Introduction

Thank you for purchasing the Mitsubishi general-purpose MELSEC series sequencer.
Read this manual and make sure you understand the functions and performance of MELSEC series sequencer thoroughly in advance to ensure correct use.
Please make this manual available to the end user.

CONTENTS

6. CREATING CIRCUITS

6.1 Circuit Creation Method

A	QnA	FX
•	•	•

Create circuits using the following four methods.

1. Keyboard input of instruction list representations (mnemonic codes) in the circuit creation window.
2. Tool buttons on the tool bar.
3. Function keys.
4. The tool bar menu.

Once the above operation is started, the following circuit input dialog box is displayed.

Continuous input section

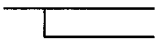
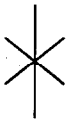
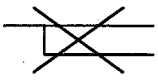
Device instruction text box

Click in the continuous input section so that the circuits or contacts can be input continuously without closing the circuit input dialog box.

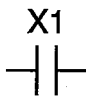
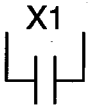
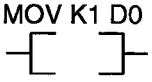
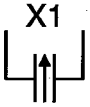
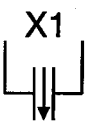
The following describes the operation method.

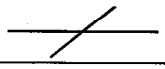
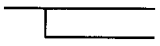
List of Operations for A Series Circuit Creation

Example	List Representation	Tool Button	Function Key	Menu Bar
X1	LD X1 → [Enter]	Click and type "X1" in the device instruction text box, then click the [OK] button.	[F5] → Type "X1" in the device instruction text box → [Enter]	[Edit] → [Ladder symbol] → [Open contact] → Type "X1" in the device instruction text box → [Enter]
X1	OR X1 → [Enter]	Click and type "X1" in the device instruction text box, then click the [OK] button.	[F6] → Type "X1" in the device instruction text box → [Enter]	[Edit] → [Ladder symbol] → [Open branch] → Type "X1" in the device instruction text box → [Enter]
X1	LDI X1 → [Enter]	Click and type "X1" in the device instruction text box, then click the [OK] button.	[Shift] + [F5] → Type "X1" in the device instruction text box → [Enter]	[Edit] → [Ladder symbol] → [Close contact] → Type "X1" in the device instruction text box → [Enter]
X1	ORI X1 → [Enter]	Click and type "X1" in the device instruction text box, then click the [OK] button.	[Shift] + [F6] → Type "X1" in the device instruction text box → [Enter]	[Edit] → [Ladder symbol] → [Close branch] → Type "X1" in the device instruction text box → [Enter]

Example	List Representation	Tool Button	Function Key	Menu Bar
Y1 	OUT Y1 → Enter	Click F7 and type "X1" in the device instruction text box, then click the OK button.	F7 → Type "Y1" in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Coil] → Type "Y1" in the device instruction text box → Enter
MOV K1 D0 	MOV K1 D0 → Enter	Click F8 and type "MOV K1 D0" in the device instruction text box, then click the OK button.	F8 → Type "MOV K1 D0" in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Application instruction] → Type "MOV K1 D0" in the device instruction text box → Enter
Horizontal line	———	Click F9, enter the number of lines to be input in the device instruction text box, then click the OK button.	F9 → Enter the number of lines to be input in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Horizontal line] → Enter the number of lines to be input in the device instruction text box → Enter
Vertical line	———	Click Shift+F10, enter the number of lines to be input in the device instruction text box, then click the OK button.	F10 → Enter the number of lines to be input in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Vertical line] → Enter the number of lines to be input in the device instruction text box → Enter
Connecting line 	———	Click Ctrl+F10 and draw a connecting line by dragging.	———	———
Delete horizontal line 	———	Click Shift+F9 and enter the number of lines to be deleted in the device instruction text box.	Ctrl + F9 → Enter the number of lines to be deleted in the device instruction text box - Enter	[Edit] → [Ladder symbol] → [Delete horizontal line] → Enter the number of lines to be deleted in the device instruction text box → Enter
Delete vertical line 	———	Click Shift+F10 and enter the number of lines to be deleted in the device instruction text box.	Ctrl + F10 → Enter the number of lines to be deleted in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Delete vertical line] → Enter the number of lines to be deleted in the device instruction text box → Enter
Delete connecting line 	———	Click Shift+Ctrl+F10 and drag to select the connecting lines to be deleted.	———	———

List of Operations for QnA Series Circuit Creation

Example	List Representation	Tool Button	Function Key	Menu Bar
	LD X1 → Enter	Click and type "X1" in the device instruction text box, then click the OK button.	F5 → Type "X1" in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Open contact] → Type "X1" in the device instruction text box → Enter
	LDI X1 → Enter	Click and type "X1" in the device instruction text box, then click the OK button.	F6 → Type "X1" in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Close contact] → Type "X1" in the device instruction text box → Enter
	OR X1 → Enter	Click and type "X1" in the device instruction text box, then click the OK button.	Shift + F5 → Type "X1" in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Open branch] → Type "X1" in the device instruction text box → Enter
	ORI X1 → Enter	Click and type "X1" in the device instruction text box, then click the OK button.	Shift + F6 → Type "X1" in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Close branch] → Type "X1" in the device instruction text box → Enter
	OUT Y1 → Enter	Click and type "X1" in the device instruction text box, then click the OK button.	F7 → Type "Y1" in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Coil] → Type "Y1" in the device instruction text box → Enter
	MOV K1 D0 → Enter	Click and type "MOV K1 D0" in the device instruction text box, then click the OK button.	F8 → Type "MOV K1 D0" in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Application instruction] → Type "MOV K1 D0" in the device instruction text box → Enter
	LDP X1 → Enter	Click and type "X1" in the device instruction text box, then click the OK button.	Shift + F7 → Type "X1" in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Rising pulse] → Type "X1" in the device instruction text box → Enter
	LDF X1 → Enter	Click and type "X1" in the device instruction text box, then click the OK button.	Shift + F8 → Type "X1" in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Failing pulse] → Type "X1" in the device instruction text box → Enter
	ORP X1 → Enter	Click and type "X1" in the device instruction text box, then click the OK button.	Alt + F7 → Type "X1" in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Rising pulse open branch] → Type "X1" in the device instruction text box → Enter
	ORF X1 → Enter	Click and type "X1" in the device instruction text box, then click the OK button.	Alt + F8 → Type "X1" in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Failing pulse open branch] → Type "X1" in the device instruction text box → enter

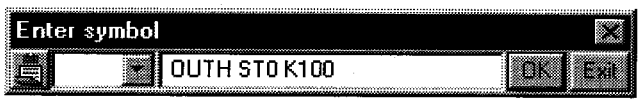
Example	List Representation	Tool Button	Function Key	Menu Bar
	EGP V0 → Enter	Click and type "V0" in the device instruction text box, then click the OK button.	Alt + F5 → Type "V0" in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Convert operation results to rising pulse] → Type "V0" in the device instruction text box → Enter
	EGF V0 → Enter	Click and type "V0" in the device instruction text box, then click the OK button.	Ctrl + Alt + F5 → Type "V0" in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Convert operation results to falling pulse] → Type "V0" in the device instruction text box → enter
	INV → Enter	Click , then click the OK button.	Ctrl + Alt + F10 → Enter	[Edit] → [Ladder symbol] → [Invert operation results] → Enter
Horizontal line		Click , enter the number of lines to be input in the device instruction text box, then click the OK button.	F9 → Enter the number of lines to be input in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Horizontal line] → Enter the number of lines to be input in the device instruction text box → Enter
Vertical line		Click , enter the number of lines to be input in the device instruction text box, then click the OK button.	Shift + F9 → Enter the number of lines to be input in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Vertical line] → Enter the number of lines to be input in the device instruction text box → Enter
Connecting line 		Click and draw a connecting line by dragging.	———	———
Delete horizontal line 		Click and enter the number of lines to be deleted in the device instruction text box.	Ctrl + F9 → Enter the number of lines to be deleted in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Delete horizontal line] → Enter the number of lines to be deleted in the device instruction text box → Enter
Delete vertical line 		Click and enter the number of lines to be deleted in the device instruction text box.	Ctrl + F10 → Enter the number of lines to be deleted in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Delete vertical line] → Enter the number of lines to be deleted in the device instruction text box → Enter
Delete connecting line 		Click and drag to select the connecting lines to be deleted.	———	———

The following describes how to input instructions for QnA series low-speed timers, high-speed timers, count timers, and edge relays.

(1) Low-speed timer

(2) High-speed timer

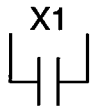
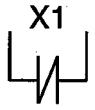
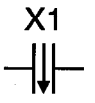
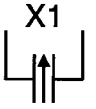
(3) High-speed count timer

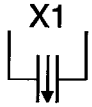
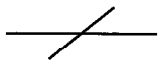
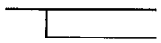
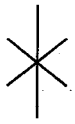
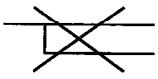


For count timer input, the number of devices must be designated on the device setting dialog box of the PLC parameter.

(4) Edge relay

List of Operations for FX Series Circuit Creation

Example	List Representation	Tool Button	Function Key	Menu Bar
	LD X1 → Enter	Click and type "X1" in the device instruction text box, then click the [OK] button.	F5 → Type "X1" in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Open contact] → Type "X1" in the device instruction text box → Enter
	LDI X1 → Enter	Click and type "X1" in the device instruction text box, then click the [OK] button.	F6 → Type "X1" in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Close contact] → Type "X1" in the device instruction text box → Enter
	OR X1 → Enter	Click and type "X1" in the device instruction text box, then click the [OK] button.	Shift + F5 → Type "X1" in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Open branch] → Type "X1" in the device instruction text box → Enter
	ORI X1 → Enter	Click and type "X1" in the device instruction text box, then click the [OK] button.	Shift + F6 → Type "X1" in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Close branch] → Type "X1" in the device instruction text box → Enter
	OUT Y1 → Enter	Click and type "X1" in the device instruction text box, then click the [OK] button.	F7 → Type "Y1" in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Coil] → Type "Y1" in the device instruction text box → Enter
	MOV K1 D0 → Enter	Click and type "MOV K1 D0" in the device instruction text box, then click the [OK] button.	F8 → Type "MOV K1 D0" in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Application instruction] → Type "MOV K1 D0" in the device instruction text box → Enter
	ANDP X1 → Enter	Click and type "X1" in the device instruction text box, then click the [OK] button.	Shift + F7 → Type "X1" in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Rising pulse] → Type "X1" in the device instruction text box → Enter
	ANDF X1 → Enter	Click and type "X1" in the device instruction text box, then click the [OK] button.	Shift + F8 → Type "X1" in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Failing pulse] → Type "X1" in the device instruction text box → Enter
	ORP X1 → Enter	Click and type "X1" in the device instruction text box, then click the [OK] button.	Alt + F7 → Type "X1" in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Rising pulse open branch] → Type "X1" in the device instruction text box → Enter

Example	List Representation	Tool Button	Function Key	Menu Bar
X1 	ORF X1 → Enter	Click and type "X1" in the device instruction text box, then click the [OK] button.	Alt + F8 → Type "X1" in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Failing pulse open branch] → Type "X1" in the device instruction text box → Enter
	INV → Enter	Click , then click the [OK] button.	Ctrl + Alt + F10 → Enter	[Edit] → [Ladder symbol] → [Invert operation results → Enter
Horizontal line	———	Click , enter the number of lines to be input in the device instruction text box, then click the [OK] button.	F9 → Enter the number of lines to be input in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Horizontal line] → Enter the number of lines to be input in the device instruction text box → Enter
Vertical line	———	Click , enter the number of lines to be input in the device instruction text box, then click the [OK] button.	Shift + F9 → Enter the number of lines to be input in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Vertical line] → Enter the number of lines to be input in the device instruction text box → Enter
Connecting line 	———	Click and draw a connecting line by dragging.	———	———
Delete horizontal line 	———	Click and enter the number of lines to be deleted in the device instruction text box.	Ctrl + F9 → Enter the number of lines to be deleted in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Delete horizontal line] → Enter the number of lines to be deleted in the device instruction text box → Enter
Delete vertical line 	———	Click and enter the number of lines to be deleted in the device instruction text box.	Ctrl + F10 → Enter the number of lines to be deleted in the device instruction text box → Enter	[Edit] → [Ladder symbol] → [Delete vertical line] → Enter the number of lines to be deleted in the device instruction text box → Enter
Delete connecting line 	———	Click and drag to select the connecting lines to be deleted.	———	———

6.2 Restrictions on Circuit Creation

This section describes the restrictions of the circuit display window and circuit edit window.

6.2.1 Restrictions in circuit display window

A	QnA	FX
•	•	•

1. The maximum number of lines on one screen is 12. (at 800 x 600 pixels, 50% reduced screen)

2. A created circuit block must be less than 24 lines.
   Excess lines cause an error.

3. A circuit line can consist of 11 contacts plus 1 coil.

4. The following table lists the number of comment characters.

	No. of Input Characters	No. of Characters Displayed in Circuit Window
Device comment *1	32 characters	All characters (8 characters x 4 lines) are displayed.
Statement	64 characters	All specified characters are displayed.
Note	32 characters	
Device name	8 characters	

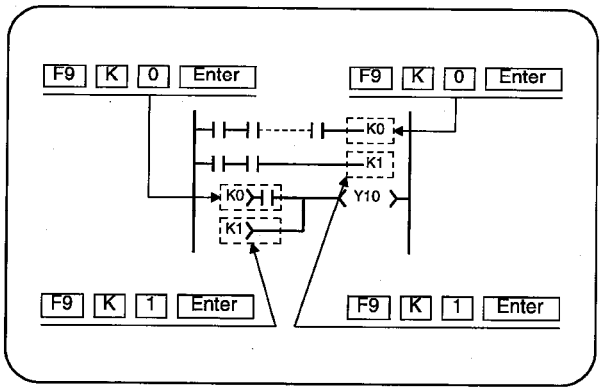
*1: The number of device comment edit characters can be set to 16 characters or 32 characters. (see Section 16.7 for details.)

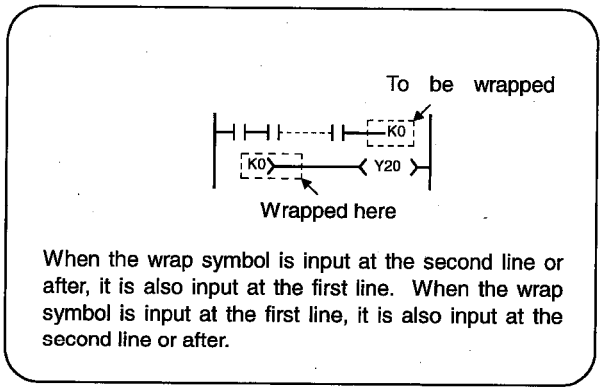
Note that only 16 characters can be used for writing data to PLC/GPPA files.
Note that only 16 characters can be used for writing data to FXGP(DOS) files.

6.2.2 Restrictions in circuit edit window

A	QnA	FX
•	•	•

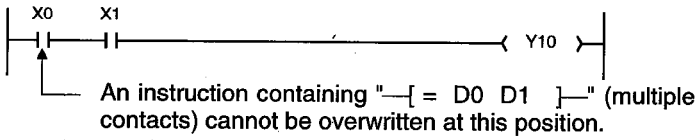
1. The maximum number of edit lines per circuit block is 24.
2. The maximum number of edit lines (24 lines/circuit block) is 48.
3. Data up to 48 lines can be cut.
   The maximum block size is 124k steps.
4. Data up to 48 lines can be copied.
   The maximum block unit is 124k steps.
5. Data cannot be cut, copied and pasted in read mode.
6. Master control (MC) can not be edited and displayed.
7. When a series circuit with 12 contacts or more is created on one line, excess contacts are automatically wrapped and continued to the next line.
   Symbols K0 to K99 are used for wrapping and the same number is used for OUT(→) and IN(>--).
8. No circuits can be inserted between the lines OUT(→) and IN(>-).
9. When the circuit write function is used, wrapping symbols are assigned sequence numbers even when they are not within the same circuit block. However, the circuit blocks read by the read function are assigned sequence wrapping numbers beginning with 0 during display.





10. When an overwrite contact or coil extends over multiple contacts, the circuit cannot be edited in write (overwrite) mode.

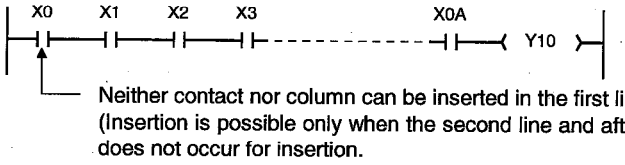
<Example>



When the above change is made, "-[= D0 D1]-"must be input in write mode (insert mode), then "LD X0" must be deleted with the Delete key.

