MiO-Programmer

PC Software for the MiO Controller

Instruction Manual

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

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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.

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- 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*.
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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.

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

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

- <u>Make sure that all controllers are turned off</u> 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	Products Line Up Factory Automation and Actuators
	on SUS Corporation's website	SIO Simple Input Output Controller
	the terms and conditions will take you to the download page.	The Controller for realizing easy, low-cost and simple electric control. SiO-Programmer SiO-Programmer SiO-Programmer/Ver3.41E.32bit (zie:11.35MB) SiO-Programmer/Ver3.41E.64bit (zie:11.35MB) SiO-Programmer Instruction Manual Rev3.41 (PDE-3.19MB)
	Download (and save) the <i>MiO-Programmer</i> setup program to your computer. It is available as a compressed file for download. The file name is "MiOPROGRAMME_V###.zip".	MIO-Programmer MIO-Programmer Ver1.11E 52bit (zinc8.74M8) MIO-Programmer Ver1.11E 64bit (zinc8.75M8) MO-Programmer Ver1.11E 64bit (zinc8.75M8)
	Note: The "###" represents the version number.	
2	Unzip the downloaded (saved) zip file. Double-click " setup.exe " in the unzipped folder to start installation.	

8 Enter your user name and organization name, and then click the [Next] button. 8 Enter your user name and organization name, and then click the [Next] button. 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	×
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"MIO_PROGRAMMER###" is created in the "Program Files" folder as the installation City Network to install to the folder, or did Change to install to a different folder.	×
Click Next to install to this folder, or click Change to install to a different folder.	4,
C:\Program Files (x86)\MIIO_PROGRAMMER Ver1.11EV	ıge
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.	MIO_PROGRAMMER Ver1.11E - InstallShield Wizard Ready to Install the Program The wizard is ready to begin installation. If you want to review or change any of your installation settings, dick Back. Click Cancel to current Settings: Setup Type: Typical Destination Folder: C:#Program Files (x86)#MIO_PROGRAMMER Ver1.11E¥ User Information: Name: SUS Company: Click InstallShield Cancel
11	The Device Driver Installation Wizard appears. Click [(Next)] .	Device Driver Installation Wizard With a software drivers that some Disvised helps you install the software drivers that some Computers devices need in order to work. Click To continue, click Next. Click Click
12	When a dialog box like the one shown on the right appears, click [(Install)] .	Windows Security Would you like to install this device software? Name: SUS Corporation. SiO-C Publisher: SUS Corporation? Click Always trust software from "SUS Corporation". Install Don't Install You should only install driver software from publishers you trust. How can I decide which device software is safe to install?

13	When the device driver has been installed,	Device Driver Installation Wizard
	click [(Finish)] .	Completing the Device Driver Installation Wizard The drivers were successfully installed on this computer. You can now connect your device to this computer. If your device came with instructions, please read them first. Driver Name Status V SUS Corporation. (WinU Ready to use Click Enish
14	The MiO-Programmer installation wizard	
	switches to the Installation Complete window.	I MIO_PROGRAMMER Ver1.11E - InstallShield Wizard InstallShield Wizard Completed
	Click [Finish] .	The InstaliShield Wizard has successfully installed MID_PROGRAMMER Ver1.11E. Click Finish to exit the wizard.
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.	Music Calculator Calculator Calculator Control Panel Device Control Panel Device Click Defau Help and Support Run Shut down
2	Click [Uninstall a program] .	Control Panel
3	Select and right-click " <i>MiO-Programmer</i> " in [Programs and Features], and then select [Uninstall].	Programs and Features
4	Uninstall the device driver. To do so, select and right-click " <i>Windows Driver Package - SUS</i> <i>Corporation. (WinUSB) SiOController</i> ", and then select [Uninstall]. Note: If the above driver is not displayed and " <i>Windows Driver Package D:Frontia(WinUSB)USBTMCd</i> " exists, uninstall this driver instead.	Image: Programme and Features Image: Programme and Features<

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]

🙀 Mi	O-Program	mer Version 1.4	0						- 🗆 ×
File(F) Edit(E)	Display(V)	Search(S)	Controller(C)	Debug(D)	Help(H)			
							MiO-Programmer	≝ ๖ ० २ २ २ ३ 🖨	? ENGLISH V
SiO-Ne	twork	ф.							
MIO	1								
ID.1	/								
ID.2	/								
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ID.4	/								
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1D.0	1								
1D.7	/								
10.0	1								
Con	nection heck								
A	larm heck								

Program Window

	This	section	shows	the r	names	of th	e screer	elements	and	describes	their	functions
--	------	---------	-------	-------	-------	-------	----------	----------	-----	-----------	-------	-----------

(1) Controller selection buttons (See page 14.)	(2) Tool icons (See page 14.) These icons allow you to compare data, use the I/O monitor, save configuration
you want to configure settings.	files, and perform other tasks.
Click the desired button to activate it, and click the edit	
button to display the program edit window.	
checking connections, the indicators for the connected	
(3) Version number	
Indicates the version number of f	MIO-Programmer.
Wild Programmer Version 1.40 Ele(f) Ede(b) Ede(c) Control (C) Debug(D) Help(H)	- L X
Difference a	
(4) Connection Check	
When the computer is connected to the MiO via USB:	Allows
you to check the connections to the networked control	lers.
When the computer is connected to an SiO controller	<i>r</i> ia
USB: Allows you to check the connection to that control	bller.
The indicators next to the controller selection buttons f	or the
connected controllers light up green.	
(5) Alarm Check	
Displays the alarm details for the controllers.	

