# SiO-Programmer

PC Software for the SiO Controller

# Instruction Manual

Rev. 3.72

For *SiO-Programmer* Ver. 3.72

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# **Table of Contents**

● Precautions for use       4         ● Overview       5         ● System requirements       6         ● Installing SiO-Programmer       7         ● Uninstalling SiO-Programmer       10         ● Setting up the SiO controller       11         ● Connecting a USB cable       12         ● Starting SiO-Programmer       12         ● Program Window       13         ■ Tool Icons       14         ● SiO Controller/SiO-Programmer Compatibility Table       16         ■ Editing Data       17         ■ I/O Monitor       45         ● Simulator       47         ● Onscreen Messages       50         ● Inquiring about SiO-Programmer       53	•	Introduction	$\dots 4$
● System requirements       6         ● Installing SiO-Programmer       7         ● Uninstalling SiO-Programmer       10         ● Setting up the SiO controller       11         ● Connecting a USB cable       12         ● Starting SiO-Programmer       12         ● Program Window       13         ● Tool Icons       14         ● SiO Controller/SiO-Programmer Compatibility Table       16         ● Editing Data       17         ■ I/O Monitor       45         ● Simulator       47         ● Onscreen Messages       50	•	Precautions for use	4
● Installing SiO-Programmer       7         ● Uninstalling SiO-Programmer       10         ● Setting up the SiO controller       11         ● Connecting a USB cable       12         ● Starting SiO-Programmer       12         ● Program Window       13         ● Tool Icons       14         ● SiO Controller/SiO-Programmer Compatibility Table       16         ● Editing Data       17         ● I/O Monitor       45         ● Simulator       47         ● Onscreen Messages       50	•	Overview	5
<ul> <li>Uninstalling SiO-Programmer</li> <li>Setting up the SiO controller</li> <li>Connecting a USB cable</li> <li>Starting SiO-Programmer</li> <li>Program Window</li> <li>Tool Icons</li> <li>SiO Controller/SiO-Programmer Compatibility Table</li> <li>Editing Data</li> <li>I/O Monitor</li> <li>Simulator</li> <li>Onscreen Messages</li> </ul>	•	System requirements	6
<ul> <li>Setting up the SiO controller</li> <li>Connecting a USB cable</li> <li>Starting SiO-Programmer</li> <li>Program Window</li> <li>Tool Icons</li> <li>SiO Controller/SiO-Programmer Compatibility Table</li> <li>Editing Data</li> <li>I/O Monitor</li> <li>Simulator</li> <li>Onscreen Messages</li> </ul>	•	Installing SiO-Programmer	7
● Connecting a USB cable       12         ● Starting SiO-Programmer       12         ● Program Window       13         ● Tool Icons       14         ● SiO Controller/SiO-Programmer Compatibility Table       16         ● Editing Data       17         ● I/O Monitor       45         ● Simulator       47         ● Onscreen Messages       50	•	Uninstalling SiO-Programmer	10
<ul> <li>Starting SiO-Programmer</li> <li>Program Window</li> <li>Tool Icons</li> <li>SiO Controller/SiO-Programmer Compatibility Table</li> <li>Editing Data</li> <li>I/O Monitor</li> <li>Simulator</li> <li>Onscreen Messages</li> </ul>	•	Setting up the SiO controller	11
<ul> <li>Program Window</li> <li>Tool Icons</li> <li>SiO Controller/SiO-Programmer Compatibility Table</li> <li>Editing Data</li> <li>I/O Monitor</li> <li>Simulator</li> <li>Onscreen Messages</li> </ul>	•	Connecting a USB cable	12
● Tool Icons       14         ● SiO Controller/SiO-Programmer Compatibility Table       16         ● Editing Data       17         ● I/O Monitor       45         ● Simulator       47         ● Onscreen Messages       50	•	Starting SiO-Programmer	12
<ul> <li>SiO Controller/SiO-Programmer Compatibility Table</li> <li>Editing Data</li> <li>I/O Monitor</li> <li>Simulator</li> <li>Onscreen Messages</li> <li>50</li> </ul>	•	Program Window	13
<ul> <li>Editing Data</li></ul>	•	Tool Icons	14
<ul> <li>I/O Monitor</li></ul>	•	SiO Controller/SiO-Programmer Compatibility Table	16
<ul><li>Simulator</li></ul>	•	Editing Data	17
• Onscreen Messages	•	I/O Monitor	45
	•	Simulator	47
• Inquiring about SiO-Programmer	•	Onscreen Messages	50
	•	Inquiring about SiO-Programmer	53

## Introduction

SiO-Programmer is PC software that supports SUS Corporation's SiO controller.

*SiO-Programmer* allows you to write program data and parameters to the *SiO controller* easily and efficiently. You can also save your edited data to a file or print it.

You will find that this software makes the SiO controller easier to use.

This instruction manual covers SiO-Programmer version 3.71.

The version number of SiO-Programmer you are using can be found in the upper-left corner of the SiO-Programmer screen. ( $\Rightarrow$  Page 13)

If you are using SiO-Programmer version 2.00 or earlier, refer to SiO-Programmer Instruction Manual Rev. 1.xx.

The information in this manual is subject to change without notice due to product improvement.

For the latest information, please visit our website at: http://www.sus.co.jp/

## Precautions for use

- Be sure to turn off the *SiO controller* before connecting a communication cable to or disconnecting it from your computer with *SiO-Programmer* installed.
- To transmit data between the SiO controller and your computer, use the USB cable specified by SUS.
- Do not turn off the SiO controller during data communication between the controller and your computer. Also, be sure to connect the USB cable securely to prevent it from coming off during data 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 writing 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 SiO-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 the maximum values of hardware timers, ON/OFF cycle settings, and other parameters.

#### **♦** Monitoring

You can monitor the I/O status. The output status can be forced on or off. In addition, changes in the I/O status can be saved to a CSV file.

#### **♦** Simulator

The program data you enter can be simulated on your computer.

The simulator allows you to check inputs and outputs before connecting your computer to the SiO controller.

# **System requirements**

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

## Supported computer models

This software has been verified to run on computers installed with any of the following operating systems:

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

# ◆ CPU and memory

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

## ◆ Hard disk space

512 MB or more of free space

# Display

Resolution:  $1280 \times 768$  or more

Colors: 256 or more

## Other

USB 2.0 port

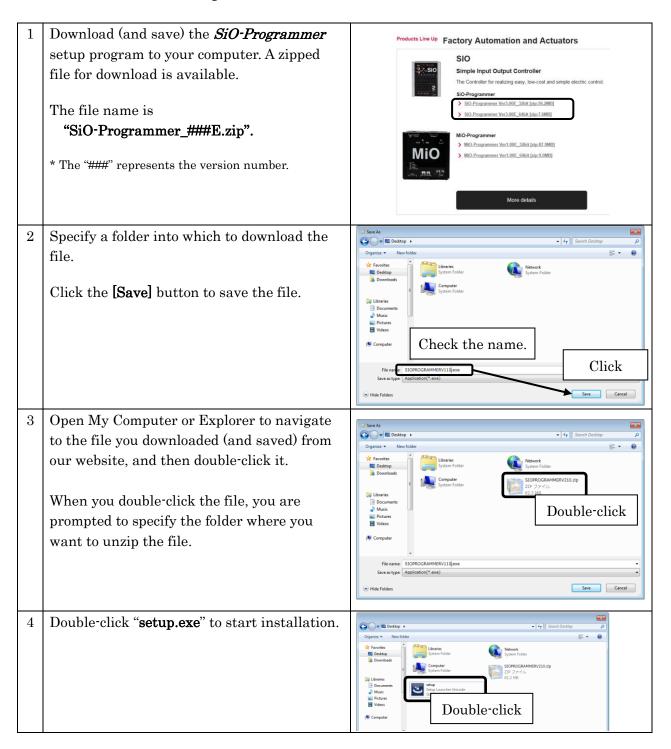
<sup>\*:</sup> Even on these operating systems, SiO-Programmer may not work properly, depending on your computer model.

# **Installing SiO-Programmer**

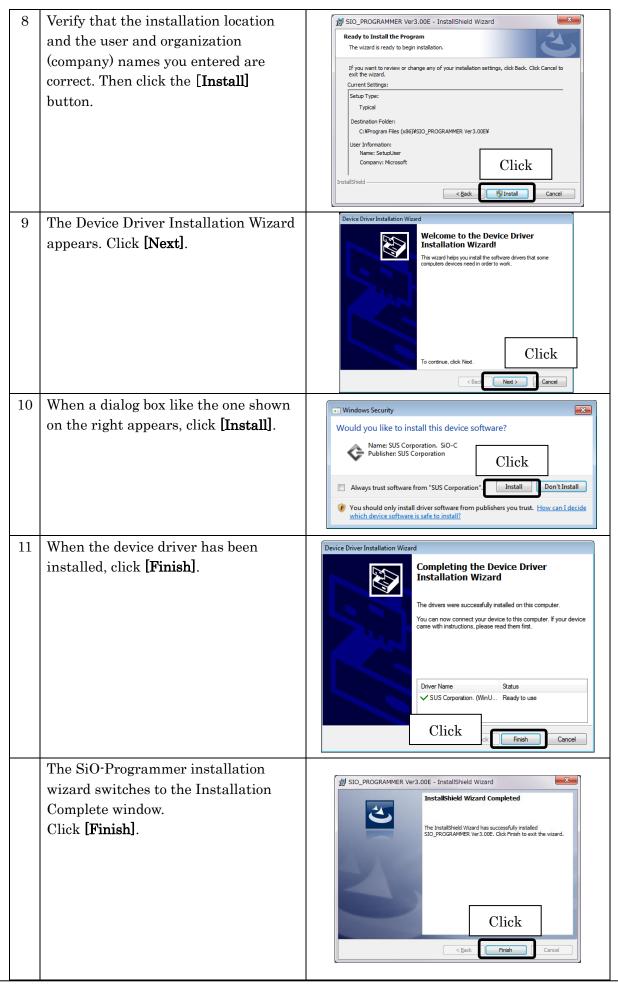
You need to install *SiO-Programmer* on your computer's hard disk before you can use it. Quit all other applications before installing SiO-Programmer.