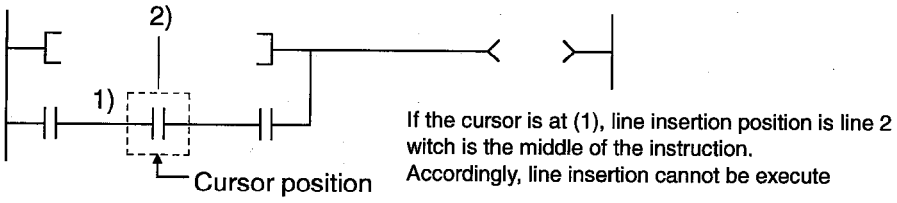
11. When wrapping occurs for contact insertion to the first line of the circuit, the contact cannot be inserted.

<Example>



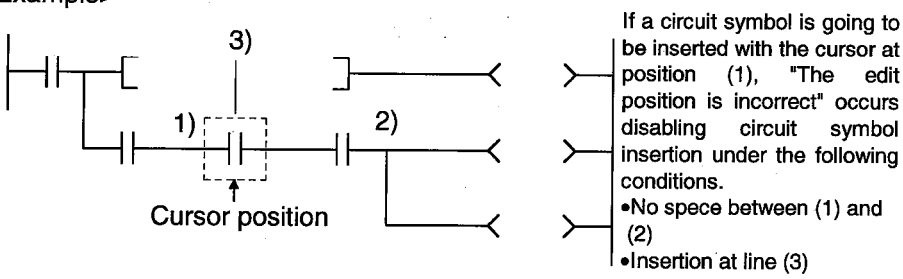
12. Line insertion processing is not possible if the insertion position is within an instruction.

<Example>



13. Since circuit symbol insertion is processed by the combination of rite flush and line insertion processing, insertion may be impossible depending on the circuit configuration.

<Example>

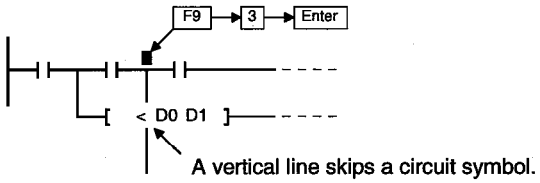


Note : Position (2) is the closest position to the cursor position among the branch symbols and the coil-equivalent instructione.

14. When inserting vertical lines in write (overwrite) mode according to specified number of lines/connecting lines, input the column in the second line and after with Ctrl + Insert keys, then insert the contact or column to the left of X0.

15. When a vertical line extends over a circuit symbol in writing the line in write (overwrite mode) according to the specified number of lines/connecting lines, writing takes place skipping the circuit symbol.

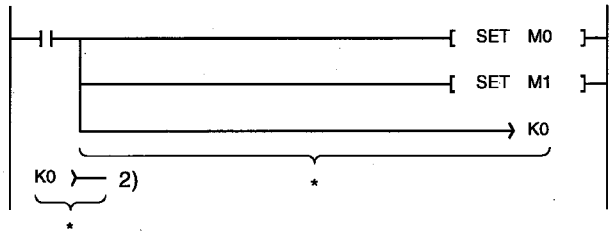
<Example>



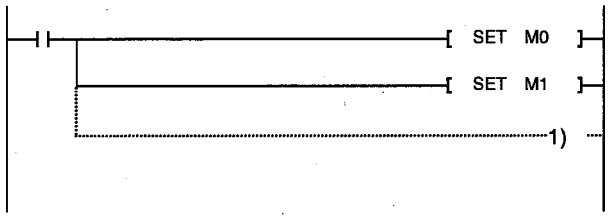
In the circuit edit stage, a vertical line is written skipping the circuit symbol, but such a circuit cannot be converted.
Make changes to prevent the vertical line from intersecting the circuit symbol, then perform circuit conversion.

16. When a circuit block consists of 2 lines or more and an instruction cannot be input in one line, the instruction must be wrapped as shown below for instruction input.

(Example) Input of ECALL gabcdefg hP0 ZR12345Z1 ZR12345Z1 ZR12345Z1 ZR12345Z1 ZR12345Z1
Input can be made from the position 2).



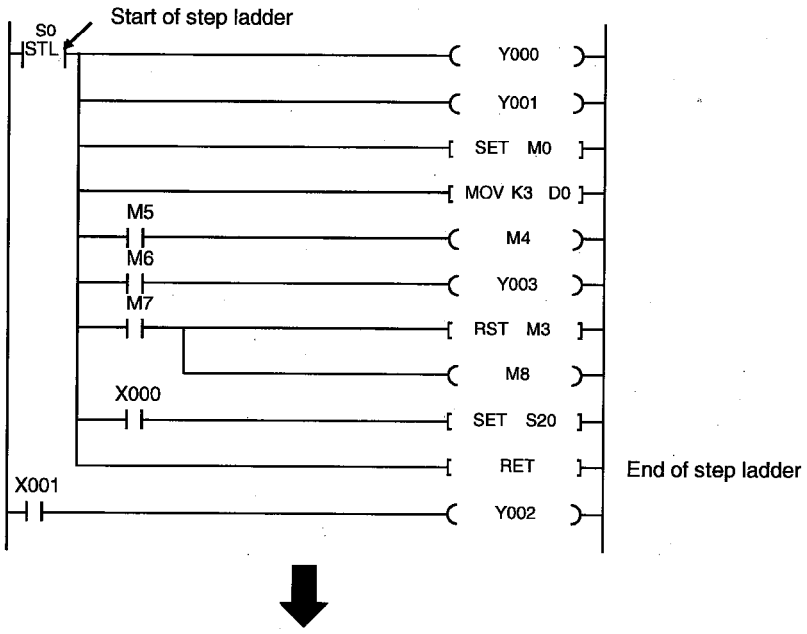
<When no circuit can be created>
The instruction shown in the above example cannot be created in 1).



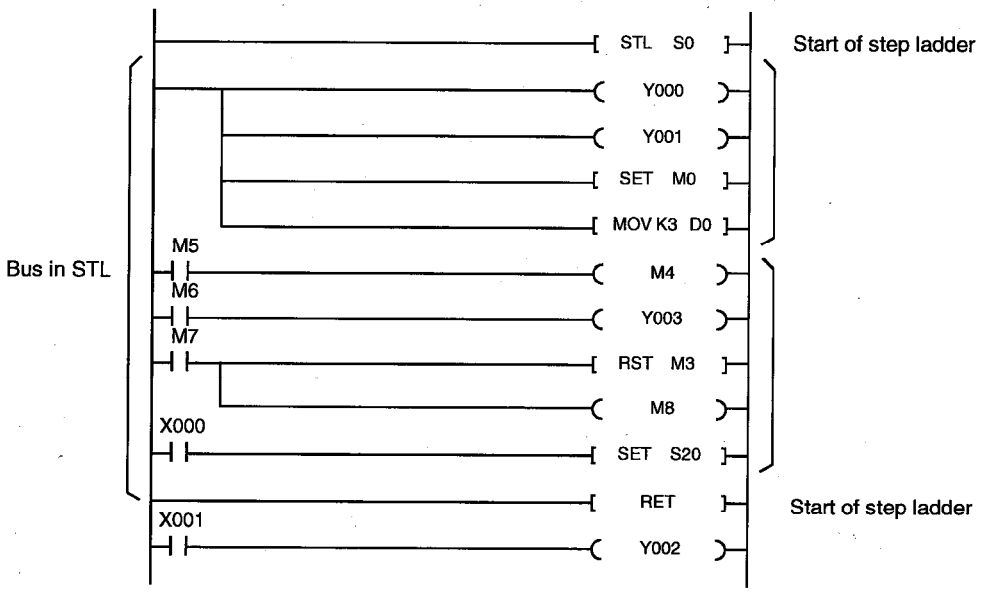
17. The instruction and device that can be input in the first line are shown below (for QnA series selection).

<Example>
U0\G12.1 → Use lines for one contact.
U0\G123.1 → Use lines for two contacts.

18. The representations of FX series step ladder instructions differ from FXGP(DOS) and FXGP(WIN).
    • Conventional representations in FXGP(DOS) and FXGP(WIN)



• Representations in GPPW



Though the FX series programming material gives descriptions using the above conventional representations, they must be given in a GPPW-specific style when the step ladder instructions are input by GPPW.

6.3 Creating and Editing Circuits

This section describes how to input the contacts and application instructions using the instruction list representations, tool buttons, function keys, and menus.

6.3.1 Inputting contacts and application instructions

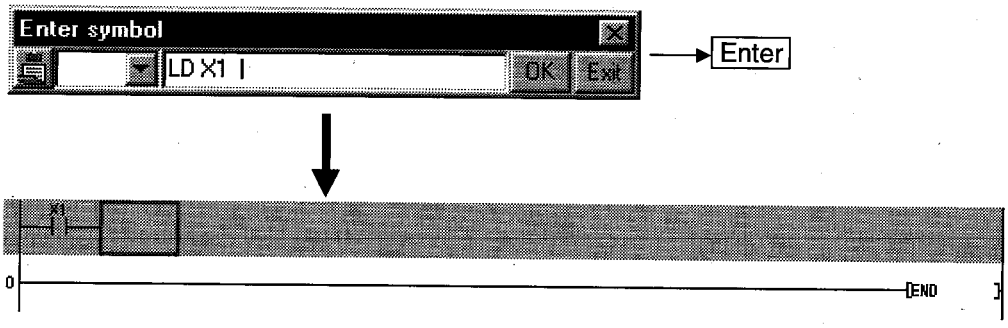
A	QnA	FX
•	•	•

(1) Instruction list representation

• For contact input

1. Move the cursor to an input position.

2. The following describes how to input contacts and devices.
   If "LD X1" is entered at the above cursor position, the circuit input dialog box is displayed and entered data is displayed in the device instruction text box.
   Press [Enter] to make input in the edit window.

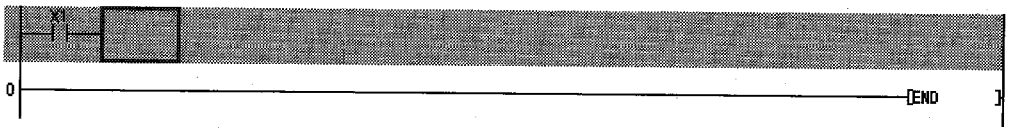


POINTS

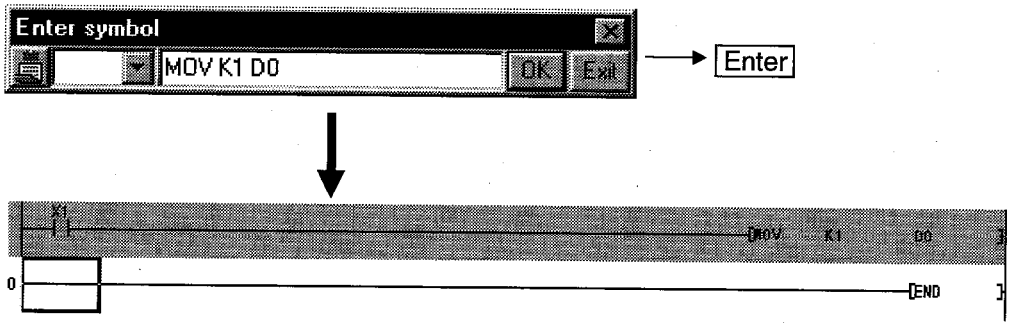
- The circuit input dialog box can be displayed by double-clicking the mouse button in write mode.
  In addition, the contact or application instruction can be changed by pressing function keys ([F5] ⊣ ⊢, [F6] ⊣/⊢, [F7] ⊣( )⊢, [F8] ⊣[ ]⊢). If the key assignment is customized to MEDOC style, it is not possible to change the contact or application instruction by these function keys.
- With the [Ctrl] key + arrow keys, the cursor position can be moved with the input dialog box opened.

• For application instruction input

1. The application instruction or device can be input at the following cursor position.



2. The following describes how to input the application instruction or device.
   If " MOV X1 DO " is entered at the above cursor position, the circuit input dialog box is displayed and entered data is displayed in the device instruction text box.
   Press [Enter] key to make input in the edit window.



POINT

- Circuits can be created or edited in two modes (insert mode and overwrite mode).
  These modes can be switched by pressing the [Insert] key.

(2) Tool button

The following shows the contacts that can be input with the tool buttons.

· GPPA contact tool buttons

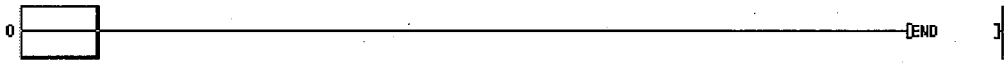
· GPPQ contact tool buttons

· Contact tool buttons when FX series is selected

sF7, sF8, aF7, aF8 are effective only when the selected PLC type is $FX_{2N(C)}$.

• For contact input

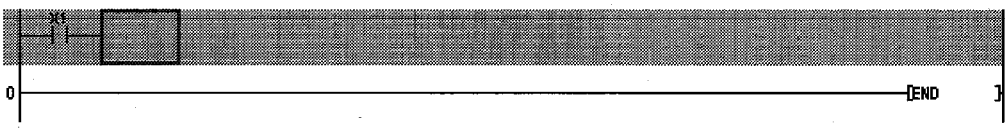
1. Move the cursor to a contact input position.



2. The following describes how to input contacts and devices.
   Click the tool button F5 after moving the cursor to the input position, and the circuit input dialog box will be displayed.

3. Enter "X1" in this state with the keyboard.

4. Click the [OK] button to make input in the edit window.



POINT

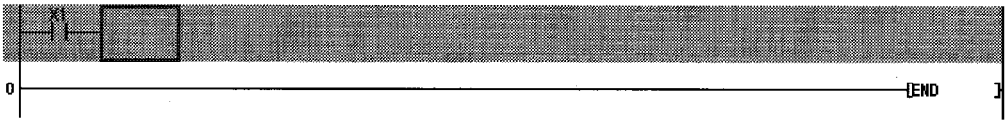
If the continuous input icon in the continuous input section is clicked, devices can be input consecutively.

In addition, the contact or application instruction can be changed by pressing function keys ([F5] ⊣ ⊢ , [F6] ⊣/⊢ , [F7] ⊣( )⊢, [F8] ⊣[ ]⊢). If the key assignment is customized to MEDOC style, it is not possible to change the contact or application instruction by these function keys.

• For application instruction
The following shows an application instruction or coil that can be input with the tool buttons.

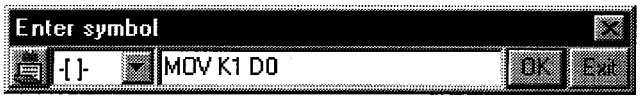
(a) Creation method 1

1. Move the cursor to an application instruction input position or place the cursor at the position shown below.

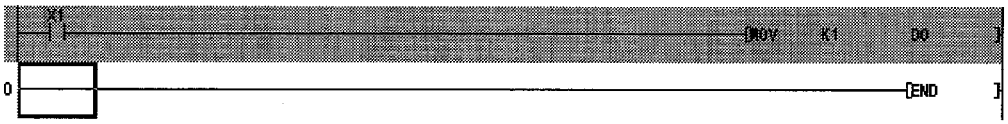


2. The following describes how to input application instructions.
Click the tool button to display the circuit input dialog box.

3. Enter "MOV K1 DO" in this state with the keyboard.



4. Click the OK button to make input in the edit window.

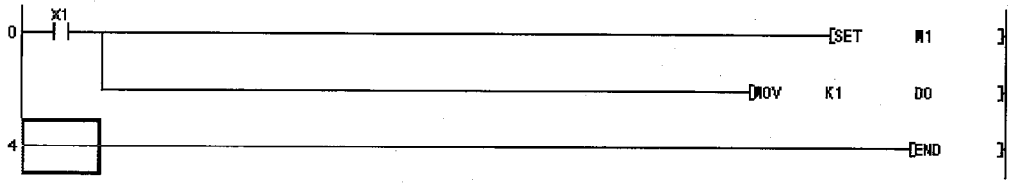


POINT

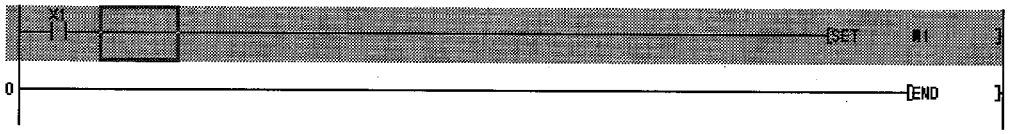
If in the continuous input section is clicked, devices can be input consecutively.

In addition, the contact or application instruction can be changed by pressing function keys ([F5]┤ ├ , [F6]┤/├ , [F7]┤( )├ , [F8]┤[ ]├). If the key assignment is customized to MEDOC style, it is not possible to change the contact or application instruction by these function keys.

(b) Creation method 2
The following shows how to input "MOV K1 D0" section of the circuit shown below easily.
Perform the following operations in insert mode.