MiO (6) Output condition settings (See page 16.) (7) [New], [Read], and [Write] Specify input, time, and output settings to set up the These buttons are used to perform MiO controller. 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. MR M Programmer Version 1.40 Edit(<u>E</u>) Display(<u>V</u>) Search(<u>S</u>) Controller(<u>C</u>) Debug(<u>D</u>) Help(H) **MiO-Programmer** SiO-N nk 🛛 MiO 2 ▼Condition setting for Out put cont 1 🕹 🕹 × CONDITION1 DURATION TIME(UNTIL) OUT OUTPUT TYPE / / 0.0 s CONDITION1 ID 1 0.0 s CONDITION1 Turn OF ľ Turn OFI ID.5 0.0 s CONDITION1 Turn OF / 0.0 s CONDITION1 1 ID.8 0.0 S CONDITION1 0.0 S CONDITION1 Alarm Check 🕶 G-FLAG MEM 🐺 合 🕈 PARAMETER 📋 🔻 MultiSelect 🎽 🖶 合 🔻 Ether 📔 🖶 合 🕶 TP_IN 📒 🕹 合 ▼MIO INOUT G-FLAG NAME TP_IN MIO-IO Parameter MultiSelect Ethe 1 ON&OFF ALTERNATI [0.2sec-100.0sec(ON+OFF)] 1 1 2 No ON TIME OFF TIME 2 2 1 0.3 sec 0.2 sec 3 2 0.5 sec 0.5 sec 4 4 4 3 0.5 sec 1.5 sec 5 5 5 INIT [0.1sec-100.0sec] 6 6 6 1.0 sec 7 7 8 Controller action at alarm occurrence 8 8 Stop working O Do not stop working 10 (8) Controller (10) Parameter settings (See page 33.) version number Configure settings for [Parameters] and [Multiple Indicates the version number selections] tabs. of the controller that has Click the [Reset] button to restore the default performed communication. settings. (9) MEMO (See page 31.) The note fields allow you to take notes about inputs and outputs. (You can enter notes for multiple-

The note fields allow you to take notes about inputs and outputs. (You can enter notes for multipleselection 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



(16) MEMO (See page 31.)

The note fields allow you to take notes about inputs and outputs. (You can enter notes for multipleselection 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

MiO-Program	mer Version 1.40 - [] – – – ×
THELEY CONCE	
SiO-Network	
	*
	(1) (2) (3) (4) (5) (6) (7) (8) (9)(10)(11)(12)(13)(14) (15)
(1)	Read from all controllers Image: Controller is controller. Reads settings from all connected controller. Image: Controllers is performed, is connected will be initialized. 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 Including MEMO 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.



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.



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.



The specific registration method is as follows.

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

SiO-Netwo ņ SiO-Network д міо 1 міо ID.1 ID.1 P Controller to use ID.2 Click on the ID to enable 1 ID.2 ID.3 1 ID.4 ID.4 P **Network construction** 1 ID.5 completed ID.5 1 1 ID.6 ľ ID.7 ID.7 P 1 ID.8 1 Checl Che Check Check

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

OUT	CONDITION1							DURATION TIME(UNTIL)							
001	1		2		STATE		1		2				OUTPUT TIPE		
G-FLAG1	-	-	-	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	_	-		ON	1
G-FLAG2	_	-	-	-	-	THEN	0.0 s later	FI AGS	1-48	-	-	-		ON	
G-FLAG3	_	-	-	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	_	-		ON	
G-FLAG4	_	-	-	_	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	_	-		ON	
G-FLAG5	_	-	-	-	_	THEN	0.0 s later	CONDITION1	Turn OFF	_	_	-		ON	
G-FLAG6	_	-	-	-	_	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-		ON	
G-FLAG7	_	-	-	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	_	-		ON	
G-FLAG8	_	-	-	_	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	_	_		ON	
G-FLAG9		-	-	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	_	-		ON	

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.

OUT				COND	ITION1				DURAT	ION TIME	UNTIL)		
001	1			2		STATE			1		2		OUTFOIL THE
G-FLAG1	-	-	-	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-	ON
G-FLAG2	-	-	-	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	_	ON
G-FLAG3	-	-	-	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-	ON
G-FLAG4	-	-	-	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	_	ON
G-FLAG5	-	-	-	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-	ON
G-FLAG6	-	-	-	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	_	ON
G-FLAG7	-	-	-	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-	ON
G-FLAG8	-	-	-	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	_	ON
G-FLAG9	-	_	_	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	_	-	_	ON
MiO-OUT1	-	-	-	_	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	_	ON
MIO-OUT2	-	_	_	-	-	THEN	0.0 s later		Turn OFF		-	-	ON

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

OUT				COND	ITION1				DURAT	TION TIME	UNTIL)					
001	1			2		STATE			1		2			OUTFOIL THE		
G-FLAG1	-	-	-	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-		ON		
G-FLAG2	-	-	-	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-		ON		
G-FLAG3	-	-	_	_	_	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-		ON		
G-FLAG4	-	-	-	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-		ON		
G-FLAG5	-	-	-	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-		ON		
G-FLAG6	-	-	-	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-		ON		
G-FLAG7	-	-	-	-	_	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-		ON		
G-FLAG8	-	-	_	-	_	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-		ON		
G-FLAG9	-	-	-	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-	1	ON		
MiO-OUT1	-	-	_	_	_	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-		ON		
MIO-OUT2	-	-	-	_	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	_	– r				
													Resize the panes.			

- 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

OUT				COND	ITION1				DURAT	FION TIME(UNTIL)			
001	i			2		STAT	Ē		i		2		OUTFOLTTE	
Ready	_	-	_	_	-	THEN	Prepara	tory ou	Itputoff	-	_	_	ON	
OUT1	-	-	-	_	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-	ON	R
OUT2	_	-	_	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-	ON	
OUT3	_	-	-	-	-	THEN	Availat	ole outp	outs ^{n 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	
OUT8	_	-	_	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	_	-	ON	\mathcal{I}
OUT9	-	-	_	-	_	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-	ON	
OUT10	-	-	_	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-	ON	
OUT11	_	_	_	_	-	I ne re	est is toi	Intern	al outpu	ts.	_	-	ON	
OUT12	_	-	_	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-	ON	
OUT13	-	-	-	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-	ON	
OUT14		_			_	THEN	0.0 s later	CONDITION1	Turn OFF	_		_	ON	
OUT15	_	-	_	_	_	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-	ON	
OUT16	-	-	-	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-	ON	

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.)