If your computer already has *SiO-Programmer* over version 2.xx, you can update it <u>simply by</u> running Setup.exe.

Here is how to install SiO-Programmer:

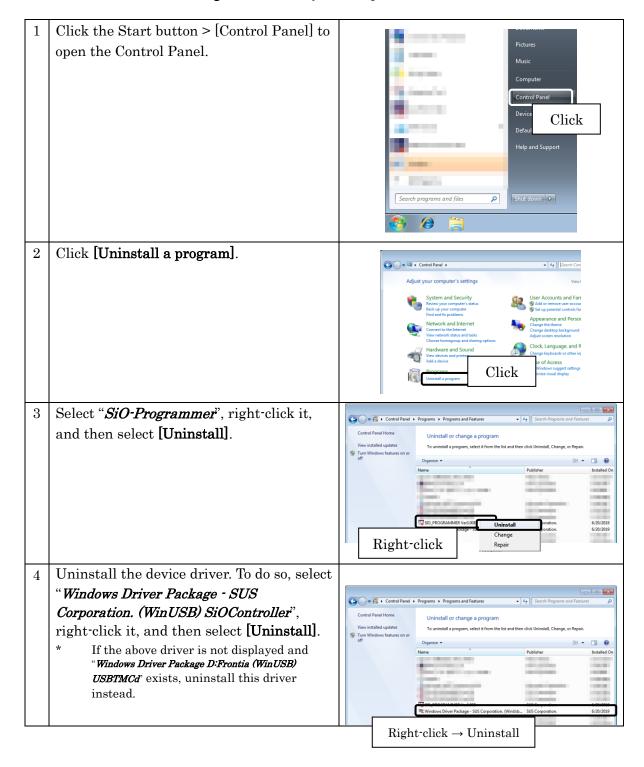


When the setup wizard appears, click the [Next] button. Welcome to the InstallShield Wizard for SIO\_PROGRAMMER Ver3.00E The InstallShield(R) Wizard will allow you to modify, repair, or remove SIO\_PROGRAMMER Ver3.00E. To continue, dick Next. Click < Back Next > Cancel 6 Read the SiO-Programmer license ÿ SIO\_PROGRAMMER Ver3.00E - InstallShield Wizard agreement and accept the terms and License Agreement Please read the following license agreement carefully conditions. Then click [Next]. SIO-PROGRAMMER License Agreement If you do not accept the terms and Thank you for choosing SIO-PROGRAMMER. conditions, you cannot proceed with The following agreement must be agreed to use Software program, SIO-PROGRAMMER, developed by SUS Corporation (hereinafter referred to as SUS). Unless the agreement was made, the **SIO-PROGRAMMER** must be uninstalled from User's the installation. I accept the terms in the license agreemen < <u>B</u>ack Accept the terms and conditions, and then click the [Next] button. Enter your user name and SIO\_PROGRAMMER Ver3.00E - InstallShield Wizard organization name, and then click Customer Information Please enter your information the [Next] button. Click < Back By default, a folder named "SIO\_PROGRAMMER###" is created SIO\_PROGRAMMER Ver3.00E - InstallShield Wizard in the "Program Files" folder as the Destination Folder installation location, where the Click Next to install to this folder, or click Change to install to a different folder program is installed. Install SIO\_PROGRAMMER Ver3.00E to: C:\text{Program Files (x86)\text{\text{YSIO\_PROGRAMMER Ver3.00E\text{\text{Y}}}} Change... To use the default folder, click the [Next] button. To use a different folder, click the Click this button if you want to change the installation location. [Change] button and specify the desired folder. Click The "###" represents the version number.



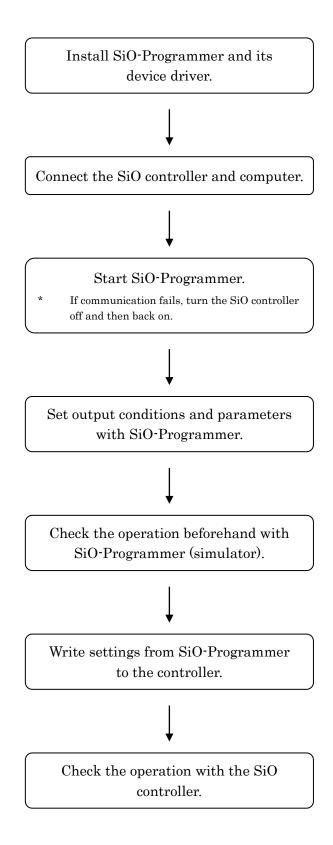
# **Uninstalling SiO-Programmer**

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



# **Setting up the SiO controller**

Follow the steps below to set up the SiO controller.



# Connecting a USB cable

#### Computer side

Install SiO-Programmer and its software driver before connecting the controller to your computer. (→ Page 7)

After installing them, connect the Type A connector of the USB cable to the USB port on your computer.

\* Only one SiO controller can be used with one computer.

#### Controller side

Connect the micro-USB connector of the USB cable to the 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.

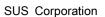
\* After USB communication, disconnect the power cable of the controller body, turn off the power, and then disconnect the USB cable.

# **Starting SiO-Programmer**

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

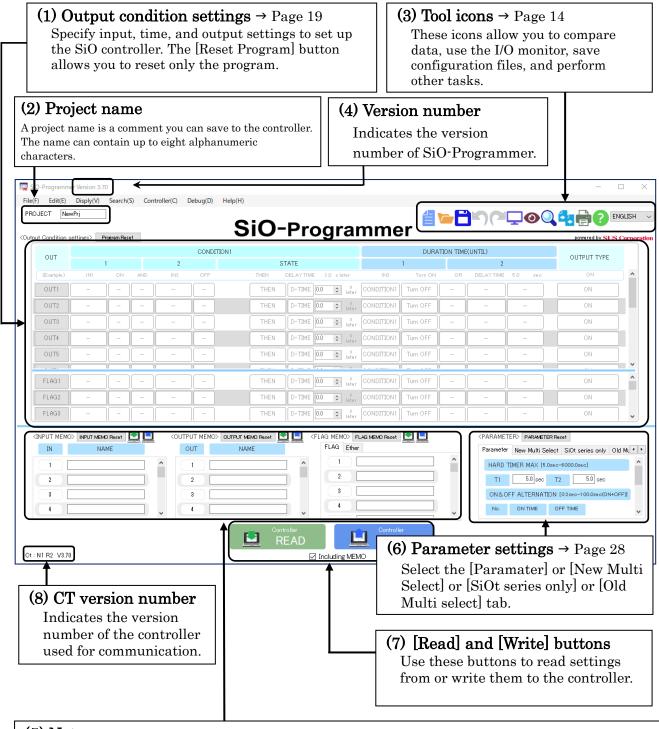
If you used the default folder during installation, the icon is stored in the following location:

[Start Menu] > [Programs] > [SIO\_PROGRAMMER]



## **Program Window**

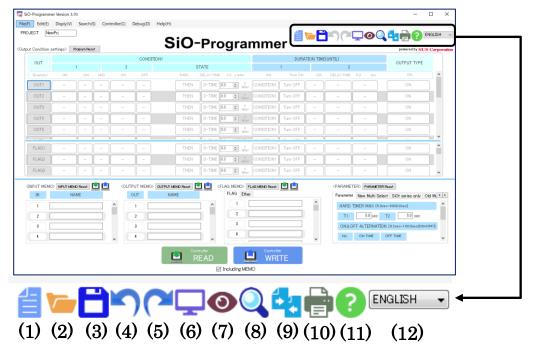
• This section shows the names of the screen elements and describes their functions.



#### (5) Notes $\rightarrow$ Page 26

The note fields allow you to take notes about inputs and outputs. (You can enter notes for New/Old Multiple-Selection conditions in the [PARAMETER] area.) The notes you enter here are reflected in the program, I/O monitor, and simulator windows. A note can contain up to 16 alphanumeric characters and double-byte characters.

## **Tool Icons**



# (1) 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.

## (2) Open 7

Opens a saved configuration file. Selecting a configuration data file (\*.sio) reflects the settings saved in the file on the window.

- \* You can also open an SiO file by dragging and dropping it.
- \* An SiO file saved in a different version of SiO-Programmer may not open. See page 18 for more details.

## (3) Save

Saves the current settings. The extension of the configuration file is ".sio".

If you name the file "sample", it is saved under the name "sample.sio".

## (4) Undo 📉

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

## (5) Redo (

It's possible to cancel the undo.

This function can use only the number of times which undo.

## (6) Simulator $\Box$

Starts the simulator ( $\rightarrow$  Page 47).

The simulator allows you to check how the program you created works.

\* You can use the simulator without connecting your computer and the SiO controller.

## (7) I/O monitor (1)



Starts the I/O monitor (→Page 45).

You can check the I/O status and switch the output status on or off.

In addition, changes in the I/O status can be saved to a CSV file.

\* To use the I/O monitor, you need to connect your computer and the SiO controller.

## (8)Search and Replace



Display search and replace window (→ Page.48)

Search:

The same I/O as the selected search word becomes yellow.

Replace:

The same I/O as the selected search word replaced with the replaced word.

If there is a multi select which setted Search word, that setting is replaced.

## (9) Compare



Compares the current settings in SiO-Programmer with the settings on the connected SiO controller or in an sio data file.

Any differences are highlighted in red.

\* To compare the current settings with the settings on the SiO controller, connect your computer and the controller to allow communication between them.

## (10) Print

Prints the settings window.

## (11) Help

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

## (12) Language selection [ENGLISH]

Change the language as needed. Japanese and English, Chinese, Italy, Vietnamese, Thai are supported.

Shortcuts are available for some functions.

