

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-XXXXXX-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-XXXXXX-FN1M + FlexNetwork unit
- AGP-XXXXXX-CA1M + HTB unit + EX module
- AGP-XXXXXX-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.

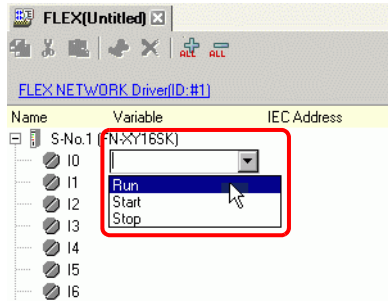
Name	Variable	IEC Address
S-No.1 (FN-X116SK)		
I0	X_0000	QD<1.1.0>
I1	X_0001	QD<1.1.1>
I2	X_0002	QD<1.1.2>
I3	X_0003	QD<1.1.3>
I4	X_0004	QD<1.1.4>
I5	X_0005	QD<1.1.5>
I6	X_0006	QD<1.1.6>
I7	X_0007	QD<1.1.7>
I8	X_0008	QD<1.1.8>
I9	X_0009	QD<1.1.9>
I10	X_0010	QD<1.1.10>
I11	X_0011	QD<1.1.11>
I12	X_0012	QD<1.1.12>
I13	X_0013	QD<1.1.13>
I14	X_0014	QD<1.1.14>
I15	X_0015	QD<1.1.15>
Q0	Y_0000	QD<1.1.0>
Q1	Y_0001	QD<1.1.1>
Q2	Y_0002	QD<1.1.2>
Q3	Y_0003	QD<1.1.3>
Q4	Y_0004	QD<1.1.4>
Q5	Y_0005	QD<1.1.5>
Q6	Y_0006	QD<1.1.6>
Q7	Y_0007	QD<1.1.7>
Q8	Y_0008	QD<1.1.8>

■ Directly Registering Addresses on the I/O Screen

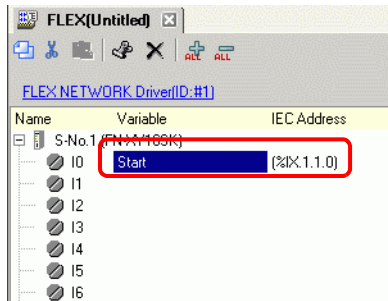
- 1 Select the I/O terminal variable and click , or double-click the variable.

Name	Variable	IEC Address
S-No.1 (FN-X116SK)		
I0	X_0000	QD<1.1.0>
I1	X_0001	QD<1.1.1>
I2	X_0002	QD<1.1.2>
I3	X_0003	QD<1.1.3>
I4	X_0004	QD<1.1.4>
I5	X_0005	QD<1.1.5>
I6	X_0006	QD<1.1.6>

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

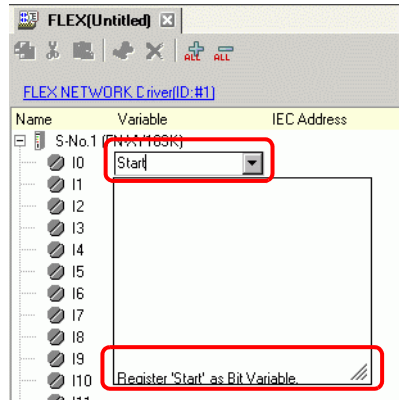


3 Press the [Enter] key to map the address and display the I/O address (IEC Address).

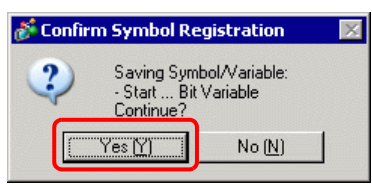


NOTE

- You can register new addresses on the I/O.
 - Type the new address name (for example, start), and press the [Enter] key. The message "Register 'start' as a bit variable" is displayed.

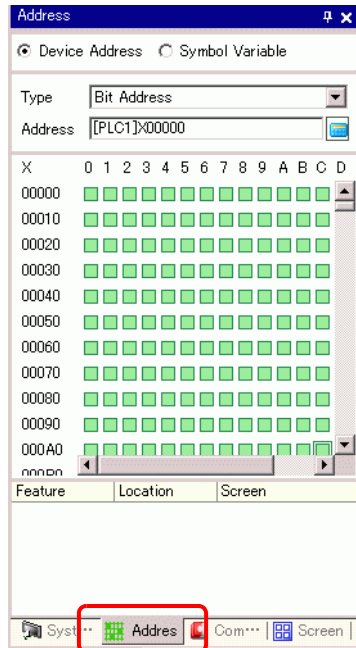


(2) Press the [Enter] key. The [Confirm Symbol Registration] dialog box appears. Click [Yes (Y)].