OUT				COND	ITION1				DURAT	ION TIME	(UNTIL)		
001	1			2		STATE			1		2		OUTPUT TYPE
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

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

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

OUT				COND	ITION1				DURAT	TION TIME	(UNTIL)			
001	1			2		STATE			1		2		OUTPOT TTPE	
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	Resize the
FLAG4	-	-	-	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-	ON	panes.
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	

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.

OUT				CONDI	TION1		
001	1			2		STATE	
Ready	_	_	_	_	_	THEN	0.0 s later
OUT1	*	*	_	-	-	THEN	0.0 s later
OUT2	-	_	_	_	_	THEN	0.0 s later
OUT3		_	_	_	_	THEN	0.0 s later
OUT4	_	_	_	_	_	THEN	0.0 s later

2. Set each item.



OUT				CO	NDITION1
001	1			2	
Ready	_	_	_	-	-
OUT1	*		- 1	- [Select
OUT2	_	IN	•	IN1	
OUT3	_	OUT FLAG))	IN2 IN3	
OUT4	_	MultiSelect	•	IN4	-
OUT5		G-FLAG RUN	> >	IN5 IN6	F
OUT6		ID.1 ID.2	•	IN7 IN8	

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

OUT				COND	ITION1				DURAT	ION TIME	(UNTIL)				
001	1			2		STATE			1		2			OUTPOT TTPE	
Ready	-	-	-	-	-	THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-		ON	
OUT1	IN1	ON	-	-	-	THEN	0.0 s later	IN1	Turn OFF	-	-	-]	ON	
UN1]	IS FONJ THEN I	0.0after	sec] o	utput until 「CO		V1] is [Turn OFF] . [O	UT1] is [ON].	CONDITION1	Turn OFF	_	-	-]	ON	

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

Item		Setup	Description											
Output	Indicates the d For OUT1, you	lestination to which a sig I can specify settings for	nal is output wh output 1.	en set conditior	ns are met.									
	Specify conditi You can set tw want to set onl	ons for enabling output. o conditions and associa y one condition, select "	ate them using t –" for the third to	he [And] or [Or] o fifth buttons.	option. If you									
CONDITION1	Example: To e	nable output when IN1 (input 1) or IN2 (i	nput 2) turns or	า									
(1 and 2)		CONI	DITION1											
	1	2		🍑 or										
	IN1	ON OR IN2	ON	IN1 ON	IN2 ON									
	Specify the sta	te after which to enable	output if the	STATE										
	Select [THEN]	are met. . [CONTINUES]. or [TIM	ES THEN1.	THEN	0.0 s later									
	and specify the	e time period after which	to enable											
	Output.	JENI sot the number of	counts or a TP	THEN	0.0 s later									
	counter. (See	For [TIMES THEN], set the number of counts or a TP 5.0 sec CONTINUES												
	Note: The cou conditio	Int value will be reset whns are met.	nen the OFF	3 TIMES THEN	0.0 s later									
	THEN	TIMES THEN	CONTINUES											
CONDITION1		(Set the number of counts or a TP counter.)												
STATE	Specify how lo	ng to wait before												
	output is enabl	led after the conditions	This is a condi	tion for turning o	on output.									
	Example 1: "0.0	" \rightarrow Enables output at	Specify how lo	ng the condition	ns should be									
		the moment the	Example: "3.0"	$' \rightarrow Enables out$	tout if the									
	Example 2: "2 0	conditions are met. \rightarrow Enables output 2		conditions a	are met for 3.0									
		seconds after the		seconds.										
		conditions are met.												
	Note: You car (See pa	enter values directly or ges 29, 30, and 56.)	via hardware tin	ners T1 and T2	or TP timers.									
	Set conditions	for turning off the output	t that was enable	ed when the cor	nditions set									
	You can set tw	et. o conditions and associa	ate them using t	he [AND], [OR],	or [BEFORE]									
	option.				0.[221.01.2]									
	If you want to s	set only one condition, s	elect "-" for the	third to fifth butt	ons.									
DURATION	[AND] to comb	ine two conditions.	erore output is tu	irnea on, you ca	annot select									
	Example: To tu	Irn off output 5 seconds	after IN1 turns c	n										
(1 and 2)	1	DURATION TIME(UNTIL)	2											
(IN1	Turn OFF BEFORF DFLAY	TIME 5.0 sec	7										
				IN1 after 5 N seconds	OFF									
	Set the type of	output. For ON/OFF cv	cles, you can sp	ecify three sets	of time									
	intervals.	T	, ,	. ,										

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.

BATCH WF	NTE	×
	There is a controller in RUN. Do you want to continue writing? The controller program temporarily stops. <data (connected="" controller)="" registration=""> [MiO]</data>	
	OK Cancel	

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.

Check the Red data then setting.

OUT				CONDI	TION1				DURAT	ION TIME	UNTIL)		
001	1			2		STATE			1		2		OUTPOT TTPE
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)

OUT					COND	ITION1					DURAT	ION TIME	UNTIL)			
001	1				2			STATE			1		2		OUTPUT TYPE	
Ready		_	-	-	_	-		THEN	0.0 s later	CONDITION1	Turn OFF	_	-	_	ON	
OUT1		_	_	-	-	-		THEN	0.0 s later	CONDITION1	Turn OFF	-	-	-	ON	
OUT2		_	-	-	_	_	D	THEN	0.0 s later	CONDITION1	Turn OFF	-	_	-	ON	

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			
	G-FLA	G1 to G-FLAG48	Set conditions using [G-FLAG].			
	MiO	MiO-IN1 and MiO-IN2	Set conditions using [MiO-IN] (input) and [MiO-OUT] (output).			
	-IO	MiO-OUT1 and MiO-OUT2	[MiO-IN1] + [ON]: Enables output when IN1 turns on.			
		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.			
	RUN	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.)			
MiO			[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.			
	Mu	lti 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.)			
	Eth	er1 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.			
		IN1 to IN16				
	ID1 to	OUT1 to OUT16	Set conditions by selecting a SiO on the network and using [IN]			
	ID1 to	FLAG1 to	(input), [OUT] (output), [FLAG] (internal output), [RUN], or [INIT].			
		FLAG48	[ID1] + [IN1] + [ON]: Enables output when IN1 of ID1 turns on.			
		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.			

