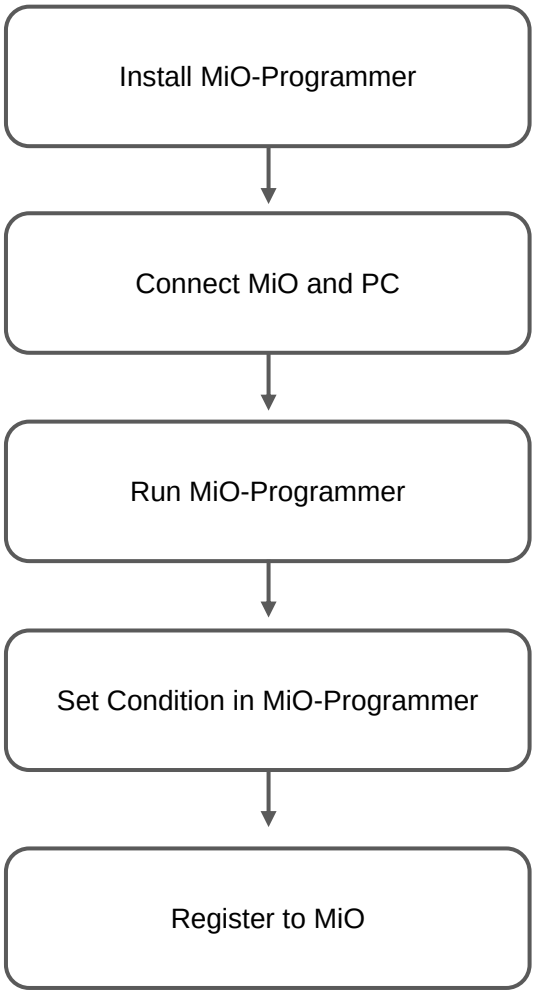
Uninstalling MiO-Programmer

The process of removing files and other data from a computer's hard disk is called uninstallation. Here is how to uninstall ***MiO-Programmer*** from your computer's hard disk:

1	Click the Start button > **[Control Panel]** to open the Control Panel.	
2	Click **[Uninstall a program]**.	
3	Select and right-click "***MiO-Programmer***" in **[Programs and Features]**, and then select [Uninstall].	
4	Uninstall the device driver. To do so, select and right-click "***Windows Driver Package - SUS Corporation. (WinUSB) SiOController***", and then select [Uninstall]. Note: If the above driver is not displayed and "***Windows Driver Package D:Frontia(WinUSB)USBTMCd***" exists, uninstall this driver instead.	

Setting Up the MiO and SiO Controllers

Follow the steps below to set up the MiO and SiO controllers.



Connecting a USB Cable

Computer side

Install MiO-Programmer and its software driver before connecting the controller to your computer. (See page 4.)
After installing them, connect the Type A connector of the USB cable to a USB port on your computer.

Controller side

Connect the micro-USB connector of the USB cable to the MiO or SiO controller.
Be sure to gently insert the connector while holding the controller with your hand.

If the cable is connected correctly, the device driver is installed properly, making your computer and the controller ready to communicate with each other.

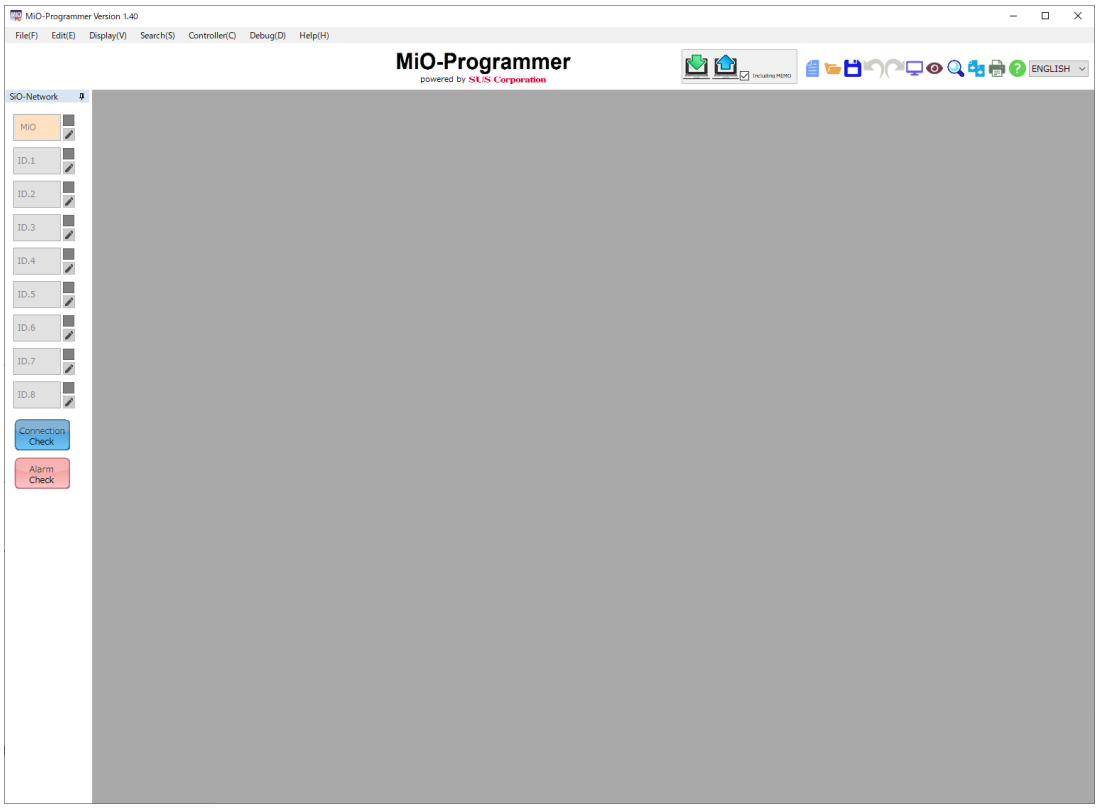
Notes:

- A single computer cannot work with multiple controllers at the same time.
- Once the USB communication is complete, unplug the power cable from the controller to turn it off, and then disconnect the USB cable.

Starting MiO-Programmer

Once the installation is complete, a shortcut icon for ***MiO-Programmer*** is created in the Start menu. Click the icon to start MiO-Programmer.

If you used the default folder during installation, the icon is stored in the following location: 
[Start Menu] > [Programs] > [MIO_PROGRAMMER]



Program Window

● This section shows the names of the screen elements and describes their functions.

(1) Controller selection buttons(See page 14.)

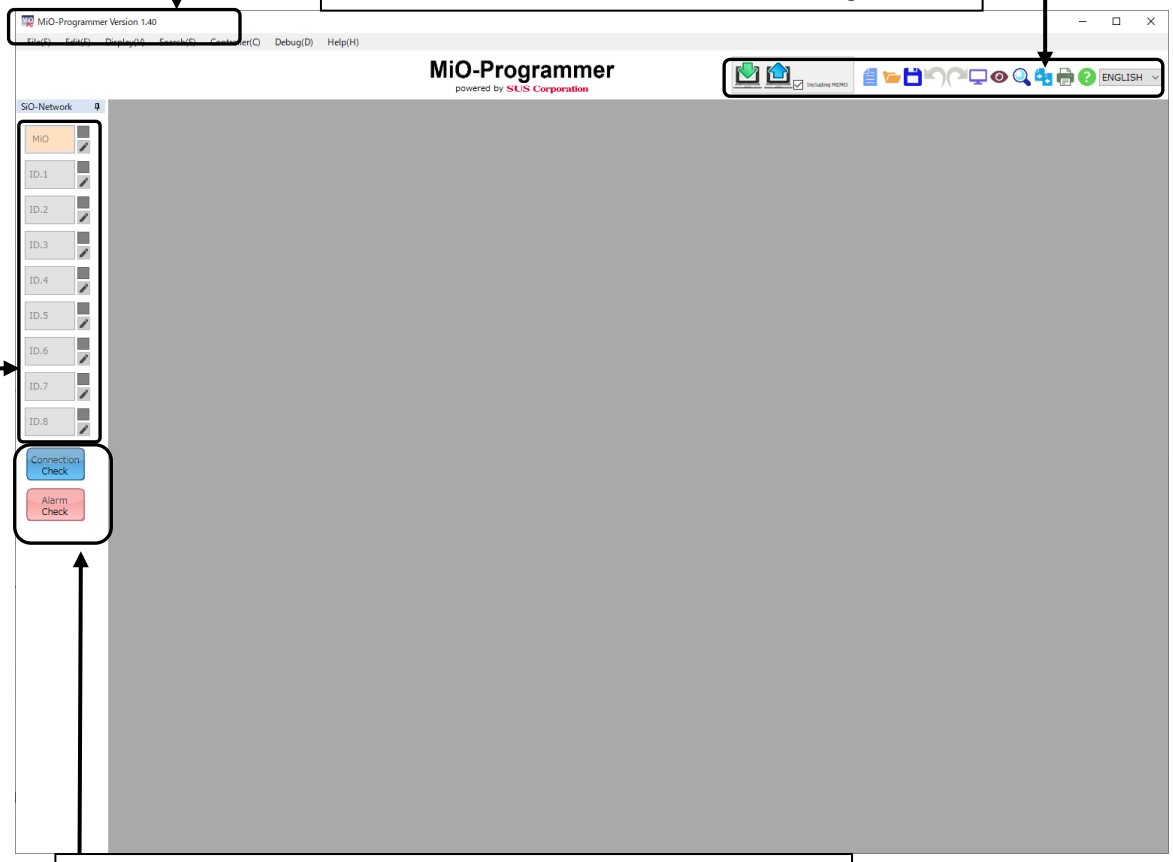
These buttons enable you to select the controller for which you want to configure settings.
Click the desired button to activate it, and click the edit button to display the program edit window.
Once communication is established for purposes such as checking connections, the indicators for the connected

(2) Tool icons (See page 14.)

These icons allow you to compare data, use the I/O monitor, save configuration files, and perform other tasks.

(3) Version number

Indicates the version number of MiO-Programmer.



(4) Connection Check

When the computer is connected to the MiO via USB: Allows you to check the connections to the networked controllers.
When the computer is connected to an SiO controller via USB: Allows you to check the connection to that controller.

The indicators next to the controller selection buttons for the connected controllers light up green.

(5) Alarm Check

Displays the alarm details for the controllers.

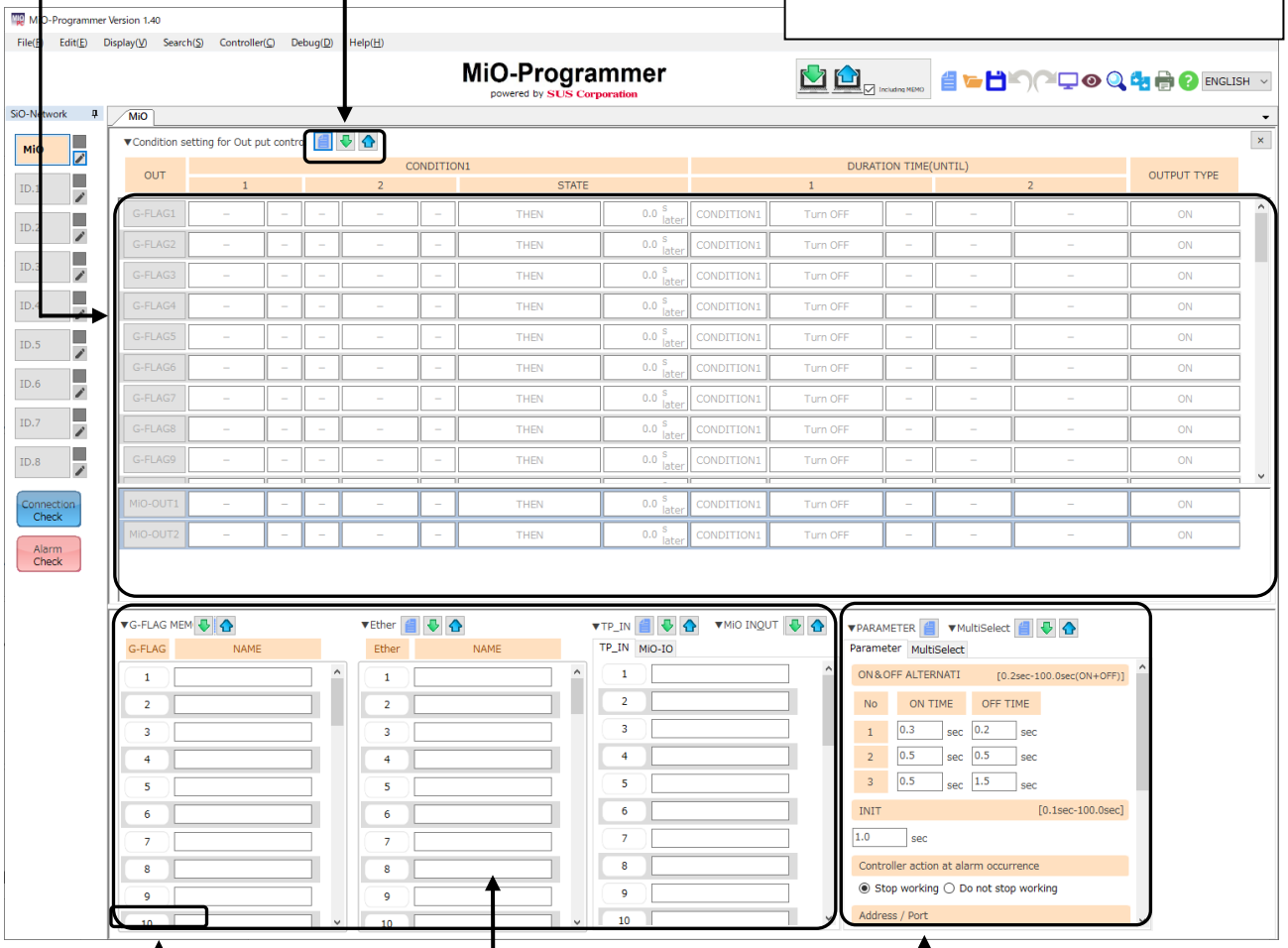
- MiO

(6) Output condition settings (See page 16.)

Specify input, time, and output settings to set up the MiO controller.

(7) [New], [Read], and [Write]

These buttons are used to perform tasks such as reading from the MiO controller.
[New]: Restores the default settings for the current program.
[Read] and [Write]: Used to read settings from or write them to the controller.



(8) Controller version number

Indicates the version number of the controller that has performed communication.

(10) Parameter settings (See page 33.)

Configure settings for [Parameters] and [Multiple selections] tabs.
Click the [Reset] button to restore the default settings.

(9) MEMO (See page 31.)

The note fields allow you to take notes about inputs and outputs. (You can enter notes for multiple-selection conditions in the [Parameter settings] area.) The notes you enter here are reflected in the program, I/O monitor, and simulator windows. A note can contain up to 16 half-width characters or up to nine full-width characters.

Note: MEMO will not be saved to the controller. You need to save notes to an mio file. (See page 14.)

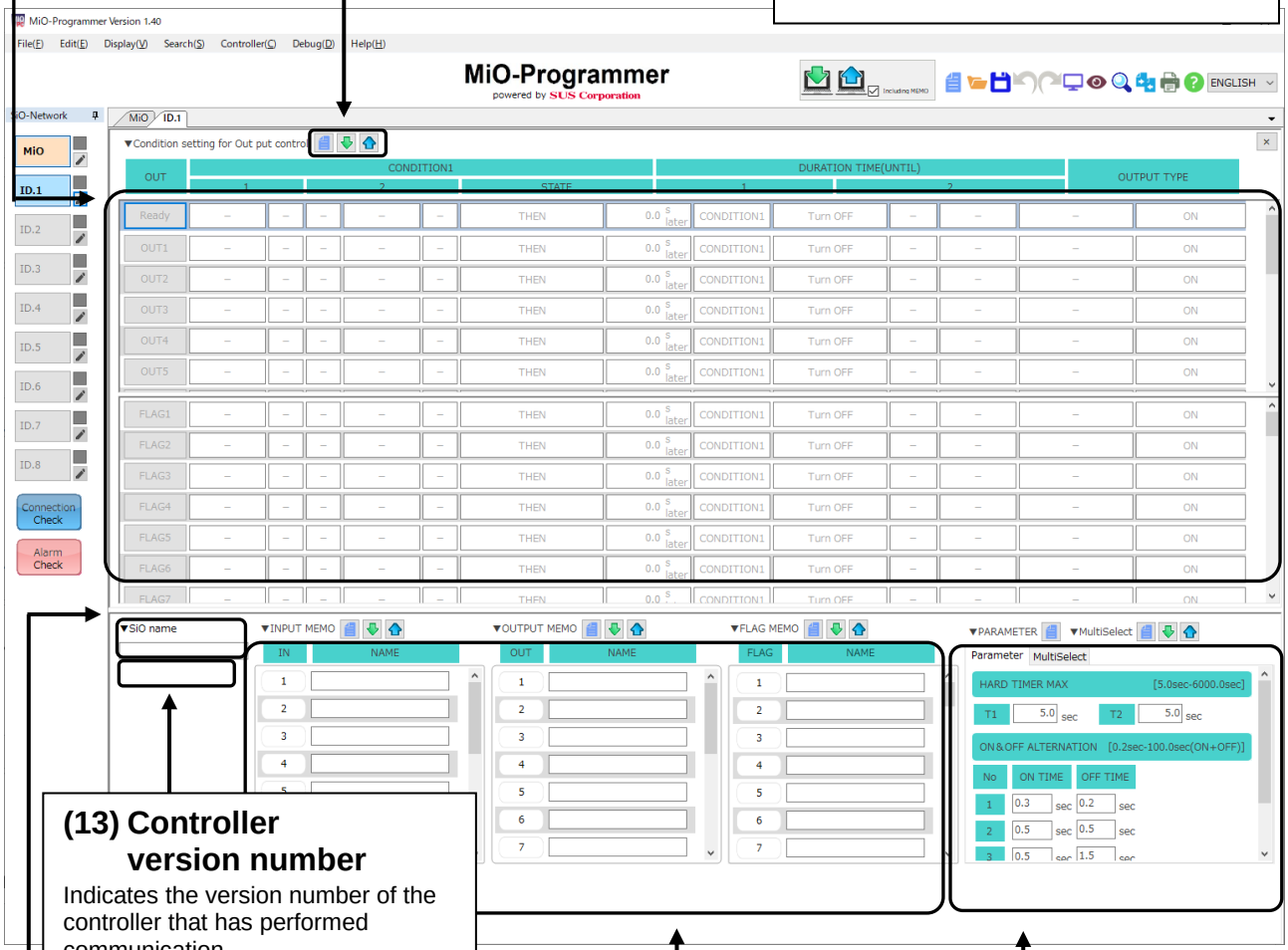
- SiO

(11) Output condition settings (See page 16.)

Specify input, time, and output settings to set up the SiO controller.

(12) [New], [Read], and [Write]

These buttons are used to perform tasks such as reading from the currently displayed SiO controller.
[New]: Restores the default settings for the current program.
[Read] and [Write]: Used to read settings from or write them to the controller.



(13) Controller version number

Indicates the version number of the controller that has performed communication.

(15) SiO name

You can make a note of the SiO name.
The name entered here is reflected on the corresponding controller selection button.
You can enter up to 16 half-width characters and up to 9 full-width characters.

(14) Parameter settings (See page 33.)

Configure settings for [Parameters] and [Multiple selections] tabs.
Click the [Reset] button to restore the default settings.

(16) MEMO (See page 31.)

The note fields allow you to take notes about inputs and outputs. (You can enter notes for multiple-selection conditions in the [Parameter settings] area.) The notes you enter here are reflected in the program, I/O monitor, and simulator windows. A note can contain up to 16 half-width characters or up to nine full-width characters.

Note: MEMO will not be saved to the controller. You need to save notes to a mio file. (See page 14.)