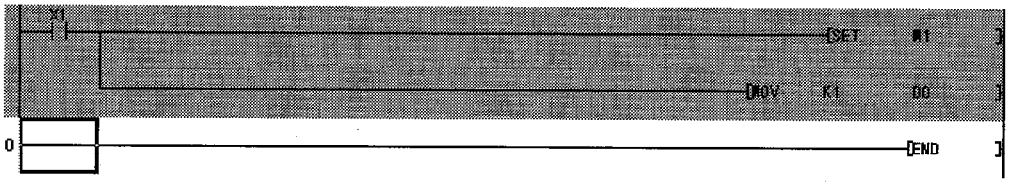


1. Move the cursor to the following position.



2. Enter "MOV K1 D0", and the circuit input dialog box will be displayed.
The entered data is displayed in the device instruction text box.

3. Press [Enter] key to make input in the edit window.



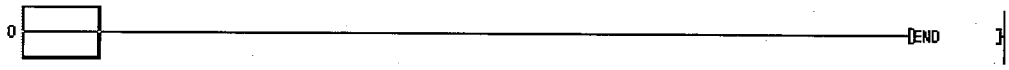
POINT

- The circuit input dialog box can be displayed by double-clicking the mouse button in write mode.
  Circuits can be created or edited in two modes (insert mode and overwrite mode).
  These modes can be switched by pressing the [Insert] key.

(3) Function key

• For contact input

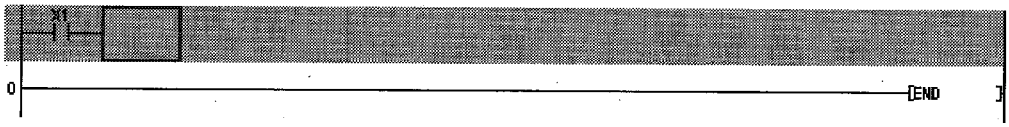
1. Move the cursor to an input position.



2. The following shows how to input contacts or devices.
   If [F5] key is pressed at the input position, the circuit input dialog box is displayed.

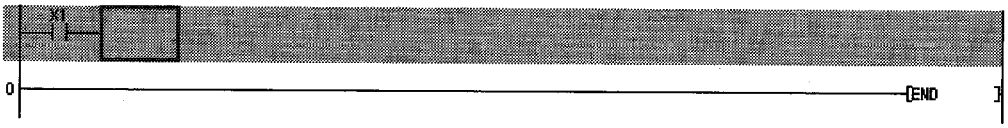
3. Enter "X1" in this state with the keyboard.

4. Press [Enter] key to make input in the edit window.



• For application instruction

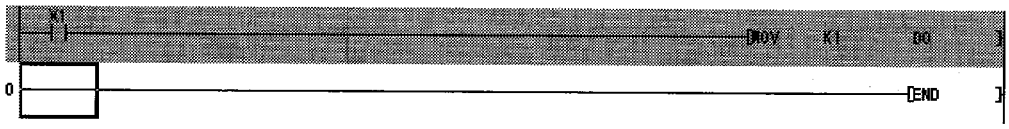
1. Move the cursor to an application instruction input position or place the cursor at the position shown below.



2. The following shows how to input application instructions.
   If F8 key is pressed at the above position, the circuit input dialog box is displayed.

3. Enter "MOV K1 D0" in this state with the keyboard.

4. Press Enter key to make input in the edit window.



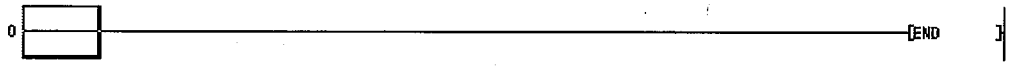
POINT

- Circuits can be created or edited in two modes (insert mode and overwrite mode).
  These modes can be switched by pressing the Insert key.

(4) Menu

• For contact input

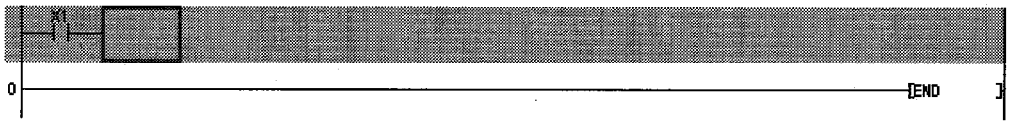
1. Move the cursor to an input position.



2. The following shows how to input contacts and devices.
   Select [Edit]-[Ladder symbol]-[Open contact] from the menu bar at the input position to display the circuit input dialog box.

3. Enter "X1" in this state with the keyboard.

4. Press Enter key to make input in the edit window.

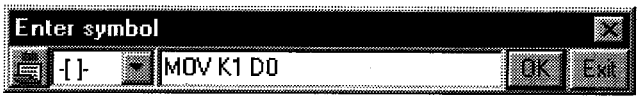


• For application instruction input

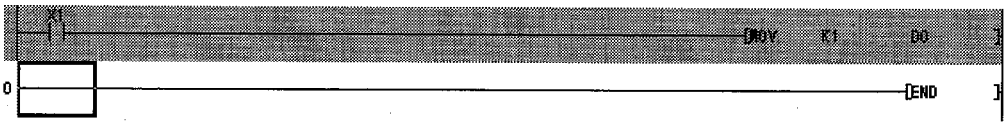
1. Move the cursor to an application instruction input position or place the cursor at the position shown below.

2. The following shows how to input application instructions.
   Select [Edit]-[Ladder symbol]-[Application instruction] from the menu bar at the input position to display the circuit input dialog box.

3. Enter "MOV K1 D0" in this state with the keyboard.



4. Press Enter key to make input in the edit window.



POINT

- Circuits can be created or edited in two modes (insert mode and overwrite mode).
  These modes can be switched by pressing the Insert key.

6.3.2 Inputting vertical and horizontal lines

A	QnA	FX
•	•	•

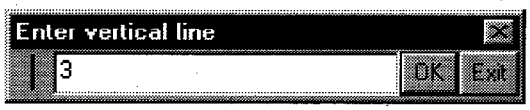
(1) Tool button

• For vertical line input

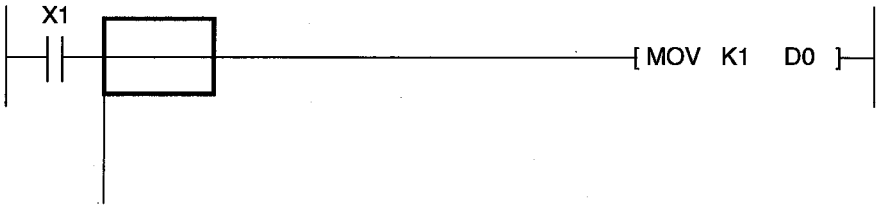
1. Move the cursor to a vertical line input position.

2. Click on the toolbar to display the vertical line input dialog box.

3. Enter the number of vertical lines to be input.
When the number of input lines is not designated, one vertical line is input.

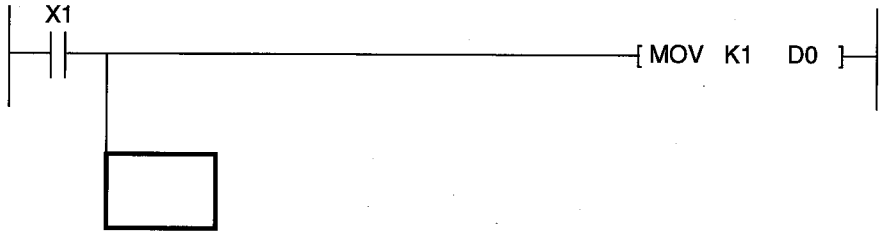


4. Click the OK button to input the vertical lines.



• For horizontal line input

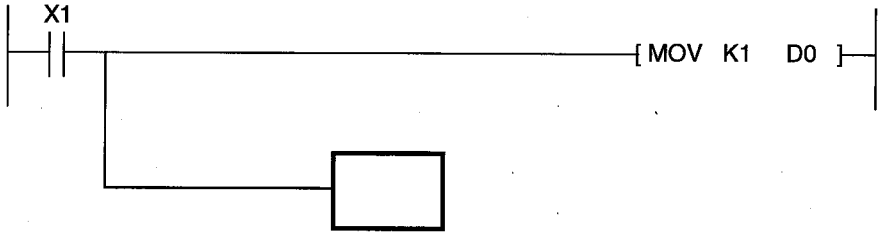
1. Move the cursor to an input position.



2. Click on the toolbar to display the horizontal line input dialog box.

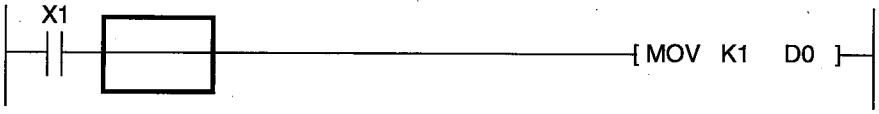
3. Enter the number of horizontal lines to be input.
When the number of input lines is not designated, one horizontal line is input.

4. Click the OK button for input.

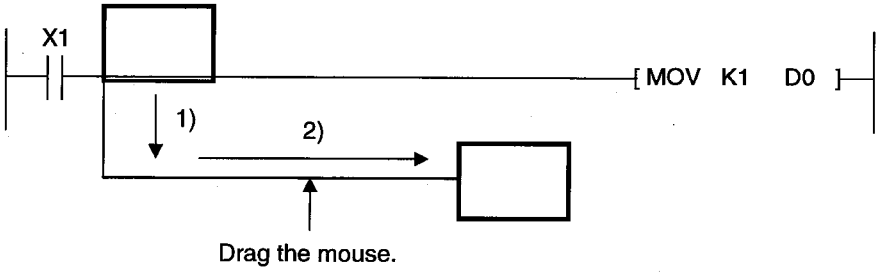


• For connecting line input

1. Click on the toolbar.



2. Move the cursor to a connecting line input position and drag the mouse in order as indicated by 1) and 2) below.



POINT

Start drawing a connecting line from the upper left position of the connecting line.

(2) Function key

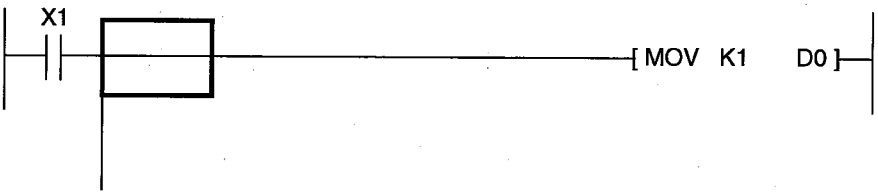
• For vertical line input

1. Move the cursor to a vertical line input position.

2. Press F10 (Shift + F9).

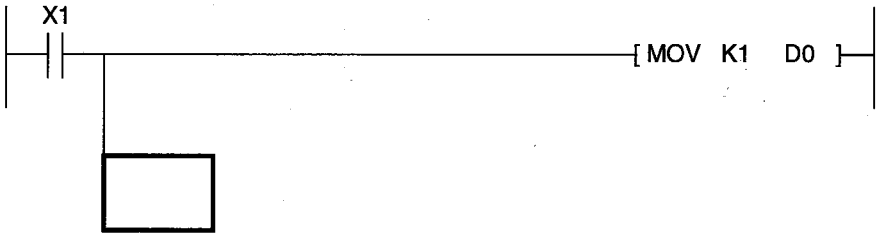
3. Enter "3" in this state with the keyboard.

4. Click the OK button to input the vertical lines.



• For horizontal line input

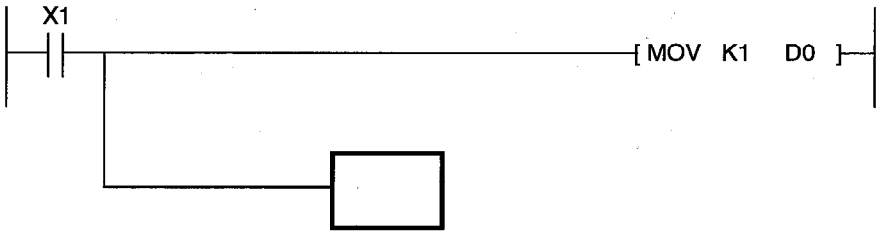
1. Move the cursor to a horizontal line input position.



2. Press F9.

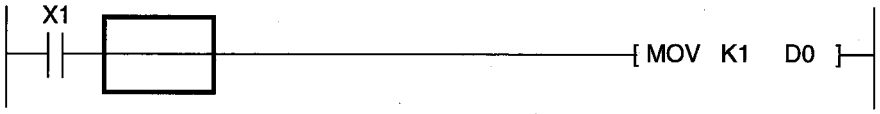
3. Enter "3" in this state with the keyboard.

4. Click the OK button for input.



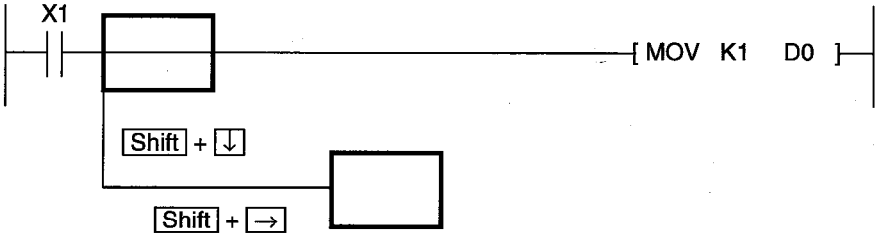
• For connecting line input

1. Move the cursor to a connecting line input position.



2. Press [Alt] + [F10] ([F10]).

3. Draw a connecting line using [Shift] + [↑], [↓], [←], [→] keys.



POINT

Connecting lines cannot be input when the END line immediately follows the cursor-positioned line. In this case, press [Shift] + [Insert] key simultaneously to make free space in advance.