- · New Ctrl + N
- · Open Ctrl + O
- Ctrl + SSave
- Print Ctrl + P
- Ctrl + ZUndo
- $\cdot$  Redo Ctrl + Y
- Ctrl + X• Cut
- · Copy Ctrl + C

- · Paste Ctrl + V
- · Reset Ctrl + R
- Insert Ctrl + Insert
- · Delete Ctrl + Delete
- Ctrl + F· Search
- Replace Ctrl + H

# SiO Controller/SiO-Programmer Compatibility Table

 $\blacksquare$  How to check the version of the SiO controller  $\blacksquare$ 

The version of the SiO controller can be found on the back of the controller.

Note that the version of SiO-Programmer you can use differs depending on the controller to be used.

		SiO-Ccontroller		SiO2, SiO3, SiO-N1 Controllers		SiO3.2, SiON3 Controllers	SiOt Controllers	SiOt1, SiOt3 Controllers	SiO2 R2 Controllers	SiON1 R2 Controllers	
		Ver1.xx	Ver2.xx	Ver3.xx	Ver1.xx	Ver3.xx	Ver3.xx	Ver3.xx	Ver3.xx	Ver3.xx	Ver3.xx
	Ver1.xx	0	×	×	×	×	×	×	×	×	×
	Ver2.xx	×	0	×	0	×	×	×	×	×	×
	Ver3.00 -3.30	×	0	0	0	0	0	×	×	×	×
SiO-Programmer	Ver3.40 -3.41	×	0	0	0	0	0	0	×	×	×
	Ver3.50 -3.53	×	0	0	0	0	0	0	0	×	×
	Ver3.60 -3.62	×	0	0	0	0	0	0	0	0	×
	Ver3.70 -3.72	×	0	0	0	0	0	0	0	0	0

#### Compatibility of saved files between different versions of SiO-Programmer

Note that you cannot open saved files depending on the version of SiO-Programmer you are using, as shown below.

SiO- Programmer		Version that was used to create data files							
		Ver1.xx	Ver2.00-2.10	Ver2.20-2.60	Ver3.00-3.31	Ver3.40-3.41	Ver3.50-3.53	Ver3.60-3.62	Ver3.70-3.72
	Ver1.xx	0	×	×	×	×	×	×	×
	Ver2.00-2.10	0	0	×	×	×	×	×	×
	Ver2.20-2.60	0	0	0	×	×	×	×	×
Your version	Ver3.00-3.31	0	0	0	0	×	×	×	×
Tour version	Ver3.40-3.41	0	0	0	0	0	×	×	×
	Ver3.50-3.53	0	0	0	0	0	0	×	×
	Ver3.60-3.62	0	0	0	0	0	0	0	×
	Ver3.70-3.72	0	0	0	0	0	0	0	0

# **Editing Data**

## Window for creating programs

The [Output condition settings] area allows you to program the SiO controller.

You can read program data from a file or the controller as well as create it.

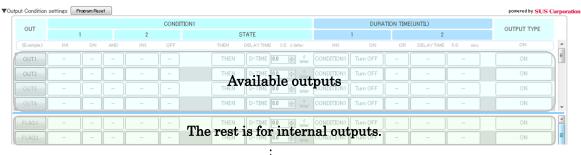
The number of available outputs and internal outputs varies depending on the controller model.

#### ■available outputs

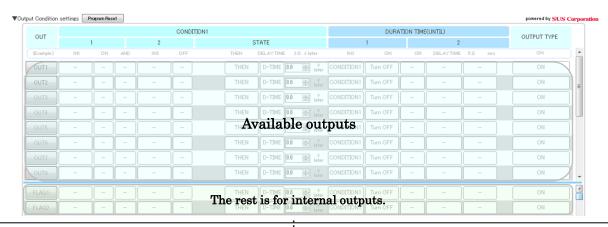
• SiO3 / SiON3 / SiOt3: 16 outputs



• SiO2 / SiO2 R2 : 4 outputs

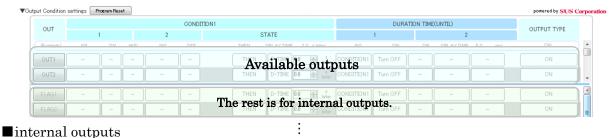


• SiO-C / SiO-N1 / SiOt1 / SiO-N1 R2: 8 outputs

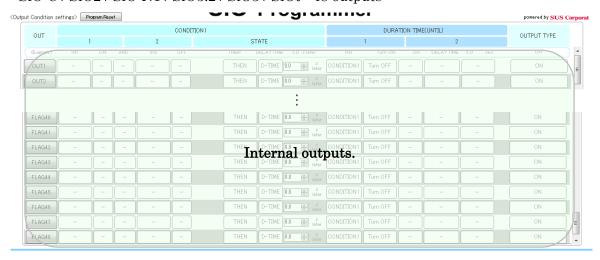


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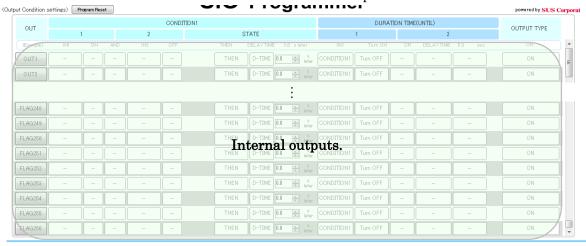
• SiO3.2 / SiOt : 2 outputs



• SiO-C / SiO2 / SiO-N1 / SiO3.2 / SiO3 / SiOt : 48 outputs



· SiO-N3 / SiOt1 / SiOt3 / SiO2 R2 / SiO-N1 R2 : 256 output



The displayed FLAG is up to FLAG 48 by default.

To display up to FLAG256, please refer to 「Addition of FLAG and Multi sel」 of Page.39. You can change the display ratio between the OUT pane and FLAG pane by dragging the blue bar between the two panes up or down.



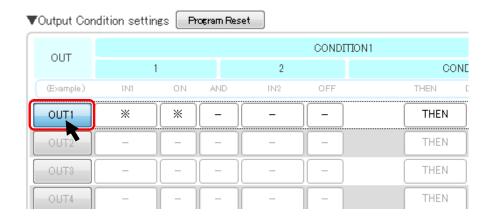
## Creating an I/O program

1. Click the desired numbered output button to enable it.

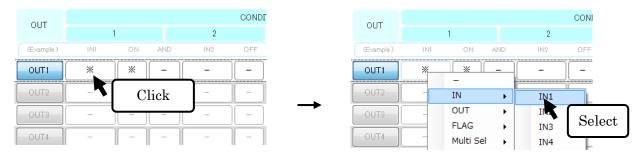
Doing so turns the button blue and allows you to edit the output settings for the selected number.

\* 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.



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



Specify settings for each output. For more details, see "Details of each item" (→ Page 22).

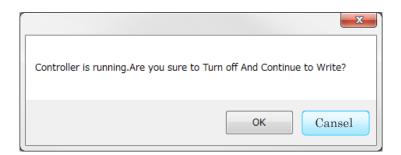
Item	Descripti	on					
OUT	met.						
	For OUT1, you can specify settings for output 1.						
	Specify conditions for enabling output.						
CONDITION1	You can set two conditions and associate them using the [And] or [Or] option. If you want to set only one condition, select "—" for the third to fifth buttons.						
	Example: To enable output when IN1 (inpu	at 1) or IN2 (input 2) turns on					
(1 and 2)	CONDITI   1   2   IN1   ON AND   IN2 OFF   IN1   ON OR   IN2   ON	or IN1 IN2 ON					
	Specify the state after which to enable output the ON conditions are met.						
	Select [THEN], [CONTINUES], or [TIMES	STATE  THEN DELAYTIME 3.0 slater					
	THEN], and specify the time period after w						
	to enable output.	D-TIME 5.0 \$\Display \text{sec} CONTINUES					
	For [CONTINUES], set the number of cour						
	as well.	ITILIV					
STATE	* The count value will be reset when the OFF conditions are met.						
SIAIE	THEN TIMES THEN	CONTINUES					
	Specify how long to wait before output is enabled after the conditions are met.	This is a condition for turning on output. Specify how long the conditions should be met before					
	Example 1: "0.0" → Enables output at the moment the conditions are met.	output is enabled.					
	Example 2: "2.0" → Enables output 2 seconds after the conditions are met.	Example: "3.0" → Enables output if the conditions are met for 3.0 seconds.					
	* You can set values D-Times or via hardware timers T1 and T2.  → See "Timer settings" on page 25.						
	Set conditions for turning off the output that was enabled when the conditions set above were met.						
	You can set two conditions and associate th [Before] option.	em using the [And], [Or], or					
DURATION TIMES (UNTIL)	If you want to set only one condition, select "—" for the third to fifth buttons.  * If you specify how long to wait before output is turned off ([Before]), you cannot select [And] to combine two conditions.						
Example: To turn off output 5 seconds after IN3 turns on							
	DURATION TIME(UNTIL)  1 2  IN3 ON OR DELAYTIME 5.0 sec  IN3 Turn ON BEFORE D-TIME 5.0 sec  OFF						
OUTPUT TYPE	Set the type of output. For ON/OFF cycles,	you can select from three options.					

3. Write the settings to the controller.

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

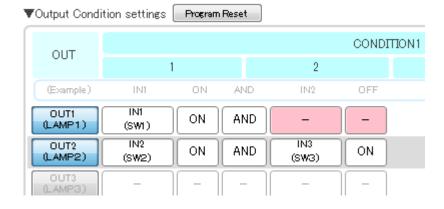
\* Make sure that the controller is in the STOP state before writing the settings to the controller.

If the controller is in the RUN state, a message like the one shown below appears. Click the [OK] button to force the controller off to start writing.



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





#### Details of each item

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

## (1) CONDITION1

ON conditions are used to turn on output. When set conditions are met, the output turns on. You can specify two conditions.

Three or more conditions can be set by using old multiple selection ( $\rightarrow$  Page 33) or new multiple selection( $\rightarrow$  Page 35), or by specifying unused output or internal output as a condition ( $\rightarrow$  Page 41).