Tool Icons

(1) (2) (3) (4) (5) (6) (7) (8) (9)(10)(11)(12)(13)(14) (15)

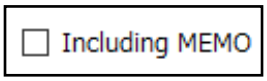
(1) Read from all controllers 

Reads settings from all connected controller.

※If Read from all controllers is performed,
the settings of ID screens that are not connected will be initialized.

(2) Write to all controllers 

Writes settings to all connected controller.

(3) "Including MEMO" checkbox 

At the time of batch reading / batch registration of (2) and (3), you can select whether to read / register the memo together.

(4) New 

Discards the current program, notes, parameters, and other settings, and restores the default settings.
It is recommended to save your settings to a file before clicking this icon, as discarded settings cannot be restored.

(5) Open 

Opens a saved configuration file. Select a configuration data file (*.mio), and the settings saved in the file are reflected in the window.
Note: You can also open an MiO file by dragging and dropping it.

(6) Save 

Saves the current settings. The extension of the configuration file is ".mio".
If you name the file "sample", it is saved under the name "sample.mio".

(7) Undo 

Restore the currently program, notes, parameters, and other settings.
This function can be performed up to 20 times.

(8) Redo

It's possible to cancel the undo.
This function can use only the number of times which undo.

(9) Simulation

Starts simulation (see page 49).
This allows you to check how the program you configured works.
Note: You can use this feature without connecting the computer to the controller.

(10) I/O monitor

Starts monitoring the inputs and outputs (see page 47).
You can check the I/O status and switch the output status on or off.
Note: To use the I/O monitor, you need to connect the computer to the MiO controller.

(11) Find and replace

Enables you to find and replace items (see page 51).
Find:
All matches for the input or output you specified are highlighted in yellow.
Replace:
You can replace the found matches with the desired input or output.
If there is a multiple-selection condition that includes the found input or output, the match in that condition is also replaced.

(12) Data comparison

Compares the current settings in MiO-Programmer with the settings on the connected controller or in a MiO data file.
Any differences are highlighted in red.
Note: To compare the current settings with the settings on a controller, connect the computer to the controller to allow communication between them.

With the computer connected to the MiO controller, a comparison will be made with the entire network.
With the computer connected to a SiO controller, a comparison will be made with the connected controller.

(13) Print

Prints the settings window.

(14) Help

Displays this manual in PDF format. To view the manual, you must have Adobe Reader installed on your computer. Install it if necessary.

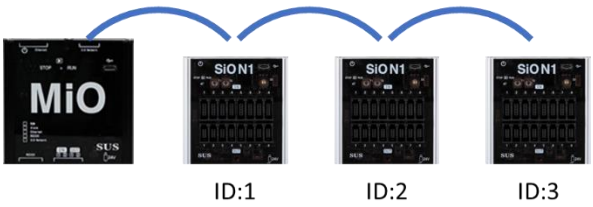
(15) Language selection JAPANESE

Change the language as needed. Japanese and English are supported.

Network Configuration

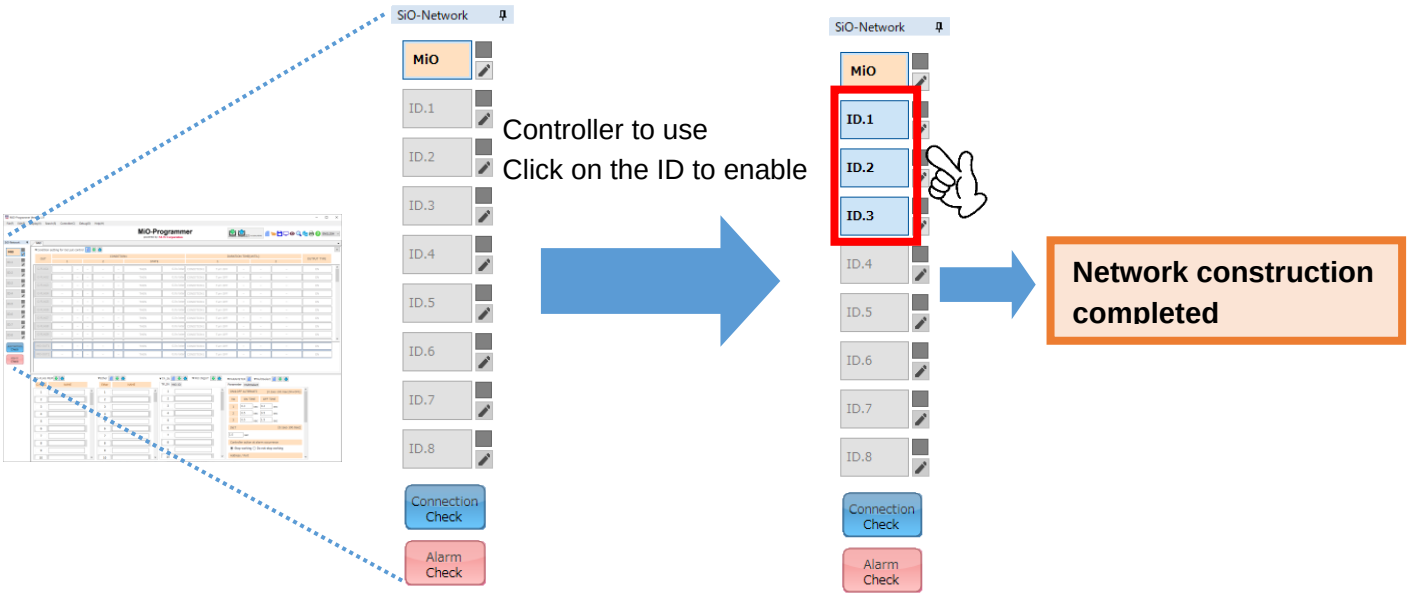
＜From network configuration construction to registration＞

"Network configuration" means "configuration of SiO controller to be used and connected".
For example, the figure below shows the MiO controller connected to SiO-N1 with IDs 1, 2, and 3, respectively.

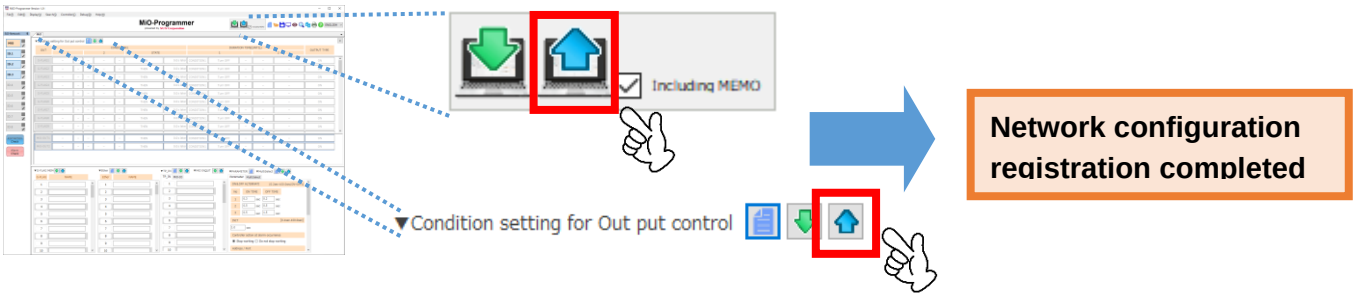


* If "Network Configuration" is not registered, the SiO network cannot be used.

The specific registration method is as follows.



After building the network, register it with the MiO controller.
The registration method can be done from the following two buttons in the same way as the program registration method.



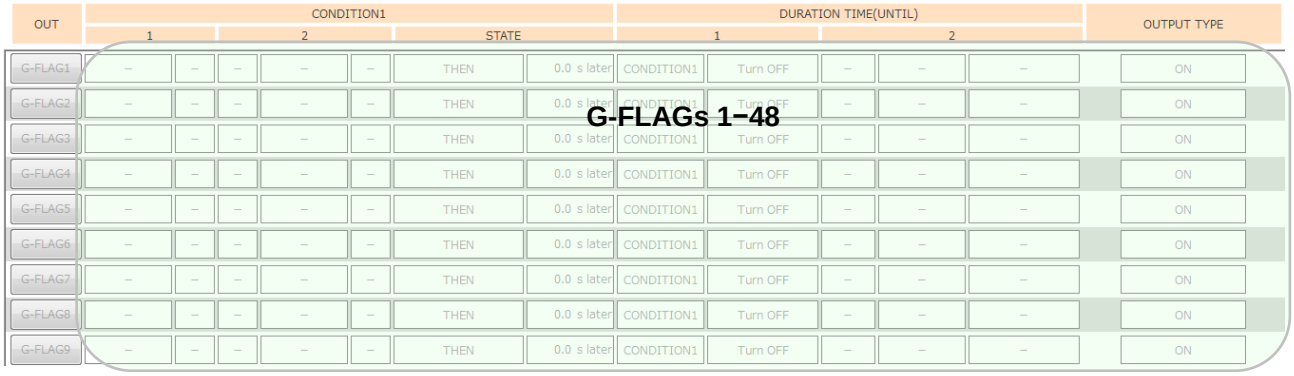
Editing Data

Window for Creating Programs

The [Output condition settings] area allows you to program the MiO and SiO-N1/SiO-N1 R2/SiO-N3 controllers.
You can read program data from a file or a controller as well as create it.

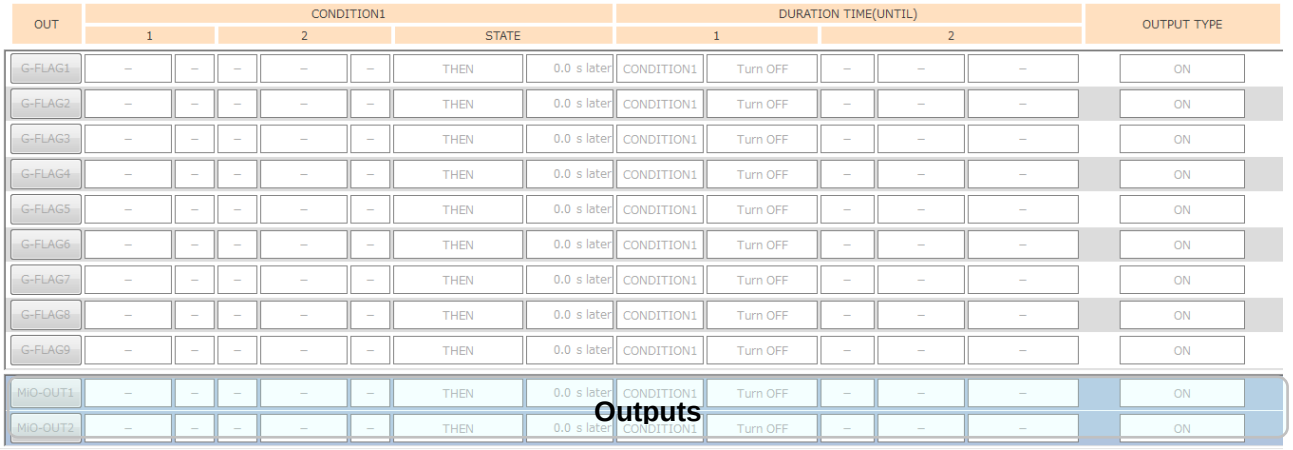
The number of available outputs varies depending on the controller model.

- MiO: Two outputs and 48 G-flags

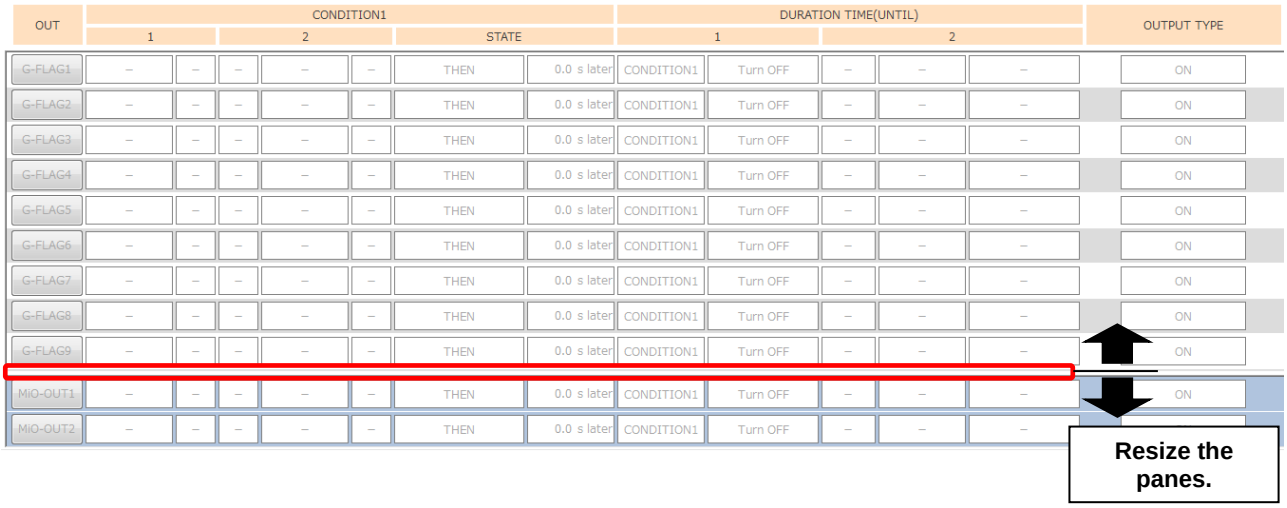


G-flags (global flags) set on the MiO can be used as conditions for any controllers on the SiO network.

The outputs can be used to enter notes and set conditions.



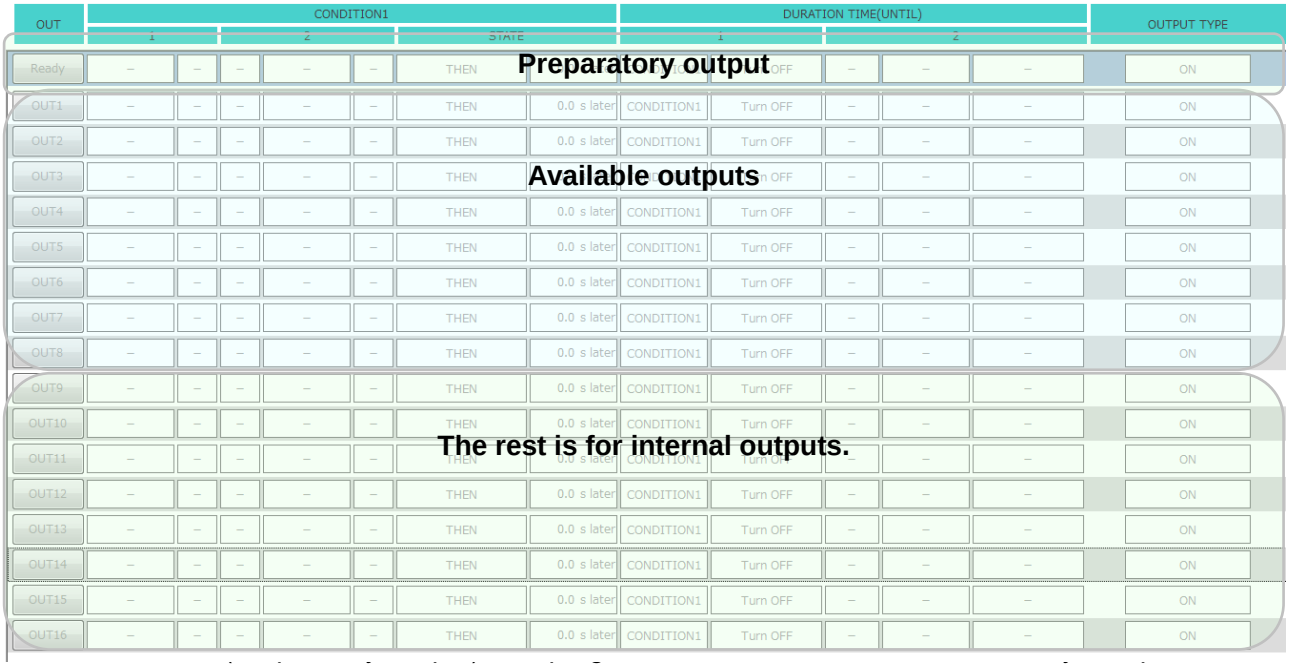
You can resize the G-FLAG and OUT panes by dragging the bar between the two panes up or down.



- SiO-N1: One preparatory output
  Eight outputs (OUT9 and subsequent outputs are available as internal outputs.)
  48 flags

- SiO-N1 R2: One preparatory output
  Eight outputs (OUT9 and subsequent outputs are available as internal outputs.)
  48 flags

- SiO-N3: One preparatory output
  16 outputs
  48 flags



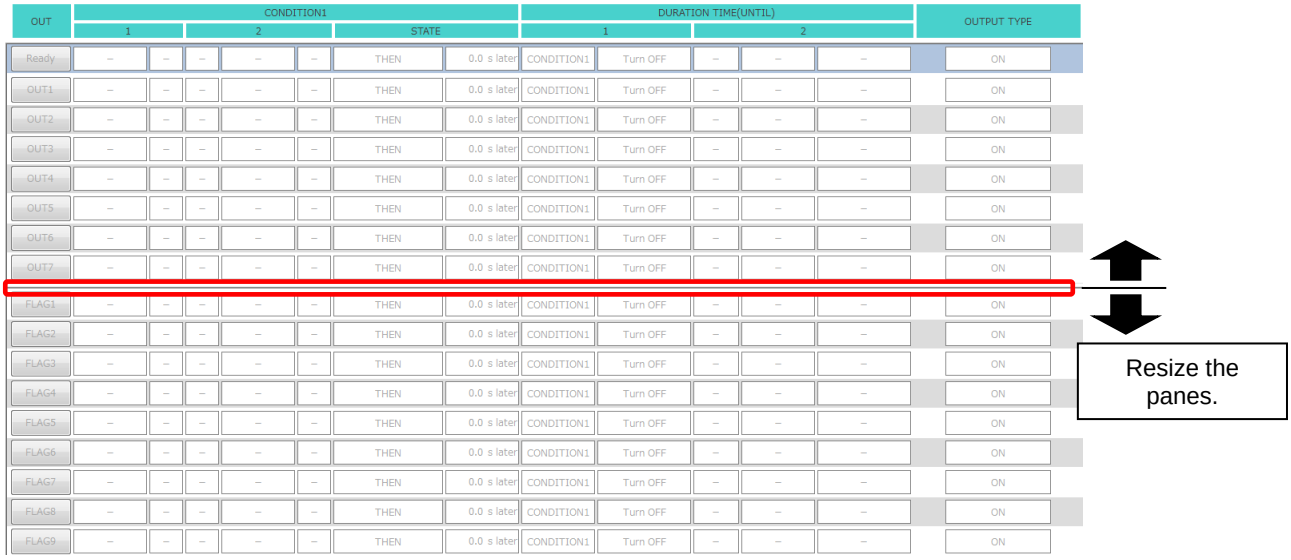
If the preparatory output is disabled, the program starts running when the controller enters RUN mode.
If the preparatory output is enabled, the program starts running when the controller enters RUN mode and the conditions set for the preparatory output are met.
The program stops when the OFF conditions for the preparatory output are met.

The outputs listed below the available outputs can be used as internal outputs. (See page 43.)

FLAG1 to FLAG48 are used specifically for internal output.
You can enter notes and set output conditions for FLAG1 to FLAG48.