Device		Item	Setup Description					
		IN1 to IN16	Set conditions using [IN], [OUT], and [FLAG].					
	0	UT1 to OUT16	[IN1] + [ON]: Enables output when IN1 turns on.					
	FI		[OUT1] + [ON]: Enables output when OUT1 turns on.					
	1 L/		[FLAGT] + [ON]: Enables output when FLAGT turns on.					
	Mu	ulti Select1-16	You can configure settings for the multiple selection option in the [Parameter settings] area (see page 39).					
	G-FLA	AG1 to G-FLAG48	Set conditions using [G-FLAG].					
		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 [OEE] will result in no output					
SiO	RUN	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.					
	ID1	IN1 to IN16	Set conditions by colocting a SiQ on the network and using [IN]					
	to ID8	OUT1 to OUT16	(input) or [OUT] (output).					
		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.					

2. CONDITION1 (STATE)

OUT		CONDITION1					DURATION TIME(UNTIL)								
1			2		STATE		1		2			OUTFOLTTE			
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	

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
	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.
MiO/ SiO	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

OUT		CONDITION1					DURATION TIME(UNTIL)								
001	1		2		STATE		1		2		0011011112				
Ready	_	_	_	_	_	THEN	0.0 s late	CONDITION1	Turn OFF	-	_	_		ON	
OUT1	-	-	_	-	-	THEN	0.0 s late	CONDITION1	Turn OFF	-	_	-	[ON	
OUT2	_	-	_	_	_	THEN	0.0 s late	CONDITION1	Turn OFF	-	_	-) [ON	

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		ltem	Setup Description				
	С	ONDITION1	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 MiO-OUT 1 and MiOLIT-12	Set conditions using [MiO-IN] (input) and [MiO-OUT] (output).				
		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.				
MiO	D	ELAY 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.				
	Mu	lti 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).				
	Eth	er1 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.				
		IN1 to IN16	Set conditions using [IN] (input), [OUT] (output), and [FLAG] (internal				
	ID1	OUT1 to OUT16	output).				
	to ID8	FLAG1 to FLAG48	Selecting [OUT1] + [ON] turns off output when OUT1 turns on. Selecting [OUT1] + [ON] turns off output when OUT1 turns on. Selecting [FLAG1] + [ON] turns off output when FLAG1 turns on.				
		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
	СС	DNDITION1	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.
	11	N1 to IN16	Set conditions using [IN] (input), [OUT] (output), and [FLAG] (internal
	OU	T1 to OUT16	Selecting [IN1] + [ON] turns off output when IN1 turns on.
	FLA	G1 to FLAG48	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.
SiO	Dł	ELAY 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.)
	Mult	ti 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-F	FLAG1 to G- FLAG48	Set conditions using [G-FLAG].
	ID1 to	IN1 to IN16	
	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

OUT		CONDITION1					DURATION TIME(UNTIL)								
1			2		STATE		1		2			OUTFOR THE			
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	J

You can set the type of output.

Device	ltem	Setup Description
	ON	Causes the output to stay on. A light would stay lit.
MiO/ SiO	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.

		DURATION TIME(UNTIL)						
STATE			1	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.

							×
TPTimer1	TPTimer2	TPTimer3	TPTimer4	7	8	9	BS
TPTimer5	TPTimer6	TPTimer7	TPTimer8	4	5	6	
TPTimer9	TPTimer10	TPTimer11	TPTimer12	1	2	3	N
TPTimer13	TPTimer14	TPTimer15	TPTimer16	0		CLR	ſ

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.

		DURATION TIME(UNTIL)							
STATE			1	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.



- (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.

VINPUT MEM	o [EMO [▼FLAG MEMO		
IN	NAME		OUT	NAME		FLAG	NAME	
1			1			1		-
2		=	2		E	2		
3			3			3		
4			4			4		
5			5			5		
6			6			6		
							1	Ŧ

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.

OUT				CON	VDITION1				DURA	ATION TIME
Pos	sition the curs	or		2		STATE			1	
0	over a button.		-	_	_	THEN	0.0 s later	CONDITION1	Turn OFF	_
OUT1 (LED Light)	IN1 (Green Swit)	ON	-	_	_	THEN	0.0 s later	IN2 (Red Switch)	Turn ON	-
	Green Switch」 is	ΓΟΝΙ	ΤΗΕΝ ΓΟ).0after sec」	output until	「Red Switch」 is 「Tu	rn ONJ . ILED Li	ight」 is 「ON」.	Turn OFF	_
OUT3	-	_	_	_	_	THEN	0.0 s later	CONDITION1	Turn OFF	-
FLAG1 (Inner OUT)	IN2 (Red Switch)	• 011 •	•••_••	••••••	•••••••	THEN	0.0 s later	CONDITION1	Turn DFF	-
	- :									
	▼INPUT MEMO	1			▼OUT	рит мемо 借		▼FLAG ME	EMO 📳	
	▼INPUT MEMO		NAME				1E	▼FLAG ME	EMO 📳	1E
	▼INPUT MBMO	Switc	NAME	_ *		PUT MEMO	IE	▼FLAG ME FLAG	EMO	1E
	VINPUT MEMO IN 1 Green 2 Red S	Switch	NAME	 '		DUT MEMO		▼FLAG ME FLAG	EMO	1E
	▼INPUT MEMO IN 1 Green 2 Red S 3 EMG	Switch	NAME h			PUT MEMO		▼FLAG ME FLAG 1 2 3	EMO	1E

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.

▼INPUT	мемо 📋 🖶 🛕			Г МЕМО /		V	FLAG ME	то 🔳 🖶 🛧		▼PARAME	TER 📒 🔻 MultiSelect 👔	
IN	NAME		OUT	NAME			FLAG	NAME		Paramete	er MultiSelect	
1	Button	^	1	Lamp	^		1	Operation 1	^	1	All Buttons	Open ^
2	Sensor		2	Buzzer		lir	2	Operation 2		2	All Sensor	Open
3		1	3)	11		3			3		Open
4			4			lir	4			4		Open
5			5		18		5			5		Open
6			6		11	lir	6			6		Open
7			7				7			7		Open
8			8		11	llè	8			8		Open
•		~	_		~		•		~	9		Open Y

In addition, there is a check box "I 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.

