30 Controlling External I/O

This chapter describes how to set up an I/O driver and map I/O terminals for controlling external I/O.

This chapter also provides setup details about each I/O unit. Refer to the page that describes the I/O unit you are using.

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30.1 Controlling External I/O

30.1.1 Summary

To control external I/O in a logic program, map addresses (variables) to I/O terminals. You need to identify which addresses (variables) send outputs, and which addresses (variables) read inputs. Setup procedures vary depending on whether you use the built-in I/O terminals for the display unit, or I/O terminals in an external unit.

When using the built-in I/O terminal

- AGP-XXXXX-D81
- LT series

Setting Procedure

- 1. Set up I/O Driver. Once the model is selected, I/O Driver is automatically set up.
- 2. Map addresses (variables) to I/O terminals.

When using an external unit

- AGP-XXXXX-FN1M + FlexNetwork unit
- AGP-XXXXX-CA1M + HTB unit + EX module
- LT series + EX module

Setting Procedure

- 1. Set up I/O Driver. Once the model is selected, I/O Driver is automatically set up.
- 2. Specify the model of the external unit.
- 3. Map addresses (variables) to I/O terminals.

NOTE

- To check whether this function is available for your model, please refer to the supported feature list.
- "1.3 List of Supported Functions by Device" (page 1-5)
- Refer to the following for details on the setup procedure.
- "30.3 Controlling GP External I/O" (page 30-9)
- ⁽³⁷⁾ "30.4 Using FlexNetwork External I/O" (page 30-13)
- "30.5 Controlling External I/O in LT" (page 30-24)
- "30.6 Controlling I/O in LT and EX Modules" (page 30-127)
- "30.7 Controlling External I/O by Using HTB" (page 30-146)

NOTE

30.1.2 Mapping Addresses (variables) to I/O Terminals

Allocate the address to the each I/O terminal after completing the settings for the I/O Driver and external unit models.

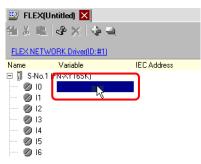
There are three ways to map addresses to I/O terminals: directly registering addresses on the I/O, mapping addresses in the Address Window, and mapping addresses in the logic program.

- This section outlines the case when the [Register Variable] is [Variable Format].
 - When [Register Variable] is [Address Format], addresses starting with "X_", "Y_", "I_", or "Q_" are already mapped. You cannot change this setting.

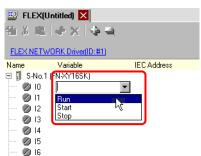
👪 FL	EXN	etwork 🔀	
		*× * *	
FLEXIN	IETW	ORK Driver(ID:#1)	
Name		Variable	IEC Address
📮 👖 S·		(FN-XY16SK)	
0	10	X_0000	(%DX1.1.0)
Ø	11	X_0001	(%D<1.1.1)
- 0	12	X_0002	(%DX1.1.2)
Ø	13	X_0003	(%DX1.1.3)
0	I4	X_0004	(%D<1.1.4)
- 0	15	X_0005	(%DX1.1.5)
- 0	I6	X_0006	(%DX1.1.6)
0	17	X_0007	(%IX.1.1.7)
- 0	18	X_0008	(%DX1.1.8)
Ø	19	X_0009	(%DX1.1.9)
Ō	110	X_0010	(%DX1.1.10)
<i>.</i>	I11	X_0011	(MDX1.1.11)
- 0	П2	X_0012	(%DX1.1.12)
- 0	ПЗ	X_0013	(%DX1.1.13)
- õ	I14	X_0014	(%D<1.1.14)
- 0	115	X_0015	(%DX1.1.15)
- 0	QŨ	Y_0000	(%QX1.1.0)
- ŏ	Q1	Y_0001	(%QX1.1.1)
- ŏ	Q2	Y_0002	(%QX1.1.2)
- ŏ	Q3	Y_0003	(%QX1.1.3)
	Q4	Y 0004	(%QX1.1.4)
ŏ	Q5	Y_0005	(%QX1.1.5)

■ Directly Registering Addresses on the I/O Screen

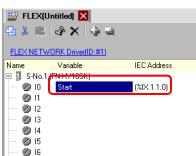
1 Select the I/O terminal variable and click 🛷, or double-click the variable.



2 To map an address that has already been registered, click **v** and select the address.



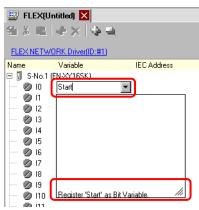
3 Press the [Enter] key to map the address and display the I/O address (IEC Address).



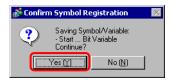
NOTE

• You can register new addresses on the I/O.

(1)Type the new address name (for example, start), and press the [Enter] key. The message "Register 'start' as a bit variable" is displayed.



(2)Press the [Enter] key. The [Confirm Symbol Registration] dialog box appears. Click [Yes].



Mapping by Drag and Drop to I/O Terminals from the Address Window

- 1 Select the [Address] tab to open the [Address] window.
 - Addres Ψ× O Device Address O Symbol Variable Bit Address Туре -Address [PLC1]X00000 Х 0123456789ABCD 00000 00010 00020 00030 00040 00050 00060 00070 00080 00090 000 A0 F nann Feature Location Screen 🕅 Syst-🗱 Addres 🚺 Com… | 🔡 Screen |



• If the [Address] tab is not displayed in the Work Space, on the [View (V)] menu, point to [Work Space (W)], and then click [Address (A)].