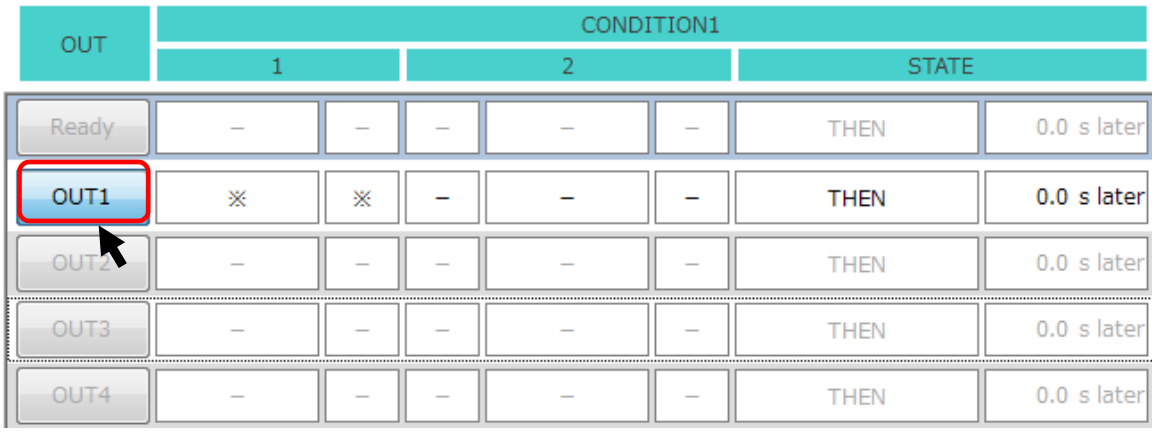
OUT	CONDITION1							DURATION TIME(UNTIL)					OUTPUT TYPE
	1		2			STATE		1		2			
Ready	–	–	–	–	–	THEN	0.0 s later	CONDITION1	Turn OFF	–	–	–	ON
OUT1	–	–	–	–	–	THEN	0.0 s later	CONDITION1	Turn OFF	–	–	–	ON
OUT2	–	–	–	–	–	THEN	0.0 s later	CONDITION1	Turn OFF	–	–	–	ON
OUT3	–	–	–	–	–	THEN	0.0 s later	CONDITION1	Turn OFF	–	–	–	ON
OUT4	–	–	–	–	–	THEN	0.0 s later	CONDITION1	Turn OFF	–	–	–	ON
OUT5	–	–	–	–	–	THEN	0.0 s later	CONDITION1	Turn OFF	–	–	–	ON
OUT6	–	–	–	–	–	THEN	0.0 s later	CONDITION1	Turn OFF	–	–	–	ON
OUT7	–	–	–	–	–	THEN	0.0 s later	CONDITION1	Turn OFF	–	–	–	ON
FLAG1	–	–	–	–	–	THEN	0.0 s later	CONDITION1	Turn OFF	–	–	–	ON
FLAG2	–	–	–	–	–	THEN	0.0 s later	CONDITION1	Turn OFF	–	–	–	ON
FLAG3	–	–	–	–	–	THEN	0.0 s later	CONDITION1	Turn OFF	–	–	–	ON
FLAG4	–	–	–	–	–	THEN	0.0 s later	CONDITION1	Turn OFF	–	–	–	ON
FLAG5	–	–	–	–	–	THEN	0.0 s later	CONDITION1	Turn OFF	–	–	–	ON
FLAG6	–	–	–	–	–	THEN	0.0 s later	CONDITION1	Turn OFF	–	–	–	ON
FLAG7	–	–	–	–	–	THEN	0.0 s later	CONDITION1	Turn OFF	–	–	–	ON
FLAG8	–	–	–	–	–	THEN	0.0 s later	CONDITION1	Turn OFF	–	–	–	ON
FLAG9	–	–	–	–	–	THEN	0.0 s later	CONDITION1	Turn OFF	–	–	–	ON

You can resize the OUT and FLAG panes by dragging the bar between the two panes up or down.

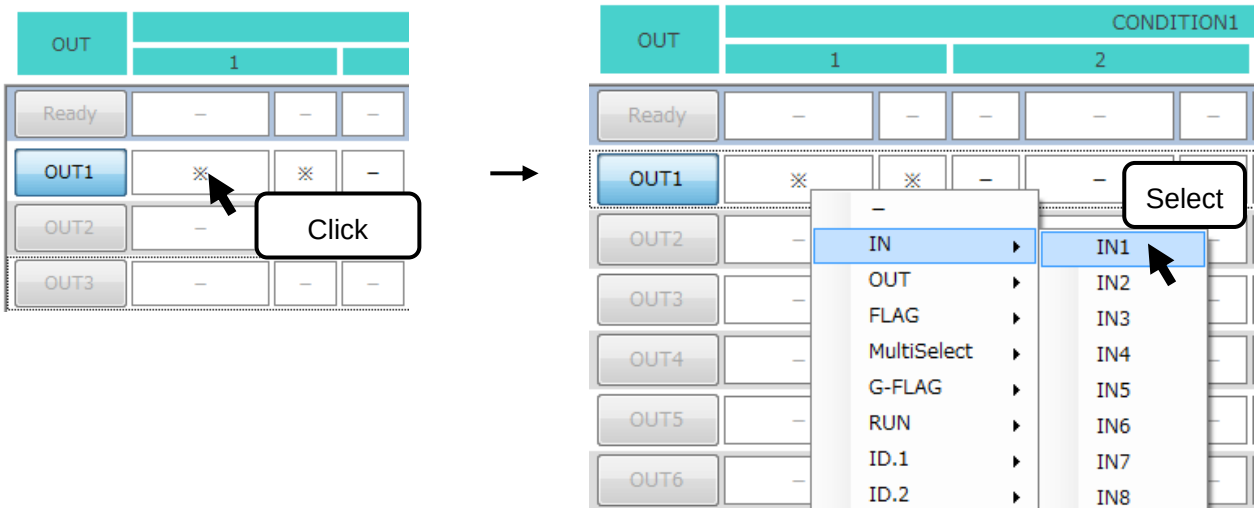


Creating an I/O Program

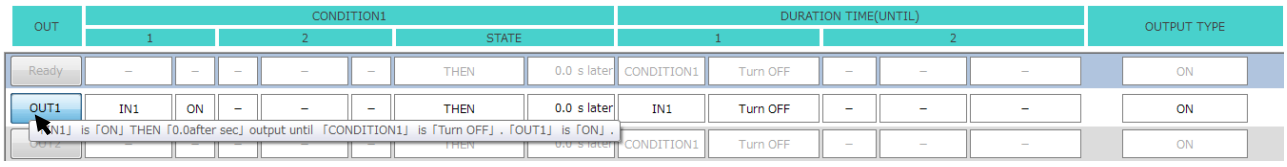
1. Click the desired numbered output button to enable it.
   Doing so turns the button blue and allows you to edit the output settings for the selected number.
   Note: The outputs that have not been clicked (OUT2 and subsequent outputs, shown below) are dimmed.
   These outputs are disabled and do not work, although their settings can be written to the controller.



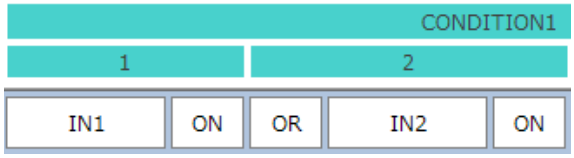
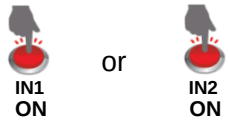
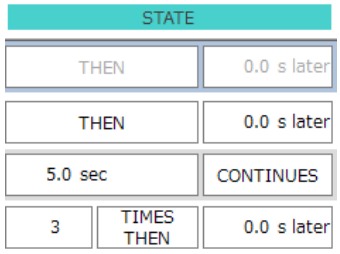
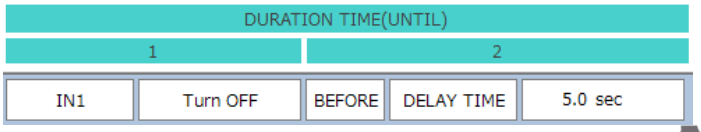
2. Set each item.



Note: Position the cursor over the desired numbered output button to see a sentence that describes the settings.



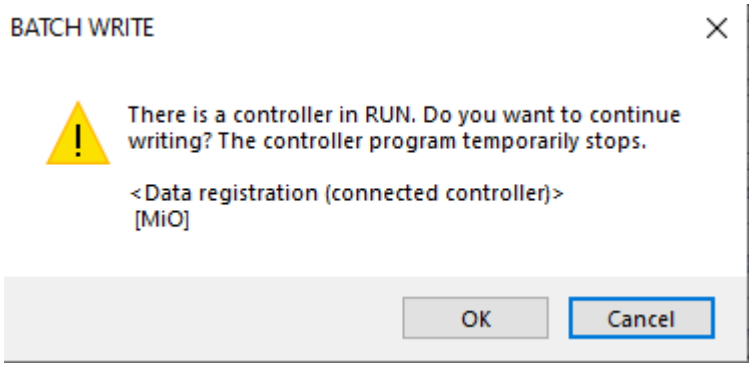
Specify settings for each output. For more information, see **“Details of Each Item”** (on page 24).

Item	Setup Description
Output	Indicates the destination to which a signal is output when set conditions are met. For OUT1, you can specify settings for output 1.
CONDITION1 (1 and 2)	Specify conditions for enabling output. You can set two conditions and associate them using the [And] or [Or] option. If you want to set only one condition, select "–" for the third to fifth buttons. Example: To enable output when IN1 (input 1) or IN2 (input 2) turns on  
CONDITION1 STATE	Specify the state after which to enable output if the ON conditions are met. Select [THEN], [CONTINUES], or [TIMES THEN], and specify the time period after which to enable output. For [TIMES THEN], set the number of counts or a TP counter. (See page 56.) Note: The count value will be reset when the OFF conditions are met. 
	THEN: Specify how long to wait before output is enabled after the conditions are met. Example 1: "0.0" → Enables output at the moment the conditions are met. Example 2: "2.0" → Enables output 2 seconds after the conditions are met. TIMES THEN (Set the number of counts or a TP counter.): This is a condition for turning on output. Specify how long the conditions should be met before output is enabled. Example: "3.0" → Enables output if the conditions are met for 3.0 seconds. CONTINUES
	Note: You can enter values directly or via hardware timers T1 and T2 or TP timers. (See pages 29, 30, and 56.)
DURATION TIME UNTIL (1 and 2)	Set conditions for turning off the output that was enabled when the conditions set above were met. You can set two conditions and associate them using the [AND], [OR], or [BEFORE] option. If you want to set only one condition, select "−" for the third to fifth buttons. Note: If you specify how long to wait before output is turned off, you cannot select [AND] to combine two conditions. Example: To turn off output 5 seconds after IN1 turns on  
OUTPUT TYPE	Set the type of output. For ON/OFF cycles, you can specify three sets of time intervals.

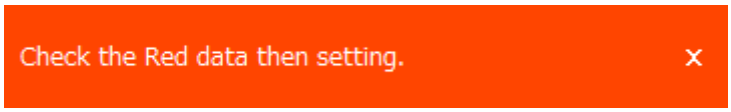
3. Write the settings to the controller.

   If not, the settings will not be applied to the controller.

   Note: Make sure that the controller is in the STOP state before writing the settings to the controller.
   If the controller is in the RUN state, a message like the one shown below appears. Force the controller off to start writing.



   If there are incorrect settings, a window like the one shown below appears.
   Check and correct the incorrect output condition settings, which are highlighted in red.

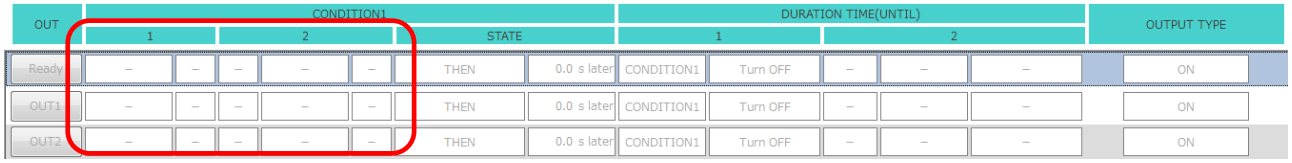


OUT	CONDITION1							DURATION TIME(UNTIL)					OUTPUT TYPE
	1		2			STATE		1		2			
Ready	IN1	ON	–	–	–	THEN	0.0 s later	IN1	Turn OFF	BEFORE	DELAY TIME	5.0 sec	ON
OUT1	IN1	※	OR	–	–	THEN	0.0 s later	※	Turn OFF	–	–	–	ON
OUT2	OUT1	ON	AND	–	–	THEN	0.0 s later	DELAY TIME	1.0 sec	–	CONDITION1	Turn OFF	ON
OUT3	※	ON	–	IN1	ON	THEN	0.0 s later	CONDITION1	※	–	–	–	ON
OUT4	IN4	OFF	–	–	–	THEN	0.0 s later	CONDITION1	Turn OFF	AND	–	–	ON
OUT5	IN5	OFF	–	–	–	THEN	0.0 s later	※	Turn OFF	–	IN1	Turn OFF	ON

Details of Each Item

This section details the items you can select in the program window.

1. CONDITION1 (1 and 2)

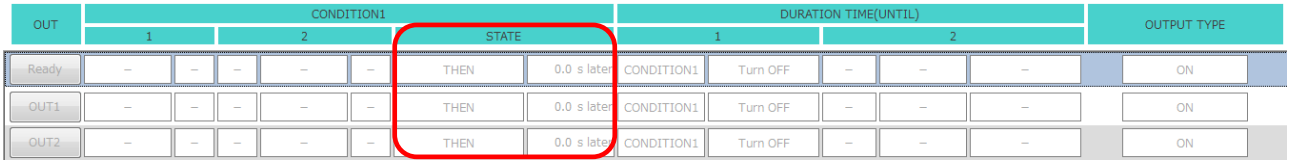


ON conditions are used to turn on output. When set conditions are met, the output turns on. You can specify two conditions. You can set more than two conditions by using the multiple selection option (see page 39) or by specifying an unused output or internal output as a condition. (See page 43.)

Device	Item		Setup Description
MiO	G-FLAG1 to G-FLAG48		Set conditions using [G-FLAG].
	MiO -IO	MiO-IN1 and MiO-IN2	Set conditions using [MiO-IN] (input) and [MiO-OUT] (output). [MiO-IN1] + [ON]: Enables output when IN1 turns on.
		MiO-OUT1 and MiO-OUT2	
	RUN	RUN	Indicates that the controller is in the RUN state. If you select [RUN] and [ON], this condition is always met when the controller is used. Selecting [RUN] and [OFF] will result in no output.
		INIT	This signal stays on for a specified number of seconds after the controller enters the RUN state. You can set the number of seconds in the [Parameter settings] area. (See page 33.) [INIT] + [ON]: Turns on output when the controller enters the RUN state, and turns off output after a specified number of seconds. [INIT] + [OFF]: Turns off output when the controller enters the RUN state, and turns on output after a specified number of seconds.
	Multi Select1−16		Allows you to group multiple SiO inputs and outputs into one condition. You can configure settings for the multiple selection option in the [Parameter settings] area. (See page 39.)
	Ether1 to Ether64		Set conditions using an internal output configured via Ethernet.
	TP-IN1 to TP-IN32		Set conditions by entering them on a MiO touch panel.
	ID1 to ID8	IN1 to IN16	Set conditions by selecting a SiO on the network and using [IN] (input), [OUT] (output), [FLAG] (internal output), [RUN], or [INIT]. [ID1] + [IN1] + [ON]: Enables output when IN1 of ID1 turns on.
		OUT1 to OUT16	
		FLAG1 to FLAG48	
		RUN	
	AND OR		Used to specify the second condition. [AND] enables output when both the first and second conditions are met. [OR] enables output when either the first or second condition is met.

<table>
<tr><th>Device</th><th colspan="2">Item</th><th>Setup Description</th></tr>
<tr><td rowspan="10">SiO</td><td colspan="2">IN1 to IN16</td><td rowspan="3">Set conditions using [IN], [OUT], and [FLAG].
[IN1] + [ON]: Enables output when IN1 turns on.
[OUT1] + [ON]: Enables output when OUT1 turns on.
[FLAG1] + [ON]: Enables output when FLAG1 turns on.</td></tr>
<tr><td colspan="2">OUT1 to OUT16</td></tr>
<tr><td colspan="2">FLAG1 to FLAG48</td></tr>
<tr><td colspan="2">Multi Select1−16</td><td>Allows you to group multiple inputs and outputs into one condition.
You can configure settings for the multiple selection option in the [Parameter settings] area (see page 39).</td></tr>
<tr><td colspan="2">G-FLAG1 to G-FLAG48</td><td>Set conditions using [G-FLAG].</td></tr>
<tr><td rowspan="2">RUN</td><td>RUN</td><td>Indicates that the controller is in the RUN state.
If you select [RUN] and [ON], this condition is always met when the controller is used.
Selecting [RUN] and [OFF] will result in no output.</td></tr>
<tr><td>INIT</td><td>This signal stays on for a specified number of seconds after the controller enters the RUN state. You can set the number of seconds in the [Parameter settings] area. (See page 33)
[INIT] + [ON]: Turns on output when the controller enters the RUN state, and turns off output after a specified number of seconds.
[INIT] + [OFF]: Turns off output when the controller enters the RUN state, and turns on output after a specified number of seconds.</td></tr>
<tr><td rowspan="2">ID1 to ID8</td><td>IN1 to IN16</td><td rowspan="2">Set conditions by selecting a SiO on the network and using [IN] (input) or [OUT] (output).</td></tr>
<tr><td>OUT1 to OUT16</td></tr>
<tr><td colspan="2">AND
OR</td><td>Used to specify the second condition.
[AND] enables output when both the first and second conditions are met.
[OR] enables output when either the first or second condition is met.</td></tr>
</table>

2. CONDITION1 (STATE)

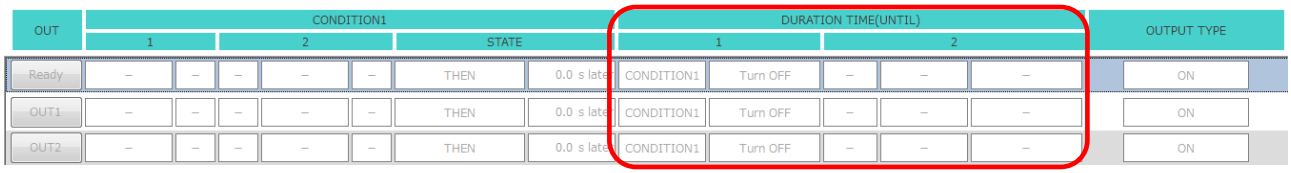


The [STATE] area allows you to set a time period as a condition or specify how long to wait before the operation starts.

Device	Item	Setup Description
MiO/ SiO	THEN	Specify how long to wait from the moment the ON conditions are met until output is enabled. Once the conditions are met, the output will turn on even if the conditions are no longer met during the wait time. You can also use a TP timer to specify the time period. Up to 6,000.0 seconds can be specified.
	CONTINUES	Selecting this option enables output only when the ON conditions are met for a certain period of time. You can also use a TP timer to specify the time period. Up to 6,000.0 seconds can be specified.
	TIMES THEN	This option enables output when the ON conditions are met a specified number of times. Set the number of counts and specify how long to wait before output is enabled after the set count is reached. The count is incremented **each time the ON conditions are met**. You can also use a TP counter to specify the number of counts. Up to 50,000 times can be specified. Example: If the ON condition is [IN1] + [ON], and when IN1 turns on, off, and then back on, the number of counts is two. The count is reset when the OFF conditions are met. If you select [CONDITION1] + [OFF] as an OFF condition, the count is reset and output is disabled.

Note: The count and wait time are reset when the OFF conditions are met.

3. OFF conditions



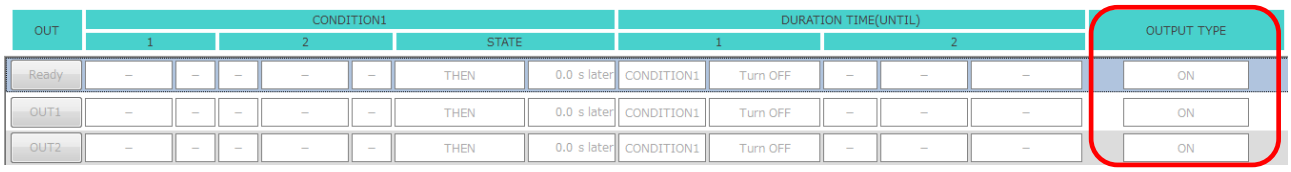
Specify conditions for turning off an output that has been turned on. You can specify two OFF conditions.