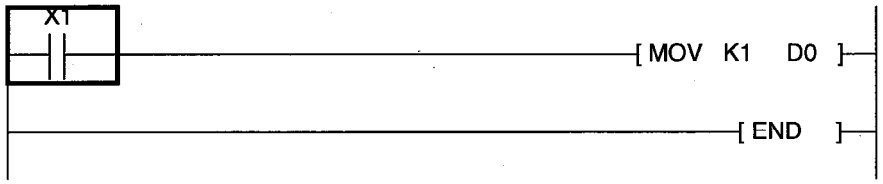
6.3.3 Deleting incorrect inputs

A	QnA	FX
•	•	•

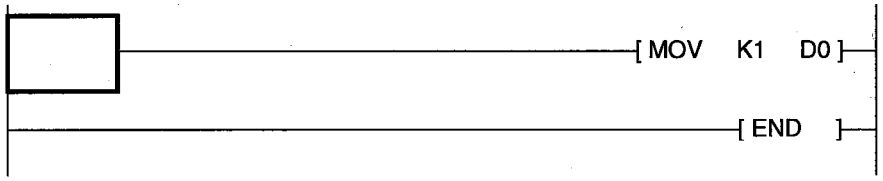
(1) Tool button

• For deletion in overwrite mode

1. Move the cursor to a contact, coil, application instruction, vertical line or horizontal line to be deleted.

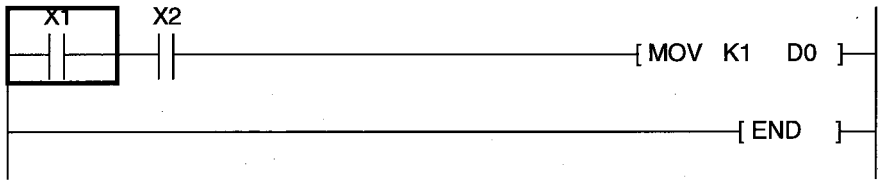


2. Press Delete key.

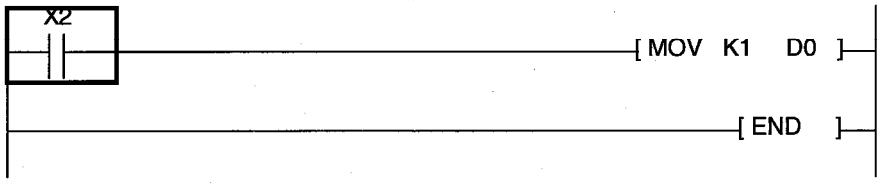


• Deletion in insert mode

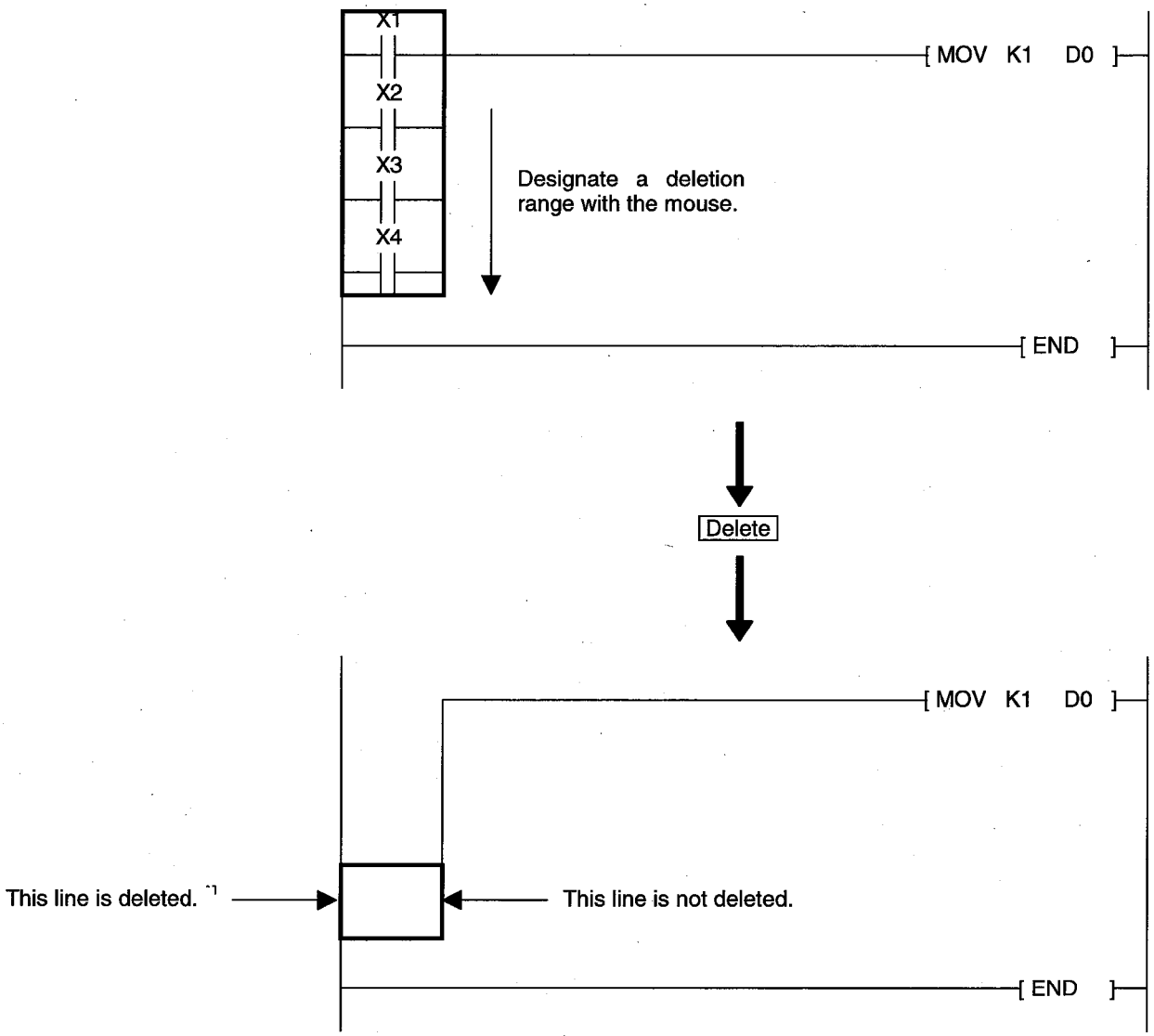
1. Move the cursor to a contact, coil, application instruction, vertical line or horizontal line to be deleted.



2. Press Delete key.
   Forward justification takes place for circuits.
   However, forward justification does not take place on the wrapped line.



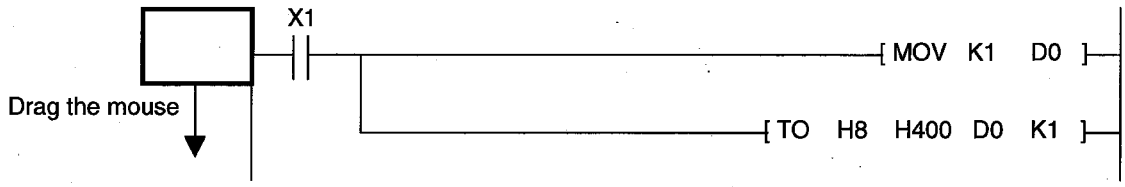
• For deletion in the specified range



*1: The left base line cannot be deleted.

• For deletion of all created programs

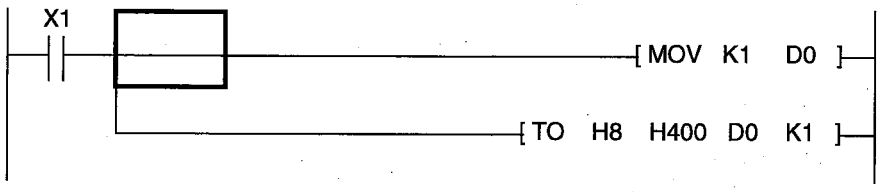
Drag the cursor outside of the left base line, move it downward.
The range selected by dragging is highlighted in blue.
Drag the cursor just before the END instruction, then press Delete key.



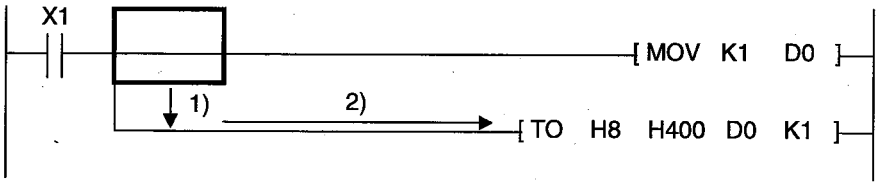
6.3.4 Deleting connecting lines

A	QnA	FX
•	•	•

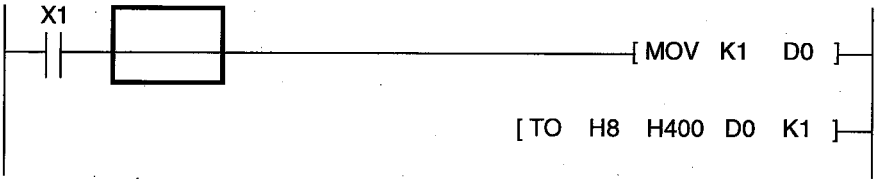
1. Click the tool button (Alt + F9).



2. Move the cursor to a connecting line to be deleted, then drag the mouse in order as indicated by 1) and 2) below.



3. The circuit appears as follows after connecting line deletion.



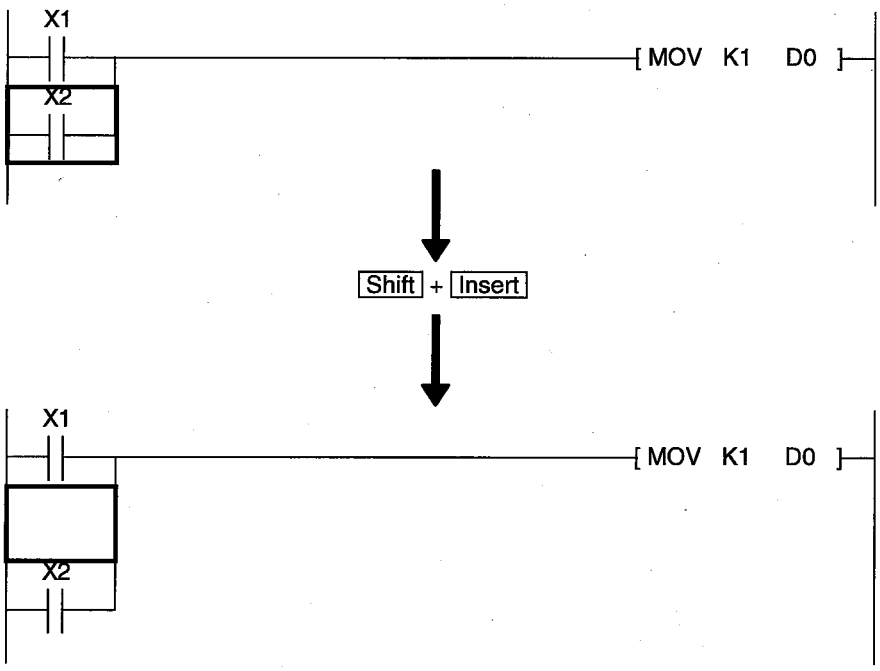
POINT

- Deleting a connecting line with the keyboard
  Press Alt + F9 key simultaneously to delete a connecting line in the same way as for connecting line creation. See Section 6.3.2 for details.

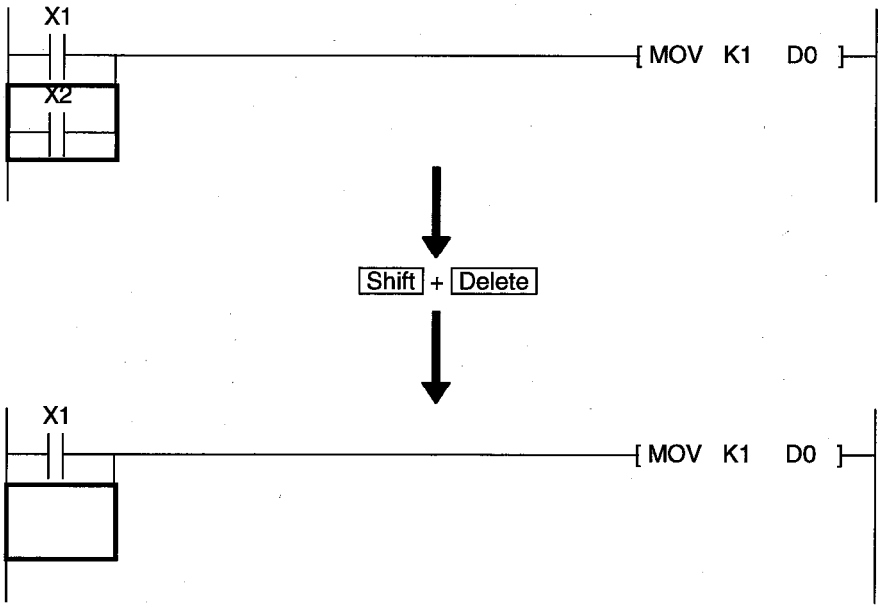
6.3.5 Inserting and deleting in circuit blocks

A	QnA	FX
•	•	•

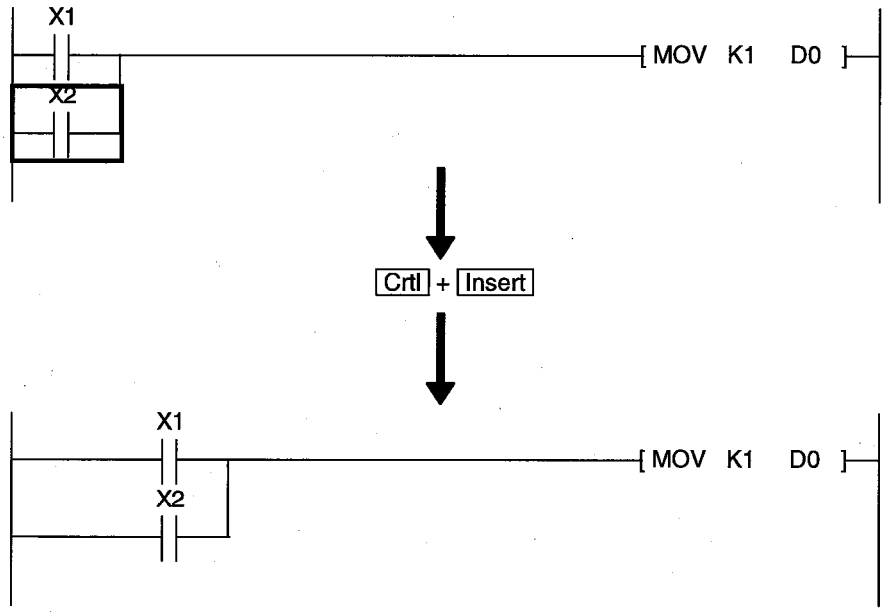
• For line insertion (in one-circuit block)



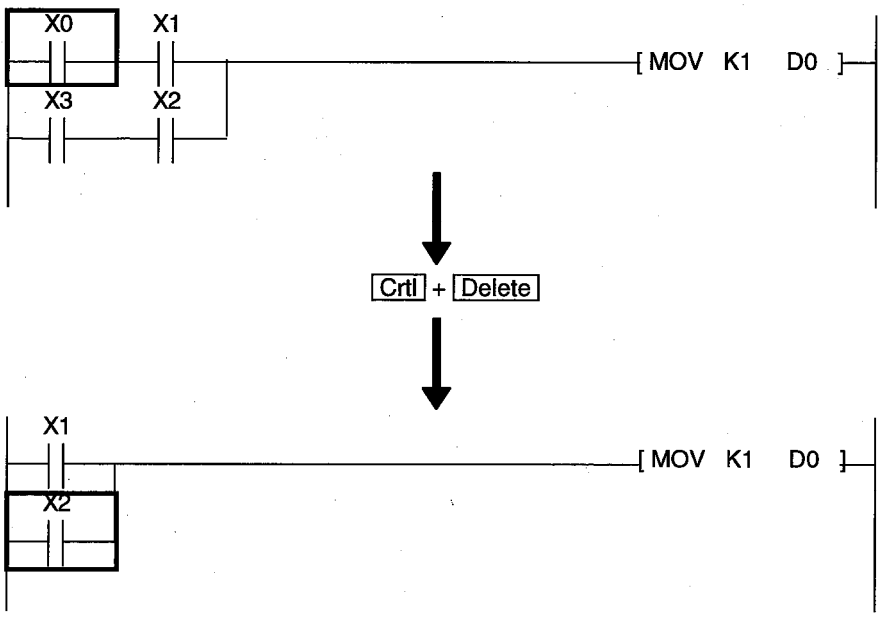
• For line deletion (in one-circuit block)



• For column insertion (in one-circuit block)



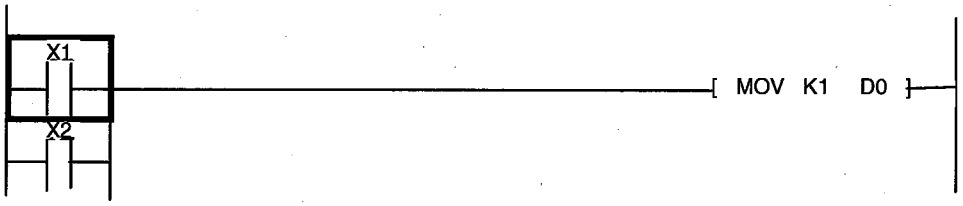
• For column deletion (in one-circuit block)



6.3.6 Modifying the existing circuit

A	QnA	FX
•	•	•

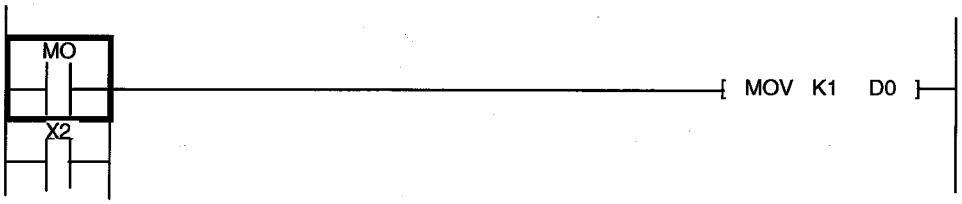
1. Press Insert key to set the overwrite mode.
2. Move the cursor to a device to be modified.



3. Press Enter or double-click the mouse button to display the circuit input dialog box.

4. Modify the device. (The contact can also be modified.)

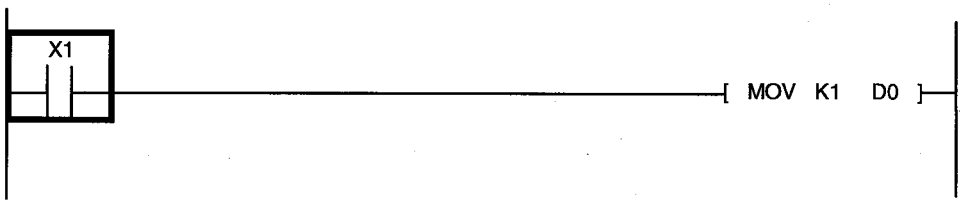
5. Press Enter or click the [OK] button.



6.3.7 Inserting into the existing circuit

A	QnA	FX
•	•	•

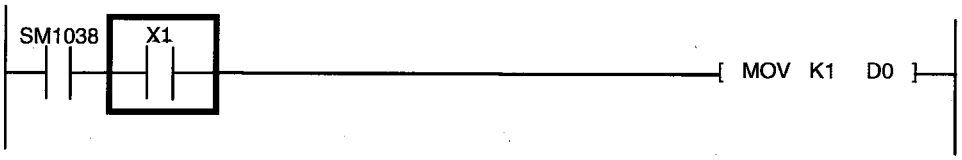
1. Press [Insert] key to set the insert mode.
2. Move the cursor to a contact insertion position.



3. Press [Enter] key or double-click the mouse button to display the circuit input dialog box.

4. Input an instruction to be inserted.

5. Press [Enter] key or click the [OK] button.



6.3.8 Undo the last operation

A	QnA	FX
•	•	•

[Purpose]
Cancels the last operation (cut, copy, or paste) and restores the previous state.