MiO-Programmer	🗆 Including MEMO 🔛 🛍 🖆 🍗 🍽 🖵 💿 🔍 🔩 🖶 🕐 ENGLISH 🖂
----------------	--

*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.

-	FLAG4 –		ТН
tion	FLAG5 –		- TH
	FLAG6 -		ТН
:k	▼SiO name	VINPUT MEMO 📋 🖶 合	▼OUTPU
		IN NAME	OUT
	CT Ver.SiO-N1 V3.10	1 Button	
		2 Sensor	2
		3	3
		4	4
		5	5

Parameter settings

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

1. MiO

VPARAMETER
Parameter MultiSelect
ON&OFF ALTERNATION
No ON TIME OFF TIME
1 0.3 sec 0.2 sec
2 0.5 sec 0.5 sec
3 0.5 sec 1.5 sec
INIT [0.1sec-100.0sec]
1.0 sec
Controller action at alarm occurrence
 Stop working \bigcirc Do not stop working
Address / Port
IP address
Auto O Manual
IP address * - * - * - *
Subnet mask * - * - * - *
DefaultGateway * - * - * - *
Port No. 40001
MAC address

Parameters

Item	Setup Description
	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.
ON & OFF	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.
ALTERNATION	ON time OFF time Seconds
	This is the time period for the [INIT] entire which can be used in the
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. RUN

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, subr	et 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.

Address / Port	
■ IP address Auto O Ma	nual
IP address	* _ * _ * _ *
Subnet mask	* _ * _ * _ *
DefaultGateway	* _ * _ * _ *
Port No.	40001
MAC address	70 - B3 - D5 - 42 - 25 - 17



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

Address / Port	
IP address	nual
IP address	192 - 168 - 0 - 128
Subnet mask	* _ * _ * _ *
DefaultGateway	* _ * _ * _ *
Port No.	40001
MAC address	70 - B3 - D5 - 42 - 25 - 17

Manual

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

Address / Port							
IP address							
O Auto	nual						
IP address	192 - 168 - 0 - 128						
Subnet mask	255 - 255 - 255 - 0						
DefaultGateway	192 - 168 - 100 - 1						
Port No.	40001						
MAC address	70 - B3 - D5 - 42 - 25 - 17						

* 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.

×	:	
The automatic / manual setting of the address / port has been switched. It is necessary to turn off the power of the controller and restart it for it to take effect.		
ОК		

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 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.

Timeout setting	[1sec-60min]
● Enable ○ Disable	0 min 30 sec

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.

Timeout setting	[1sec-60min]
🔘 Enable 💿 Disable	0 min 30 sec

· 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).

Parameter MultiSelect	
Auto	^
IP address * - * - *	- *
Subnet mask * - * - *	- *
DefaultGateway * - * - *	- *
Port No. 40001	
MAC address	
Controller Name	[Up to 20 words]
Timeout setting	[1sec-60min]
○ Enable	0 min 30 sec 🗸

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

Parame	ter MultiSelect	
HARD	TIMER MAX	[5.0sec-6000.0sec]
T1	5.0 sec	T2 5.0 sec
ON & (OFF ALTERNATIO	N [0.2sec-100.0sec(ON+OFF)]
No	ON TIME O	FF TIME
1	0.2 _{sec} 0.	3 sec
2	0.5 sec 0.	5 sec
3	0.5 sec 1.	5 sec
INIT		[0.1sec-100.0sec]
1.0	sec	

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.
	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.
ON & OFF ALTERNATION	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.
	OFF time Seconds
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.