You can set more than two conditions by using the multiple selection option (see page 39) or by specifying an unused output or internal output as a condition. (See page 43.)

Device	Item		Setup Description
MiO	CONDITION1		Indicates the conditions set in the [ON conditions] area. Selecting [CONDITION1] and [Turn OFF] disables output when the ON conditions are no longer met. If you select [CONDITION1] and [Turn ON], output is not enabled even if the ON conditions are met.
	G-FLAG1 to G-FLAG48		Set conditions using [G-FLAG].
	MiO -IO	MiO-IN1 and MiO-IN2	Set conditions using [MiO-IN] (input) and [MiO-OUT] (output).
		MiO-OUT 1 and MiOUT-I2	
	RUN		Indicates that the controller is in the RUN state. If you select [RUN] and [OFF] and once output is enabled, it continues until the RUN switch on the controller is turned off. Selecting [RUN] and [ON] will result in no output.
	DELAY TIME		Turns off output when a specified time period has elapsed after output is enabled. You can enter a value directly. Up to 6,000.0 seconds can be specified. You can also use a TP timer to set the time period.
	Multi Select1−16		Allows you to group multiple inputs and outputs into one condition. You can configure settings for the multiple selection option in the [Parameter settings] area (see page 39).
	Ether1 to Ether64		Set conditions using an internal output configured via Ethernet.
	TP-IN1 to TP-IN32		Set conditions by entering them on a MiO touch panel.
	ID1 to ID8	IN1 to IN16	Set conditions using [IN] (input), [OUT] (output), and [FLAG] (internal output). Selecting [IN1] + [ON] turns off output when IN1 turns on. Selecting [OUT1] + [ON] turns off output when OUT1 turns on. Selecting [FLAG1] + [ON] turns off output when FLAG1 turns on.
		OUT1 to OUT16	
		FLAG1 to FLAG48	
	AND OR BEFORE		Used to specify the second condition. [AND] disables output when both the first and second conditions are met. [OR] disables output when either the first or second condition is met. [BEFORE] disables output when the first condition is met and then the second condition is met. Note: If you select [AND], you cannot specify [DELAY TIME].

Device	Item	Setup Description
SiO	CONDITION1	Indicates the conditions set in the [ON conditions] area. Selecting [CONDITION1] and [TurnOFF] disables output when the ON conditions are no longer met. If you select [CONDITION1] and [TurnON], output is not enabled even if the ON conditions are met.
	IN1 to IN16 OUT1 to OUT16 FLAG1 to FLAG48	Set conditions using [IN] (input), [OUT] (output), and [FLAG] (internal output). Selecting [IN1] + [ON] turns off output when IN1 turns on. Selecting [OUT1] + [ON] turns off output when OUT1 turns on. Selecting [FLAG1] + [ON] turns off output when FLAG1 turns on.
	RUN	Indicates that the controller is in the RUN state. If you select [RUN] and [OFF] and once output is enabled, it continues until the RUN switch on the controller is turned off. Selecting [RUN] and [ON] will result in no output.
	DELAY TIME	Turns off output when a specified time period has elapsed after output is enabled. You can enter a value directly. Up to 6,000.0 seconds can be specified. You can also use hardware timers T1 and T2 to set the time period. (See page 30.)
	Multi Select1−16	Allows you to group multiple inputs and outputs into one condition. You can configure settings for the multiple selection option in the [Parameter settings] area (see page 39).
	G-FLAG1 to G-FLAG48	Set conditions using [G-FLAG].
	ID1 to ID8: IN1 to IN16 ID1 to ID8: OUT1 to OUT16	Set conditions using [MiO-IN] (input) and [MiO-OUT] (output).
	AND OR BEFORE	Used to specify a second condition. [AND] disables output when both the first and second conditions are met. [OR] disables output when either the first or second condition is met. [BEFORE] disables output when the first condition is met and then the second condition is met. Note: If you select [AND], you cannot specify [DELAY TIME], [T1], or [T2].

4. OUTPUT TYPE



You can set the type of output.

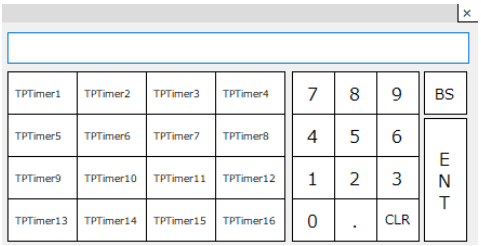
Device	Item	Setup Description
MiO/ SiO	ON	Causes the output to stay on. A light would stay lit.
	ON/OFF cycle	Turns output on and off alternately. A light would blink. You can specify three ON/OFF cycle settings and can change the ON and OFF time periods in the [Parameter settings] area.

Timer Settings

- MiO
  When setting a timer in the [STATE] or [DURATION TIME] area, you can choose to enter a value directly or to use a TP timer.

STATE			DURATION TIME(UNTIL) 1		DURATION TIME(UNTIL) 2		
THEN		0.0 s later	DELAY TIME	3.0 sec	–	–	–
TPTimer1		CONTINUES	DELAY TIME	TPTimer1	–	–	–
3	TIMES THEN	TPTimer2	DELAY TIME	TPTimer2	–	–	–

Click [DELAY TIME] to open a numeric keypad.
Enter a time period directly or select a TP timer. Then click [ENT] to apply the setting.



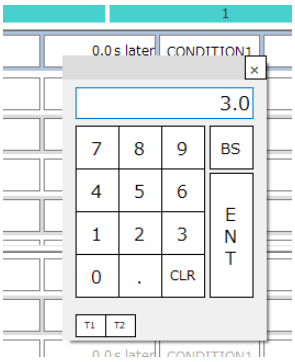
1. Direct entry
   Enter a time period directly. You can specify up to 6,000.0 seconds in 0.1-second increments.

2. TP timers
   The value of one of TP Timers 1 to 16 you set on a MiO touch panel can be applied as the number of seconds.
   Select one of TP Timers 1 to 16 and click [ENT] to apply the setting. (See page 56.)

- SiO
  When setting a timer in the [STATE] or [DURATION TIME] area, you can choose to enter a value directly or to use a hardware timer.

STATE			DURATION TIME(UNTIL) 1		DURATION TIME(UNTIL) 2		
THEN		0.0 s later	CONDITION1	Turn OFF	–	–	–
THEN		3.0 s later	DELAY TIME	3.0 sec	–	–	–
T1 sec		CONTINUES	DELAY TIME	T1 sec	–	–	–
3	TIMES THEN	T2 s later	DELAY TIME	T2 sec	–	–	–

Click [DELAY TIME] to open a numeric keypad.
Enter a time period directly or select T1 or T2. Then click [ENT] to apply the setting.

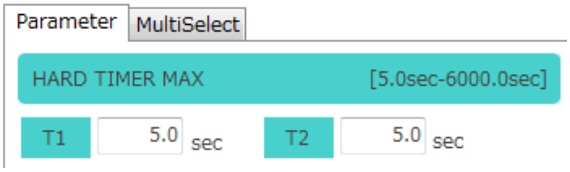


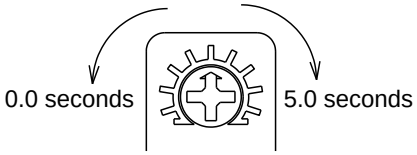
1. Direct entry
   Enter a time period directly. You can specify up to 6,000.0 seconds in 0.1-second increments.

2. Hardware timers
   [T1] and [T2] indicate that the hardware timers are being used. These timers are especially useful when you want to use the same value repeatedly or if you may need to change timer settings without using the computer.
   Hardware timer values can be set using the analog timers on the controller. The set values can be used to count time. You can set the maximum values of the hardware timers in the [HARD TIMER MAX] area in the PC software. You can specify maximum values from 5.0 and 6000.0 seconds in 0.1-second increments.

   Once you enter maximum values, set the analog timers relative to the maximum values.

Example





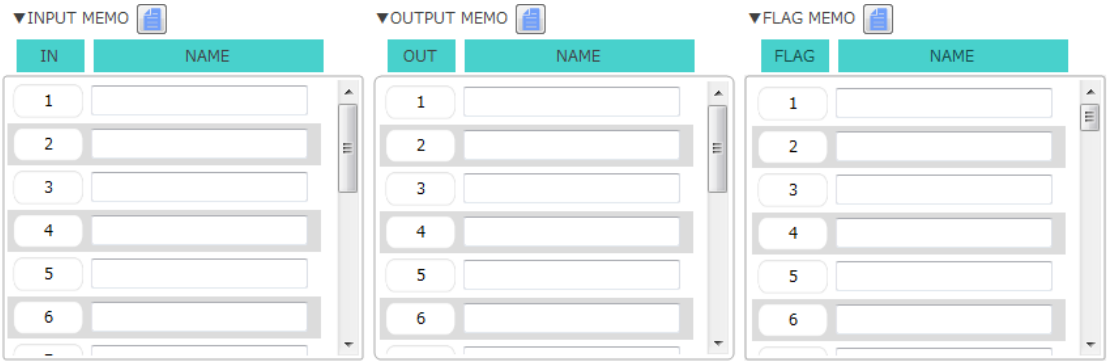
(1) Set the maximum values of the hardware timers to 5.0 seconds.

(2) Set the analog timers with a maximum of 5.0 seconds.

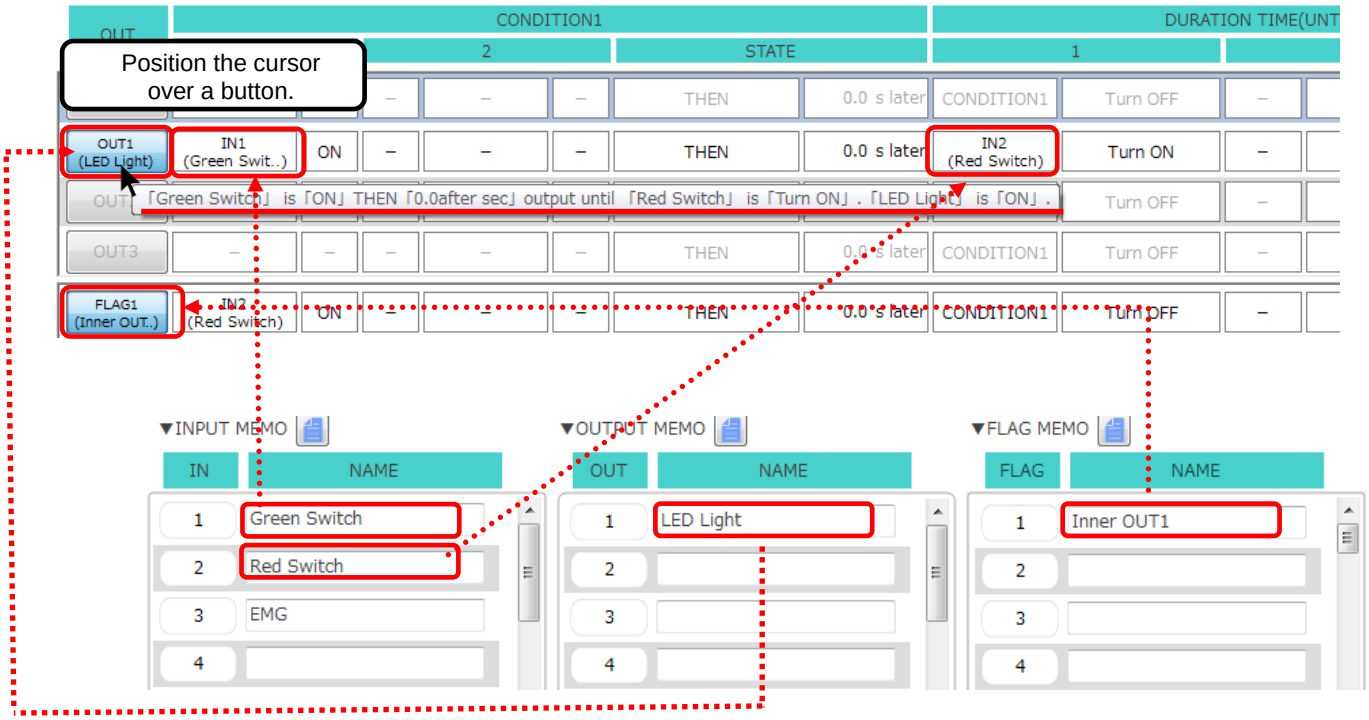
*** Timer settings are accurate to within ±0.1% of actual time.**

I/O Notes

I/O notes help you create a program by giving you an idea of how input and output devices will operate.



Enter the names of the input and output devices that are actually connected, and you will see those names in messages (displayed when you position the mouse cursor over output buttons) and on items set in the program window. This allows you to check how the devices operate. The notes you enter are also reflected in the I/O monitor window.

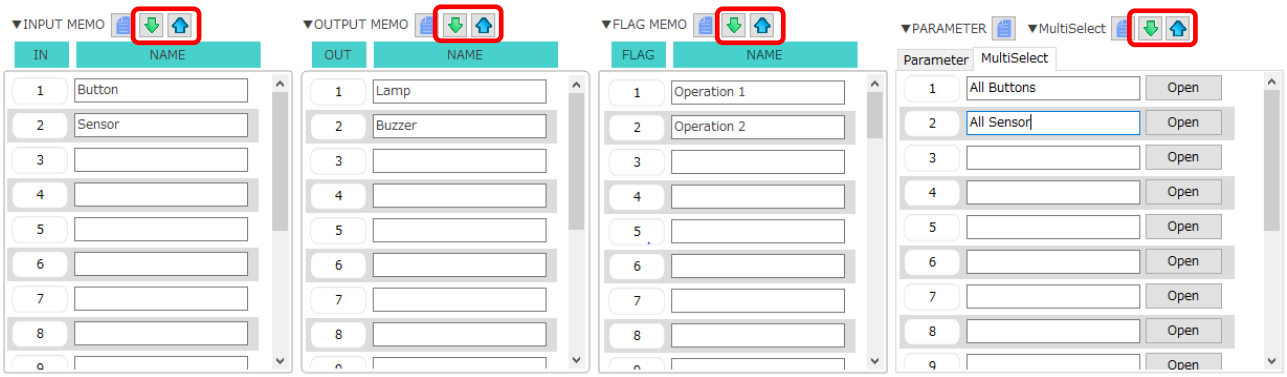


- **About reading / registering memos in the controller**

  The following controllers have a memo save function.

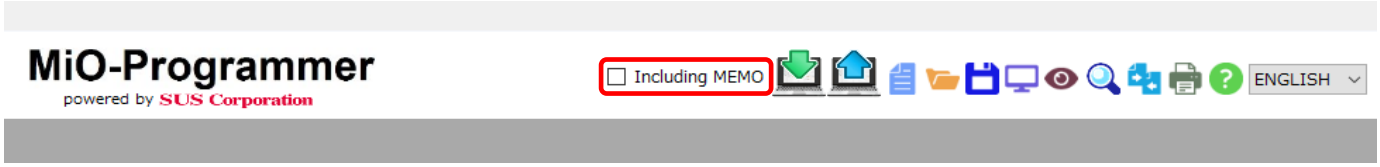
  ・MiO Ver 1.60 or higher
  ・SiO-N1 Ver3.60 or higher
  ・SiO-N1 R2 Ver3.70 or higher
  ・SiO-N3 Ver3.60 or higher

  You can read / register each memo to the compatible controller by clicking the icon in the figure below.



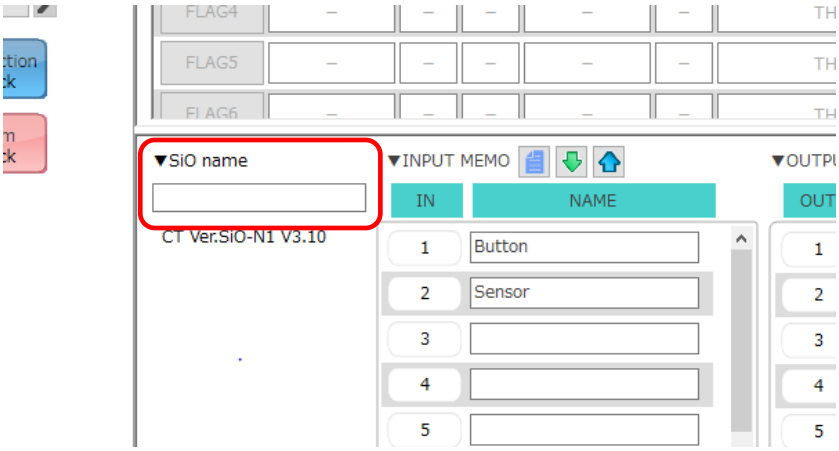
In addition, there is a check box "☑ Including MEMO" next to the batch read / batch registration button in the tool icon at the top right of the screen.

・Bulk registration : If checked, all memos can be registered in the controller.
・Bulk read : If checked, all the memos stored in the controller can be read.



*For communication that does not include memos, the time required for batch reading / batch registration can be shortened.

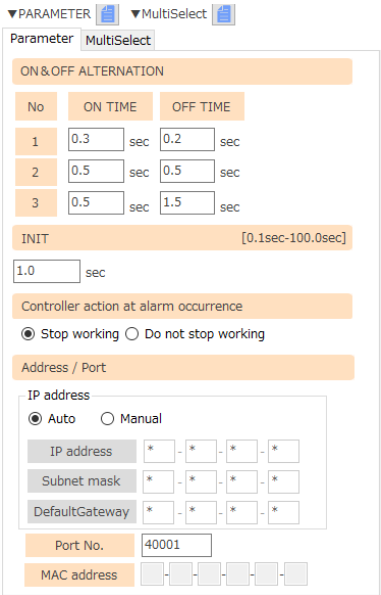
*In the case of batch read / batch registration including memo, "SiO name" is also included in the communication.



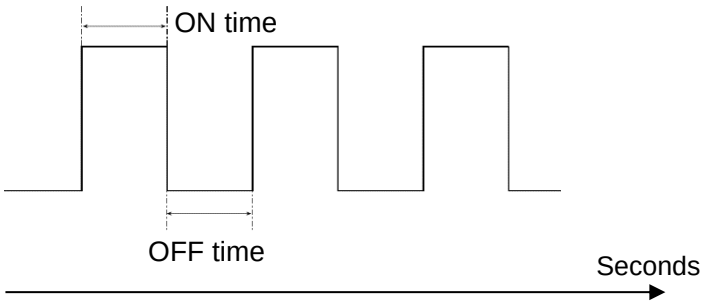
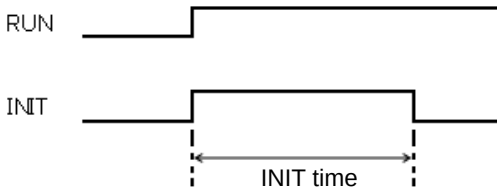
Parameter settings

The [Parameter settings] area allows you to change parameters or set multiple selections.

1. MiO



◆ Parameters

Item	Setup Description
ON & OFF ALTERNATION	These settings are related to [ONOFF ALT No.1], [ONOFF ALT No.2], and [ONOFF ALT No.3] in the [OUTPUT TYPE] area of the program window. You can set when to switch the output on and off alternately. ON TIME: The time period during which the output is ON. Specify a value from 0.1 to 99.9 seconds. OFF TIME: The time period during which the output is OFF. Specify a value from 0.1 to 99.9 seconds. Make sure that the total time (ON time + OFF time) is in the range of 0.2 to 100.0 seconds. You cannot set values outside this range. 
INIT	This is the time period for the [INIT] option, which can be used in the [CONDITION1] area of the program window. When you put the controller into the RUN state, the INIT signal turns on internally, and then turns off after a specified number of seconds. You can use the INIT signal to enable output for a certain number of seconds after the controller enters the RUN state. This option is useful when you want to reset all settings or perform origin return of all output devices at once. 

Item	Setup Description	
Controller action at alarm occurrence	Stop working	Stops all controllers on the network.
	Do not stop working	Stops only the controller that has caused an alarm.
Address/Port	Set an IP address, subnet mask, and port number for Ethernet communication.	

・About automatic / manual setting of address

In the address setting, set the IP address, subnet mask, default gateway.