[Operating Procedure]
Select [Edit]-[Undo] or click  immediately after cutting, copying or pasting the circuit.

POINT

- The following states can be restored.
  1. Line insertion, line deletion
  2. Column insertion, column deletion
  3. Connecting line input, connecting line deletion
  4. Instruction input
  5. Cut and paste within a specified range
  6. Circuit deletion by [Delete] or [Back space] keys
- The following states cannot be restored.
  1. After circuit conversion
  2. Abandoning the circuit not converted yet
  3. Program change due to PLC reading, other format file reading, copying from another project
  4. Replacement, inserting or deleting NOPs at a time, or TC setting value change
  5. Search after cut or paste in units of circuit blocks
  6. Errors due to cut, etc.

6.3.9 Cutting, copying and pasting circuits

A	QnA	FX
•	•	•

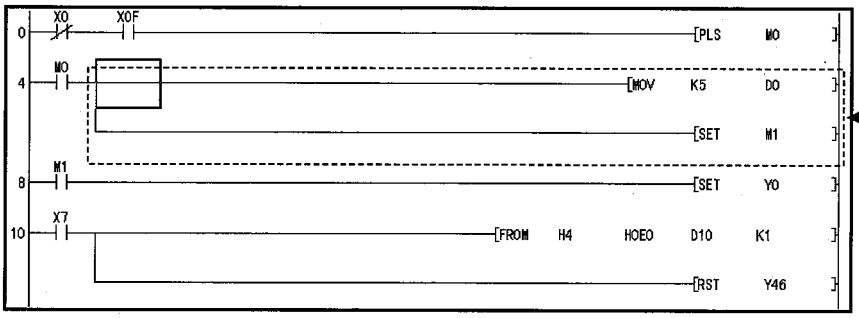
This section describes how to cut, copy and paste circuits.

(1) Cutting, copying and pasting a specified range of circuits

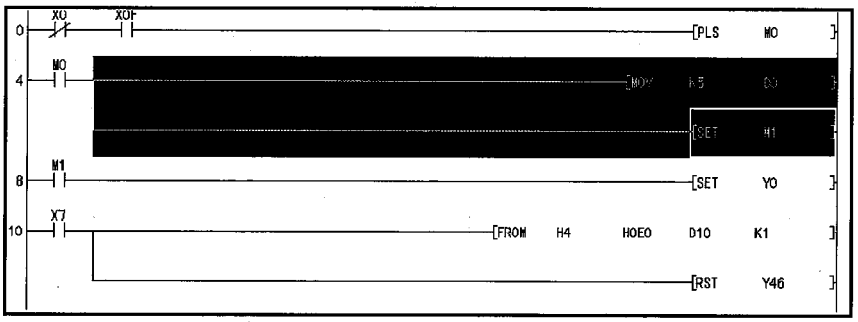
(a) Pasting the cut circuit

[Operating Procedure]

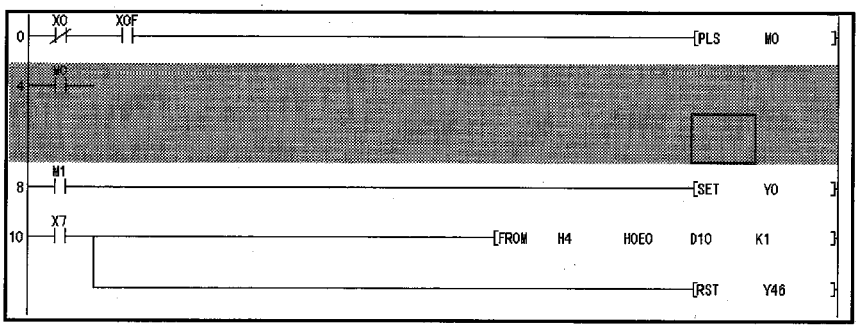
1. Select [Edit]-[Write mode] or click (F2).
2. Click at the top of the circuit to be cut to set the cursor there.
   Cut range



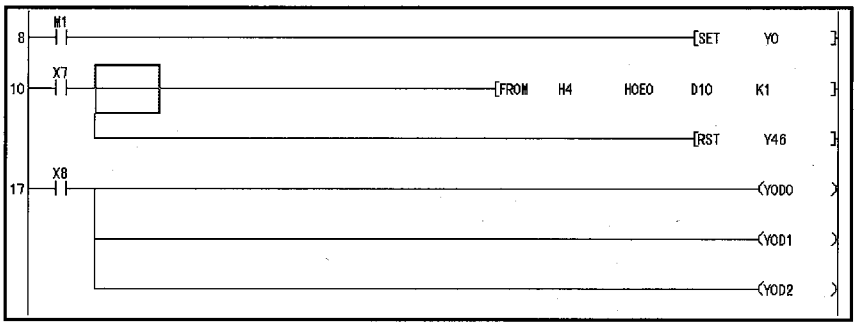
3. Drag the mouse to designate a range to be cut.
   The designated range is highlighted.



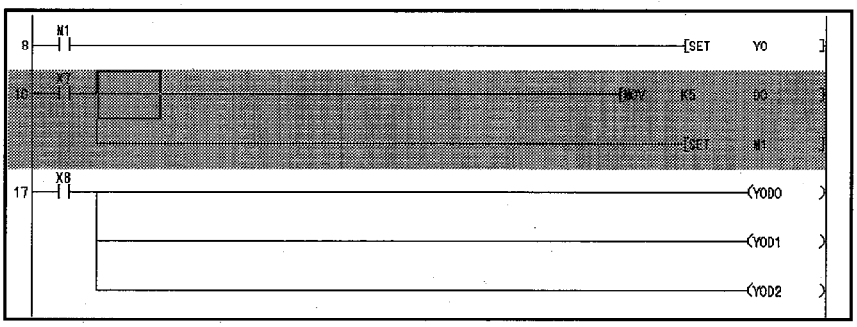
4. Select [Edit]-[Cut] or click (Ctrl + X), and the specified range of circuit will be cut.



5. Click the location in which the cut circuit is to be pasted to set the cursor there.



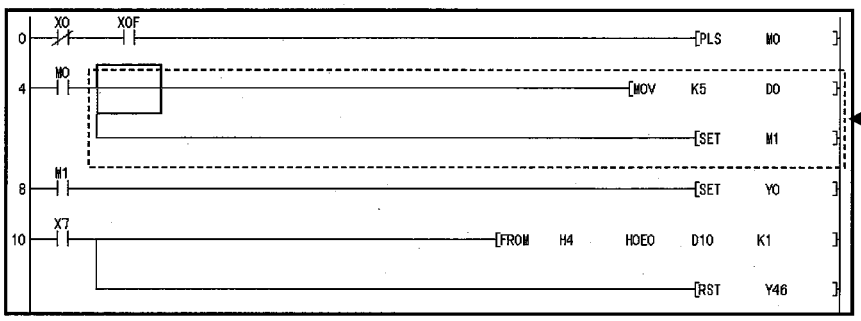
6. Select [Edit]-[Paste] or click (Ctrl + V).
The cut circuit is pasted at the designated location.
On completion of circuit paste, the pasted location is grayed.



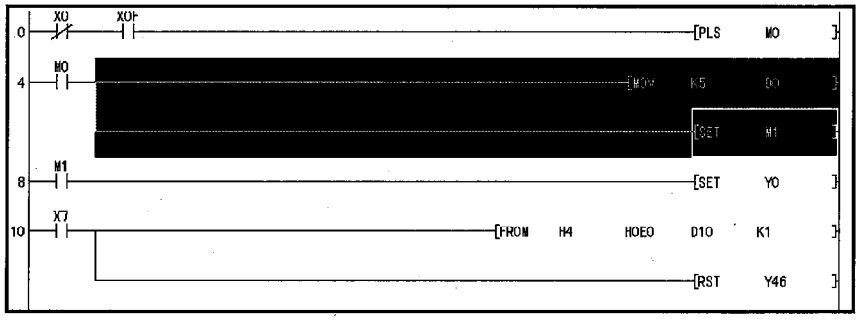
(b) Pasting the copied circuit

[Operating Procedure]

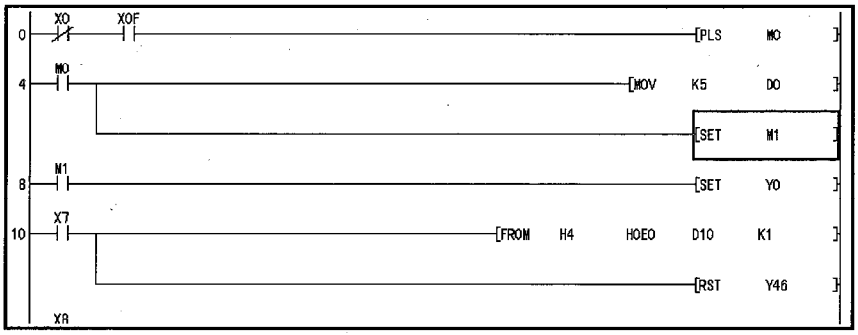
1. Select [Edit]-[Write mode] or click (F2).
2. Click at the top of the circuit to be copied to set the cursor there.



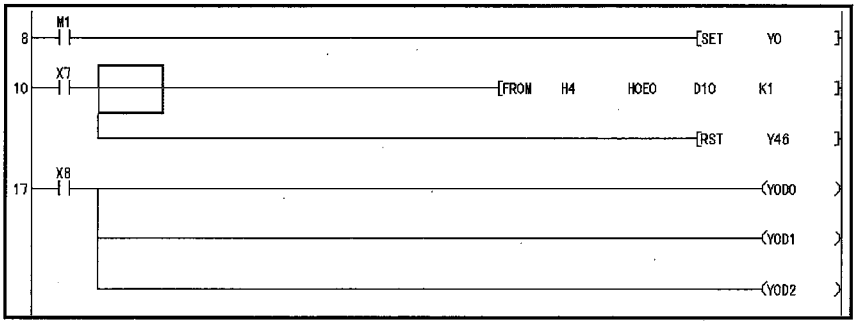
3. Drag the mouse to designate a copy range.
   The designated range is highlighted.



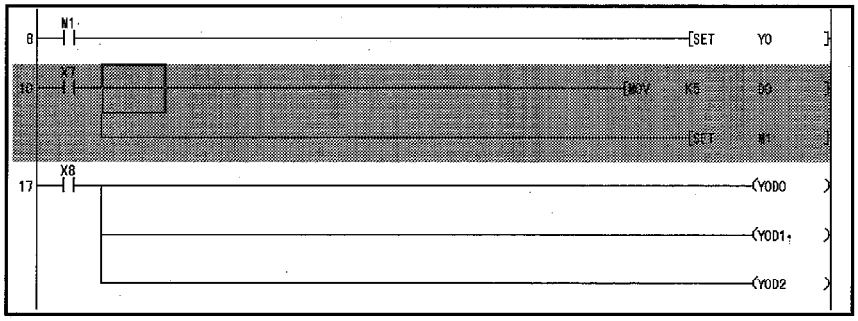
4. Select [Edit]-[Copy] or click (Ctrl + C), and a designated range of circuit will be copied and highlighted display is reset.



5. Click the location in which the copied circuit is pasted and move the cursor there.

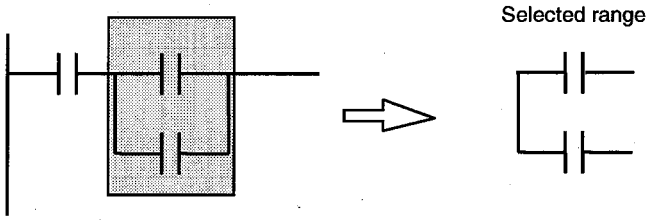


6. Select [Edit]-[Paste] or click (Ctrl + V).
The copied circuit is pasted at the designated location.
On completion of circuit paste, the pasted part is grayed.



POINTS

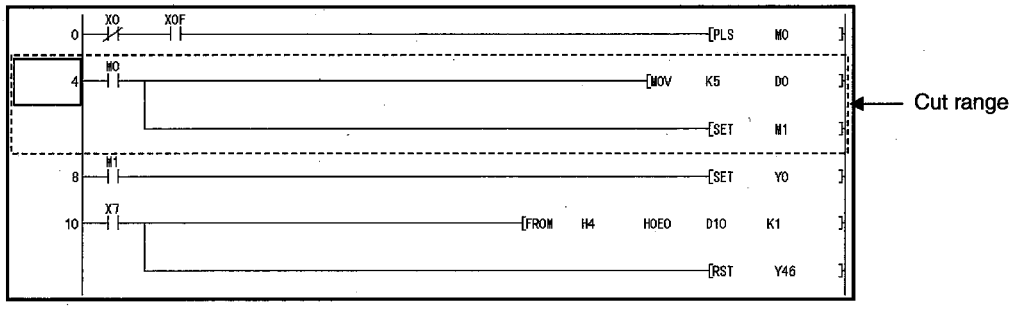
- The cut, copy or paste menu can also be selected from the popup menu displayed by clicking the right mouse button.
- Circuit paste takes place in overwrite or insert mode.
- When a range designation is given as follows, the vertical bar at the rightmost end is not selected.



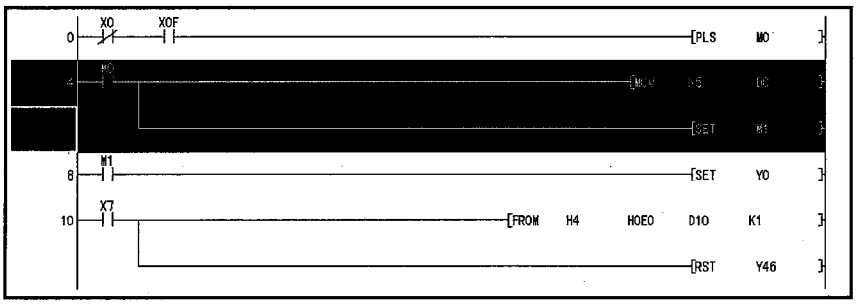
(2) Cutting a circuit in circuit blocks and pasting the copied circuit
(a) Pasting the cut circuit

[Operating Procedure]

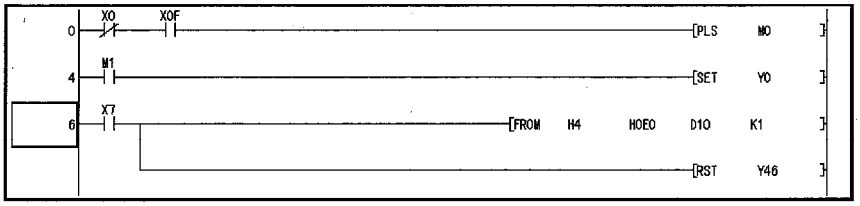
1. Select [Edit]-[Write mode] or click (F2).
2. Click a location in which the step No. of the circuit block to be cut is being displayed, to set cursor there.



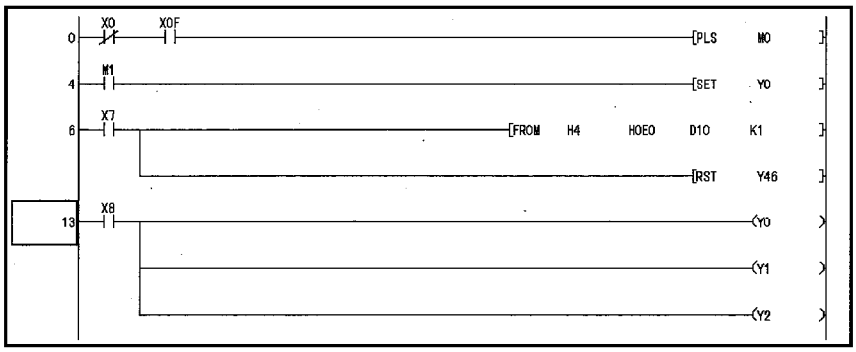
3. Drag the mouse vertically to designate a range to be cut.
The designated part is highlighted.



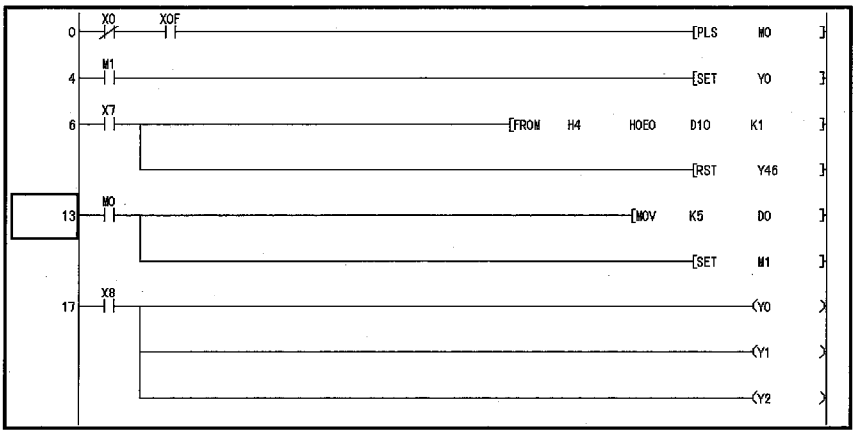
4. Select [Edit]-[Cut] or click (Ctrl + X), and the designated range of circuit will be cut.
On completion of circuit cut, upward justification takes place for circuits.