All Switches Open	eter Multibelett		MIO 1 2 3	4 5 6 7	8
Open Open Open	All Switches	0000	G-FLAG1	G-FLAG17	G-FLAG33
Open Open Control	All Switches	Open	G-FLAG2	G-FLAG18	G+FLAG34
Open Open Open Enter a note. Example: Multiple selections 1 "All switches" OK Ox OK Ox OK Ox OK Ox OK			G-FLAG3	G+FLAG19	G+FLAG35
Open		Open	G-FLAG4	G-FLAG20	G-FLAG36
Open Open Enter a note. Concest Example: Multiple selections 1 OK "All switches" OK OK Concest Okasis Okasis Image: Notest Image: Notest Image: Notest Image: Notest Image: Notest Image: Notest Image: Notest Image: Notest Image: Notest<			G-FLAG5	G+FLAG21	G+FLAG37
Open		Open	G-FLAG6	G-FLAG22	G+FLAG38
Open		Open	G-FLAG7	G-FLAG23	G-FLAG39
Open Open <t< td=""><td></td><td></td><td>G-FLAG8</td><td>G-FLAG24</td><td>G-FLAG40</td></t<>			G-FLAG8	G-FLAG24	G-FLAG40
Open erwass erwass erwass erwass erwass erwass erwass		Open	G-FLAG9	G-FLAG25	G-FLAG41
Open Open Enter a note. G-HABS Example: Multiple selections 1 "All switches" OK			G-FLAG10	G-FLAG26	G-FLAG42
Enter a note. Example: Multiple selections 1 "All switches"		Open	G-FLAG11	G-FLAG27	G-FLAG43
Enter a note. Example: Multiple selections 1 "All switches" Created and a selections 1 "All switches" Created and a selections 1 "All switches" Created and a selection selection selection selection selection of the selection selection selection of the selection selecti		open	G-FLAG12	G-FLAG28	G-FLAG44
Enter a note. Example: Multiple selections 1 "All switches" • SiO • SiO • SiO • SiO	↓	\ \	G-FLAG13	□ G-FLAG29	G-FLAG45
Enter a note. Example: Multiple selections 1 "All switches" • SiO • SiO • SiO • SiO	Testan a sets	\ \			G-FLAG46
Example: Multiple selections 1 "All switches" • SiO • SiO • SiO • SiO	Enter a note.	\ \			
Construct pre selections 1 "All switches" • SiO • SiO • Massing 1 • Nai	Example: Mult	into coloctions d			
INT INT INT INT INT INT INT INT INT INT INT INT INT INT INT INT INT INT INT INT INT INT INT INT INT INT INT INT INT INT INT I	"All switches"		• SiO	ок	
In Mark	"All switches"		• SiO	ок	
100 1017 10423 10423 104 1047 10423 10423 104 1047 10423 10423 104 1047 10423 10423 104 1047 10423 10423 104 1047 10427 10423 104 1047 10477 10423 104 1047 10477 10423 104 1047 10427 10423 104 1047 10427 10423 104 1047 10427 10423 1049 1047 10427 10423	"All switches"		• SiO	OK	
IN4 IOUT4 IPA64 IPA62 IPA64 IN5 IOUT5 IPA65 IPA62 IPA64 IN5 IOUT5 IPA66 IPA62 IPA64 IN6 IOUT5 IPA66 IPA62 IPA64 IN7 IOUT5 IPA67 IPA62 IPA64 IN6 IOUT5 IPA66 IPA623 IPA64	"All switches"		• SiO		- 14627 - 17
INS IOUTS IPAGS I	"All switches"		• SiO		PAG12 Pr PAG13 Pr PAG13 Pr
IN6 IOUTS IPA66 PA622 PA6 IN7 IOUTS IPA67 PA623 PA6 IN6 IOUTS IPA67 PA623 PA6 IN6 IOUTS IPA66 PA623 PA6 IN6 IOUTS IPA66 PA623 PA6 IN6 IOUTS IPA66 PA623 PA6	"All switches"		• SiO	OK	■ PA4517 ■ PA
Intra Intra Intra Intra Intra Intra	"All switches"		• SiO	OK	■ PAG12 ■ PA ■ PAG13 ■ PA ■ PAG18 ■ PA ■ PAG18 ■ PA ■ PAG28 ■ PA ■ PAG20 ■ PA
INE OUTS INAGE IN	"All switches"		• SiO	OK	PAG2
	"All switches"		• SiO	OK	PL4517 PL4517 PL4519 PL4519 PL4519 PL452 PL45 PL452 PL45 P
	"All switches"		• SiO	OK	RA617 RA617 RA618 R RA618 R R4629 R R4629 R R4622 R R R4622 R R R4622 R R R4623 R
	"All switches"		• SiO	OK	RAG17 PAG17 PAG17 PAG19 PAG21 PAG29 PAG21 PAG29 PAG21 PAG29 PAG21 PAG21 PAG22 PAG21 PAG22 PAG21 PAG23 PAG21 PAG21 PAG23 PAG21 PAG23 PAG21 PAG21 PAG23 PAG21 PAG21 PAG23 PAG21
	"All switches"		• SiO	OK	PAG12 PA PAG13 PA PAG13 PA PAG23 PA PAG24 PA PAG25 PA PAG26 PA
I 1N12 01712 144028 744028 7440	"All switches"		• SiO	OK	PAG12 PAG12 PAG13 PAG13 PAG13 PAG13 PAG13 PAG23 PAG2 PAG23 PAG2
	"All switches"		• or • SiO	OK	PAG12 PAG12 P PAG13 P PAG18 P PAG18 P PAG21 P PAG22 P PAG22 P PAG23 P P PAG23 P PAG23 P P PAG23 P PAG23 P P PAG23 P P PAG23 P P PAG23 P P PAG23 P P PAG23 P P PAG24 P P PAG24 P P PAG24 P P PAG24 P P P PAG24 P P PAG24 P P P PAG24 P P P PAG24 P P P PAG24 P P P PAG24 P P P P PAG24 P P P P P P PAG24 P P P P P P P P P P P P P P P P P P P
1 PN3 1 OUT3 1 PAG3 1 PAG29 1 PA	"All switches"		• SiO	OK	FA4017 FA FA4017 FA FA4018 FA FA4018 FA FA4019 FA FA4021 FA FA4021 FA FA4022 FA FA4023 FA FA4024 FA FA4025 FA FA4025 FA FA4025 FA FA4025 FA FA4026 FA FA4027 FA FA4028 FA FA4029 FA
1943 0.013 1.4423 1.4429 1.44 1944 0.0134 1.4454 1.4430 1.4430	"All switches"		• SiO	OK	PA4517 PA PA4517 PA PA4518 PA PA4519 PA PA4511 PA PA4521 PA PA4522 PA PA4523 PA PA4525 PA PA4525 PA PA4525 PA PA4525 PA PA4520 PA
1943 0.013 1.0463 1.0463 1944 0.014 1.0464 1.0463 1944 0.015 1.0463 1.0463	"All switches"		• SiO	OK	PA4617 PA PA4617 PA PA4618 PA PA4618 PA PA4628 PA PA4620 PA PA4623 PA PA4623 PA PA4623 PA PA4624 PA PA4625 PA PA4626 PA PA4628 PA PA4638 PA PA4638 PA PA4638 PA PA4638 PA
1 1N12 0UT12 1 FLAG12 1 FLAG28 1 FLAG28	"All switches"		• SiO	OK	PAG12 PA PAG13 PA PAG18 PA PAG20 PA PAG22 PA PAG23 PA PAG23 PA PAG23 PA PAG23 PA PAG23 PA PAG24 PA PAG25 PA PAG26 PA PAG26 PA PAG26 PA PAG26 PA
IN13 E 01713 E 64629 E 64	"All switches"		• SiO	OK	PAG12 PA PAG23 PA PAG24 PA PAG25 PA PAG26 PA PAG26 PA PAG26 PA PAG26 PA PAG26 PA PAG26 PA PAG27 PA PAG28 PA
	"All switches"		• SiO	OK	PAG12 PAG12 P PAG13 P PAG18 P PAG18 P PAG28 P PAG21 P PAG23 P PAG24 P
IN13 IN153 IN4613 IN4629 IN46 IN14 OUT34 IN4634 IN4636 IN4656	"All switches"		• SiO	OK	FA4517 FA FA4517 FA FA4518 FA FA4519 FA FA4521 FA FA4521 FA FA4521 FA FA4523 FA FA4523 FA FA4523 FA FA4524 FA FA4525 FA
1943 0473 14429 1442 1944 04734 14633 14639 144 1944 04734 14633 14633 14633 1945 04735 14633 14633 14633	"All switches"		• SiO	OK	PALS17 PA PALS17 PA PALS17 PA PALS17 PA PALS17 PA PALS17 PA PALS18 PA PALS19 PA PALS12 PA PALS23 PA PALS23 PA PALS24 PA PALS25 PA PALS26 PA PALS27 PA PALS28 PA PALS29 PA PALS23 PA PALS24<