Item	Description			
	Indicates that the controller is in the RUN state.			
RUN	If you select [RUN] and [ON], this condition is always met when the controller is used.			
	Do not select [RUN] and [OFF], as this will disable output.			
	This signal stays on for a specified number of seconds after the controller goes into the RUN state. You can set the number of seconds in the [PARAMETER] area. See page 27 for more details.			
INIT	[INIT] + [ON]: Turns on output when the controller goes into the RUN state, and turns off output after a specified number of seconds.			
	[INIT] + [OFF]: Turns off output when the controller goes into the RUN state, and turns on output after a specified number of seconds.			
IN1 to IN16 OUT1 to OUT16	Set conditions using [IN] (input), [OUT] (output), [FLAG] (internal output), and [Ether](Ethernet).			
FLAG1 to FLAG256 Ether1 to Ether64	<ul> <li>[IN1] + [ON]: Enables output when IN1 turns on.</li> <li>[OUT1] + [ON]: Enables output when OUT1 turns on.</li> <li>[FLAG1] + [ON]: Enables output when FLAG1 turns on.</li> <li>[Ether1] + [ON]: Enables output when Ether1 turns on.</li> </ul>			
New Multi sel	Allows you to group multiple inputs and outputs and their ON/OFF status into one condition. You can configure settings for the new multiple selection option in the [PARAMETER] area (→ Page 35).			
Old Multi sel	Allows you to group multiple inputs and outputs into one condition. You can configure settings for the old multiple selection option in the [PARAMETER] area (→ Page 33).			
AND OR	Used to specify a 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.			

#### (2) STATE

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

Item	Description
	Specify how long to wait from the moment the ON conditions are met
THEN	until output is enabled. Once the conditions are met, the output stays on
THEN	even if the conditions are no longer met during the wait time. You can
	specify up to 6,000.0 seconds.
CONTINUES	Selecting this option enables output only when the ON conditions are met
CONTINUES	for a certain period of time. You can specify up to 6,000.0 seconds.
	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 specify up to
	50,000 times.
TIMES THEN	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.

#### (3) DURATION TIMES(UNTIL)

Specify conditions for turning off the output set in the [OUTPUT TYPE] area. You can specify two OFF conditions.

Three or more conditions can be set by using old multiple selection ( $\rightarrow$  Page 33) or new multiple selection( $\rightarrow$  Page 35), or by specifying unused output or internal output as a condition ( $\rightarrow$  Page 41).

Item	Description
	Indicates the conditions set in the [CONDITION1] area.
CONDITION1	Selecting [CONDITION1] + [OFF] disables output when the ON conditions are no longer met.
	If you select [CONDITION1] + [ON], output is not enabled even if the ON
	conditions are met.
	Dalay Time.Turns off output when a specified time period has elapsed
D-Time	after output is enabled.
	You can enter a value directly. You can specify up to 6,000.0 seconds.
	Turns off output when a specified time period has elapsed after output is
T1, T2	enabled.
	You can set hardware timers. (→ Page 25)

	Indicates that the controller is in the RUN state.
RUN	If you specify [RUN] and [OFF] and once output is enabled, it continues until the RUN switch on the controller is turned off.
	Note that if you set [RUN] to [ON], no output occurs.
IN1 to IN16	Set conditions using [IN] (input), [OUT] (output), [FLAG] (internal output), and [Ether](Ethernet).
OUT1 to OUT16	Selecting [IN1] + [ON] turns off output when IN1 turns on.
FLAG1 to FLAG256	Selecting [OUT1] + [ON] turns off output when OUT1 turns on.
Ether1 to Ether64	Selecting [FLAG1] + [ON] turns off output when FLAG1 turns on.
	Selecting [Ether1] + [ON] turns off output when Ether1 turns on.
	Allows you to group multiple inputs and outputs and their ON/OFF status
New Multi sel	into one condition. You can configure settings for the new multiple
	selection option in the [PARAMETER] area ( $\rightarrow$ Page 35).
	Allows you to group multiple inputs and outputs into one condition. You
Old Multi sel	can configure settings for the multiple selection option in the
	[PARAMETER] area (→ Page 33).
	Used to specify a second condition.
ANID	[AND] disables output when both the first and second conditions are met.
AND OR	[OR] disables output when either the first or second condition is met.
AFTER	[BEFORE] disables output when the first condition is met and then the second condition is met.
	* If you select [AND], you cannot specify [D-TIME], [T1], or [T2].

# (4) OUTPUT TYPE

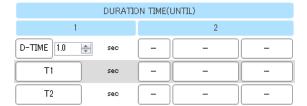
You can set the type of output.

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

## **Timer settings**

When setting a timer in the [STATE] or [DURATION TIMES(UNTIL)] area, you can choose to enter D-TIME or use a hardware timer.





#### 1. D-TIME(Dalay Time)

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 the same value is used repeatedly or if you may need to change timer settings without using the computer.

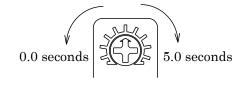
The maximum values of the hardware timers can be set as that for the analog timers on the controller. You can set the maximum values of the hardware timers in the [HARD TIMER MAX] area in the PC software. You can specify maximum values from 5.0 and 6000.0 seconds in 0.1-second increments.

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





(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.

<sup>\*</sup> Timer settings are accurate to within  $\pm 0.1\%$  of actual time.

#### I/O notes

Memos (labels) can be set for various outputs of IN, OUT, FLAG, Ether, new multiple selection, and old multiple selection.

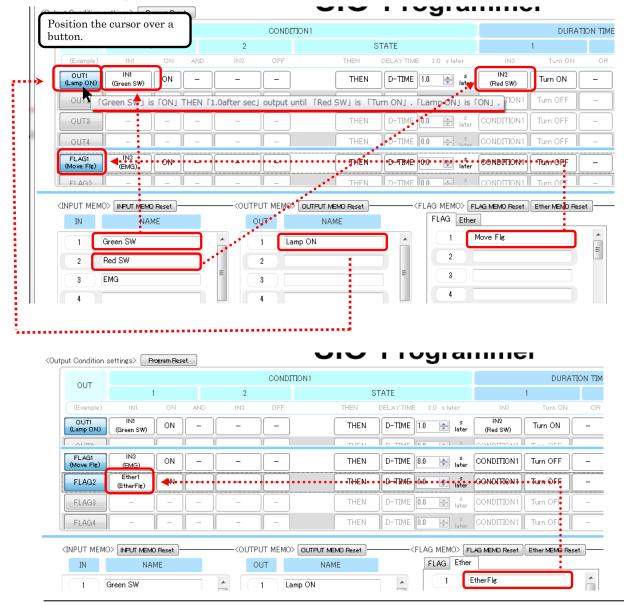
I/O notes help you create a program by giving you an idea of how input and output devices will operate.



I/O notes can contain up to nine full-width characters or 16 alphanumeric characters.

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 and simulator windows.



• About reading / registering memos in the controller

For various SiO controllers (excluding SiO C and SiO 3.2) with controller version 3.60 or higher, Equipped with a memo save function.

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



Also, there is a checkbox called " $\square$  Including MEMO" at the bottom of the screen under the load / register button.

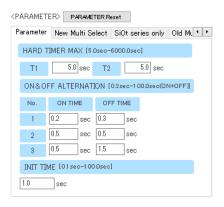
If checked, a memo will be included when loading / registering the program.

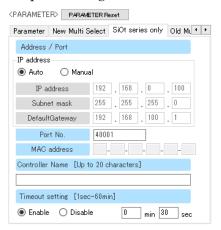


\* For communication that does not include memos, the time required for reading / registration can be shortened.

## **Parameter settings**

The [Parameter settings] area allows you to change parameters or Setting New Multiple Selection and Old Multiple Selection or address / port settings.





#### Parameters

Item	Description					
HARD TIMER MAX	Set the maximum values of the hardware timers. See page 25 for details on the hardware timers. You can specify maximum values from 5.0 to 6000.0 seconds separately for T1 and T2.					
	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.					
ON/OFF ALTERNATION	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.  ON time  OFF time  Second					
INIT TIME	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	
	Set the IP address subnet mask port number for Ethernet communication.
Address/Port	Moreover, a MAC Address can be read.
	This parameter can use only a SiOt series controller.

#### · 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.

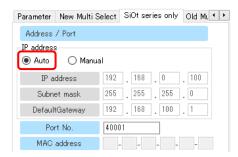
In addition, the initial value when SiO-Programmer is started is set to automatic.

#### 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.

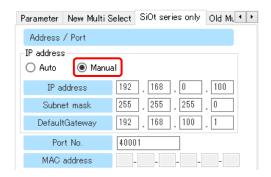
The value is displayed by communicating using SiO-Programmer while the controller is connected to the network.

In addition, all the setting points in the frame will be grayed out, and you will not be able to input anything from the PC side.



#### · 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.

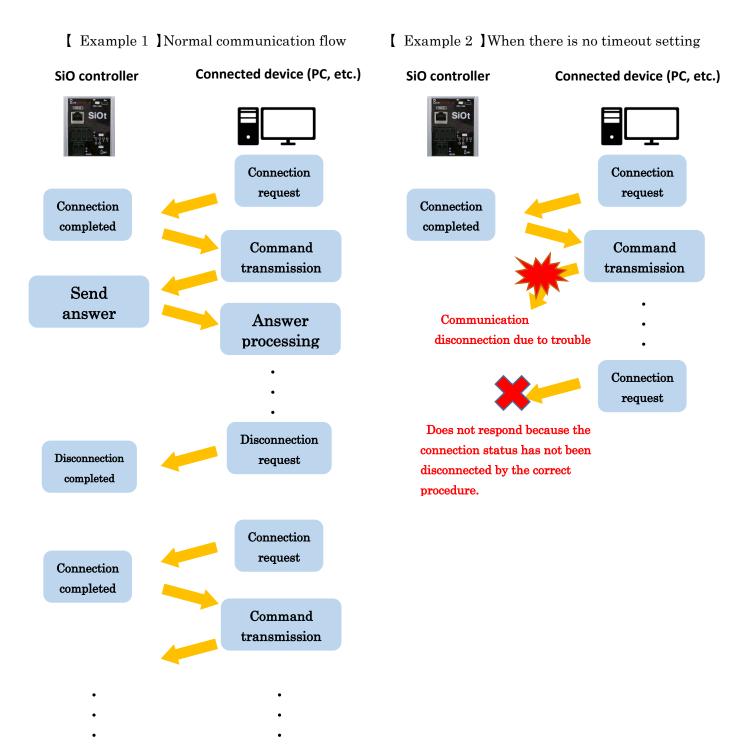


· About Ethernet communication timeout setting

Description of timeout settings

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.



