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.

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
- AGP-XXXXX-CA1M + Slave unit provided by other companies
- LT series + EX module
- LT series + HTB unit + EX module
- LT Series + Slave unit provided by other companies

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 Supported Features" (page 1-5)

- Refer to the following for details on the setup procedure.

☞"30.3 Controlling External I/O with GP Internal DIO" (page 30-9)
☞"30.4 Using FlexNetwork External I/O" (page 30-13)
☞"30.5 Controlling External I/O in LT" (page 30-25)
☞"30.6 Controlling I/O in LT and EX Modules" (page 30-131)
☞"30.7 Controlling External I/O with CANopen" (page 30-151)

30.1.2 Mapping Addresses (variables) to I/O Terminals

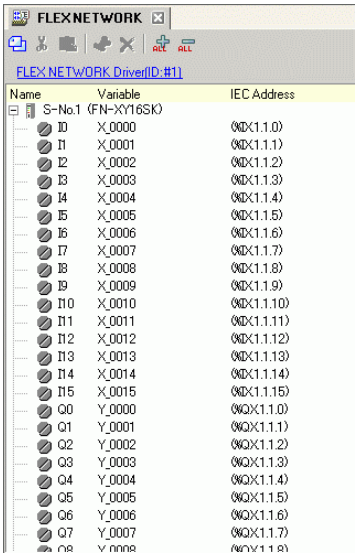
Allocate the address to the each I/O terminal after completing the settings for the I/O Driver and external unit models.
There are three ways to map addresses to I/O terminals: directly registering addresses on the I/O, mapping addresses in the Address Window, and mapping addresses in the logic program.

IMPORTANT

- When [Register Variable] is set to [Address Format] and you map addresses to I/O terminals, changing the terminal structure (such as changing the model or terminal type) could change which I/O terminals are mapped with which addresses.
  Make sure you check the address mapping on the I/O screen.

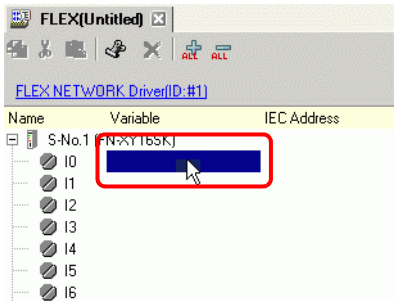
NOTE

- 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.

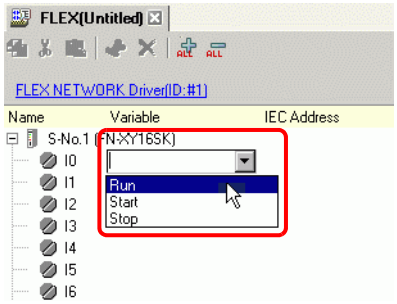


■ Directly Registering Addresses on the I/O Screen

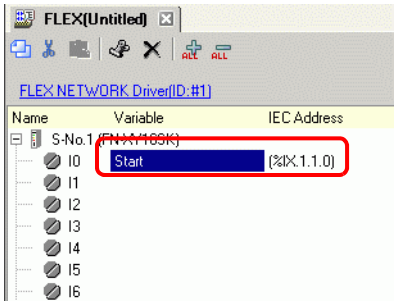
1 Select the I/O terminal variable and click , or double-click the variable.



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

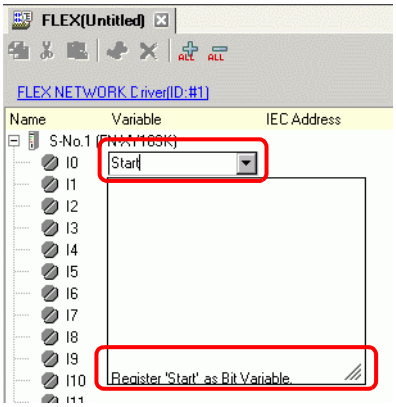


3 Press the [Enter] key to map the address and display the I/O address (IEC Address).

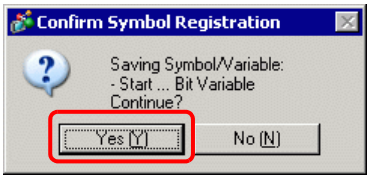


NOTE

- 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.

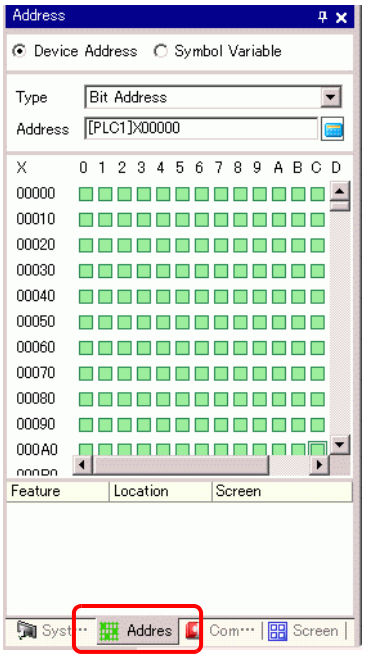


(2)Press the [Enter] key. The [Confirm Symbol Registration] dialog box appears. Click [Yes (Y)].