5. Click a location within a circuit block at the lower stage of a paste location to set the cursor there.



6. Select [Edit]-[Paste] or click (Ctrl + V).
The cut circuit will be pasted at the designated location.

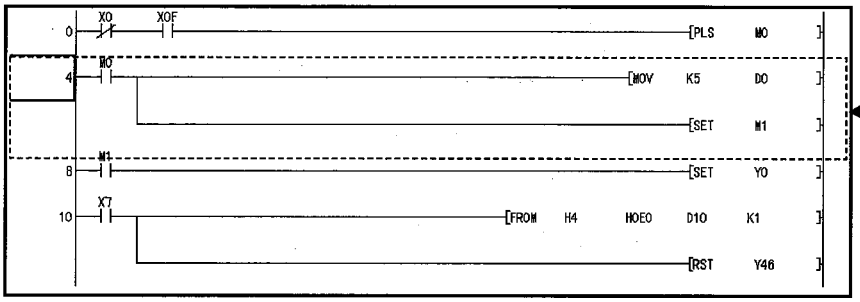


(b) Pasting the copied circuit

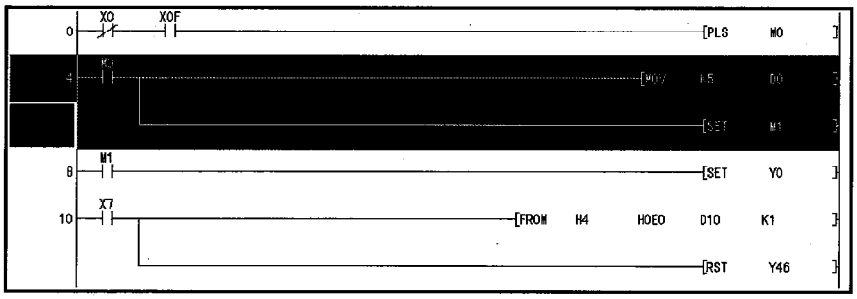
[Operating Procedure]

1. Select [Edit]-[Write mode] or click (F2).

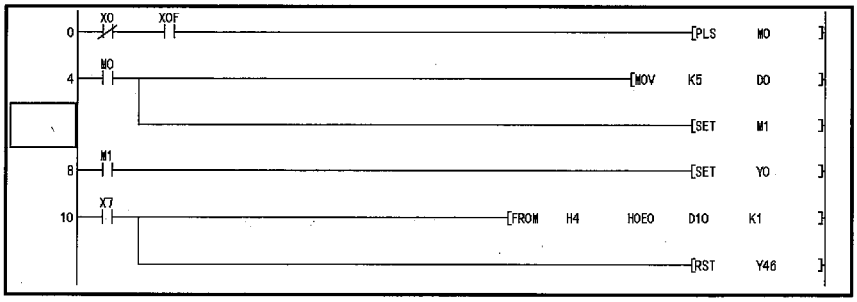
2. Click a location in which the step No. of the circuit block to be copied is being displayed to set the cursor there.



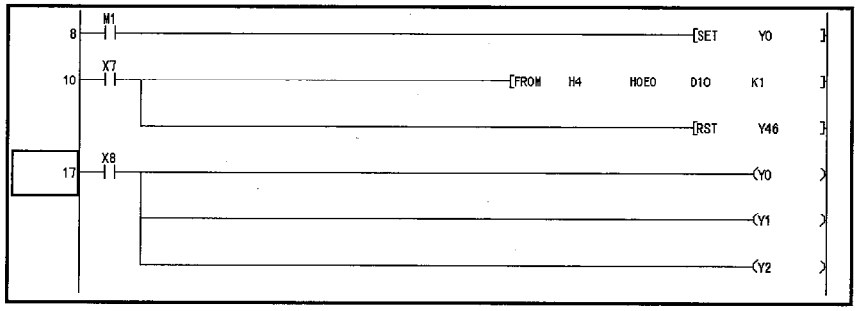
3. Drag the mouse vertically to designate a copy range.
The designated range is highlighted.



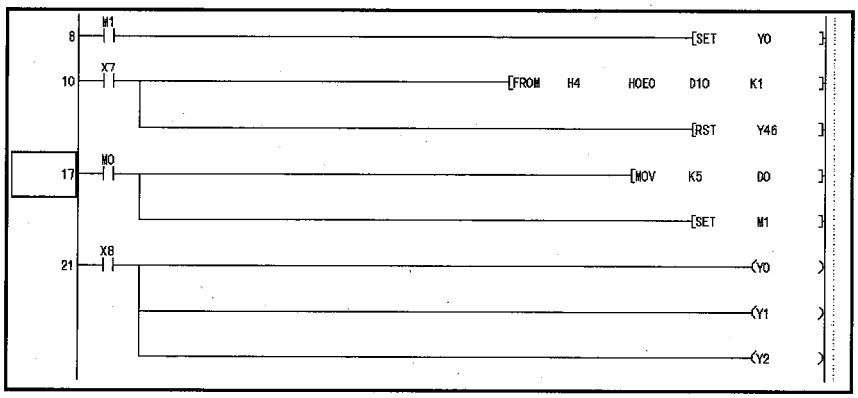
4. Select [Edit]-[Copy] or click (Ctrl + C), and the designated range of circuit will be copied and highlighted display is reset.



5. Click a location within a circuit block at the lower stage of the location to be pasted to set the cursor there.



6. Select [Edit]-[Paste] or click (Ctrl + V).
The designated circuit is pasted at the designated location.



POINT

- The cut, copy or paste menu can also be selected from the popup menu displayed by clicking the right mouse button.
- A circuit block is inserted at the upper stage of the circuit block in which the cursor is positioned.
- The circuit cut (copied) in units of circuit blocks is always pasted in insert mode.
  To paste the circuit in overwrite mode, the line(s) to be overwritten must be deleted in advance.

6.3.10 Inserting a line in the cursor-positioned location

A	QnA	FX
•	•	•

[Purpose]

Inserts a new line when a circuit is pasted or a circuit is created in overwrite mode.

[Operating Procedure]

Move the cursor to an insert line (at any location), then select [Edit]-[Insert line] (Shift + Insert).
A line is inserted at the upper stage of the cursor line.

POINT

- Line insertion is used to add a line within a step in a circuit.
  Insertion of a line before the End instruction dose not require line insertion operation.

6.3.11 Deleting a line at the cursor-position location

A	QnA	FX
•	•	•

[Purpose]

Deletes the circuit by one line.

[Operating Procedure]

Move the cursor to a delete line (at any location), then select [Edit]-[Delete line] (Shift + Delete).
Once the menu is selected, the cursor-positioned line is deleted.
To delete multiple lines, drag the cursor at the left base line to designate the range, then press Delete key to delete the selected lines.

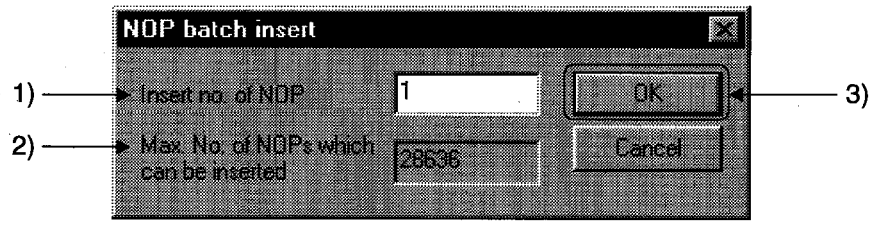
6.3.12 Inserting NOPs

A	QnA	FX
•	•	•

[Purpose]
Inserts all NOPs (no operation instructions) to reserve space in a program for debugging.

[Operating Procedure]
Move the cursor to an insert line (at any location), then select [Edit]-[Insert NOP batch].

[Dialog Box]



[Description]
1) Insert no. of NOP
Designates the number of NOPs to be inserted.

2) Max. No. of NOPs which can be inserted
Displays the maximum number of NOPs that can be inserted.

3) OK button
Click this button after making necessary settings.

6.3.13 Deleting NOPs

A	QnA	FX
•	•	•

[Purpose]
Deletes NOPs (no operation instructions).

[Operating Procedure]
Select [Edit]-[Delete NOP batch].

[Description]
If the OK button is clicked on the confirmation dialog box, all NOP instructions from step 0 to the END instruction are deleted.

6.4 Find and Replace

6.4.1 Finding a device

A	QnA	FX
•	•	•

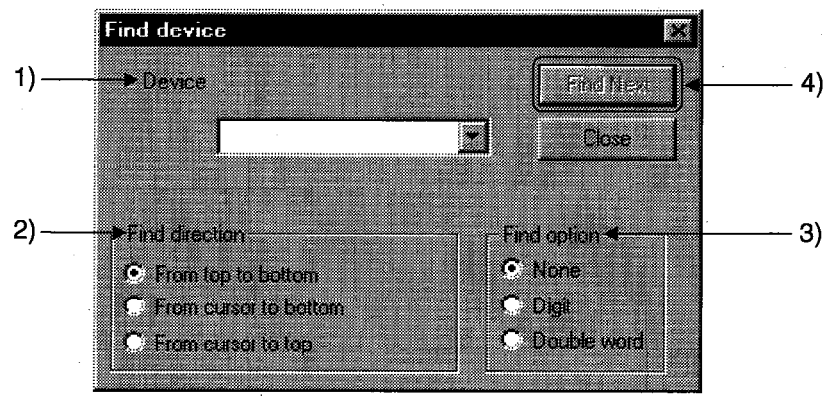
[Purpose]

Searches for a device in the program.
In A series and QnA series, it is possible to search in other programs in the project.

[Operating Procedure]

Select [Find/Replace]-[Find device] or click .

[Dialog Box]



[Description]

1) Device
Designates a device to be searched.

2) Find direction
Sets a search direction.
⊙ Find from top to bottom
Searching takes place from step 0 to the END instruction.

⊙ Find from cursor bottom
Searching takes place from the cursor position to the END instruction.

⊙ Find from cursor to top
Searching takes place from the cursor position to step 0.

3) Find options
Sets the state of a search target.
⊙ None
Searches for a designated device.

⊙ With digit
Searches for bit devices with digits, including the designated device.

⊙ Double word
Searches for word devices including the designated device and double word devices (including the real number and indirect specification devices).

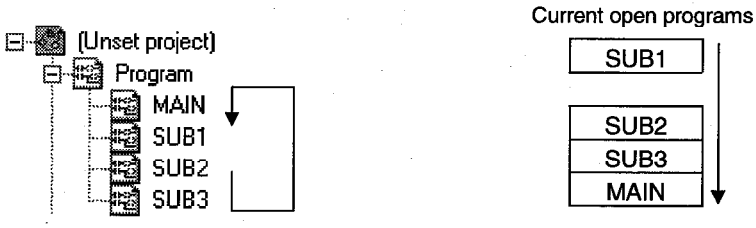
4) [Find Next] button
Click this button to search for the next device.

POINTS

- When the PLC type is QnA series, a device with the extended specification (J**\, U**\, BL**\) is handled as another device, i.e., searching for the device does not take place.
- The following table shows device search examples.

Device Specification	Search Device	Search Example
B0	(k**)B0(Z**)	B0, K4B0, B0Z1, K4B0Z1
K4B0	K4B0(Z**)	K4B0, K4B0Z1
J12\B0	J12(Z**)\(K**)B0(Z**)	J12/B0, J12B0Z1, J12Z2\K4B0, J12Z1\K4B0Z1

- In searching for and replacing the other programs, searching takes place in the following order:



A dialog box is displayed once to ask whether to search for and replace the other programs.

- When there is no search program, search and replace terminates without displaying a message for searching for the other programs.
- When there remains a search program, searching for the program takes place automatically.
- When a range is designated for program replacement, this range specification is effective only for open programs. Searching in the other programs takes place from the beginning.

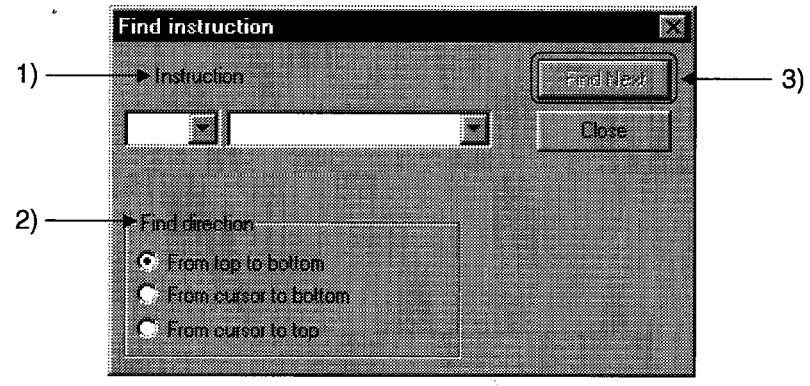
6.4.2 Finding an instruction

A	QnA	FX
•	•	•

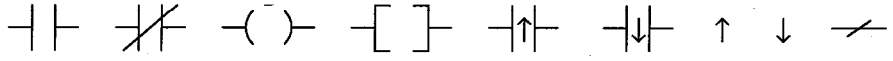
[Purpose]
Searches for an instruction in the program.

[Operating Procedure]
Select [Find/Replace]-[Find instruction] or click .

[Dialog Box]



[Description]
1) Instruction
Designates an instruction symbol and an instruction name for search.
The following lists the symbols that can be designated.



2) Find direction
Designates a search direction.
⊙ Find from top to bottom
Searching takes place from step 0 to the END instruction.

⊙ Find from cursor to bottom
Searching takes place from the cursor position to the END instruction.

⊙ Find from cursor to top
Searching takes place from the cursor position to step 0.

3) [Find Next] button
Click this button to search for the next occurrence of the instruction.

POINT

- The following table shows instruction search examples.

Instruction specification	Search instruction	Search example
MOV	MOV(P)	MOV, MOVP
MOVP	MOVP	MOVP
MOV D0 K4Y0	MOV(P)D0(Z**) K4Y0(Z**)	MOV D0 K4Y0, MOVP D0Z1 K4Y0, MOV D0 K4Y0Z1, MOVP D0Z1 K4Y0Z1
MOVP D0 J1\W0	MOVP D0(Z**) J1(Z**)\W0(Z**)	MOVP D0 J1\W0, MOVP D0Z1 J1\W0, MOVP D0 J1Z1\W0Z1, MOVP D0Z1 J1Z1\W0Z1

- When searching for the other programs, see Section 6.4.1.

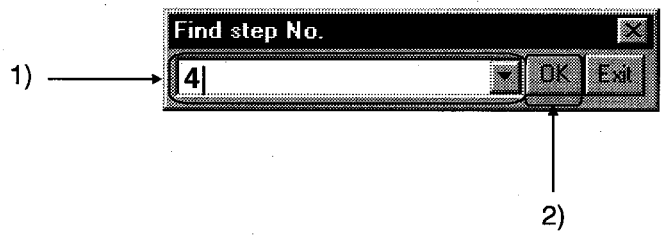
6.4.3 Finding a step No.

A	QnA	FX
•	•	•

[Purpose]
Searches for and displays a step No. during inter-line statement or note editing.

[Operating Procedure]
Select [Find/Replace]-[Find step No.].

[Dialog Box]



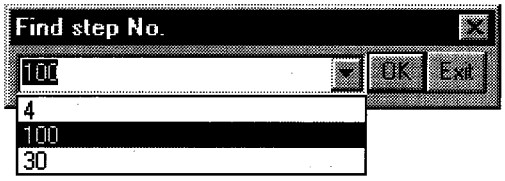
[Description]

1) Step No. text box
Designates a step No. to be used for search.

2) OK button
Click this button to display a circuit with a designated step No.

POINTS

- Step Nos. used for searching are saved as a log. However, it is cleared when exiting GPPW.



- When searching for a step No. in another program, see Subsection 6.4.1.

6.4.4 Finding a character string

A	QnA	FX
•	•	•

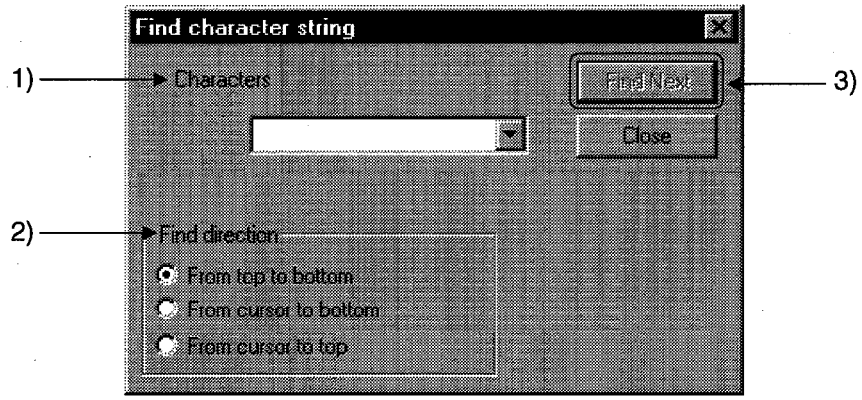
[Purpose]

Searches for a statement or note character string in the circuit creation window.