SiO controller Connected device (PC, etc.) Connection request Connection completed Command transmission 30 seconds have passed Communication disconnection due to trouble If you do not receive the command Disconnection for 30 seconds completed Disconnect the controller Connection request Connection completed

[ Example 3 ] When there is a timeout setting (30 seconds)

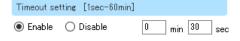
In this way, if the command cannot be received in time, the controller determines that the communication has failed and disconnects the connection state.

By setting the timeout, it is possible to quickly switch from disconnection to recovery.

#### · If enabled

Select "Enabled" if a timeout setting is required.

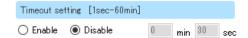
The initial value is 30 seconds, and the input range can be set from 1 second to 60 minutes.



#### · If disabled

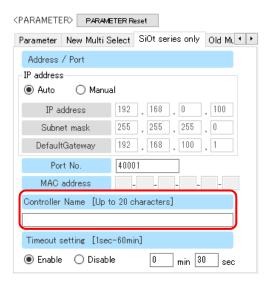
Select "Disable" if you do not need to set the timeout.

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



• About the controller name for Ethernet communication Description of controller name

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



The SiO Programmer writes and reads the set controller name.

<sup>\*</sup> The controller name can also be confirmed from the Ethernet communication software (IoT Progreammer).

#### ◆ Old Multi Sel(Old Multiple selections)

You can display old multiple-selection conditions by selecting the [Old Multi Sel] tab in the [PARAMETER] area.

The old multiple selection option allows you to group multiple inputs and outputs.

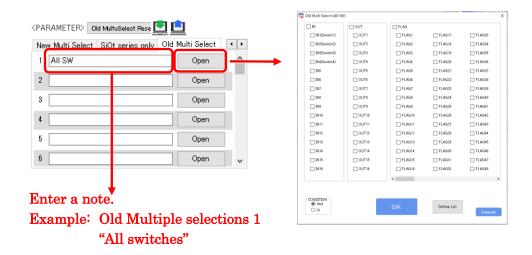
Although you can only specify up to two I/O devices as ON or OFF conditions, this option enables you to use multiple inputs and outputs as one condition.

Old Multiple selections displayed by default are 16 types, but there are up to 64 choices available.

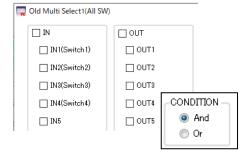
To see up to 64 old multiple selections, see Add FLAG and Old Multi sel on page 39 In that case, FLAG in old multiple selection can be selected up to FLAG256.

#### How to set and use the Old Multiple selection

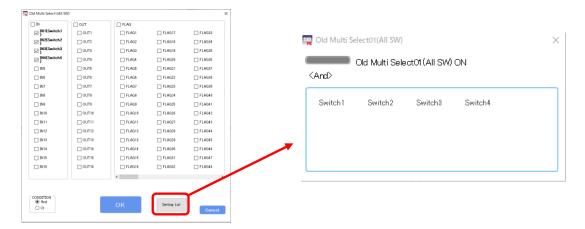
Clicking [Open] opens a separate window where you can configure settings.



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



The content of the old multiple selection that has been set will be displayed by clicking "Setting List" on the setting screen.

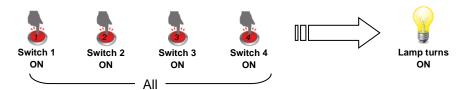


#### < Example of use>

Create the following program:



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



◆ New Multi Sel(New Multiple selections)

\*The new multiple selection can only be used with SiO-N1 R2, SiOt, and SiOt3 Ver3.70 or higher.

You can display new multiple-selection conditions by selecting the [New Multi Sel] tab in the [PARAMETER] area.

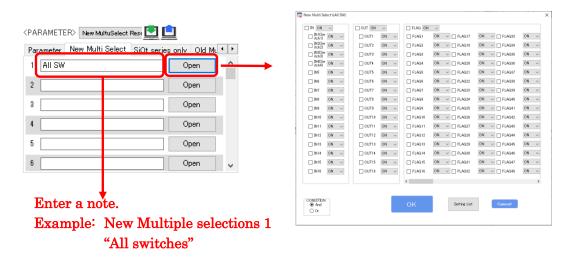
The new multiple selection option allows you to group multiple inputs and outputs.

Although you can only specify up to two I/O devices as ON or OFF conditions, this option enables you to use multiple inputs and outputs as one condition. In addition to this, the new multiple selection allows you to set the ON and OFF states of each selected input/output, which can be set as a specific condition.

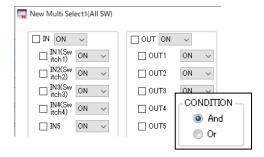
There are 64 types of new multiple selections that can be created, and the output that can be set is IN/OUT of the registered controller and FLAG1 to 256.

#### How to set and use the New multiple selection

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

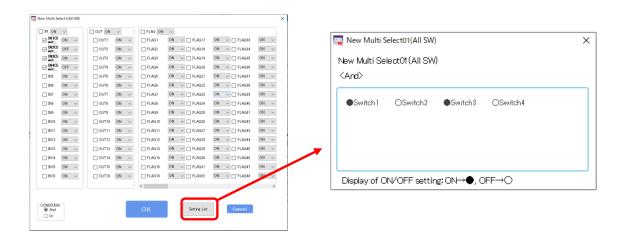


Example: In the [New Multi select 1] window, select the [IN1] (switch 1) to [IN4] (switch 4) check boxes and select [And].



The content of the new multiple selection that has been set will be displayed by clicking "Setting list" on the setting screen.

On the Setting List screen of the new multiple selection, inputs and outputs set to ON are marked with "•".



#### < Example of use>

Create the following program:



When "Switch 1" and "Switch 3" are ON and "Switch 2" and "Switch 4" are OFF, the lamp lights up.







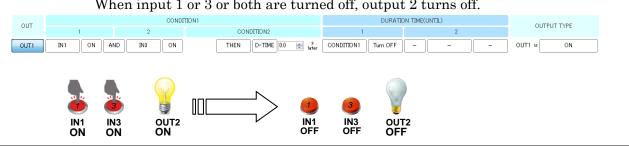


Example 1: If input 1 stays on for 1 second, output 1 turns on and then turns off after 8 sec. CONDITION2 OUT1 ON THEN D-TIME 1.0 \* ster D-TIME 8.0 \* OUT1 is IN1



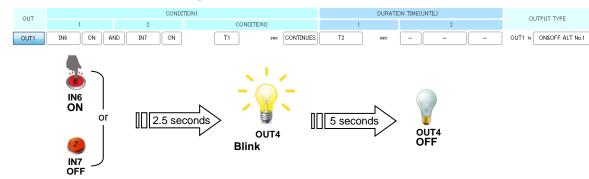
Example 2: When inputs 1 and 3 are turned on, output 2 turns on.

When input 1 or 3 or both are turned off, output 2 turns off.



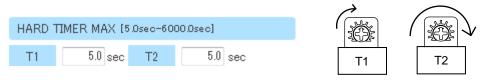
Example 3: If input 6 stays on or input 7 stays off for 2.5 seconds, output 4 blinks for 5 seconds and then turns off.

This example uses the hardware timers.

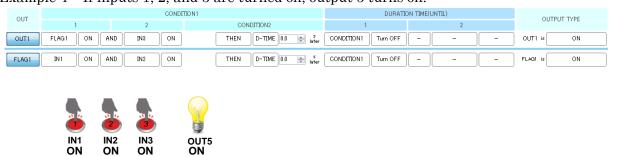


In the [HARD TIMER MAX] area, set T1 and T2 to 5.0 seconds.

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.



Specify inputs 1 and 2 as the conditions for internal output 1 (FLAG1), and specify <u>internal output 1</u> and input 3 as the conditions for output 5. In this way, you can specify three or more conditions.

See page 41 for more details on internal outputs.

#### Add FLAG and Old Multi sel

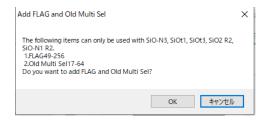
FLAG and old multiple selection are added. It can add to FLAG256, Old Multi Sel 64.

It can be added by clicking the blue arrow which is under FLAG48.

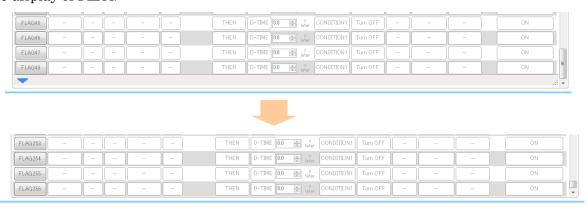


The message which checks whether FLAG and old multiple selection are added is displayed.

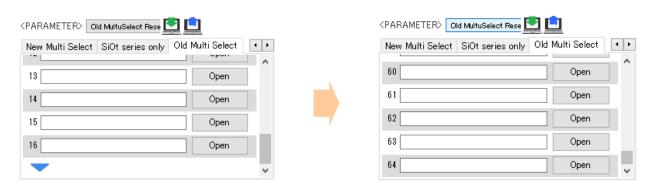
O.K. is clicked. FLAG and old multiple selection are added.



#### The display of FLAG



#### The display of Old Multi Sel

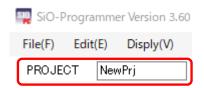


#### **Useful features**

Here are some useful features of SiO-Programmer:

#### (1) Saving project names

<u>You can save project names to the controller.</u> Use project names as notes on what programs are stored on the controller. When you save your settings to a file, the project name is saved separately from the file name. This means that you can simply read the project name from the file and write it to the controller.