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

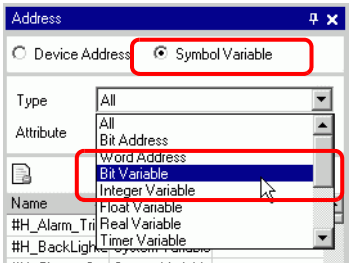
1 Select the [Address] tab to open the [Address] window.



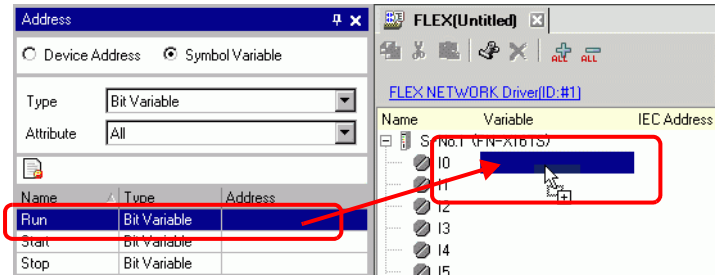
NOTE

- 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)].

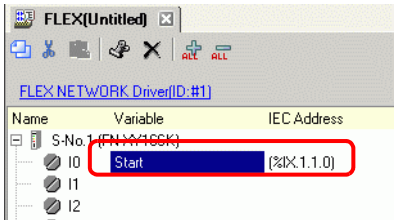
2 Select [Symbol Variable], and for the [Type] select [Bit Variable].



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 ⃠ to .



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



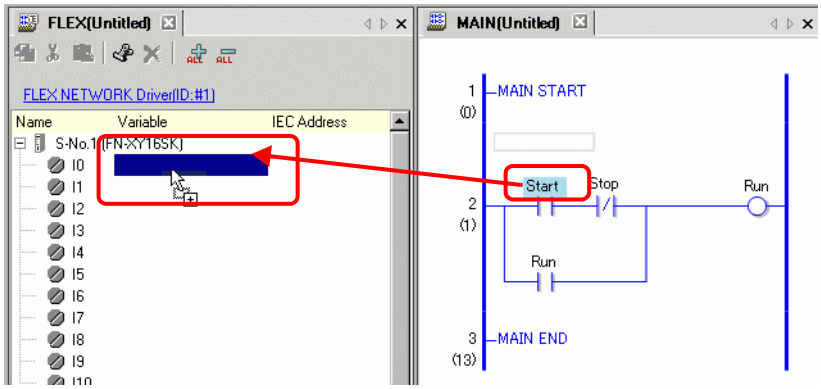
■ Mapping by Drag and Drop to I/O Terminals from the Logic Program

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

NOTE

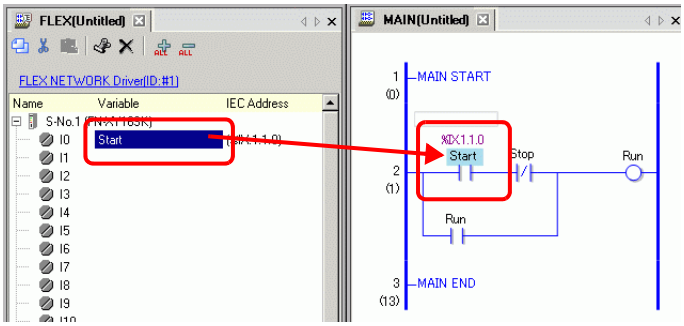
- To display two screens vertically, on the [View (V)] menu, point to [Editing Area (B)], and then click [Tile Vertically], or click .

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 to .

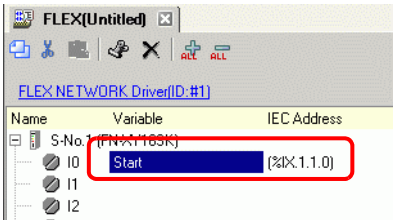


NOTE

- It is not possible to map an address where the pointer is displayed as .
- 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 to .



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

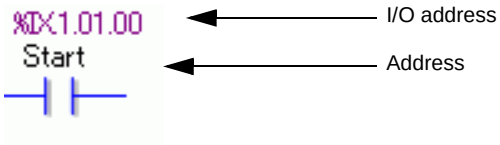


NOTE

- The I/O address is also displayed in the logic program.

■ 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.



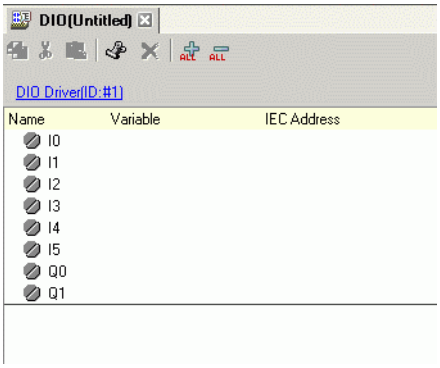
I/O address display: %AB.1.C.D

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

Notation	Description
A	Stores the following ID symbol for an I/O terminal. I/O Terminal: ID symbol Input pin: I Output Terminal: Q
B	Stores "X" for a bit pin and "W" for a word pin.
C	Stores the FLEX NETWORK S-Number
D	Stores the pin Number

30.2 Settings Guide

30.2.1 I/O Screen Settings Guide



Setting	Description
Copy	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	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)	[DIO Driver (ID:#1)] displays the type of driver used.
Name	Displays the terminal ID symbol.
Variable	Displays the address mapped to the terminal.
IEC Address	Displays the I/O address (IEC address).