[Operating Procedure]

Select [Find/Replace] → [Find character string] or click .

[Dialog Box]



[Description]

1) Characters
Designates a search character string in up to 64 characters.

2) Find direction
Designates a search direction.
⊙ Find from top to bottom
Searching takes place from step 0 to the END instruction.

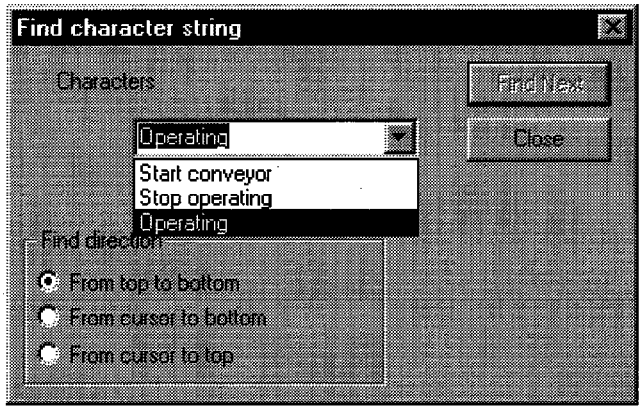
⊙ Find from cursor to bottom
Searching takes place from the cursor position to the END instruction.

⊙ Find from cursor to top
Searching takes place from the cursor position to top.

3) Find Next button
Click this button to search for the next occurrence of the character string.

POINTS

- Character strings used for searching are saved as a log. However, it is cleared when exiting GPPW.



- When searching for a character string in another program, see Subsection 6.4.1.

6.4.5 Replacing a device

A	QnA	FX
•	•	•

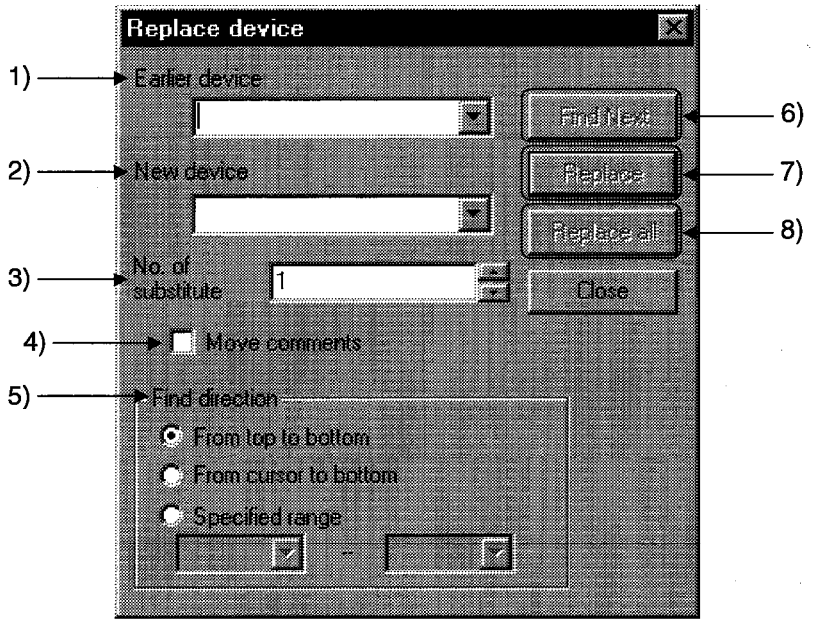
[Purpose]

Replaces a device or character string constant in the program currently being edited.

[Operating Procedure]

Select [Find/Replace] → [Replace device].

[Dialog Box]



[Description]

1) Previous device
   Designates a device or character string constant (before change) to be replaced.

2) New device
   Designates a device or character string constant (after change) for replacement.

3) No. of substitute
   Designates the number of devices to be replaced among the devices designated by old device setting.

4) Move comments
   Designates whether to move the comments and device names attached to a device together.

5) Find direction
Sets a search direction.
⊙ Find from top to bottom
Searching takes place from step 0 to the END instruction.

⊙ Find from cursor to bottom
Searching takes place from the cursor position to the END instruction.

⊙ Range setting
Click a radio button to designate a range of steps in which searching takes place.
A range from the top of a circuit block with a designated step No. to the end of a circuit block with a designated step No. is assumed as a range for replacement.

6) [Find Next] button
Click this button to search for the next occurrence of the device without replacing a cursor-positioned device.

7) [Replace] button
Click this button to search for the next occurrence of the device after replacing the cursor-positioned device.

8) [Replace all] button
Click this button to replace all the target devices in the designated search range.

POINTS

- Device specification
  The following lists the devices that can be replaced.
  · Word device ⟶ Word device
  · Bit device ⟶ Bit device
  Though an extended specification can be given, digit, index, and indirect modifications cannot be made.
  The table below lists the extended specification and word/bit device replacement examples

X0 ⟶ J1\B0 ..... Replaceable	X0 ⟶ D0 ..... Not replaceable
D0 ⟶ U10\G0 ..... Replaceable	X0 ⟶ K4X0 ..... Not replaceable
X0 ⟶ D0.5 ..... Replaceable	D0 ⟶ D0.5 ..... Not replaceable
D0.1 ⟶ D1.1 ..... Replaceable	

- When replacing a device in other programs, see Subsection 6.4.1.
- When a replacement range is given, it is effective only for open programs at present and searching for the other programs takes place from the beginning.
- Restrictions on FX series
  Device replacement cannot take place between the 16-bit counters and 32-bit counters.

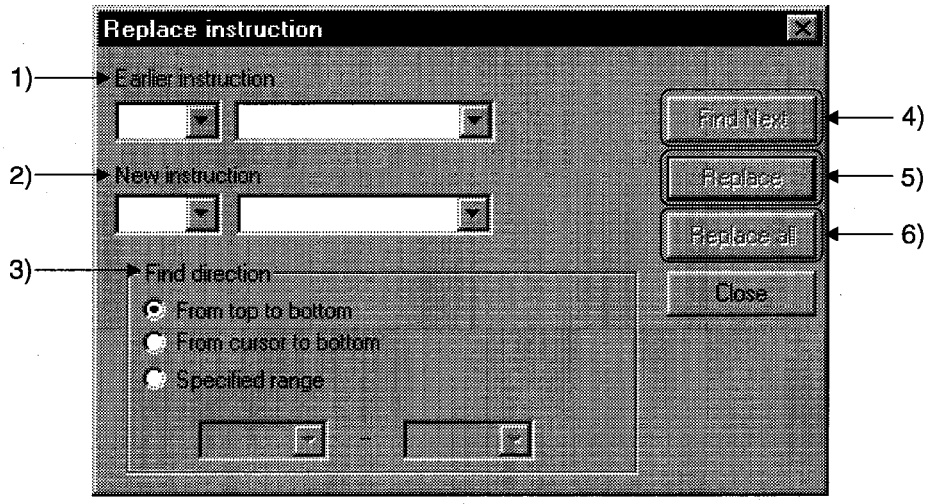
6.4.6 Replacing an instruction

A	QnA	FX
•	•	•

[Purpose]
Replaces an instruction in the program currently being edited.

[Operating Procedure]
Select [Find/replace] → [Replace instruction].

[Dialog Box]



[Description]

1) Earlier instruction
Designates an instruction (before change) to be replaced.

2) New instruction
Designates an instruction (after change) for replacement.

3) Find direction
Designates a search direction.
⊙ Find from top to bottom
Searching takes place from step 0 to the END instruction.

⊙ Find from current cursor position to bottom
Searching takes place from the cursor position to the END instruction.

⊙ Range setting
Click a radio button to designate a range of steps in which searching takes place.
A range from the top of a circuit block with a designated step No. to the end of a circuit block with a designated step No. is assumed as a range for replacement.

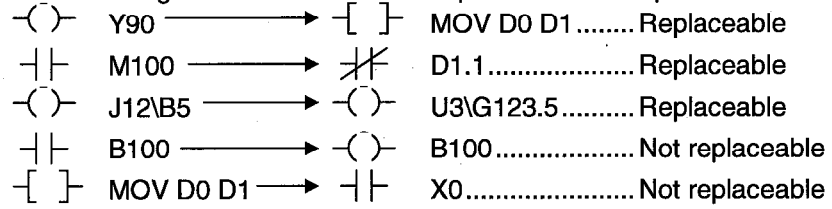
4) [Find Next] button
Click this button to search for the next occurrence of the instruction.

5) [Replace] button
Click this button to search for the next occurrence of the instruction after replacing the cursor-positioned instruction.

6) Replace all button
Click this button to replace all the target instructions in the designated range.

POINT

1. An instruction plus device can be designated for instruction input.
   Only the circuit symbol can also be designated.
2. The replaced instruction is not executed unless it is logical.
3. The number of steps changes for instruction replacement.
4. The following shows the instruction replacement examples.



- When replacing an instruction in other programs, see Section 6.4.1.

6.4.7 Changing A and B contacts

A	QnA	FX
•	•	•

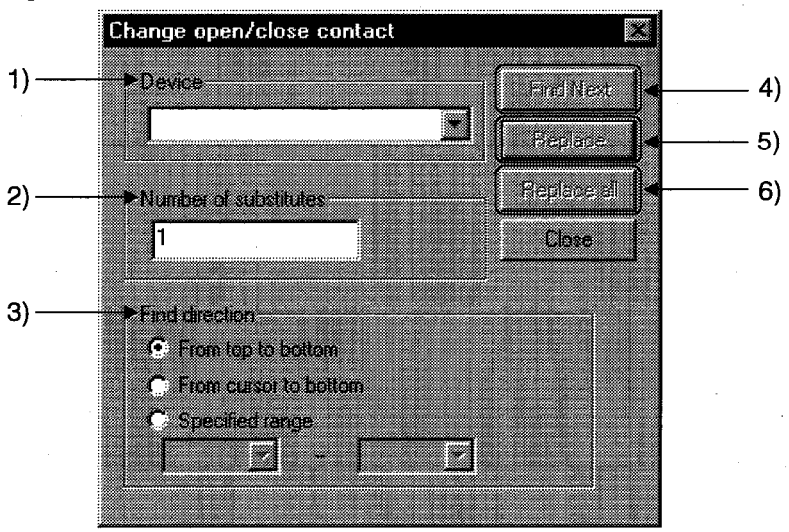
[Purpose]

Changing the contacts (open contact/close contact) of the program currently being edited.

[Operating Procedure]

Select [Find/Replace] → [Change open /close contact].

[Dialog Box]



[Description]

1) Device
Designates a device for which contacts A and B are to be switched.

2) Number of substitutes
Designates the number of consecutive devices (including a designated device) for which contacts A and B are to be switched.

3) Find direction
Designates a search direction.
⊙ Find from top to bottom
Searching takes place from step 0 to the END instruction.

⊙ Find from current cursor position to bottom
Searching takes place from the cursor position to the END instruction.

⊙ Area select
Click a radio button to designate a range of steps in which searching takes place.
A range from the top of a circuit block with a designated step No. to the end of a circuit block with a designated step No. is assumed as a range for switching.

4) Find Next button
Click this button to search for the next contact without switching the cursor-positioned contacts A and B.

5) Replace button
Click this button to search for the next contact after switching the cursor-positioned contacts A and B.

6) Replace all button
Click this button to switch all the target contacts in the designated range.

POINTS

- Device specification
  Extended specifications and bit No. modifications are valid for device specification, but index modifications are not valid.
- Device specification example
  X0, J1\B6, D0.5, U10\G0.3 → Can be specified
  X0Z3 → Cannot be specified
  (index modification is not possible.)
- The open contact and close contact of the following instructions can be switched.
  Open contact : LD, AND, OR, LDR, ANDP, ORP, EGP
  Close contact : LDI, ANI, ORI, LDF, ANDF, ORF, EGF
- When switching the open contact and close contact of other programs, see Section 6.4.1.

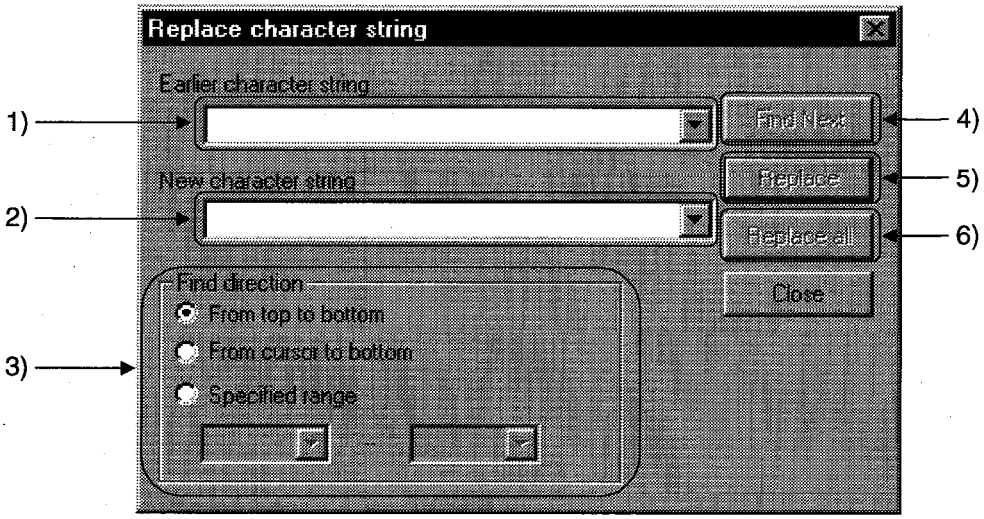
6.4.8 Replacing a character string

A	QnA	FX
•	•	•

[Purpose]
Replaces the character string (statement or note) currently being edited.

[Operating Procedure]
Select [Edit] → [Replace character string].

[Dialog Box]



[Description]

1) Earlier character string
Designates a character string to be replaced (statement before change) in up to 64 characters.

2) New character string
Designates a character string for replacement (statement after change) in up to 64 characters.

3) Find direction
Sets a search direction.
⊙ From top to bottom
Searching takes place from step 0 to the END instruction.

⊙ From cursor to bottom
Searching takes place from the cursor position to the END instruction.

⊙ Specified range
Click a radio button to designate a range of steps in which searching takes place.

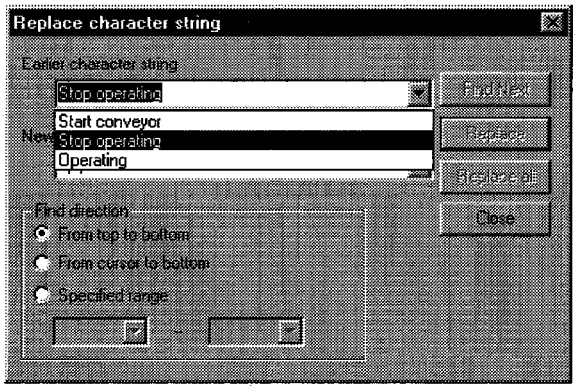
4) Find Next button
Click this button to search for the next occurrence of the character string without replacing the cursor-positioned character string.

5) Replace button
Click this button to search for the next occurrence of the character string after replacing the cursor-positioned character string.

6) Replace all button
Click this button to replace all the target character strings in the designated range.

POINTS

- Character strings used for searching are saved as a log. However, it is cleared when exiting GPPW.



- When replacing a character string in other programs, see Subsection 6.4.1.

6.4.9 Changing the statement or note type

A	QnA	FX
×	•	×

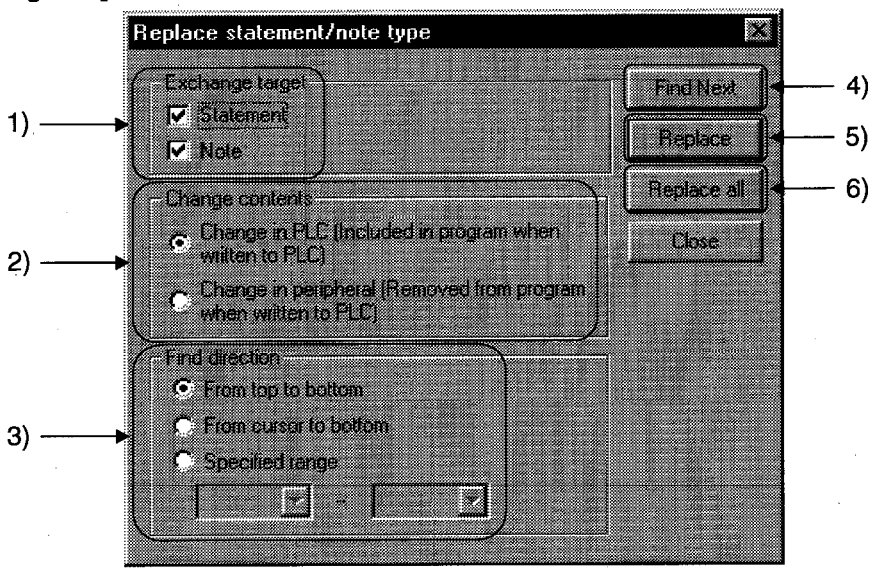
[Purpose]

Changes the type of the statement or note currently being edited to the integrated or peripheral statement or note.
For details on the integrated/peripheral statement or note, see Sections 10.1 and 10.2.