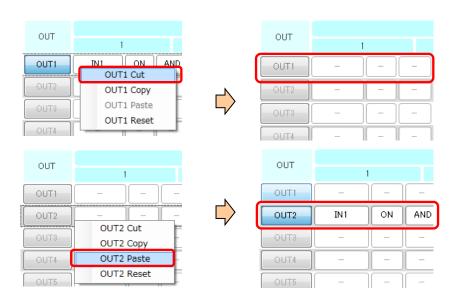


#### (2) Cut, copy, paste, and reset

In the program window, <u>right-click</u> in a row and click [OUT X Reset], [OUT X Cut], [OUT X Copy], or [OUT X Paste] to reset, cut, or copy the output settings in the row where you right-clicked or to paste settings to that row.

Shortcuts are available for some commands.

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



#### (3) Checking programs



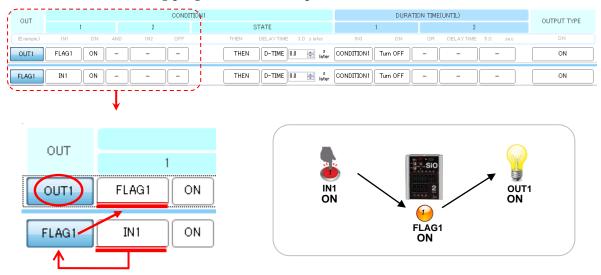
Position the cursor over the desired numbered output button to see a sentence that describes the output settings.

The sentence also includes I/O notes, making it easy to understand how the program works. \*A sentence appears only when the output is enabled.

#### (4) Internal outputs (FLAGs)

Internal outputs (FLAGs) or the outputs exceeding the available number of outputs (e.g., OUT5 and subsequent outputs in the case of SiO2) 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:



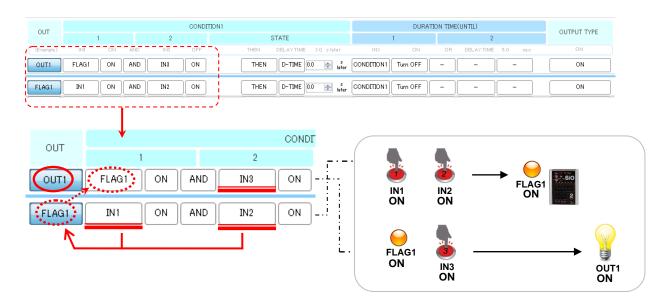
In this program, turning on IN1 causes OUT1 to turn on.

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 SiO 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 <u>IN1</u> and <u>IN2</u> as the <u>ON</u> conditions for <u>FLAG1</u>, and <u>FLAG1</u> and IN3 as the ON conditions for OUT1.

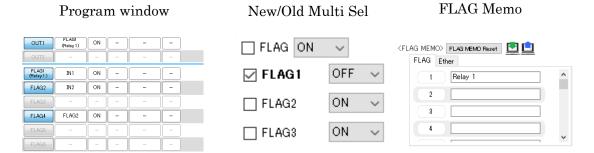
OUT1 turns on when IN1, IN2, and IN3 are all turned on.

Although turning on IN1 and IN2 causes FLAG1 to turn on, only OUT1 appears to turn on, because the controller shows no change.

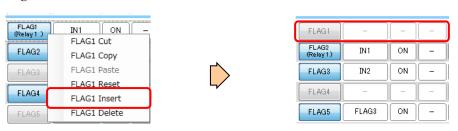
#### (5) Insertion of FLAG

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

#### Before insert

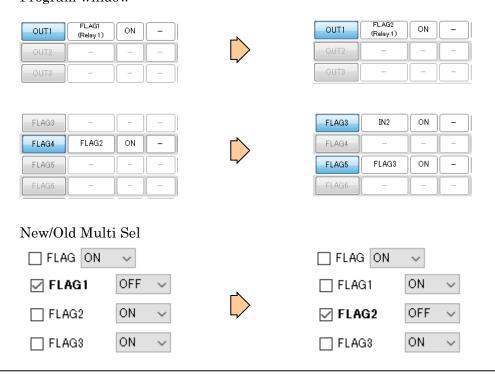


#### Right-click and FLAG Inserts

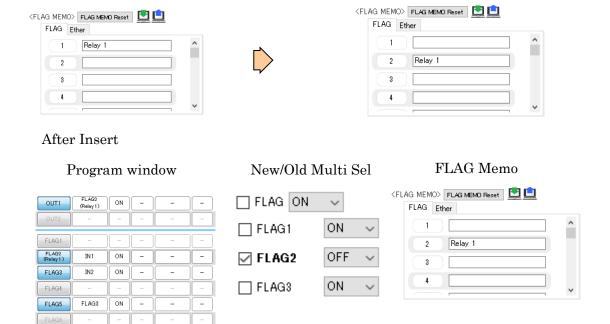


Program window and Multi Sel,FLAG Memo will be automatically edited according to the insertion of the flag.

#### Program window



#### FLAG Memo



New multiple selection shifts the checked FLAG and its ON/OFF setting, and old multiple selection shifts the checked FLAG downward by one.

#### \*Cannot be inserted in the following cases

The conditions that it can't be inserted are the case which isn't being Add FLAG and MultiSel and a performed case, and it's different.

For details on adding FLAG and Multi sel, see P31 Add FLAG and Multi sel.

#### ■ If not Adding FLAG and Multi Sel

- 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

#### ■ If Adding FLAG and Multi Sel

- 1. If the FLAG256 is valid and the program is entered
- 2. If the FLAG256 is invalid but the program is entered
- 3. If the FLAG256 is valid and no program is entered
- 4. If the FLAG256 Memo is entered
- 5. If the FLAG 256 is used in Program Window
- 6. If the FLAG 256 is used in Multi Sel

#### (6) Delete of FLAG

In the program window, <u>right-click</u> in a row and click [FLAG X Delete], The selected FLAG is deleted and new FLAG settings in last row.

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

#### Before delete Program window FLAG Memo New/Old Multi Sel <FLAG MEMO> FLAG MEMO Reset 💆 📋 ☐ FLAG ON FLAG45 FLAG Ether FLAG46 ☐ FLAG1 ON ON IN1 Relay 1 FLAG3 ✓ FLAG2 OFF FLAG48 ON FLAG4 ON ☐ FLAG3 Right-click and FLAG Delete FLAG1 (Relay 1) IN1 ON FLAG1 FLAG1 Cut FLAG2 (Relay 1) FLAG2 FLAG1 Copy FLAG3 FLAG3 FLAG1 Paste FLAG1 Reset FLAG4 FLAG4 FLAG1 Insert FLAG5 FLAG5 FLAG1 Delete FLAG45 FLAG45 FLAG46 FLAG46 FLAG47 IN2 ON FLAG47 ON FLAG48 IN2 FLAG48

After Delete



The new multiple selection shifts the checked FLAG and its ON/OFF setting, and the old multiple selection shifts the checked FLAG up by one.

\*Cannot be inserted in the following cases

- 1. If the Selected FLAG is valid and the program is entered
- 2. If the Selected FLAG is invalid but the program is entered
- 3. If the Selected FLAG is valid and no program is entered
- 4. If the Selected FLAGMemo is entered
- 5. If the Selected FLAG is used in Program Window
- 6. If the Selected FLAG is used in Multi Sel
- (7) Start by a double-click of a configuration file SiO-Programmer can be started in the state which made setting data reflected by a double-click of a configuration file

SiO-IOMonitor: SiO-Programmer Version 3.60

## I/O Monitor

(INPUT MEMO> INPUT MEMO Reset 🖳 📋

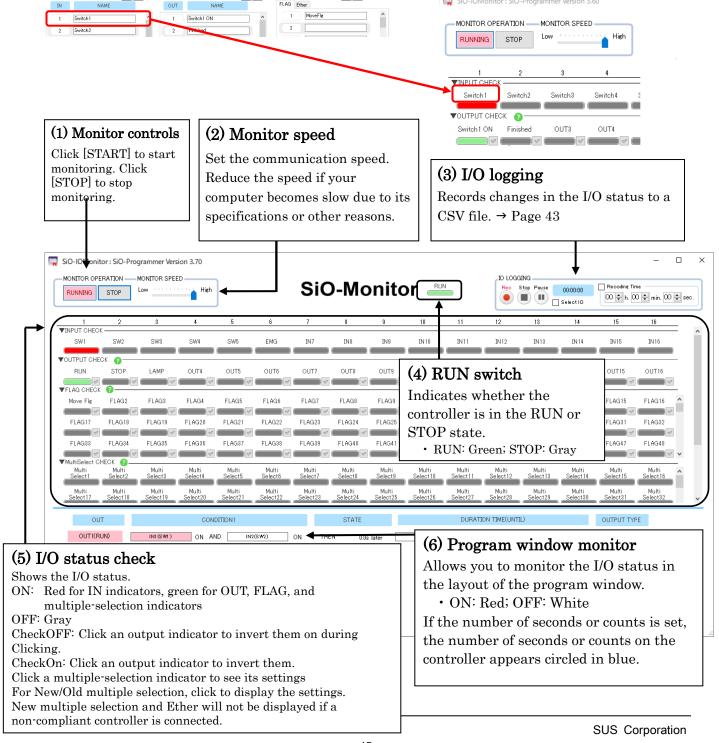
COUTPUT MEMO> GUTPUT MEMO Reset 🔁 📋

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 controller and your computer are connected.

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. You can also save changes in the I/O status to a CSV file. 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.

<FLAG MEMO> FLAG MEMO Reset 

☑ 📋



## I/O logging

IO LOGGING allows you to record changes in the I/O status.



# (1) Record

Click this button and enter a file name to start logging.

During logging, any changes in the I/O status are written to a CSV file in real time. Note that you cannot edit the file during logging.

You can also use this button to resume logging after clicking the [Pause] button.