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)													
001	1		2			STATE	STATE		1		2			OUTFOR THE	
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

... Output

Input



Useful Features

Here are some useful features of MiO-Programmer:

(1) Cut, copy, paste, and reset

In the program window, **<u>right-click</u>** 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

OUT		CONDITION1		OUT				COND	ITION1
		2		001	1			2	
G-FLAG1	ID.1_IN1 ON - G-FLAG1Cut		ſ	G-FLAG1	_	_	_	_	_
G-FLAG2	ID.2_IN G-FLAG1Copy G-FLAG1Paste			G-FLAG2	ID.2_IN1	ON	_	_	
G-FLAG3	G-FLAG1Reset		\neg	G-FLAG3	_	_	_	_	_
G-FLAG4				G-FLAG4	-	_	-	-	-
					L				
OUT		CONDITION1						COND	ITION1
OUT	1	CONDITION1 2		OUT	1			COND 2	ITION1
OUT G-FLAG1	1 G-FLAG1Cut	CONDITION1		OUT G-FLAG1	1 ID.1_IN1	ON	_	COND 2 -	ITION1
OUT G-FLAG1 G-FLAG2	1 G-FLAGICut ID.2_IN1 G-FLAGICopy G-FLAGIPaste	CONDITION1		OUT G-FLAG1 G-FLAG2	1 ID.1_IN1 ID.2_IN1	ON ON	-	COND 2 -	ITION1
OUT G-FLAG1 G-FLAG2 G-FLAG3	1 G-FLAG1Cut G-FLAG1Copy G-FLAG1Paste G-FLAG1Reset	CONDITION1	⇒ (OUT G-FLAG1 G-FLAG2 G-FLAG3	1 ID.1_IN1 ID.2_IN1 _	ON ON	-	COND 2 - -	ITION1

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.

OUT				CONDI	TION1			
001	1			2		STATE		
Ready	IN8	ON	-	_	-	THEN	0.0 s later	CONDITION1
OUT1	IN1	ON	_	_	_	THEN	0.0 s later	CONDITION1
	N1] is [ON] TH	HEN FO.	0after s	ecj output until	[COND	ITION1」 is「Turn OFF」	.「OUT1」 is「	ITION1

(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.

<u>When IN1 is turned on</u>, the condition for FLAG1 is met and <u>FLAG1 turns on</u>. 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 <u>IN1 and IN2 as the ON conditions for 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 G-FLAG / FLAG

Before insert

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

F	Program	n w	inde	OW		Multi Sel		G-FLAG Memo
G-FLAG1 (Relay1)	TP_IN1	ON	-	-	-			
G-FLAG2	ID.1_IN2	ON	-	-	-			
G-FLAG3	-	-	-	-	-			
G-FLAG4	G-FLAG2	ON	-	-	-	G-FLAGI(Reidy1)		G-FLAG NAME
G-FLAG5	-	-	-	-	-	G-FLAG2	G-FLAG18	1 Relay1
MiO-OUT1	G-FLAG1 (Relay1)	ON	-	-	-	G-FLAG3	G-FLAG19	2
MiO-OUT2	-	-	-	-	-			

Right-click and G-FLAG Inserts

G-FLAG1 (Relay1)	G-FLAG01Cut					
G-FLAG2	I G-FLAG01Copy					
G-FLAG3	G-FLAG01Paste G-FLAG01Reset	ſ				
G-FLAG4	G-FLAG01Insert G-FLAG01Delete					
G-FLAG5		ľ				

G-FLAG1	_	-	-
G-FLAG2 (Relay1)	TP_IN1	ON	-
G-FLAG3	ID.1_IN2	ON	-
G-FLAG4	_	_	_
G-FLAG5	G-FLAG3	ON	-

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

Program window



After Insert

Program window				W		Multi Se	l	G-FLAC	G Memo	
G-FLAG1	_	_	_	_				▼G-FLAG /	₽ ▲	
(Relay1)	TP_IN1	ON	-	-	-					
G-FLAG3	ID.1_IN2	ON	-	-	-	G-FLAG1	G-FLAG17	G-FLAG	NAME	
G-FLAG4	-	-	-	-	-	G-FLAG2(Relay1)	G-FLAG18			^
G-FLAG5	G-FLAG3	ON	-	-	-	G-FLAG3	G-FLAG19			
MIO-OUT1	G-FLAG2 (Relay1)	ON	-	-	-			2 Rela	ay1	
MiO-OUT2	-	-	-	-	-					

*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, **<u>right-click</u>** 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
G-FLAG1	G-FLAG1 G-FLA G-FLAG2(Relay1) G-FLA G-FLAG3 G-FLA	G17 G17 G18 G19 2 Relay1
G-FLAG2 (Relay1) G-FLAG1Cut G-FLAG2 G-FLAG1Copy G-FLAG1Paste G-FLAG1Reset G-FLAG01Reset G-FLAG01Insert G-FLAG01Delete	G-FLAG1 (Relay1) G-FLAG2 G-FLAG3	ID.1_IN1 ON -
G-FLAG46 G-FLAG47 G-FLAG48 ID.1_IN2 ON -	G-FLAG46 G-FLAG47 G-FLAG48	 ID.1_IN2 ON -
Program window	Multi Sel	G-FLAG Memo
G-FLAG1 (Relay1) ID.1_IN1 ON - G-FLAG2 - - - G-FLAG3 - - -	✓ G-FLAG1(Relay1) □ G-I □ G-FLAG2 □ G-I □ G-FLAG3 □ G-I	C-FLAG Image: Constraint of the second sec

*Cannot be inserted in the following cases

- 1. If the Selected "G-FLAG" / "FLAG" is valid and the program is entered
- If the Selected "G-FLAG" / "FLAG" is invalid but the program is entered
 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.





