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 30-129)
)"30.7 Controlling External I/O with CANopen" (page 30-149)

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.

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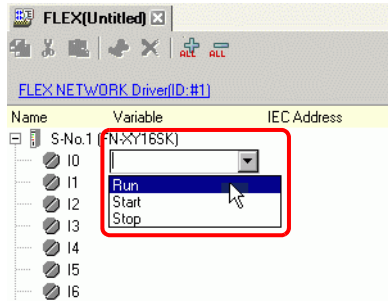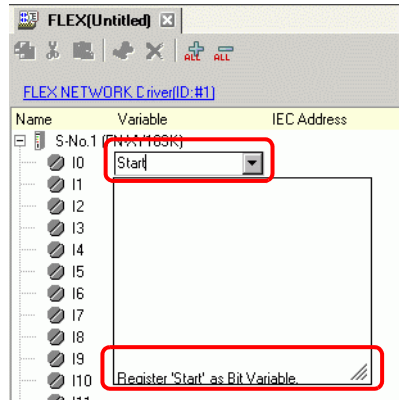
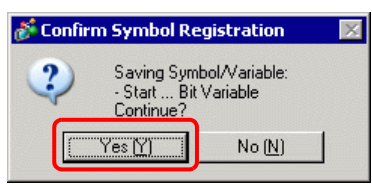3 Press the [Enter] key to map the address and display the I/O address (IEC Address).
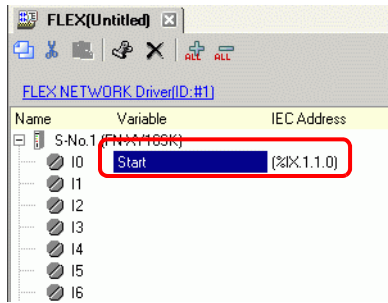
| NOTE |

- 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.
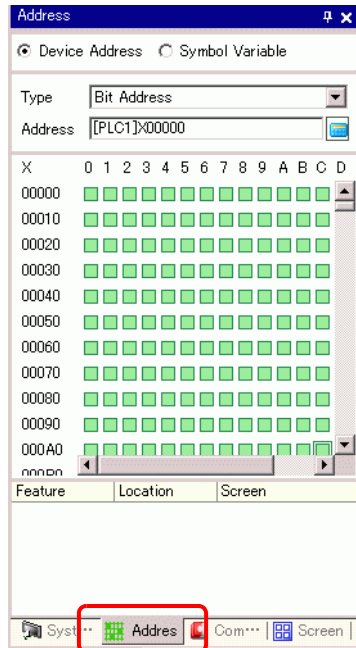
    (2)Press the [Enter] key. The [Confirm Symbol Registration] dialog box appears. Click [Yes (Y)].
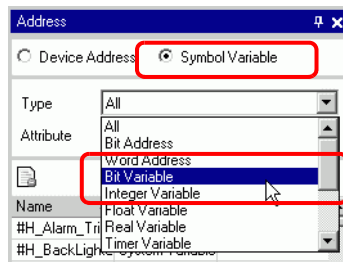
■ Mapping by Drag and Drop to I/O Terminals from the Address Window

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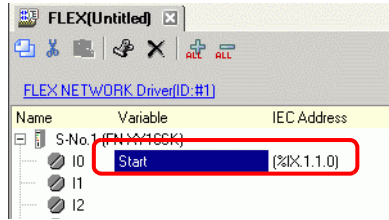
2 Select [Symbol Variable], and for the [Type] select [Bit Variable].

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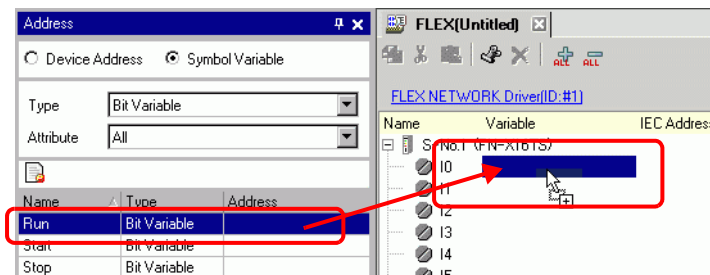
4 The address will be mapped and the I/O address (IEC address) will be displayed.


■ **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 🔽₊ .
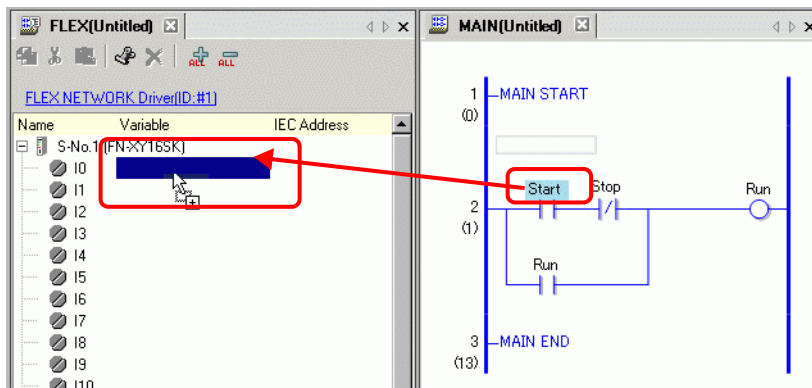
NOTE
• It is not possible to map an address where the pointer is displayed as ⃠ .
• Each I/O terminal address on the I/O can be dragged and mapped to an instruction operand in the logic program.
Click an address in the I/O, and drag the address to the Logic instruction operand you want to map. Release the mouse where the pointer changes from ⃠ to 🔽 .
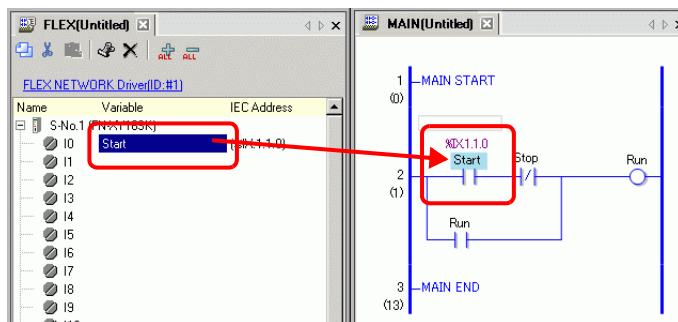
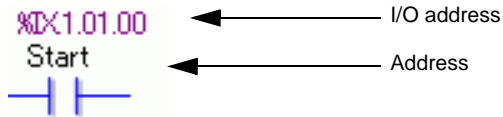2 The address will be mapped and the I/O address (IEC address) will be displayed.
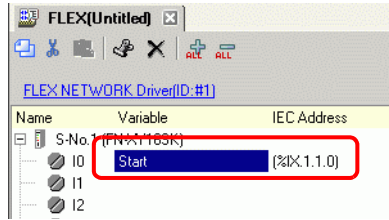
NOTE

• 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.
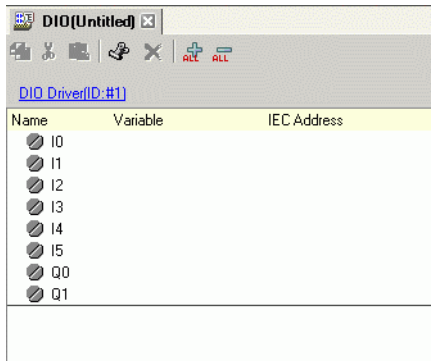

I/O address display: $\underline{\%}AB.\underline{1}.C.D$

(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).