The DHCP (IP address automatic assignment) function can be turned ON / OFF by switching the automatic / manual button as shown in the figure below.

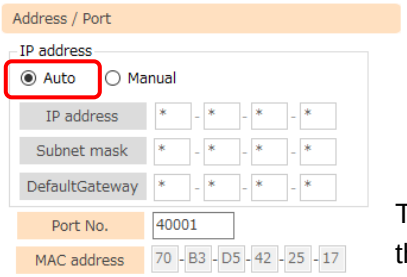
In addition, the initial value when MiO-Programmer is started is set to automatic.

・Auto

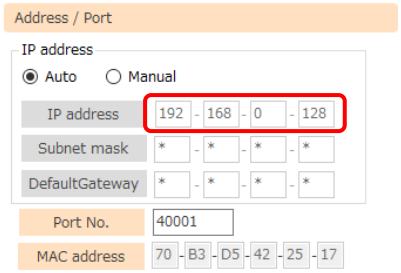
The controller automatically obtains the IP address, subnet mask, default gateway value from a DHCP (IP address auto-assignment) server such as a router and connects to the network.

The value is displayed by communicating using MiO-Programmer while the controller is connected to the network.

In addition, "*" Is displayed in the setting part in the frame, and no input can be made from the PC side.

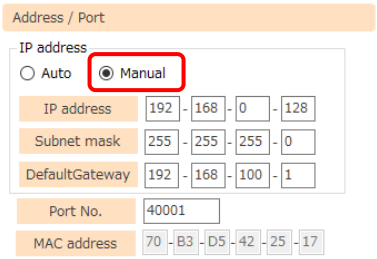


The value is displayed as shown on the right only when it is connected to the network after registration or loading.



・Manual

Connect to the network by registering with the controller by entering the IP address, subnet mask, default gateway value.



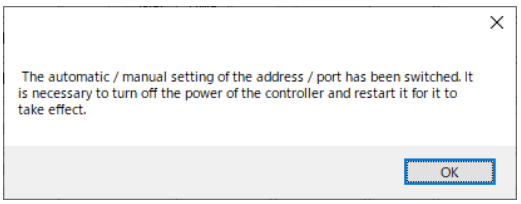
* When registering with the controller, register with the controller

If the automatic / manual setting that was set is changed,

A message will be displayed as shown on the right.

To reflect when switching between automatic / manual

Settings Turn off the power of the controller once.



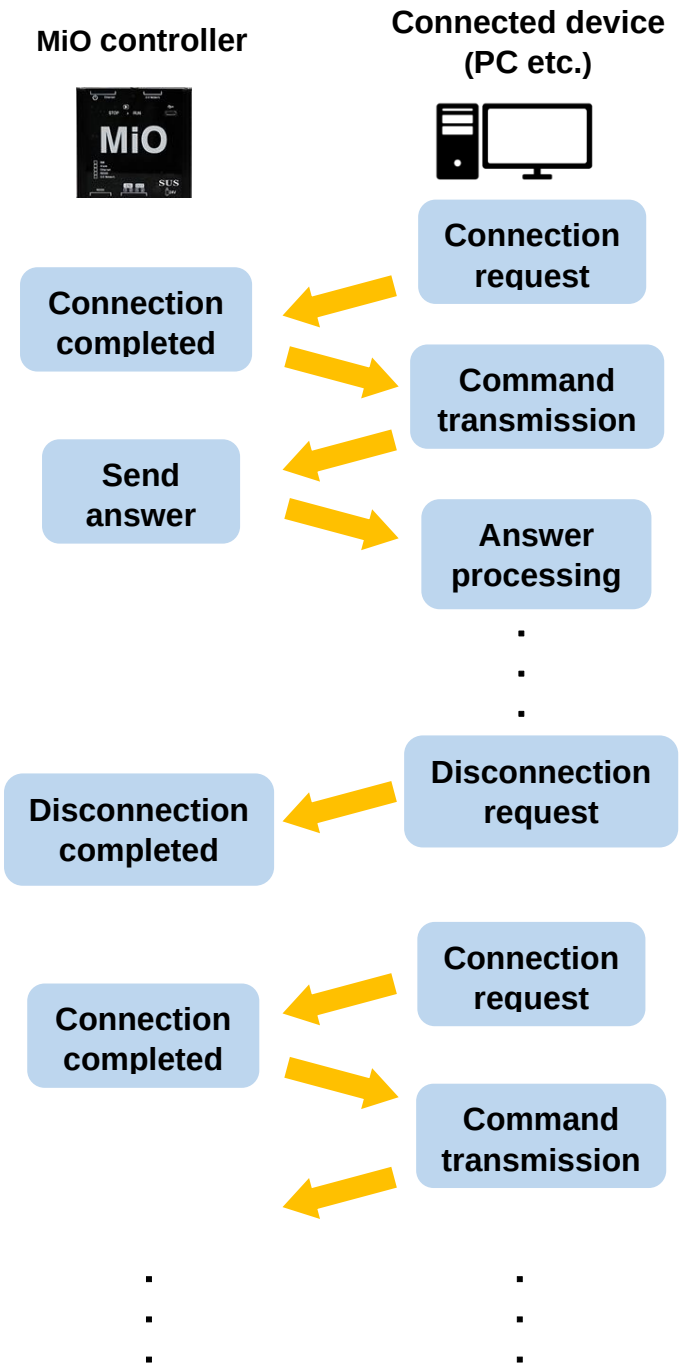
・About Ethernet communication timeout setting.

What is a timeout setting?

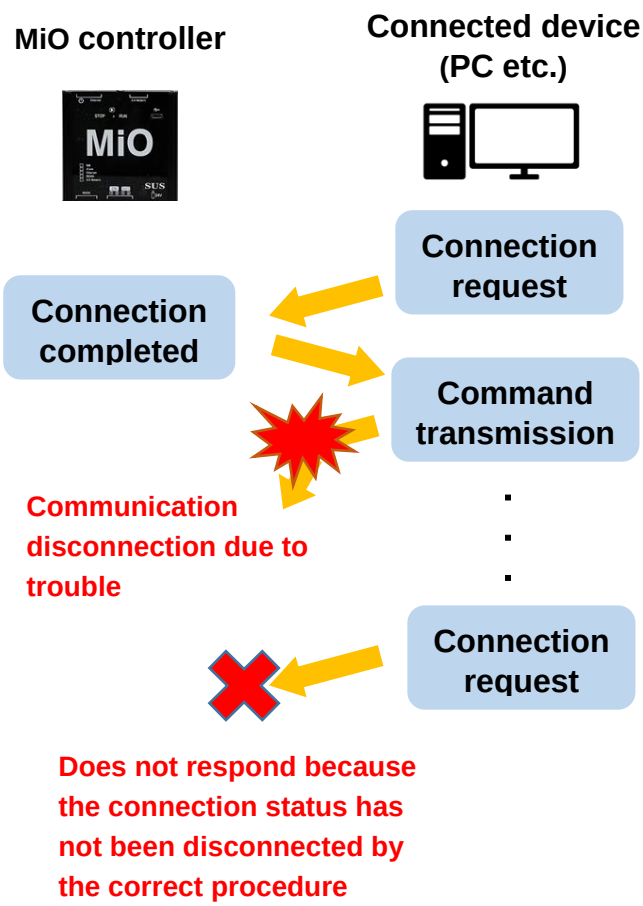
If a command is not sent from a device that supports Ethernet communication such as a PC within the set time, this function cancels the connection status of the controller and enables quick reconnection.

The initial value is set to "valid" for 30 seconds.

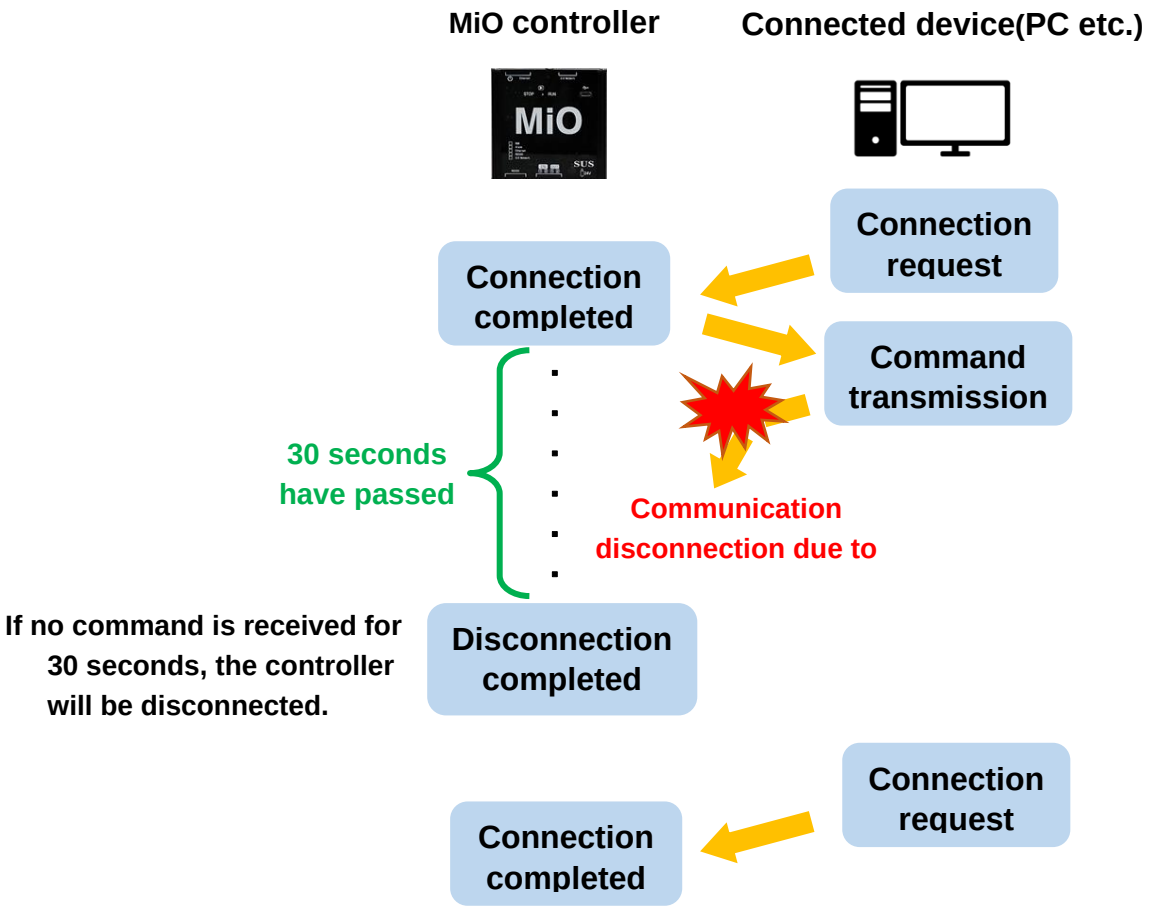
【 Example 1 】Normal communication flow



【 Example 2 】When there is no timeout setting



【 Example 3 】When there is a timeout setting (30 seconds)

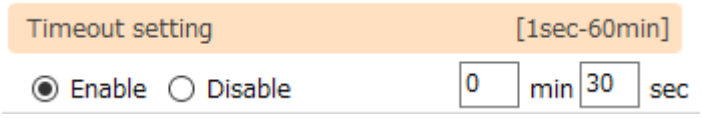


In this way, if the command cannot be received in time, the controller determines that the communication has failed and disconnects the connection state.
By setting the timeout, it is possible to quickly switch from disconnection to recovery.

・If enabled

Select "Enable" if a timeout setting is required.

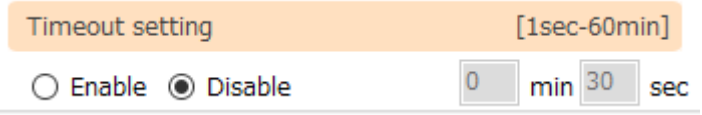
The initial value is 30 seconds, and the input range can be set from 1 second to 60 minutes.



・If disabled

Select "Disable" if you do not need the timeout setting.

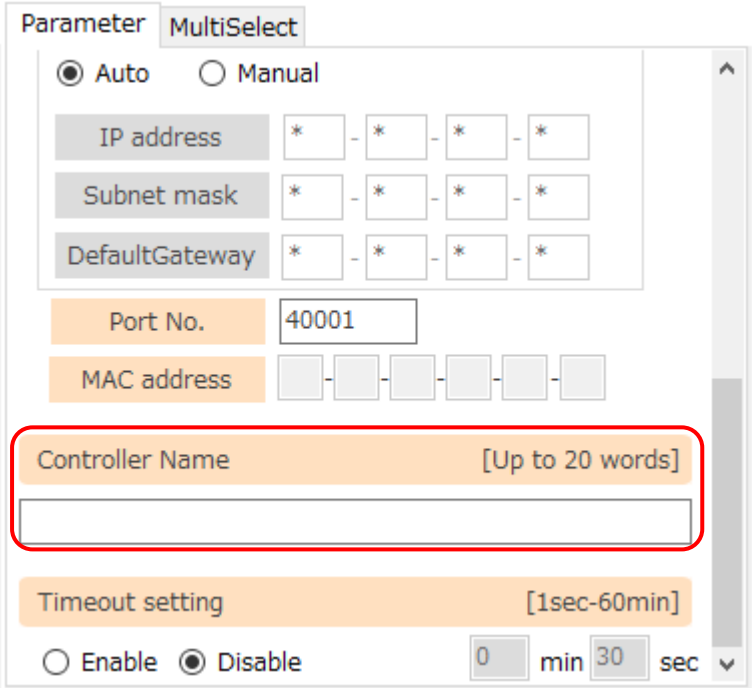
In the "disabled" state, you cannot click the text that sets the timeout period.



・About the controller name for Ethernet communication

What is a controller name?

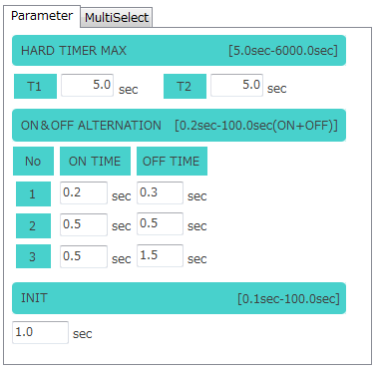
It is a name tag that can be used to distinguish the controller when using Ethernet communication software (IoT Programmer).



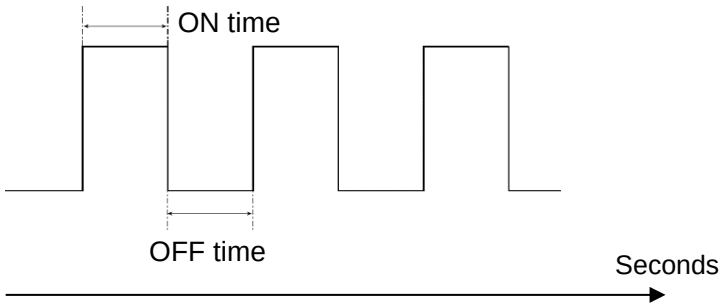
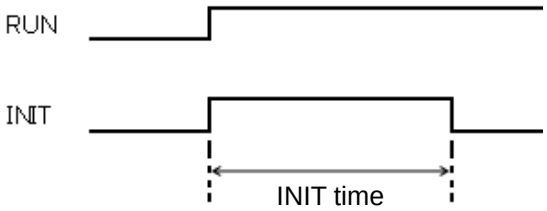
MiO Programmer writes and reads the set controller name.

* The controller name can also be confirmed from the Ethernet communication software (IoT Programmer).

2. SiO



◆ Parameters

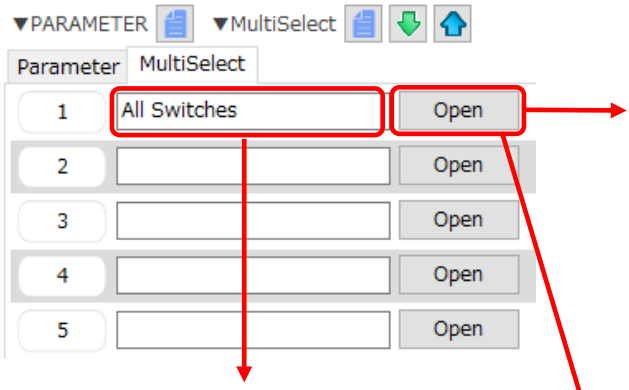
Item	Setup Description
HARD TIMER MAX	Set the maximum values of the hardware timers. See page 30 for details on the hardware timers. You can specify maximum values from 5.0 to 6000.0 seconds separately for T1 and T2.
ON & OFF ALTERNATION	These settings are related to [ONOFF ALT No.1], [ONOFF ALT No.2], and [ONOFF ALT No.3] in the [OUTPUT TYPE] area of the program window. You can set when to switch the output on and off alternately. ON TIME: The time period during which the output is ON. Specify a value from 0.1 to 99.9 seconds. OFF TIME: The time period during which the output is OFF. Specify a value from 0.1 to 99.9 seconds. Make sure that the total time (ON time + OFF time) is in the range of 0.2 to 100.0 seconds. You cannot set values outside this range. 
INIT	This is the time period for the [INIT] option, which can be used in the [CONDITION1] area of the program window. When you put the controller into the RUN state, the INIT signal turns on internally, and then turns off after a specified number of seconds. You can use the INIT signal to enable output for a certain number of seconds after the controller enters the RUN state. This option is useful when you want to reset all settings or perform origin return of all output devices at once. 

◆ Multi Select

You can display multiple-selection conditions by selecting the [Multi Select] tab in the [Parameter settings] area.

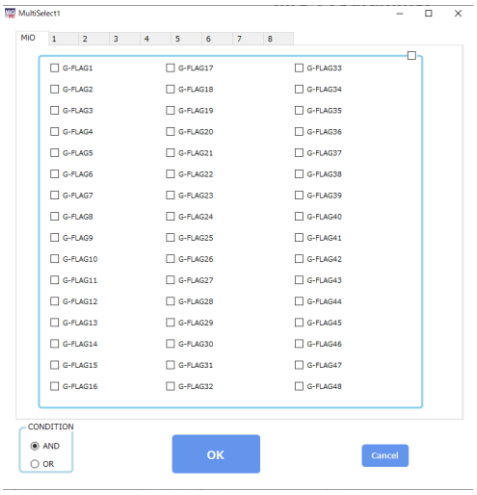
The multiple selection option allows you to group multiple inputs and outputs.
Although you can only specify up to two inputs or two outputs as ON or OFF conditions, this option enables you to use multiple inputs and outputs as one condition.
You can create 16 multiple-selection conditions.

Clicking [Open] opens a separate window where you can configure settings.



Enter a note.
Example: Multiple selections 1
"All switches"

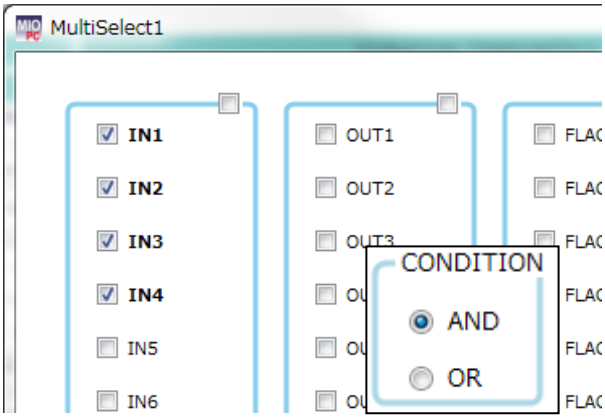
- MiO



- SiO

With the multiple selection option for the MiO controller, you can group some or all of the inputs, outputs, and/or flags of all SiO controllers on the network.
With the multiple selection option for a SiO controller, you can group some or all of the inputs, outputs, and/or flags of that controller.