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.



ID.1

ID.6

міо

ΤР



	ID.1 ID.2	2 ID.3	ID.4 ID.5	ID.6 ID.7	ID.8 MiO T	ГР		
RUN	1 Switch	3 IN3	5 IN5	7 IN7	9 IN9	11 IN11 IN13	15 IN15	
	2 Button	4 IN4	6 IN6	8 IN8	10 IN10	12 IN12 IN14	16 IN16	+

* 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.



earch F	leplace			
Searc	h Scope			
۲	All Contro	oller 🔘	Select Controller	
Choos		h word		
CHOOS				MiO
	No	Controller	Place	ID.1)
	140.	Controllor	11000	ID.2 .
				ID.3 🕨
				ID.4 🔸
				ID.5 🔸
				ID.6 🕨
				ID.7 •
				ID.8 🕨

Find





пери	ace Scope	8		
۲	All Contr	oller 🔘	Select Controller	
Choos	e a searc	ch word		Search
Choos	se a repla	cement word		Replace All
				Cancel
	No.	Controller	Place	_

(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.

(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.

Sel Search		A 4140		A 144.14	6.00 0	
	Multi Sel1					
D1	IN1(switch		FLAG1	FLAG17	FLAG33	ר"
	▼ IN2	OUT2	FLAG2	FLAG18	FLAG34	
	ℤ IN3	🔲 ОИТЗ	FLAG3	FLAG19	FLAG35	
	IN4	OUT4	E FLAG4	FLAG20	FLAG36	
	IN5	OUT5	FLAG5	FLAG21	FLAG37	
	IN6	OUT6	FLAG6	FLAG22	FLAG38	
	🔲 IN7	0UT7	FLAG7	FLAG23	FLAG39	
	IN8	OUT8	FLAG8	FLAG24	FLAG40	
	IN9	🔲 ОИТЭ	FLAG9	FLAG25	FLAG41	
	IN10	OUT10	FLAG10	FLAG26	FLAG42	
	IN11	🔲 OUT11	FLAG11	FLAG27	FLAG43	
	IN12	0UT12	FLAG12	FLAG28	FLAG44	
	IN13	OUT13	FLAG13	FLAG29	FLAG45	
	🔲 IN14	🔲 OUT14	FLAG14	FLAG30	FLAG46	
	🔲 IN15	OUT15	FLAG15	FLAG31	FLAG47	
	IN16	OUT16	FLAG16	FLAG32	FLAG48	
	CONDITION AND					

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





OUT	1	
G-FLAG1	ID.1_IN2	ON

Multiple selections

MultiS	elect1(All switchs)	
1	2 3 4	ł 5 6
	☑ IN1	OUT1
	IN2	OUT2
	IN3	🔲 ОИТЗ



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. $$\times|$$

MiO-Pr	ogrammer	Version 1.11		
File(<u>F</u>)	Edit(<u>E</u>)	Display(<u>V</u>)	Search(<u>S</u>)	Controller(<u>C</u>)
Commu	nication Fa	iled.		×
CO Net	. п)	

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

Message	Description
A read error has occurred. Failed to read. Failed to write. Failed to communicate. Unknown command No controller is connected.	 The computer has failed to communicate with a controller. 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. 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.
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
The help file is corrupted.	and reinstall it.
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.</network>	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

 Label element Displays the text you specified. You can edit all text.
 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)
- 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)
- Toggle switch element Press the switch to turn a set signal on or off. (TP_IN)
- Navigation elements Each button opens the window assigned to it.
- Timer setting element Allows you to set timer values from the touch panel. (TP_Timer)
- Timer display element Displays the timer you set.
- 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:

<u>sus-sales@sus.co.jp</u>

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 controllersSiO network.	P. 10-15
		[Changes] <all> Change the color of the connected controller. connected to an SiO network.</all>	
1.10	29 May 2020	 [Change point] Added description of the find-and-replace feature. [Changes] <find and="" replace=""></find> 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="" feature="" panel="" touch=""></added> Creating an I/O Program Revised the table. (Added information about TP counters and TP timers.) Details of Each Item ON conditions (1 and 2): Revised the table. (Added TP-IN1 to IN32.) ON conditions (State): Revised the table. (Added information about TP counters and TP timers.) 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 Revised the image of the MiO Brogrammer screen 	P. 22 P. 24 P. 26 P. 27 P. 29 P. 47

		Simulation	P. 49
		(7) Input box (Added the TP feature.)	
	OC Fahruary	Replaced the images of the input box (for both vertical	
1.20	26 February	and horizontal views).	
	2021	Find and Replace	P. 51
		① Display of search items (Added TP-IN.)	
		MiO Touch Panel (Added items.)	P. 55
1.21	18 March 2021	[Change point]	P. 10
		Added a note about what to do after USB	
		communication.	
		[Changes]	
		< Connecting a USB Cable >	
		Addition of precautions after USB communication	
1.22	10 August	[Change point]	
	2021	Changed Ether score from 8 to 64	
		DHCP function added	
		[Changes]	
		<all></all>	
		Changed Ether score to 64 points	P. 10-53
		< Parameter settings >	
		Added explanation about automatic / manual setting	P. 33
		of address	
1.30	29 February	[Change point]	
	2022	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 /	P. 31
		register memos to the controller.	
		< Parameter settings>	
		Added explanation about timeout setting for Ethernets	P. 35-36
		communication	D 27
		Added explanation about controller name setting for Ethernets communication	F. 3/
		< Multi Select >	
		 Changed to an image with G-FLAG added to MiQ 	P 39
		multiple selection	1.00
1.31	1 June	IChange point]	
	2022	Added description of network configuration	
		Added message for network configuration	
		unregistered	
		[Changes]	
		<network configuration=""></network>	
		addition	P. 16

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