2 Select [Symbol Variable], and for the [Type] select [Bit Variable].

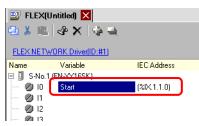
Address		# x		
O Device Address 💿 Symbol Variable				
Туре	All	•		
Attribute	All Bit Address			
	Word Address Bit Variable Integer Variable			
Name #H_Alarm_Tr #H_BackLig	Floar Variable Floar Variable Timer Variable	•		

3 The list displays addresses whose [Type] equals [Bit Variable]. In the list, drag "Start" to the instruction operand you want to map the variable. Release the mouse when the pointer changes from \bigotimes to $\bigotimes_{i=1}^{k}$.

Address			4 ×	题 FLEX(l	Jntitled) 🗵	
O Device	Address 💿 Syn	nbol Variable		41 X 🗈	🕹 🗙 🔄 🔿	
Туре	Bit Variable		•	FLEX NETW	/ORK Driver(ID:#1)	
Attribute	All			Name	Variable	IEC Address
Attribute	JAII			🖻 🖡 S-No.1	(FN-XIOTO)	
				0 🖉 🖳		
Name		Address		212		
Run	Bit Variable			0 12		
Start	Bit Variable					
Stop	Bit Variable			A 15		
Start	Bit Variable			20 IH		

NOTE

4 The address will be mapped and the I/O address (IEC address) will be displayed.

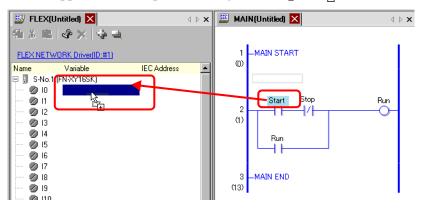


■ Mapping by Drag and Drop to I/O Terminals from the Logic Program

The Logic (MAIN) and I/O (FLEX NETWORK) windows are displayed side by side

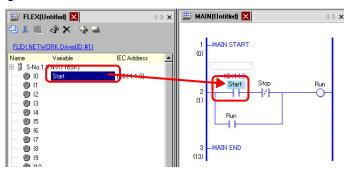
• To display two screens vertically, on the [View (V)] menu, point to [Editing Area (B)], and then click [Tile Vertically], or click .

1 Click and drag the instruction operand on the Logic and drop the instruction operand on the terminal to be mapped, when the pointer changes from \bigotimes to $\bigotimes_{i=1}^{k}$.

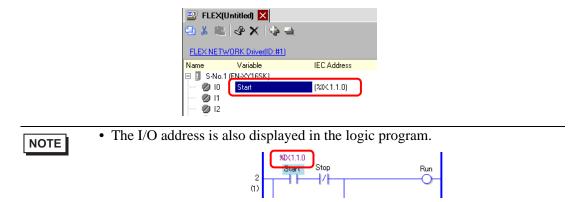


- It is not possible to map an address where the pointer is displayed as \mathbf{O} .
- Each I/O terminal address on the I/O can be dragged and mapped to an instruction operand in the logic program.

Click an address in the I/O, and drag the address to the Logic instruction operand you want to map. Release the mouse where the pointer changes from δ to δ_{0} .

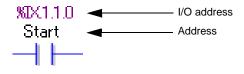


2 The address will be mapped and the I/O address (IEC address) will be displayed.



I/O Address Format

You can check the address mapped to I/O terminals from the logic program. This type of information is called an I/O address, and is displayed above the address in the following way.



I/O address display: <u>%AB.1</u>.C.D

(The underlined "%" and "1" are fixed.)

Notation	Description			
Α	Stores the following ID symbol for an I/O terminal.			
	I/O pin	ID symbol		
	Input pin	I		
	Output pin	Q		
В	Stores "X" for	Stores "X" for a bit pin and "W" for a word pin.		
С	Stores the FLEX NETWORK S-Number			
D	Stores the pin Number			

30.2 Settings Guide

30.2.1 I/O Screen Settings Guide

📅 DIO(Untitled) 🗵			
41 岁日	L 🕹 🗙 😒		
DIO Drive	<u>r(ID:#1)</u>		
Name	Variable	IEC Address	
Ø 10			
Ø I1			
Ø 12			
Ø 13			
Ø 14			
Ø 15			
💋 QO			
🖉 Q1			

Setting	Description		
Сору 🔄	To copy a variable select it and click the icon.		
Cut 🐰	To cut a variable select it and click the icon.		
Paste 🗈	To paste a variable, Copy or Cut it to the clipboard and then click the icon.		
Edit 🛷	To change a variable or register a new variable, select it and click the icon.		
Delete X	To delete a variable select it and click the icon.		
Expand All	Expands to display all I/O terminals.		
Collapse All	Collapses to hide display of all I/O terminals.		
DIO Driver (ID:#1)	Click to switch to the I/O Driver settings screen.		
Name	Displays the terminal ID symbol.		
Variable	Displays the address mapped to the terminal.		
IEC Address	Displays the I/O address (IEC address).		