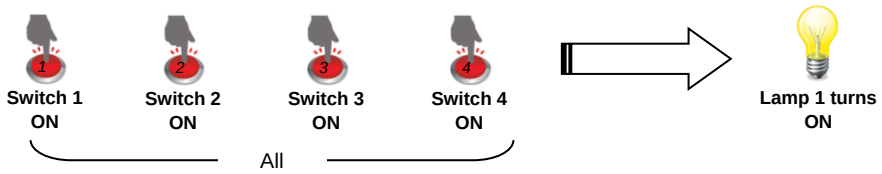
Example: In the [Multi Select1] window, select the [IN1] (switch 1) to [IN4] (switch 4) check boxes and select [AND].



Create the following program:

OUT	CONDITION1							DURATION TIME(UNTIL)					OUTPUT TYPE
	1		2			STATE		1		2			
Ready	–	–	–	–	–	THEN	0.0 s later	CONDITION1	Turn OFF	–	–	–	ON
OUT1	Multi Sel1	ON	–	–	–	THEN	0.0 s later	CONDITION1	Turn OFF	–	–	–	ON

This program causes a lamp to light up when all switches (1 to 4) are turned on.

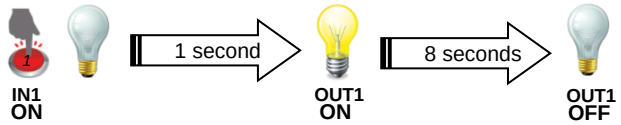


Setup Examples

… Input … Output

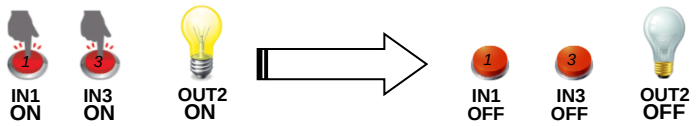
Example 1: If input 1 stays on for 1 second, output 1 turns on and then turns off after 8 seconds.

OUT	CONDITION1							DURATION TIME(UNTIL)				
	1		2			STATE		1		2		
OUT1	IN1	ON	–	–	–	THEN	1.0 s later	DELAY TIME	8.0 sec	–	–	–



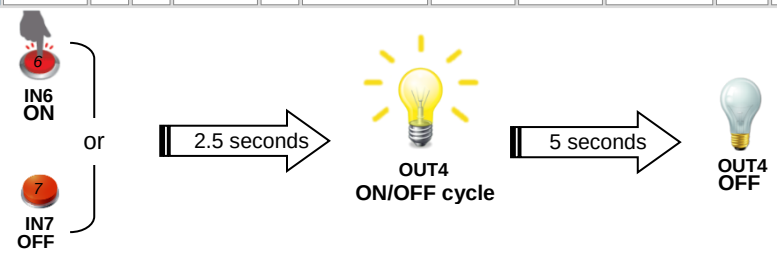
Example 2: When inputs 1 and 3 are turned on, output 2 turns on.
When input 1 or 3 or both are turned off, output 2 turns off.

OUT	CONDITION1							DURATION TIME(UNTIL)				
	1		2			STATE		1		2		
OUT2	IN1	ON	AND	IN3	ON	THEN	0.0 s later	CONDITION1	Turn OFF	–	–	–



Example 3: If input 6 stays on or input 7 stays off for 2.5 seconds, output 4 blinks for 5 seconds and then turns off. Note: This example uses the hardware timers.

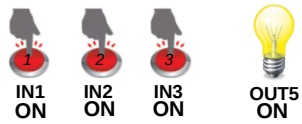
OUT	CONDITION1							DURATION TIME(UNTIL)					OUTPUT TYPE
	1		2			STATE		1		2			
OUT4	IN6	ON	OR	IN7	OFF	T1 sec	CONTINUES	DELAY TIME	T2 sec	–	–	–	ON&OFF ALT No.1



In the [HARD TIMER MAX] area, set T1 and T2 to 5.0 seconds.
Turn analog timer T1 halfway, and turn analog timer T2 to the maximum.

Example 4: If inputs 1, 2, and 3 are turned on, output 5 turns on.

OUT	CONDITION1							DURATION TIME(UNTIL)				
	1		2			STATE		1		2		
OUT5	FLAG1	ON	AND	IN3	ON	THEN	0.0 s later	CONDITION1	Turn OFF	–	–	–
FLAG1	IN1	ON	AND	IN2	ON	THEN	0.0 s later	CONDITION1	Turn OFF	–	–	–



Specify inputs 1 and 2 as the conditions for internal output 1 (FLAG1), and specify internal output 1 and input 3 as the conditions for output 5. In this way, you can specify three or more conditions.
See page 43 for more details on internal outputs.

Useful Features

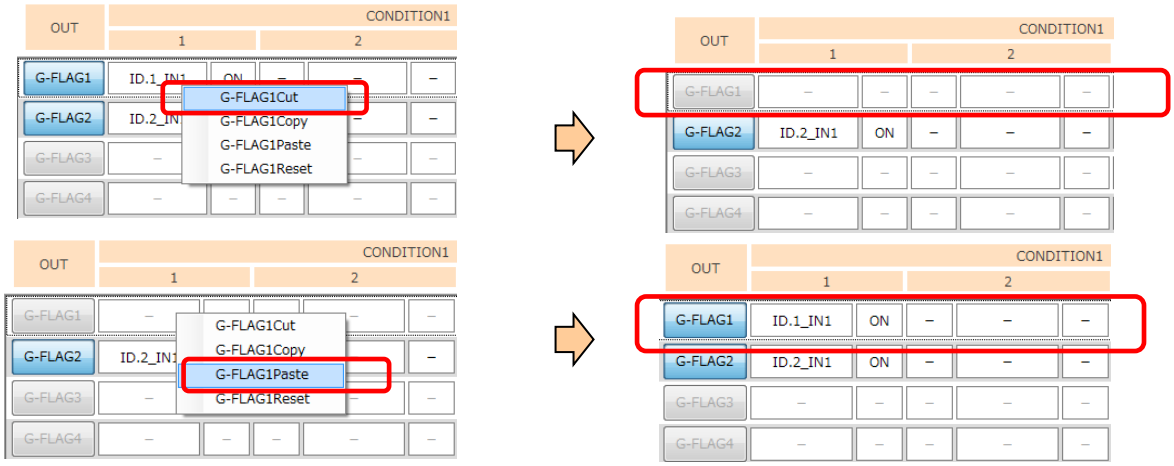
Here are some useful features of MiO-Programmer:

(1) Cut, copy, paste, and reset

In the program window, **right-click** in a row and click [Reset], [Cut], [Copy], or [Paste] to reset, cut, or copy the output settings in the row or to paste settings to that row.

Shortcuts are available for some commands.

- Cut: Ctrl + X
- Copy: Ctrl + C
- Paste: Ctrl + V



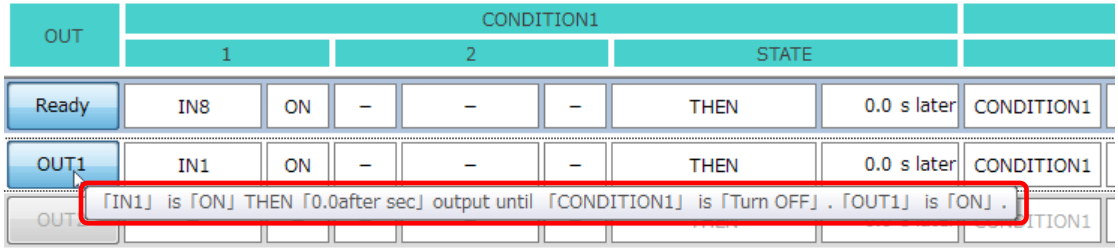
Note: Items in the MiO program window cannot be pasted into a SiO window, and vice versa.

(2) Checking programs

Position the cursor over the desired numbered output button to see a sentence that describes the output settings.

The sentence also includes I/O notes, making it easy to understand how the program works.

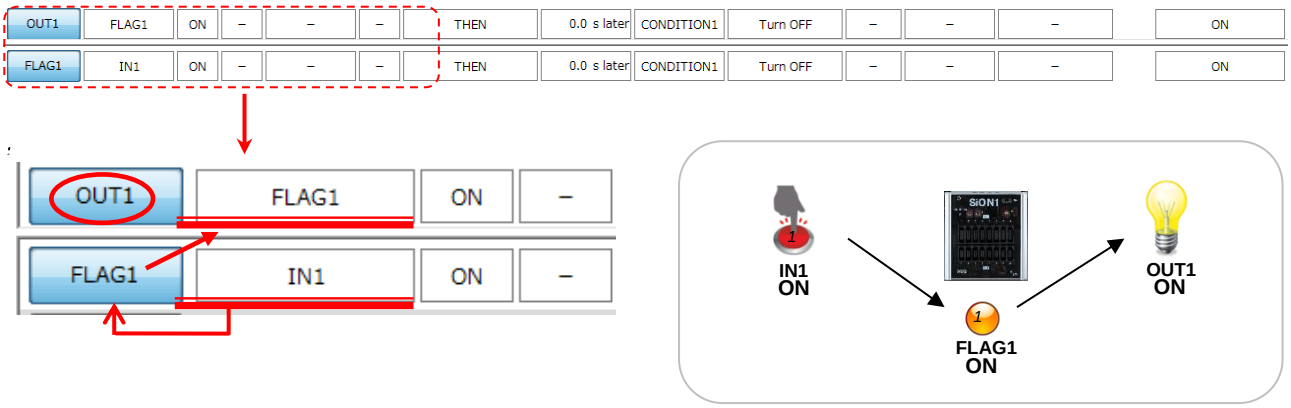
Note: A sentence appears only when the output is enabled.



(3) Internal outputs (FLAGs)

Internal outputs (FLAGs) or the outputs exceeding the maximum number of outputs (e.g., OUT9 and subsequent outputs in the case of SiO-N1) cannot be used to output external signals. However, these outputs, which work inside the controller, can be used as conditions.

Take the following program as an example:

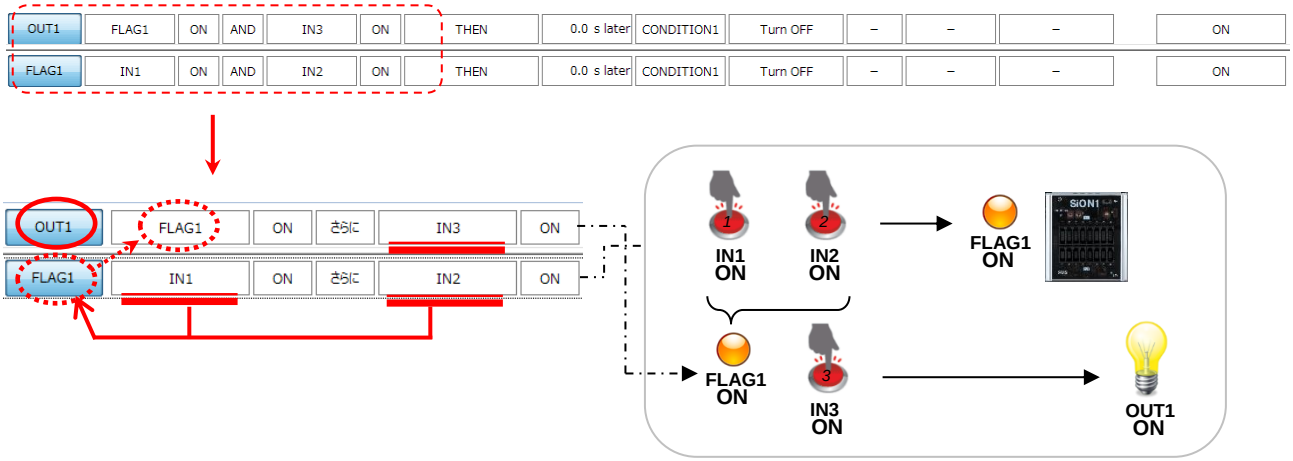


In this program, turning on IN1 causes OUT1 to turn on.

When IN1 is turned on, the condition for FLAG1 is met and FLAG1 turns on.
When FLAG1 turns on, the FLAG1 signal turns on inside the controller, although the controller shows no change.

This, in turn, meets the ON condition for OUT1 (FLAG1 is ON), causing OUT1 to turn on.

Although normally you can only specify up to two ON conditions, you can specify three ON conditions using the above internal output, as follows:



In this program, turning on IN1, IN2, and IN3 causes OUT1 to turn on.

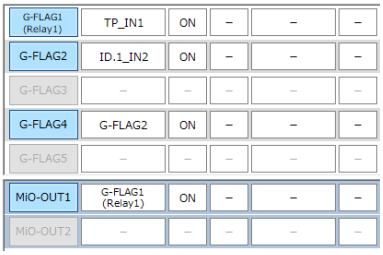
Specify IN1 and IN2 as the ON conditions for FLAG1, and FLAG1 and IN3 as the ON conditions for OUT1.
OUT1 turns on when IN1, IN2, and IN3 are all turned on.
Although turning on IN1 and IN2 causes FLAG1 to turn on, only OUT1 appears to turn on, because the controller shows no change.

(5) Insertion of G-FLAG / FLAG

In the program window, **right-click** in a row and click [G-FLAG X Insert],The new G-FLAG settings on the row where you right-clicked .

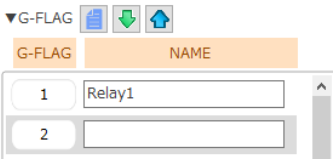
Before insert

Program window

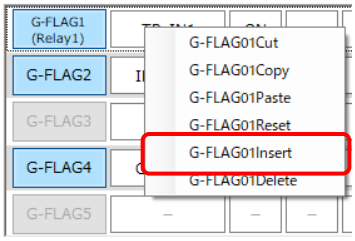


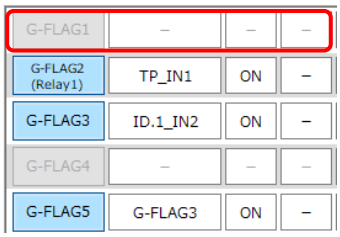
Multi Sel

G-FLAG Memo



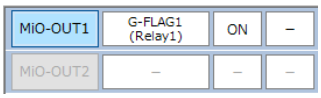
Right-click and G-FLAG Inserts

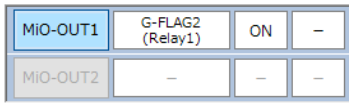


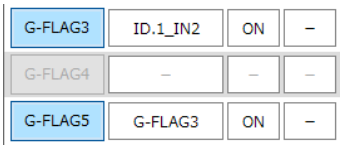


Program window and Multi Sel,G-FLAG Memo will be automatically edited according to the insertion of the flag.

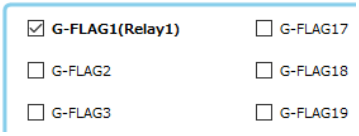
Program window

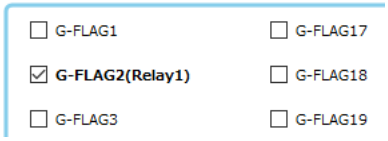




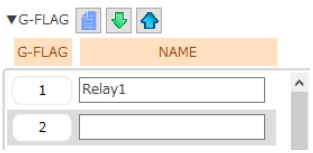


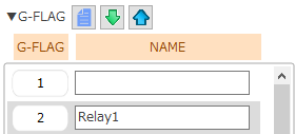
Multi Sel





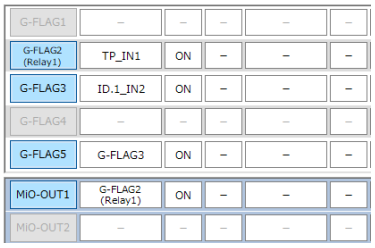
G-FLAG Memo



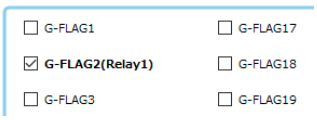


After Insert

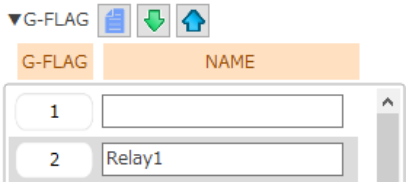
Program window



Multi Sel



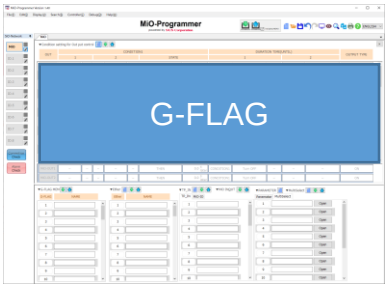
G-FLAG Memo



※Cannot be inserted in the following cases
The conditions that cannot be inserted depend on "G-FLAG" and "FLAG".

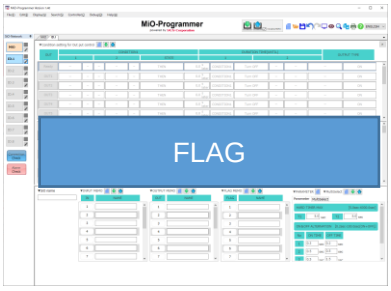
■ In the case of "G-FLAG"（MiO）

1. If the GFLAG48 is valid and the program is entered
2. If the GFLAG48 is invalid but the program is entered
3. If the GFLAG48 is valid and no program is entered
4. If the GFLAG48 Memo is entered
5. If the GFLAG48 is used in Program Window
6. If the GFLAG48 is used in Multi Sel



■ In the case of "FLAG" （SiO-N1/N1 R2/N3）

1. If the FLAG48 is valid and the program is entered
2. If the FLAG48 is invalid but the program is entered
3. If the FLAG48 is valid and no program is entered
4. If the FLAG48 Memo is entered
5. If the FLAG48 is used in Program Window
6. If the FLAG48 is used in Multi Sel



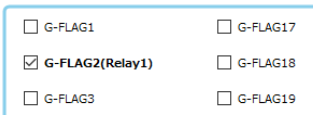
(6) Delete of G-FLAG / FLAG

In the program window, **right-click** in a row and click [G-FLAG X Delete],The selected G-FLAG is deleted and new G-FLAG settings in last row.
Like insertion of G-FLAG, Program window and Multi Sel,G-FLAG Memo will be automatically edited according to the delete of the flag.

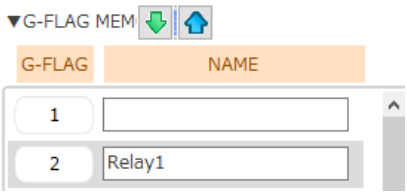
Before delete

Program window

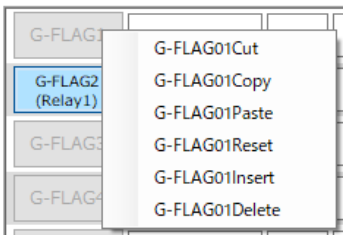
Multi Sel

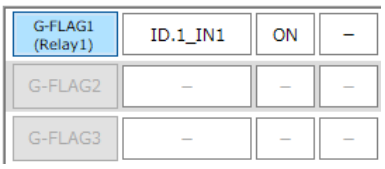


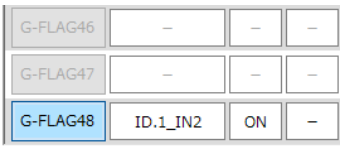
G-FLAG Memo

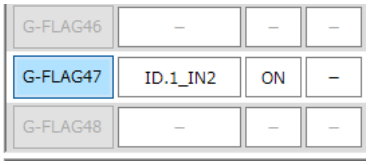


Right-click and FLAG Delete



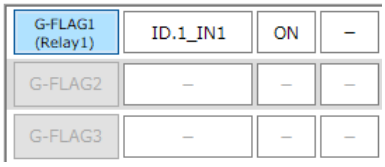






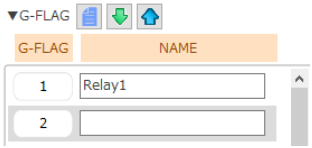
After Delete

Program window



Multi Sel

G-FLAG Memo



※Cannot be inserted in the following cases

1. If the Selected “G-FLAG” / “FLAG” is valid and the program is entered
2. If the Selected “G-FLAG” / “FLAG” is invalid but the program is entered
3. If the Selected “G-FLAG” / “FLAG” is valid and no program is entered
4. If the Selected “G-FLAG Memo” / “FLAG Memo” is entered
5. If the Selected “G-FLAG” / “FLAG” is used in Program Window
6. If the Selected “G-FLAG” / “FLAG” is used in Multi Sel

(7) Start by a double-click of a configuration file
MiO-Programmer can be started in the state which made setting data reflected by a double-click of a configuration file

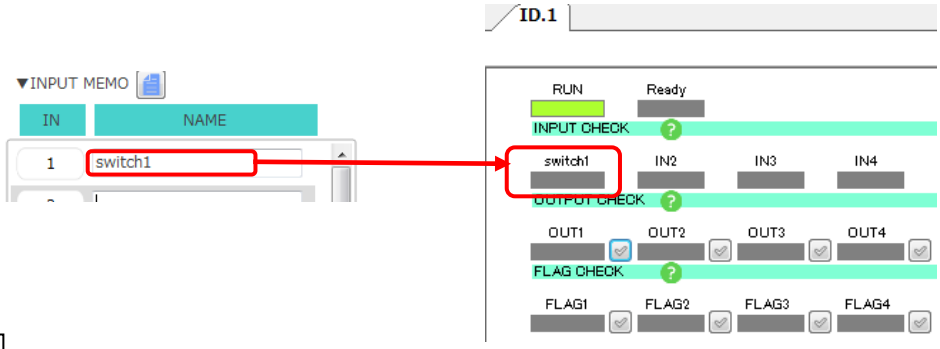
I/O Monitor

The I/O monitor enables you to monitor the I/O status. You can display the I/O monitor by clicking the monitor icon at the top right of the window. The I/O monitor can be used only when the computer is connected to a controller.