This button stops logging.

Once you stop logging, you can edit or move the CSV file.

# (3) Pause

This button pauses logging. Click the [Rec] button again to resume logging, or click the [Stop] button to stop logging.

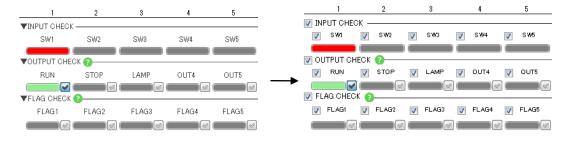
## (4) Elapsed time display 00:00:03 00:00:30 00:00:00

This area displays the elapsed time during logging, or shows the remaining time if you select the [Set recording time] check box.

The area is shown in red during logging, in red with a blue border during a pause, and in blue when recording is stopped.

#### (5) I/O selection check box 🔲 Select 10

Use this check box when you want to record changes only in inputs and outputs of your choice. By default, the status of all inputs and outputs is recorded. When you select the check box, the display will change as follows:



Select the check boxes for the inputs and outputs whose status you want to record.

#### (6) Set recording 1 Recoding Time

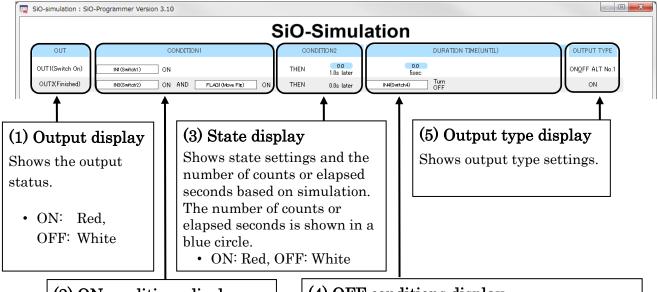
Select this check box to automatically stop recording after the time period you specify. Even if you set a time period, this option is disabled until you select the check box.

## **Simulator**

The simulator shows how the settings you configured in SiO-Programmer work. Use the simulator to check whether your settings work as intended before actually using the controller. Since the simulator runs on your computer, you can use it without connecting the SiO controller.

Clicking the simulator icon at the upper right of the program window displays simulation windows—an I/O display window and input box.

In the input box, click [RUN] and any of the inputs (IN1 to IN16) to start simulation.



#### (2) ON conditions display

Shows the status of the inputs and outputs you specified for ON conditions. You can click [複数選択 Multiple selections] to see its settings.

• ON: Red, OFF: White

## (4) OFF conditions display

Shows the status of the inputs and outputs you specified for OFF conditions and the number of elapsed seconds based on simulation.

• ON: Red, OFF: White

The number of elapsed seconds is shown in a blue circle.



#### (7) Input box

In the input box, click [RUN] and any of the inputs (IN1 to IN16, Ether1 to Ether64) to start simulation.

RUN: Green for ON, and gray for OFF

IN1 to IN16: Red for ON, and gray for OFF

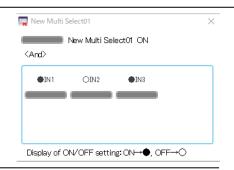
Ether1 to Ether64: Red for ON, and gray for OFF

(Check OFF to turn ON while pressing, check ON to

turn ON OFF)

\* If a multiple-selection condition is set, click [New/Old Multi sel] to see which inputs and outputs are selected. Also, only the new multiple selection will be displayed as ON setting as "•" and OFF setting as "(-)Page 36).



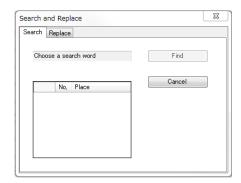


## Search and Replace

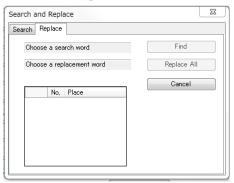
Search and Replace is a feature which searches for the I/O and replaces with another I/O. Clicking the Search and Replace icon at the upper right of the program window or Pressing Ctrl +F, Ctrl +H display Search and Replace window.

If you click the search and replace icon or press Ctrl + F, the search tab is displayed. If you press Ctrl + H, the replace tab is displayed.

<Search tab>



<Replace tab>

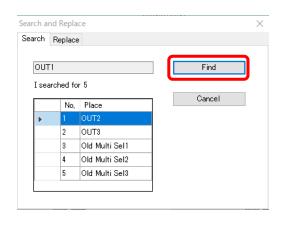


# Search and Replace | Search | Replace | Find | IN OUT | FLAG | Multi Sel | Ether | RUN | D-TIME | T1 | T2

#### ① Display Search Words

Select the I/O which you need to search. Clicking textbox displays search words. The search words include IN,OUT,FLAG,New Multi sel, Old Multi sel, Ether, RUN,INIT,D-TIME, T1, T2. Search words and replaced words in Replace tab also are displayed by same way.

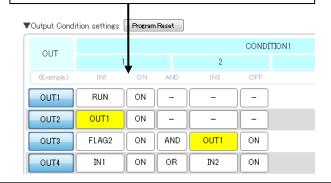
## <Search>



## ② Search(Program Window)

Clicking search Button displays number of finding and the place where search words are.

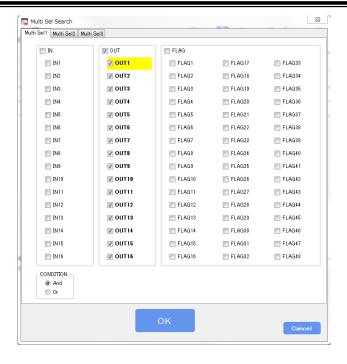
The same I/O as the selected search word becomes yellow.



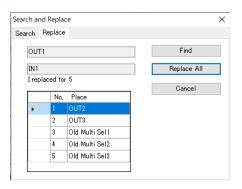
#### 3 Search(New/Old Multi select)

If there is a multi select which setted Search word, Multi select window display.

After editing settings , Press the OK button to save the settings.



## <Replace>

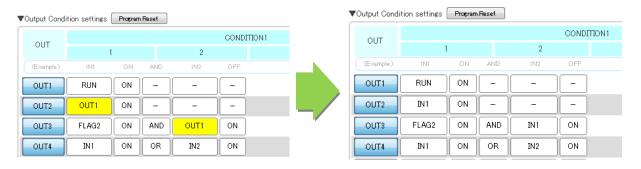


#### 4 Replace All

When an Replace-All button is clicked, The same I/O as the selected search word replaced with the replaced word.

If there is a new/old multi select which setted Search word,

#### Program screen



#### New/Old Multi select



#### \*Please be careful about the following point.

- · OFFCondition is not able to replace with INIT.
- The setting of multi select is not able to replace with RUN, INIT, Ether.
- The new/old multi select which has setting replace word is not able to replace.
- The replacement to D-TIME,T1,T2 cannot be performed.

## **Onscreen Messages**

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



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

Message	Description
A read error has occurred.	Your computer has failed to communicate with the SiO
Failed to read.	controller.
Failed to write.	1. Check that the SiO controller and your computer are
Failed to communicate.	connected and that the SiO controller is turned on. If
Unknown command	they are connected, make sure that the USB cable is not damaged.
SIO Controller is not connected.	2. You may be using an older version of the PC software or device driver. Uninstall both the device driver and PC software (page 10), and download the latest installer from SUS's website.
No driver is installed.	Your computer does not recognize the SiO controller 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.
Cannot write during RUN.	When the SiO controller is in the RUN state, you cannot write a program to the controller. Turn off the RUN switch on the controller before writing a program.
Check the Red data then setting.	You cannot write the program to the controller because the program is not configured correctly. Check and correct the settings for the items highlighted in red.
The following outputs are unset	You cannot write the program to the controller because the program is not configured correctly. Check the output program listed in the message.

Message	Description
Version x.xx and later of the SiO controller are not supported.  Download the latest version of SiO-Programmer from SUS's website.	Your version of SiO-Programmer is not supported by the connected controller. Install the latest version of SiO-Programmer that works with the controller.
Failed to force output.  Failed to obtain the I/O status.	The SiO controller may be turned off, or the USB cable may be disconnected or damaged.
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 is corrupted.	The help file or language file for SiO-Programmer is corrupted and cannot be read. Uninstall SiO-Programmer and reinstall it.
Do you want to write this program?	This message appears if you click the [登録 Write] button when the program is not configured.
Cannot run multiple instances of SiO-Programmer.	You cannot run multiple instances of SiO-Programmer at once.
It is not supported by your controller(After Ether9).	Displayed when trying to write Ether9 or higher while connecting the SiOt Ver3.00 controller.
For your controller, switch the address / port setting to manual and register.	Displayed when trying to write the address / port settings automatically while connecting the SiOt Ver3.00 controller.
The automatic / manual setting of the address / port has been switched. To reflect this, you need to turn off the power of the controller and restart it.	Displayed when the pre-registered automatic / manual setting and the registered one are different while connecting a controller of Siot series Ver3.10 or higher.
Your controller does not support the memo registration function.	Each SiO controller (excluding SiO C and SiO 3.2) is displayed when you try to read / register including a memo while connecting a controller earlier than Ver3.60.
You can use up to FLAG48 old multiple selection 16 with your controller.	Displayed when FLAG49, old multiple selection 17 or more is registered while a controller other than SiO-N3, SiO t1, SiO t3, SiO2 R2 is connected.
For your controller, the timeout setting is not implemented, so switch it to disabled and register.	Displayed when trying to register with the timeout setting enabled while connecting a controller earlier than Ver3.60 of the SiOt series.
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 SiO-Programmer once, and then download again from the SUS HP.

Message	Description
Communication processing failed. Check if another SiO-Programmer is communicating.	This is displayed when other software is communicating with the SiO controller connected to the PC.
Only the following controllers can use the New Multiple Selection. • SiOt1、SiOt3、SiO-N1 R2 version 3.70 or higher	This message is displayed when attempting to register a controller that is not listed in the message with New Multiple Selection set in the program.