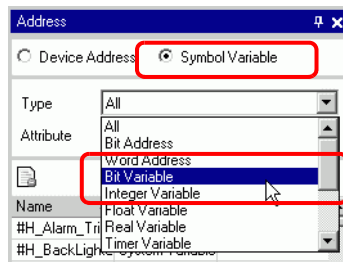
■ Mapping by Drag and Drop to I/O Terminals from the Address Window



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

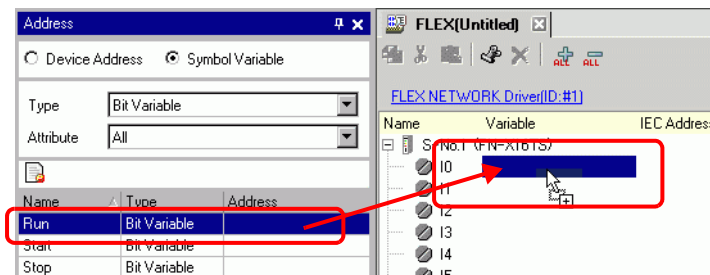


NOTE • If the [Address] tab is not displayed in the Work Space, on the [View (V)] menu, point to [Work Space (W)], and then click [Address (A)].

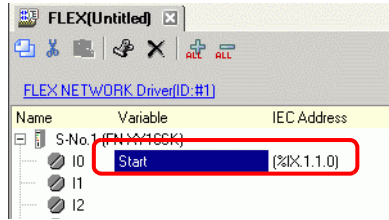
2 Select [Symbol Variable], and for the [Type] select [Bit Variable].



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.

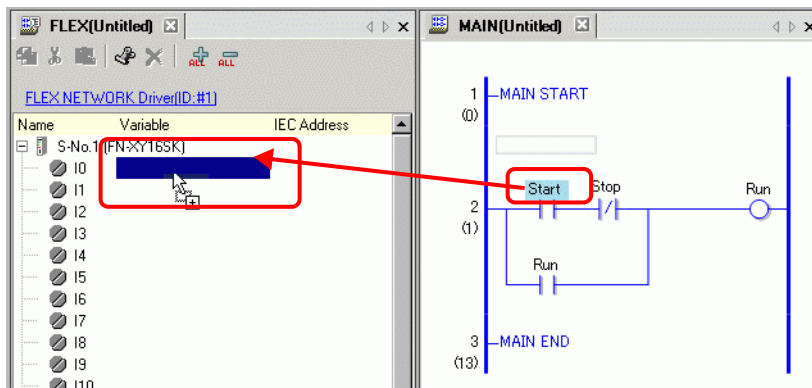





■ Mapping by Drag and Drop to I/O Terminals from the Logic Program

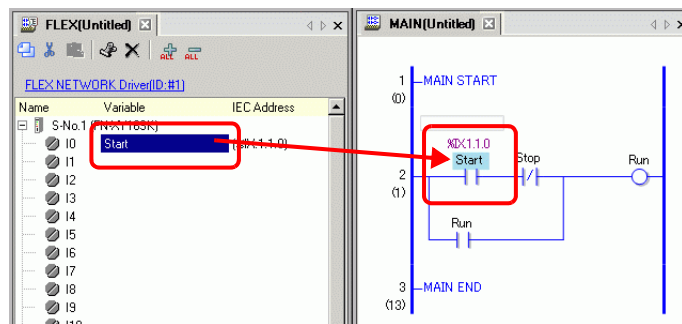
The Logic (MAIN) and I/O (FLEX NETWORK) windows are displayed side by side

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

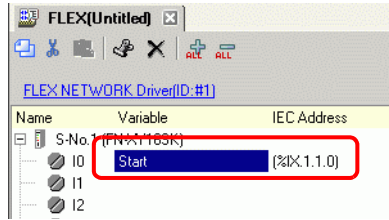
1 Click and drag the instruction operand on the Logic and drop the instruction operand on the terminal to be mapped, when the pointer changes from  to .



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.



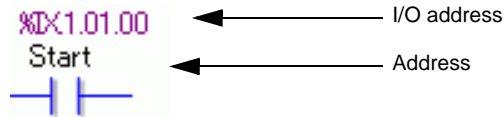
NOTE

- 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.

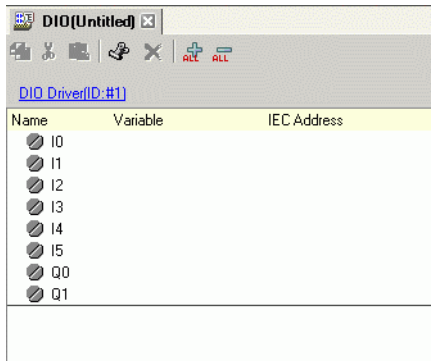









I/O address display: %AB.1.C.D
 (The underlined "%" and "1" are fixed.)

Notation	Description						
A	Stores the following ID symbol for an I/O terminal. <table border="1" style="margin-left: 20px;"> <tr> <td>I/O Terminal</td> <td>ID symbol</td> </tr> <tr> <td>Input pin</td> <td>I</td> </tr> <tr> <td>Output Terminal</td> <td>Q</td> </tr> </table>	I/O Terminal	ID symbol	Input pin	I	Output Terminal	Q
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).