Connecting the computer to the MiO via a USB cable allows you to monitor the status of the controllers on the network.
Connecting the computer to an SiO controller via a USB cable allows you to monitor only the connected controller.

On the I/O monitor, you can check whether the controller is in the RUN state, check the ON/OFF status of the inputs and outputs, or force OUTs or FLAGs to turn on. The names of inputs and outputs will be replaced with the notes you enter in the program window. At the bottom of the monitor window is an I/O monitor that looks similar to the program window.

- MiO



(1) View selection

Select the controller whose status you want to view on the monitor.

(2) RUN switch

Indicates whether the controller is in the RUN or STOP state.

- RUN: Green
  STOP: Gray

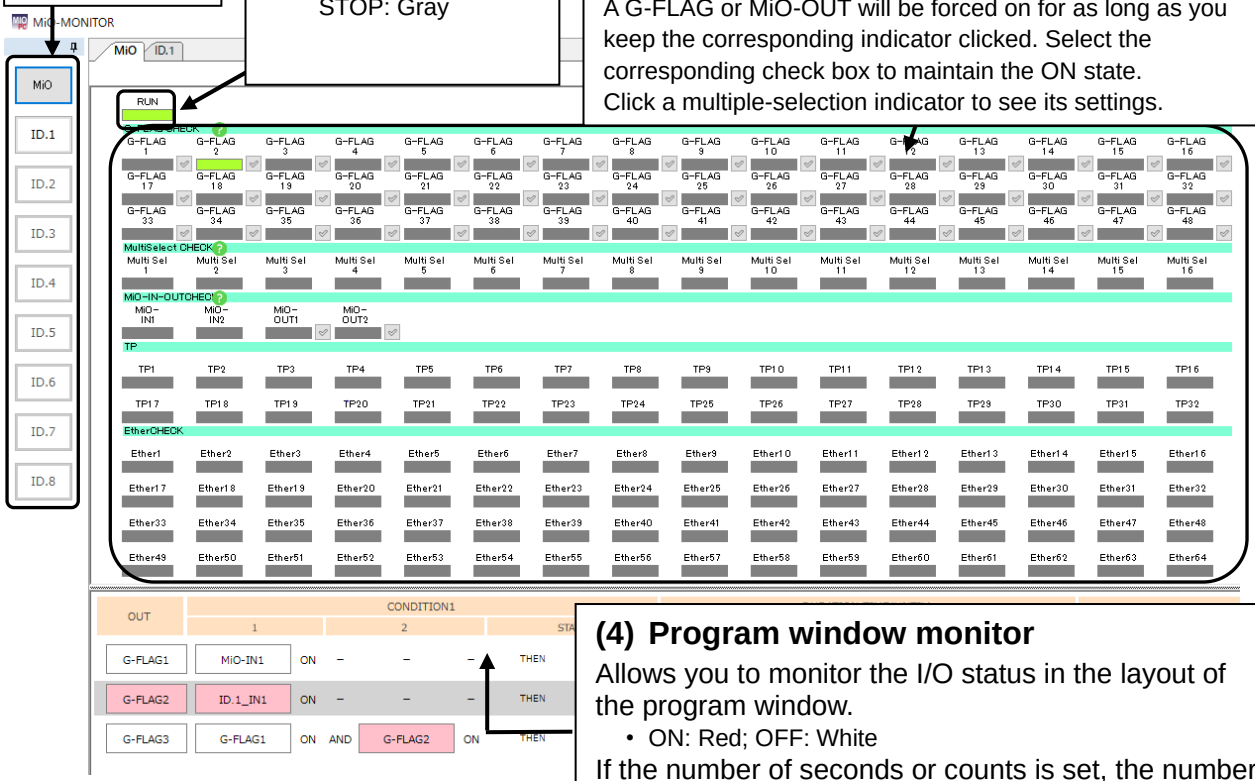
(3) I/O status check

Shows the I/O status.

ON: Red for MiO-IN and Ether indicators
Green for G-FLAG, MiO-OUT, multiple-selection, and TP-IN indicators

OFF: Gray

A G-FLAG or MiO-OUT will be forced on for as long as you keep the corresponding indicator clicked. Select the corresponding check box to maintain the ON state.
Click a multiple-selection indicator to see its settings.



(4) Program window monitor

Allows you to monitor the I/O status in the layout of the program window.

- ON: Red; OFF: White

If the number of seconds or counts is set, the number of seconds or counts on the controller appears circled in blue.

- SiO

(1) View selection

Select the controller whose status you want to view on the monitor.

(2) RUN switch

Indicates whether the controller is in the RUN or STOP state.

- RUN: Green; STOP: Gray

(4) I/O status check

Shows the I/O status.

ON: Red for IN indicators, green for OUT, FLAG, and multiple-selection indicators

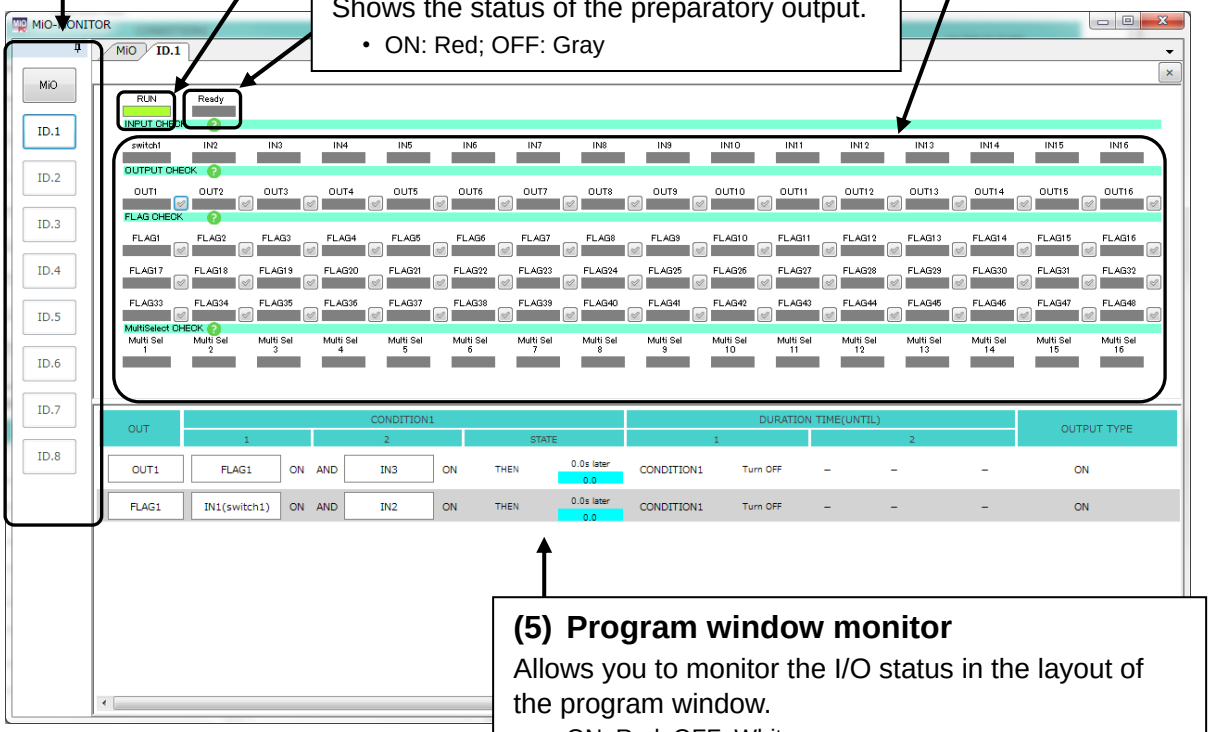
OFF: Gray

An OUT or FLAG will be forced on for as long as you keep the corresponding indicator clicked. Select the corresponding check box to maintain the ON state. Click a multiple-selection indicator to see its settings.

(3) Ready

Shows the status of the preparatory output.

- ON: Red; OFF: Gray



(5) Program window monitor

Allows you to monitor the I/O status in the layout of the program window.

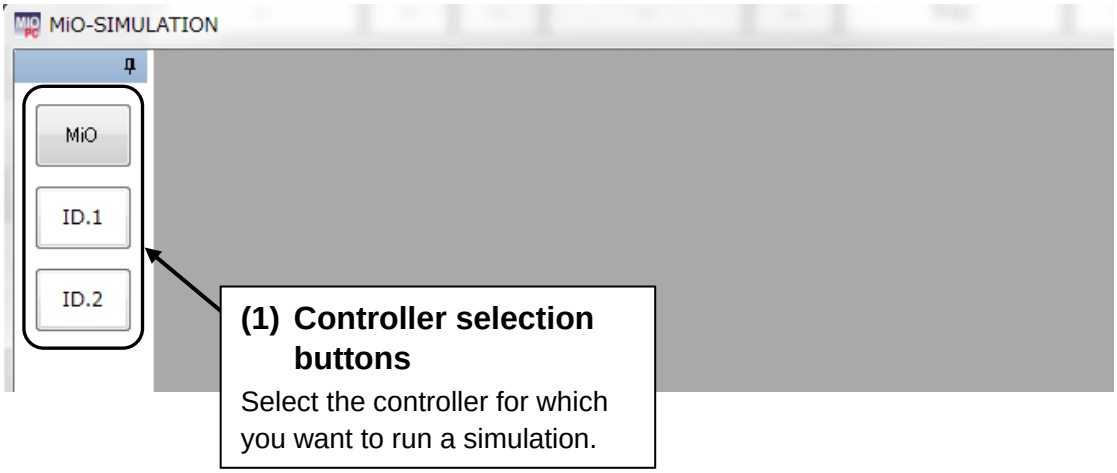
- ON: Red; OFF: White

If the number of seconds or counts is set, the number of seconds or counts on the controller appears circled in blue.

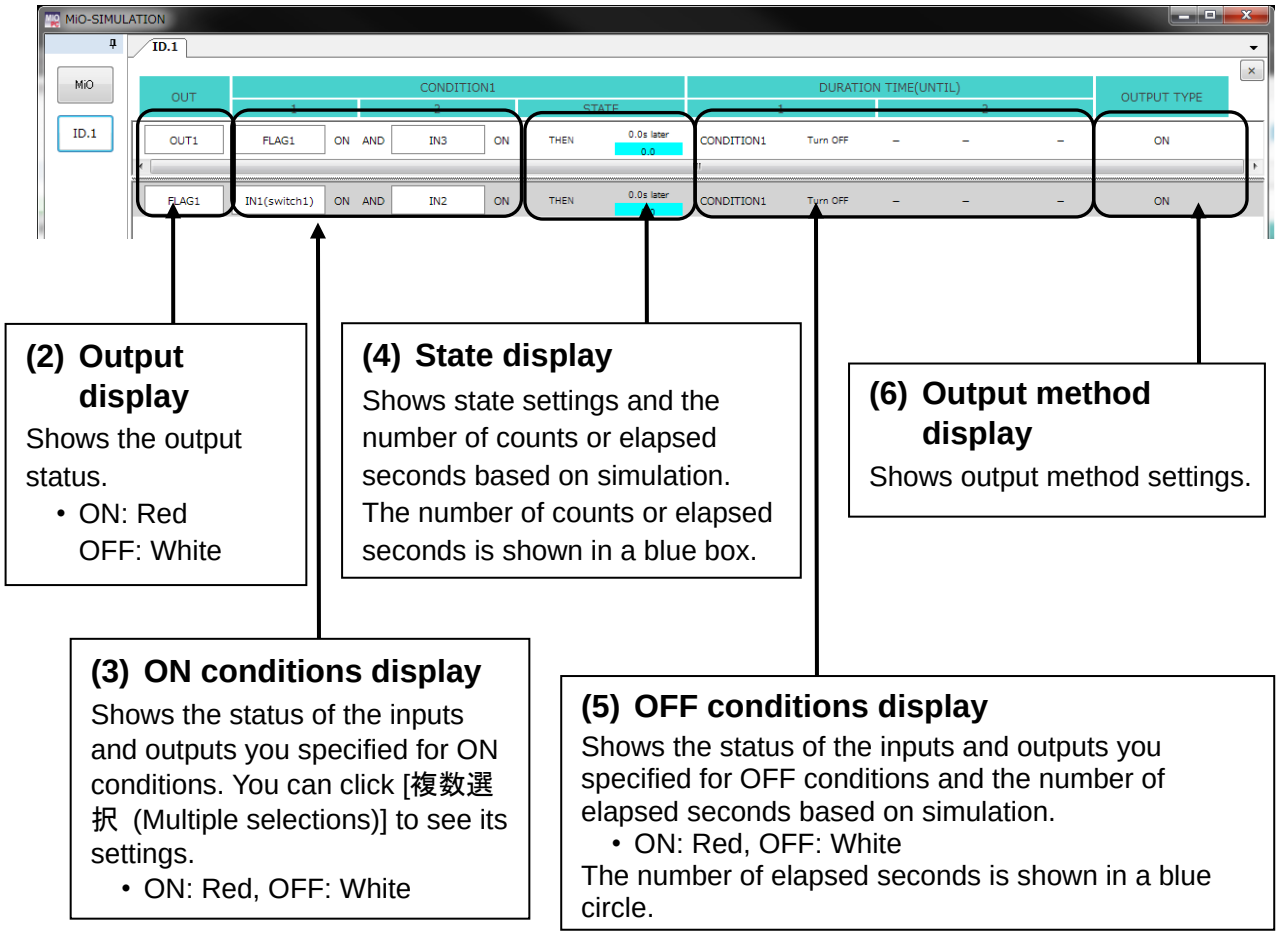
Simulation

Simulation shows how the inputs and outputs you configured in MiO-Programmer work. Use the simulator to check whether your settings work as intended before actually using the controller. Since the simulator runs on a computer, **you can perform a simulation without connecting a controller.**

Clicking the simulator icon at the upper right of the program window displays a simulation window and an input box.



Selecting a controller opens an I/O display window.
In the input box, click [RUN] and the desired IN button to start simulation.



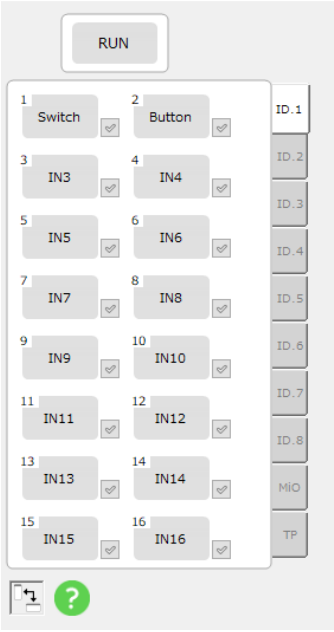
(7) Input box

To start the simulator, click [RUN] in the input box.

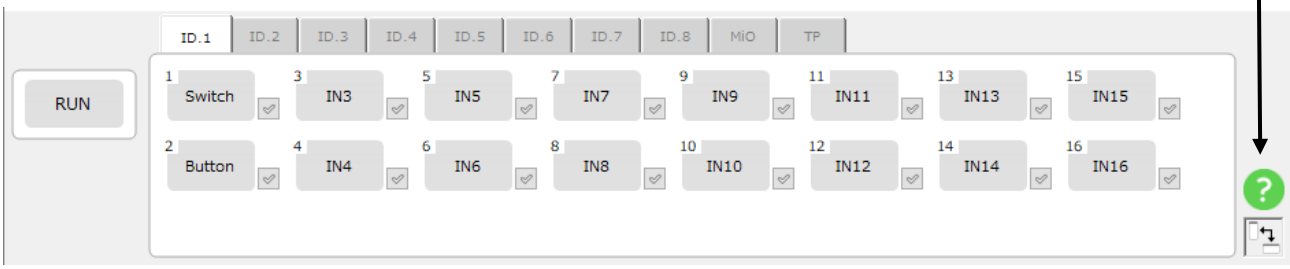
- ID.1 to ID.8: SiON1(N3) IN1 to IN16
- MiO: MiO IN1 to IN2, Ether1 to Ether8
- TP: TP IN1 to IN32, TP Timers 1−16, TP Counters 1−16

An input will be turned on for as long as you keep its corresponding button clicked. Select the corresponding check box to maintain the ON state.
RUN − ON: Green, OFF: Gray
IN1 to IN16, MiO IN1 and IN2, Ether1 to Ether64, and TP IN1 to IN32 − ON: Red, OFF: Gray

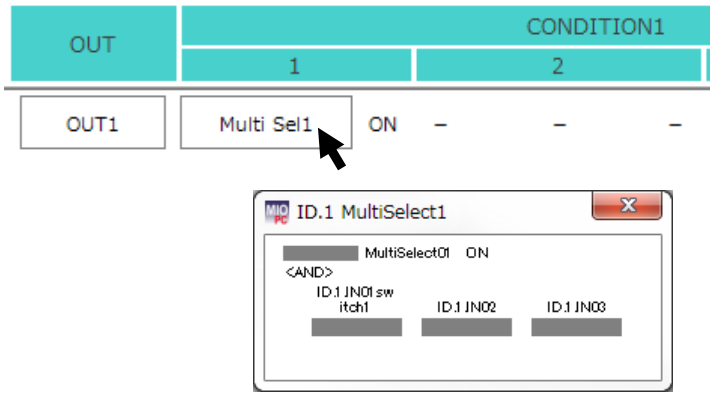
For TP timers and TP counters, click a value to open a numeric keypad where you can enter a value.



Click the button to switch between vertical and horizontal views.