# Inquiring about SiO-Programmer

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

## sus-sales@sus.co.jp

### Revision History

Version	Date	Description	Revised Pages
1.00	<b>'</b> 16/06/01	Initial release	
1.01	<b>'16/08/30</b>	[Change Point]	
		• Language name (JAPAN $\rightarrow$ JAPANESE) changed	
		[Changes]	
		Setting examples — Corrected the T1 setting in Example 3.	25
		Useful features — Corrected the description in "(4) Internal outputs".	41
1.10	<sup>'</sup> 16/12/15	[Change Point]	
		Supports cutting, copying, and pasting of programs	
		· Change the monitor to full screen display	
		• Parameter setting (interval / ON time $\rightarrow$ ON time / OFF time) notation change	
		[Changes]	
		General — Replaced images with those from SiO-Programmer version 1.10.	7~
		Details of each item — Changed "Interval/ON time" to "ON time/OFF time".	25
		Useful features — Added cut, copy, and paste.	40~42
		I/O monitor — Updated the information to indicate that the settings window monitor is displayed from the beginning.	45
		Messages — Added "Driver installation".	51
1.11	'17/01/10	[Change Point]	
		• Changed the initial display resolution to 1280 $\times$ 768	
		[Changes]	
		System requirements — Changed the display resolution from $1024 \times 768$ to $1280 \times 768$ .	6
2.00	'17/03/01	[Change Point]	
		· SiO-Programmer main screen design change	
		· Addition of counter function	
		Simulation function added	

		Change from 1 OFF condition to 2	
		• Changed the initial display resolution to 1366 x	
		768	
		[Changes]	
		Updated the information to cover the features	
		added to SiO-Programmer version 2.00:	
		• Added the counter feature.	20, 23~
		<ul><li>Added the simulation feature.</li><li>Increased the number of OFF conditions</li></ul>	47 20, 23~
		from 1 to 2.	20, 20
		• Improved ease of use.	15~
		General — Replaced images with those from SiO-Programmer version 2.00.	14~
		System requirements — Changed the display resolution from 1280 × 768 to 1366 × 768.	6
2.10	'17/04/27	[Change Point]	
		• Display the SiO controller version on the SiO-Programmer screen	
		[Changes]	
		Introduction — Changed the revision number from 1.11 to 1.xx.	4
		Program window — Added information about CT version number.	13
		Tool icons — Added "File", "Print", and notes.	14
		SiO controller/SiO-Programmer compatibility table — Added	16
		Editing data — Added descriptions of internal outputs and SiO2.	17
		Parameter settings — Added a diagram of INIT time.	27
		Useful features — Added commands. Changed the description of internal outputs.	40~42
2.20	'17/06/30	[Change Point]	
		Added input / output logging function to the monitor	
		• Supports overwrite installation	
		[Changes]	
		Installing SiO-Programmer — Added a description of how to update SiO-Programmer.	7
		I/O logging — Added	46
		Onscreen messages — Added	53~55
2.30	'17/09/01	[Change Point]	
		• FLAG score changed from 16 points to 32 points	

		[Changes]	
		General — Changed the number of internal outputs from 16 to 32.	19~
2.40	18/01/05	[Change Point]	
		• Changed the initial display resolution to 1280 x 768	
		[Changes]	
		System requirements — Changed the display	
		resolution from $1366 \times 768$ to $1280 \times 768$ .	6
2.50	18/06/26	[Change Point]	
		· Added SiO controller (SiO-N1)	
		• Compatible models 64Bit, Windows 8.1 / 10 added	
		[Changes]	
		System requirements — Added 64-bit versions and Windows 8.1 and 10 to the computer models.	6
		Editing data — Added a description of SiO-N1.	17~
3.00	<sup>'</sup> 19/01/28	[Change Point]	
		• Changed the number of internal outputs from 32 to 48.	
		• Changed the maximum number of counts from 100 to 50000	
		• Timer setting upper limit changed from 300.0 seconds to 6000.0 seconds	
		[Changes]	
		Details of each item — Added a description of the multiple selection option. Changed the number of counts. Changed the timers.	22~
		General — Changed the number of internal outputs from 32 to 48.	19~
		I/O monitor — Added a description of monitoring controls.	45
3.10	<sup>'</sup> 19/06/28	[Change Point]	
		<ul> <li>Added an alternate function to the forced output of the monitor</li> </ul>	
		[Changes]	
		I/O monitor — force output.	45
3.20	<sup>'</sup> 19/10/29	[Change Point]	
		Tool (search, replace) function added	

		[Changes]	
		Starting SiO-Programmer	10
		—Program Window Image Change,	12
		Program Window	10
		—Program Window Image Change,	13
		Edited explanation of FLAG	13
		Tool Icons	
		—Program Window Image Change,	14
		—Added explanation of search and replace fanction	15
		Editing Data	
		—deleted explanation of FALG display	18
		Search and Replace	
		—Added explanation of search and replace feature	48
3.30	'20/02/27	[Change Point]	
		Added tool (undo, redo) function	
		Addition of startup from the configuration file	
		FLAG insertion / deletion function added	
		· Addition of search items (time, T1, T2)	
		[Changes]	
		Starting SiO-Programmer	
		—Program Window Image Change,	12
		Program Window	
		—Program Window Image Change,	13
		Tool Icons	
		—Program Window Image Change,	14
		—Added explanation of undo fanction	15
		and redo fanction	
		Window for creating programs	
		—Program Window Image Change,	17,18
		Useful features	
		—Added explanation of Insertion of FLAG	40~42
		—Added explanation of Delete of FLAG	
		—Added explanation about Starting by a	
		double-click of a configuration file Search and Replace	
		—Added of the search item (time, T1 and T2)	40.40
		— riducu of the scaron field (time, 11 and 12)	48,49

3.40	'20/09/07	[Change Point]	
		· Added SiO controller (SiOt, SiO-N3)	
		• Ether signals 1 to 8 added	
		· Addition of address / port settings	
		[Changes]	
		SiO Controller/SiO-Programmer Compatibility	
		Table	
		· Compatibility of saved files between different	
		versions of SiO-Programmer	16
		—Compatible table Edit	10
		Window for creating programs	18~
		—Added explanation of internal outputs	
		Creating an I/O program	
		· CONDITION1	
		—Edit the number of FLAGS	22,24
		—Add Ether	
		· DURATION TIMES	
		—Edit the number of FLAGS	
		—Added Ether	
		110000 20102	
		Parameter settings	
		—Parameter setting image change	0 <b>7</b> .00
		—Added explanation of Address and Port	27, 28
		-	
		Added explanation of Add FLAG and Multi sel	39
3.41	'21/03/17	[Change Point]	
		Addition of precautions after USB communication	
		[Changes]	
		Connecting a USB cable	
		—Added notes after USB communication.	12
3.51	'21/06/11	[Change Point]	
		· Chahanged the number of Ether signals from	
		8 to 64.	
		Addition of DHCP function	

		[Changes]	
		SiO Controller/SiO-Programmer Compatibility Table	16
		<ul> <li>Compatibility Table</li> <li>—Controller added (SiO3.2, SiON3, SiOt)</li> <li>—Added SiO-Programmer 3,51</li> </ul>	10
		—Change the number of Ethers for ON and OFF conditions	22~
		Parameter settings  —Added explanation about automatic / manual	28
		setting of addresses	
3.52	'21/07/02	[Change Point]	
		· None	
		[Changes]	
		SiO Controller/SiO-Programmer Compatibility	
		Table	
		· Compatibility Table	10
		—Added SiO-Programmer 3,52	16~
3.53	'21/08/10	[Change Point]	
		· Added SiO controller (SiOt1, SiOt3)	
		[Changes]	
		SiO Controller/SiO-Programmer Compatibility	
		Table	16
		· Compatibility Table	
		—Controller added (SiOt1, SiOt3)	
		—Added SiO-Programmer 3,53	
3.60	'21/11/30	[Change Point]	
		· Added SiO controller (SiO2 R2)	
		Added MEMO reading / registration function	
		Added timeout setting for Ethernet communication	
		Added controller name display for Ethernet communication	
		· Add message	
		[Changes]	
		SiO Controller/SiO-Programmer Compatibility Table	16
		· Compatibility Table	
		—Controller added (SiO2 R2)	
		—Added SiO-Programmer 3,60	

		Input / Output memo	
		· About reading / registering memos to the	27
		controller	
		Parameter settings	30~31
		• Ethernet communication timeout setting	32
		• About the controller name for Ethernet	
		communication	
		Message display	51
		• Your controller does not support the memo	
		registration function.	51
		• 「You can use up to FLAG48 Multiple	
		Selection 16 on your controller.	51
		• The timeout function is not available on your	
		$controller.  footnote{}$	51
		• 「Unable to recognize the controller. Please	
		check the following items.	51
		• The device driver is not installed. Please	
		uninstall the device driver and the PC	
		software, and download them again from	52
		the SUS HP. J	
		<ul> <li>Communication processing failed.</li> </ul>	
		Check if another SiO-Programmer	
		is communicating.	
3.62	'22/06/27	[Change Point]	
		• System requirements	
		[Changes]	
		Addition of supported computer models	P6
		—Add windows 11	10
		SiO Controller/SiO-Programmer Compatibility	P16
		Table	1 10
		—Version update	

3.70	<sup>'</sup> 22/08/29	[Change Point]	
		· Added New Multiple Selection	
		· Vietnamese language support	
		[Changes]	
		Multiple Selection $\rightarrow$ Old Multiple Selection	
		Added New Multiple Selection	
		Added Vietnamese to supported languages	
		SiO Controller/SiO-Programmer Compatibility Table	P16
		Compatibility Table     Message display	P52
3.71	'22/11/30	[Changes]	
		SiO Controller/SiO-Programmer Compatibility Table	P16
		· Compatibility Table Message display	P52
3.72	<sup>'</sup> 23/1/25	[Change Point]	
		· Thai language support	
		[Changes]	D1 =
		Added Thai to supported languages	P15
		SiO Controller/SiO-Programmer Compatibility Table	P16
		· Compatibility Table	