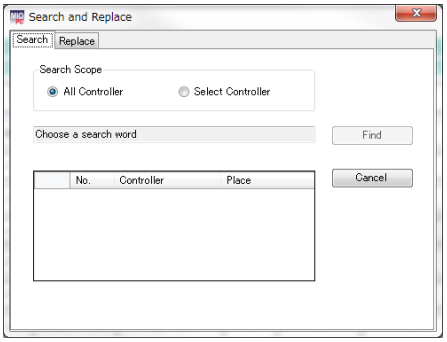
*** If a multiple-selection condition is set, click [Multi Select] to see which inputs and outputs are selected.**



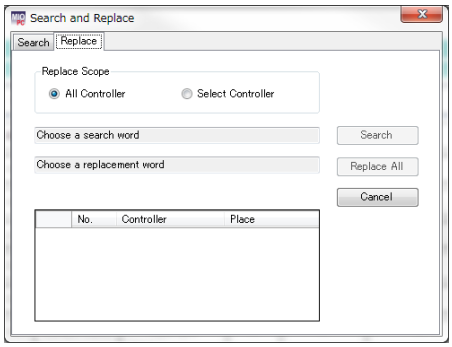
Find and Replace

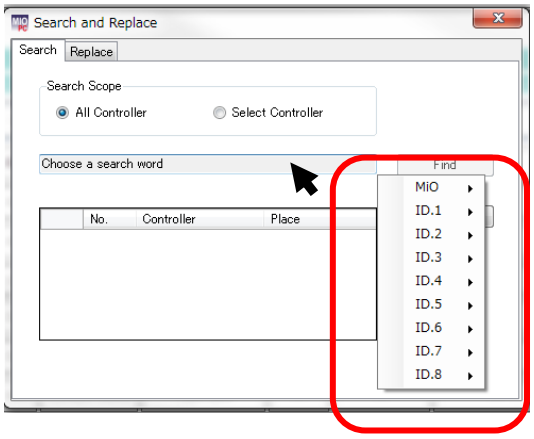
The Find and Replace feature allows you to search for a particular input or output and replace it with another input or output.
You can display the Find and Replace window by clicking the Find and Replace icon at the top right of the screen or by pressing the shortcut key combination Ctrl+F or Ctrl+H.
Clicking the Find and Replace icon or pressing Ctrl+F opens the Find tab.
Pressing Ctrl+H opens the Replace tab.

Find Tab



Replace Tab

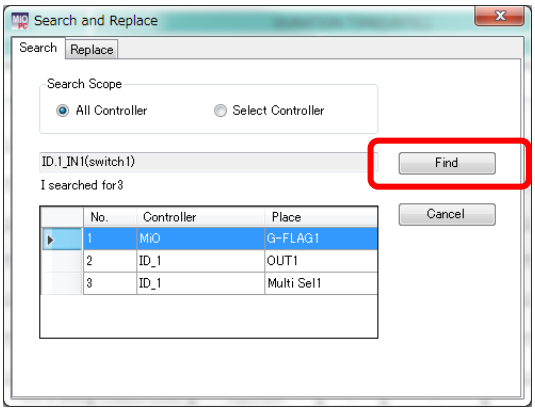




(1) Display of search items

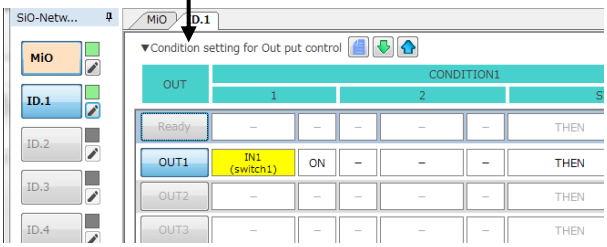
Select the input or output you want to search for.
You can display all available search items by clicking the text box.
Here are the search items:
MiO: G-FLAG, MiO-IO, RUN, Multiple selections, Ether, and TP-IN
ID.1 to ID.8: IN, OUT, FLAG, Multiple selections, T1, and T2
All these items except T1 and T2 are also available as replacement items.
You can choose to search all controllers or only the selected controller.

Find



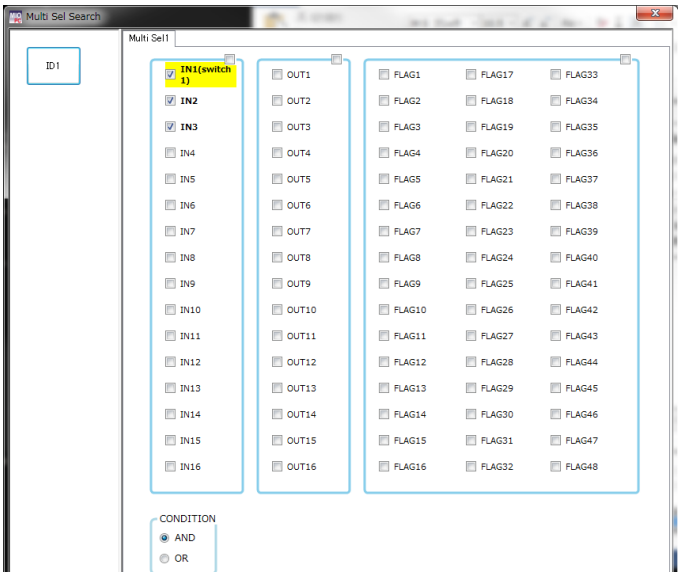
(2) Find (program window)

Clicking the [Find] button displays the number of matches and their locations.
In addition, the input or output that matches your search item is highlighted in yellow.

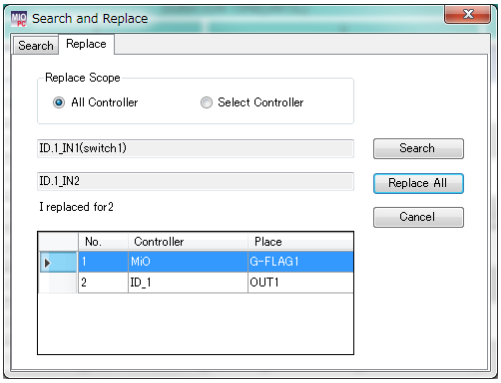


(3) Find (Multiple selections)

If there is a multiple-selection condition that includes your search item, a multiple-selection search window appears.
You can edit the settings and then click the [OK] button to save them.



Replace

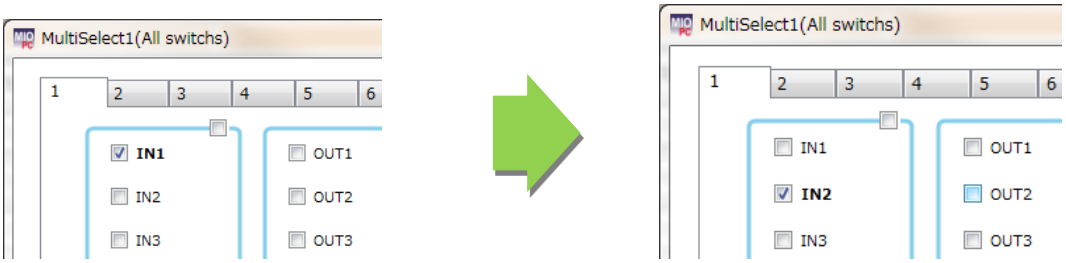


(4) Replace All

Clicking the [Replace All] button replaces all found matches with your replacement item.
If there is a multiple-selection condition that includes the search item, the matches in that condition are also replaced.

Program window

Multiple selections

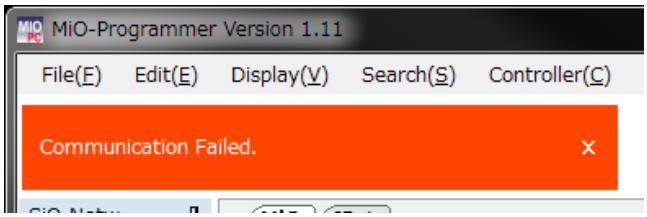


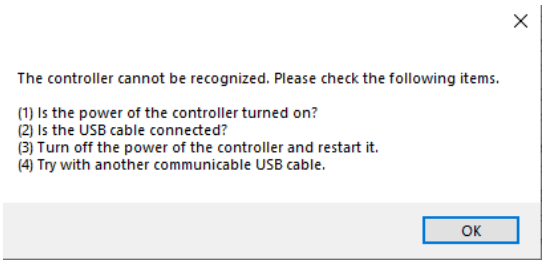
Note the following:

- A search item can only be replaced with an option in the list of replacement items.
- Multiple-selection settings can only be replaced with IN, OUT, or FLAG.
- Multiple-selection settings can only be replaced with those that are not selected.

Onscreen Messages

A message like the one shown below appears if an error occurs, such as when a program is incorrect or an SiO controller is not connected.





If an error message appears, check the following and eliminate the cause.

Message	Description
A read error has occurred.	The computer has failed to communicate with a controller. 1. Check that the controller and the computer are connected and that the controller is turned on. If they are connected, make sure that the USB cable is not damaged. 2. You may be using an older version of the PC software or device driver. Uninstall **both the device driver and PC software** (see page 8), and download the latest installer from SUS's website.
Failed to read.	
Failed to write.	
Failed to communicate.	
Unknown command	
No controller is connected.	
No driver is installed.	The computer does not recognize controllers because no device driver is installed or because the device driver is not working properly. Uninstall **both the device driver and PC software**, and download the latest versions of the software and device driver from SUS's website.
Correct the setting(s) shown in red text or with a red background.	The program is not configured correctly and cannot be written to a controller. Check and correct the settings for the items highlighted in red.
Cannot force output during RUN.	When a controller is in the RUN state, you cannot force output via the I/O monitor. Turn off the RUN switch on the controller before attempting to force output.
Controllers with the following IDs are not connected.	Data cannot be registered because the connected controllers do not match the network configuration. Check whether the appropriate controllers are connected properly.
Data will not be written to the controller(s) with the following ID(s).	One or more controllers that are not included in the network configuration are connected. Data will be written only to the controllers included in the network configuration.
One or more controllers are in the RUN state. Do you want to continue writing?	If a controller is in the RUN state, stop it before registering a program. Once the program is registered, the controller will enter the RUN state.

Message	Description
Version x.xx and later controllers are not supported. Download the latest version of MiO-Programmer from SUS's website.	Your version of MiO-Programmer does not support the connected controller(s). Install the latest version of MiO-Programmer that works with the controller(s).
Install Adobe Reader.	Clicking the Help button displays this manual in PDF format. You cannot view the manual on a computer that does not have Adobe Reader installed.
The language file is corrupted.	The help file or language file for MiO-Programmer is corrupted and cannot be read. Uninstall MiO-Programmer and reinstall it.
The help file is corrupted.	
Do you want to write this program?	This message appears if you click the [Write] button when the program is not configured.
[Alarm] Improper SiO network connection	This message may appear when you click [Connection Check] or [Alarm Check]. Check that: • All controllers with the set IDs are connected. • Only the controllers with the set IDs are connected. • All cables are connected between the controllers. Note: Although an alarm appears if you connect an SiO controller to an MiO controller that is in a factory-default state, this is not a problem.
[Alarm] Unsupported ID detected	This message may appear when you click [Connection Check] or [Alarm Check]. A controller with an ID other than ID.1 to ID.8 is connected. Check the ID number.
[Alarm] Unsupported version detected	This message may appear when you click [Connection Check] or [Alarm Check]. The connected controller is not compatible with the MiO.
It is not supported by your controller(After Ether9). Compatible only with MiO Ver 1.50 or later controllers.	This message may appear when trying to write Ether9 or higher while connecting a controller with MiO Ver1.40 or lower.
For your controller, switch the address / port setting to manual and register.	When trying to write by automatically setting the address / port while connecting a controller of MiO Ver1.40 or lower.
Your controller does not support the memo registration function.	This is displayed when you try to read / register a memo including a memo while connecting a controller other than the following. ・MiO Ver 1.60 or higher ・SiO-N1 Ver 3.60 or higher ・SiO-N1 R2 Ver 3.70 or higher ・SiO-N3 Ver 3.60 or higher * Any one of the connected controllers will be displayed even if it is not the above.

Message	Description
For your controller, the timeout setting is not implemented, so please switch to disable and register.	This is displayed when you try to register with the timeout setting enabled while connecting a controller with MiO Ver1.50 or lower.
The controller cannot be recognized, Please check the following items.	Check the display items because the SiO controller cannot be recognized.
The device driver is not installed. Please uninstall the device driver and the PC software, and download them again from the SUS HP.	Since the device driver cannot be found, uninstall the device driver and MiO-Programmer once, and then download again from the SUS HP.
No network configuration has been set for MiO. Register the same network configuration as the connected SiO. For the registration method, see page 16 <Network Configuration> in the instruction manual.	Displayed when the MiO controller is connected to the SiO controller and the network configuration is not registered in the MiO controller itself.

MiO Touch Panel

The MiO touch panel allows you to monitor the entire MiO system and configure or enter some settings.
The touch panel is compatible with MiO version 1.50 and later.
The following list describes the features of the touch panel.
MiO TP Features

1. Label element
   Displays the text you specified. You can edit all text.
2. Indicator elements
   Each indicator lights up when a set signal turns on. (Corresponding signal MiO G-FLAG, SiO IN OUT FLAG)
3. Moment switch elements
   Press a switch to turn a set signal on or off. (Corresponding TP_IN)
4. Radio button elements
   Press a switch to turn a set signal on or off. Placing multiple radio button elements allows you to turn on and off side-by-side signals. (TP_IN)
5. Toggle switch element
   Press the switch to turn a set signal on or off. (TP_IN)
6. Navigation elements
   Each button opens the window assigned to it.
7. Timer setting element
   Allows you to set timer values from the touch panel. (TP_Timer)
8. Timer display element
   Displays the timer you set.
9. Counter setting element
   Allows you to set counter values from the touch panel. (TP_Counter)
10. Counter display element
    Displays the counter you set.

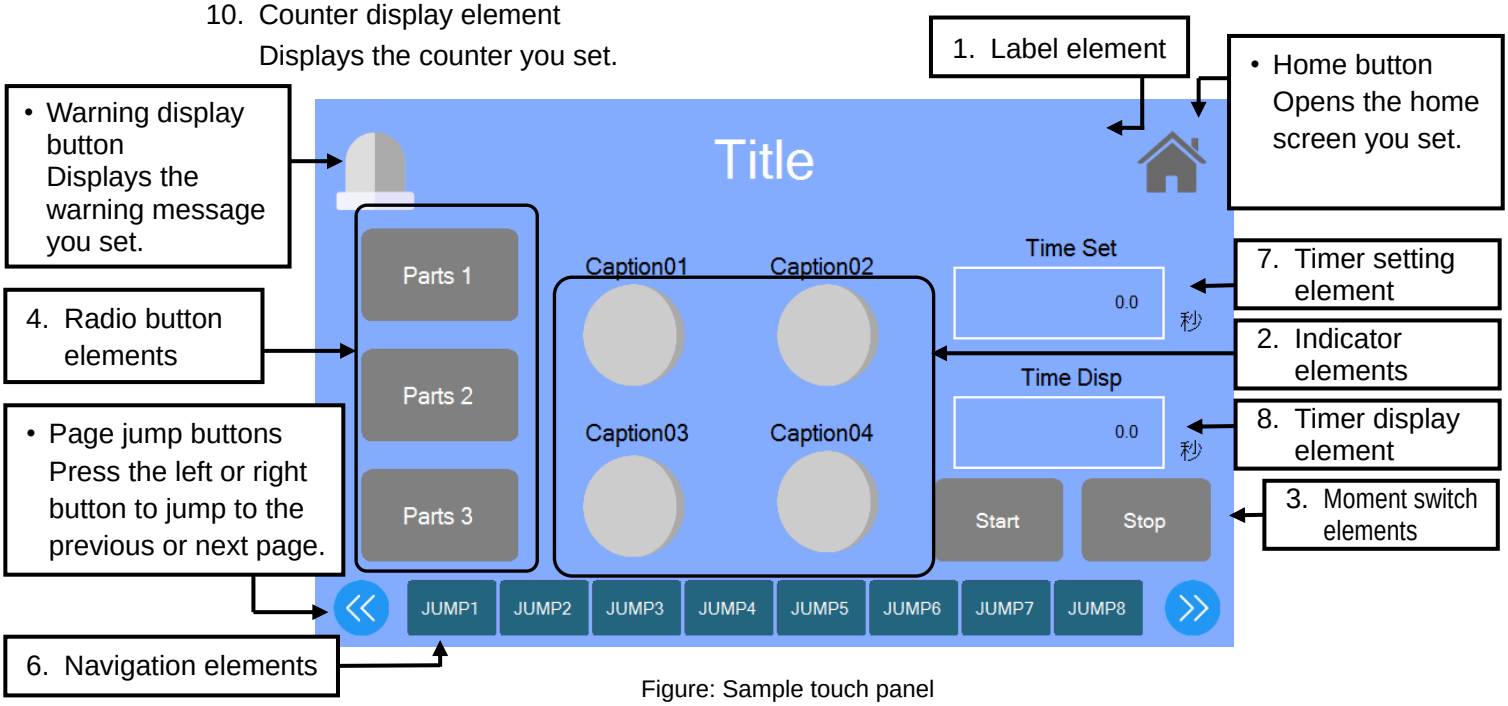


Figure: Sample touch panel

With MiO-Programmer, you can program controllers using outputs from the touch panel (TP-IN, TP Timer, and TP Counter) as conditions. For details on the MiO touch panel, refer to the "MiO touch panel" on our website or the instruction manual of the PC software "MiOTP-Screen Selector" for touch panel setting.

Inquiring about *MiO-Programmer*

If you have any problems with or questions about ***MiO-Programmer***, please e-mail us at:

sus-sales@sus.co.jp

Revision History

Version	Date	Description	Revised Page
1.00	30 May 2019	Initial release	
1.01	30 August 2019	[Change point] • Changed the color of the indicators for controllers • SiO network. [Changes] <All> Change the color of the connected controller. connected to an SiO network.	P. 10-15
1.10	29 May 2020	[Change point] • Added description of the find-and-replace feature. [Changes] <Find and Replace> • Added description of search and replace function.	P. 51-52
1.11	30 September 2020	[Change point] • Added description of SiO-N3. [Changes] Additional description of SiO-N3.	P. 17-20
1.20	26 February 2021	[Change point] • Add MiO Touch Panel [Changes] <Added a touch panel feature> • Creating an I/O Program Revised the table. (Added information about TP counters and TP timers.) • Details of Each Item 1. ON conditions (1 and 2): Revised the table. (Added TP-IN1 to IN32.) 2. ON conditions (State): Revised the table. (Added information about TP counters and TP timers.) 3. OFF conditions: Revised the table. (Added TP-IN 1 to IN32.) • Timer Settings Provided separate descriptions for MiO and SiO. (Added description of TP timers to the “MiO” section.) • I/O Monitor Replaced the image of the MiO-Programmer screen.	P. 22 P. 24 P. 26 P. 27 P. 29 P. 47

1.20	26 February 2021	• Simulation (7) Input box (Added the TP feature.) Replaced the images of the input box (for both vertical and horizontal views). • Find and Replace ① Display of search items (Added TP-IN.) • MiO Touch Panel (Added items.)	P. 49 P. 51 P. 55
1.21	18 March 2021	[Change point] • Added a note about what to do after USB communication. [Changes] < Connecting a USB Cable > • Addition of precautions after USB communication	P. 10
1.22	10 August 2021	[Change point] • Changed Ether score from 8 to 64 • DHCP function added [Changes] <All> • Changed Ether score to 64 points < Parameter settings > • Added explanation about automatic / manual setting of address	 P. 10-53 P. 33
1.30	29 February 2022	[Change point] • Added read / write function for MEMO • Added GFLAG to MiO Multiple Selection • Added timeout setting for Ethernets communication • Added controller name setting for Ethernets communication [Changes] < I/O Notes> • Added explanation about the function to read / register memos to the controller. < Parameter settings> • Added explanation about timeout setting for Ethernets communication • Added explanation about controller name setting for Ethernets communication < Multi Select > • Changed to an image with G-FLAG added to MiO multiple selection	 P. 31 P. 35-36 P. 37 P. 39
1.31	1 June 2022	[Change point] ・ Added description of network configuration ・ Added message for network configuration unregistered [Changes] <Network Configuration> ・ addition	 P. 16

1.31	1 June 2022	<Message display> ・ Added explanation about messages for network configuration unregistered	P. 55
1.40	1 August 2022	[Change point] ・ Compatible model windows11 added ・Added undo / redo function ・Added G-FLAG / FLAG insertion / deletion functions [Changes] < Supported computer models > ・windows11 added < Tool Icons > ・Added explanation of undo and redo function < Useful Features > Added explanation of G-FLAG / FLAG insertion / deletion function	 P. 1 P. 14-15 P.44-46
1.41	1 December 2022	[Change point] ・ Added notes on Read from all controllers • Added description of SiO-N3. [Changes] < Tool Icons > Added notes on Read from all controllers < All > Additional description of SiO-N3.	 P14 P10-