[Operating Procedure]

Select [Search/Replace] → [Replace statement/note type].

[Dialog Box]



[Description]

1) Exchange target
Designates a target to be replaced (statement or note).

2) Change contents
⊙ Change in PLC [Included in program when written to PLC]
Replaces a character string with an integrated statement or note.
PLC write/read processing takes place automatically for the character string.

⊙ Change in peripheral [Removed from program when written to PLC]
Replaces a character string with a peripheral statement or note.
PLC write/read processing does not take place for the character string.

3) Find direction
Sets a search direction.
⊙ From top to bottom
Searching takes place from step 0 to the END instruction.

⊙ From cursor to bottom
Searching takes place from the cursor position to the END instruction.

⊙ Range specification (Find direction)
Click a radio button to designate a range of steps in which searching takes place.

4) [Find Next] button
Click this button to search for the next character string without changing the cursor-positioned character string to the integrated /peripheral statement or note.

5) [Replace] button
Click this button to search for the next character string after changing the cursor-positioned character string to the integrated/peripheral statement or note.

6) [Replace all] button
Click this button to change all the target character strings in the designated range to the integrated/peripheral statements or notes.

POINTS

- Because only the peripheral statements and notes are set in A series, the statement and note types cannot be changed.
- When changing the statement or note type in other programs, see Subsection 6.4.1.

6.4.10 Searching for a contact coil

A	QnA	FX
•	•	•

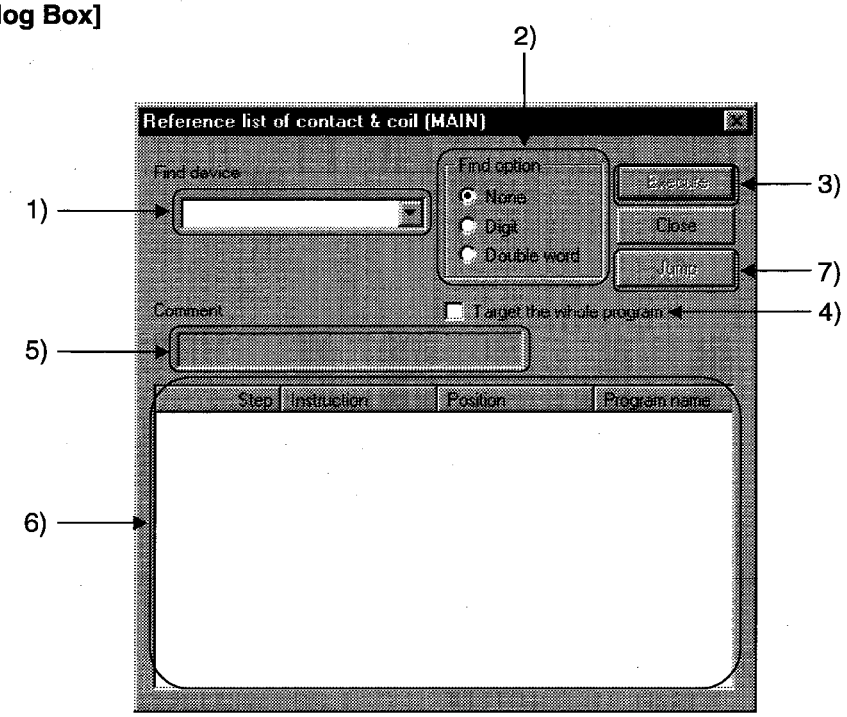
[Purpose]

Lists the step(s), instructions, and locations in which the designated instruction has been used.

[Operating Procedure]

Select [Find/Replace] → [List of used coils].

[Dialog Box]



[Description]

1) Find device
Designates a device to be searched.

2) Find options
Sets the state of a search target.
The search options (with digit, double word, etc.) make it possible to search for a device which has not been coded in the program but is actually used.

⊙ None
Searches for a designated device only.

⊙ Digit
Searches for bit devices (including a designated device) with digits.

⊙ Double word
Searches for word devices including a designated device and double word devices (including real numbers and indirect specifications).

3) [Execute] button
Click this button after designating a device to be searched and a search option. A contact coil use list indicates all the step numbers, instructions and locations in which a device designated in Search device has been used.

4) Target the whole program
Check the checkbox to display contact coil use lists for all programs in the project.

5) Comment
Displays a comment assigned to a designated device.

6) Contact coil use list
Step..... Lists the step numbers in which the designated device has been used.
Instruction ..... Lists the instructions in which the designated device has been used.
Location ..... Indicates by * the byte positions in which the designated device has been used.
(Example) In the case of "MOV K4Y0 D0", the DO position is indicated by "-*."
Up to 500 items can be retrieved and displayed in this list.

7) [Jump] button
Click any data in the contact coil use list, then click the [Jump] button to locate the cursor at the position where the corresponding contact coil is used within the sequence circuit.

6.4.11 Searching for a device-use instruction

A	QnA	FX
•	•	•

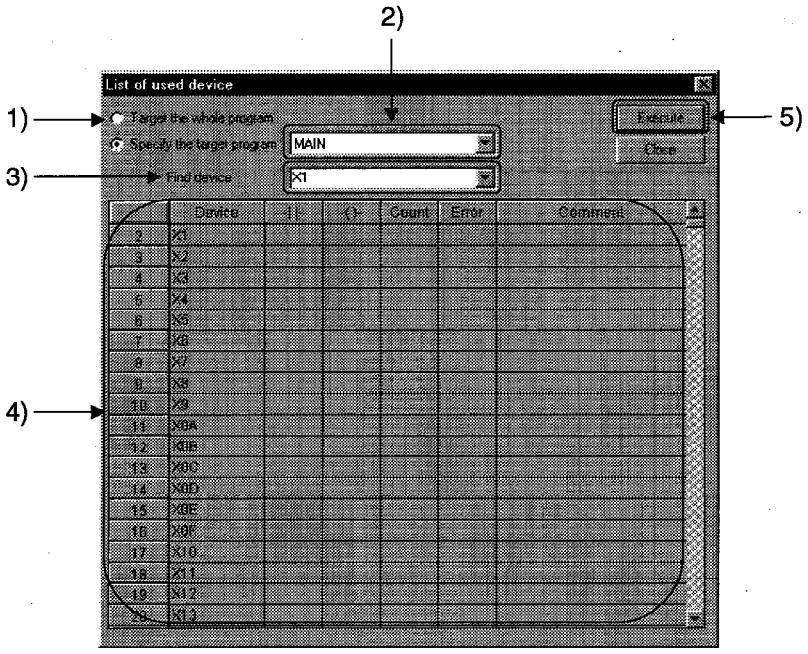
[Purpose]

Lists the instructions in which a designated device has been used.

[Operating Procedure]

Select [Find/Replace] → [List of used device].

[Dialog Box]



[Description]

1) Target the whole program
Click the radio button to display a device-use list for all programs in the project.

2) Specify the target program
Designates a program to be searched.

3) Find device
Designates the first device to be searched for.

4) Device-use Instruction list
Device ..... Instruction lists devices in such a way that the device designated in the search device is listed first.
⊣⊢ ..... Displays * when the device has been used in the source of the instruction.
⊣( )⊢ ..... Displays * when the device has been used in the destination of the instruction.
Count ..... Indicates the frequency of coil usage.
Error ..... Displays "ERR" when the device has been used only in the source or the destination.
Comment ..... Displays a comment attached to the device.

5) Execute button
Click this button after designating a search program or a search device.
A device-use list contains the instructions used and their frequency in such a way that the device designated in the search device comes first.

POINTS

- When ZR is designated, 8,192 devices (including the designated device as the first one) are searched.
  To display out-of-range devices, the devices must be designated again.
- Page scroll takes place within 8,192 devices listed.

6.5 Display

6.5.1 Displaying comments

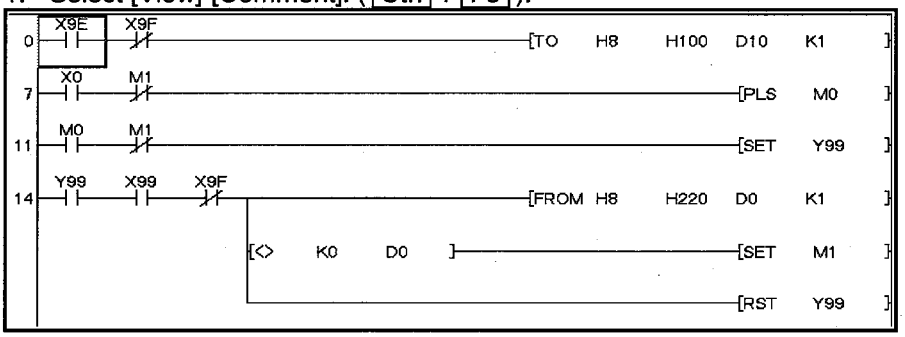
A	QnA	FX
•	•	•

[Purpose]

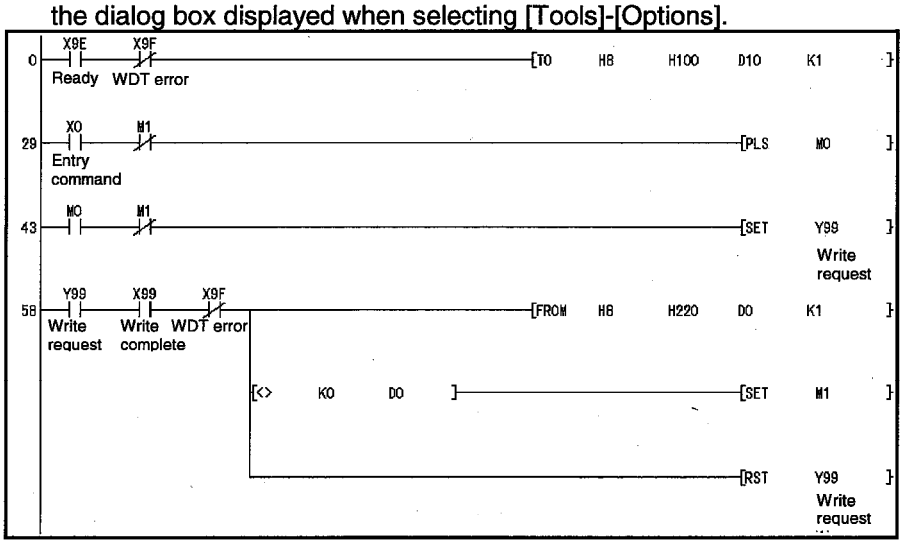
Displays the created device comments in the circuit creation window.

[Operating Procedure]

1. Select [View]-[Comment]. (Ctrl + F5).



2. The created comments are displayed in the window.
   Comments are displayed according to the number of display characters set in the dialog box displayed when selecting [Tools]-[Options].



3. Select [View]-[Comment] (Ctrl + F5) with comments being displayed to hide the comments.

POINT

- When common comments and comments by product have been set for the same device, click <<Each program>> tab in the dialog displayed by selecting [Tools]-[Options] to select the comment to be displayed.
  For details, see Section 16.7.

6.5.2 Displaying statements

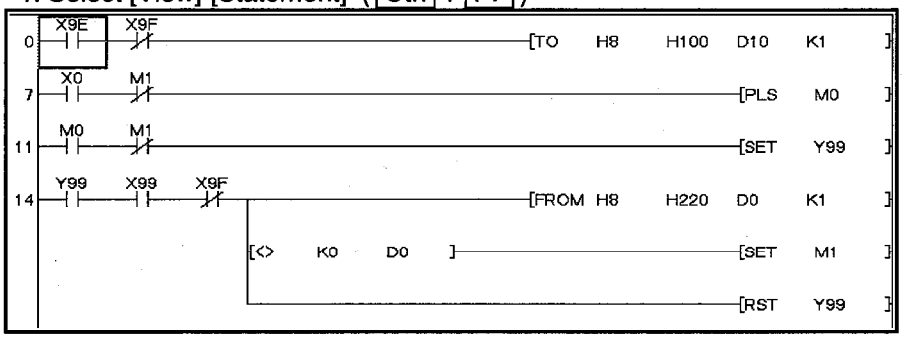
A	QnA	FX
•	•	•

[Purpose]

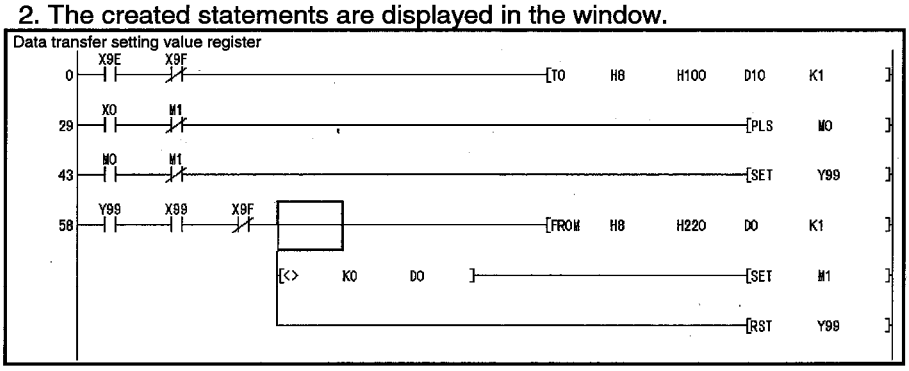
Displays the created statements in the circuit creation window.

[Operating Procedure]

1. Select [View]-[Statement] (Ctrl + F7)



2. The created statements are displayed in the window.



3. Select [View]-[Statement] (Ctrl + F7) with the statements being displayed to hide the statements.

POINT

- In FXGP(DOS) and FXGP(WIN), statements are called circuit comments.

6.5.3 Displaying notes

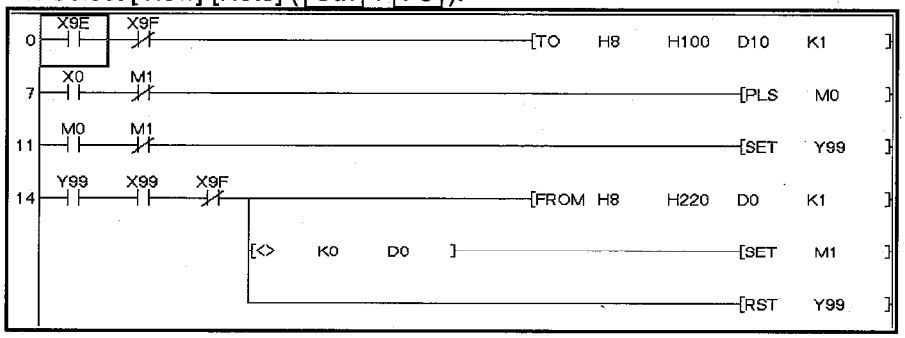
A	QnA	FX
•	•	•

[Purpose]

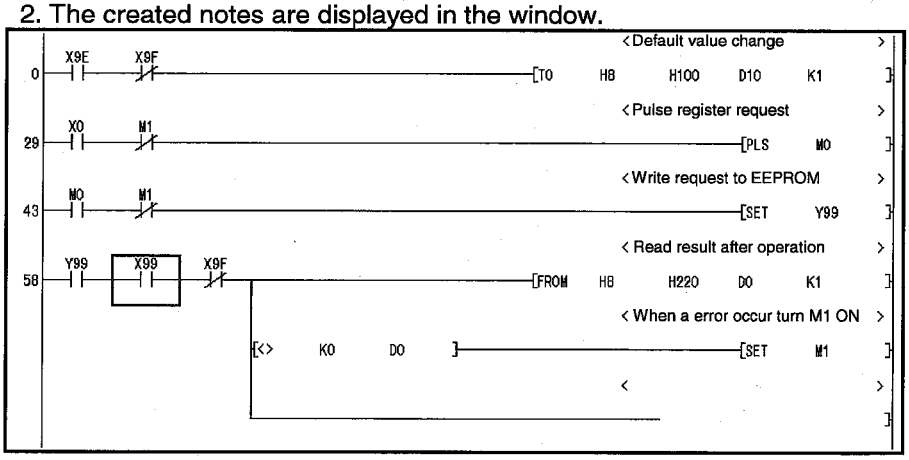
Displays the created note in the circuit creation window.

[Operating Procedure]

1. Select [View]-[Note] (Ctrl + F8).



2. The created notes are displayed in the window.



3. Select [View]-[Note] (Ctrl + F8) with the notes being displayed to hide the notes.

POINT

- In FXGP(DOS) and FXGP(WIN), notes are called coil comments.

6.5.4 Displaying device names

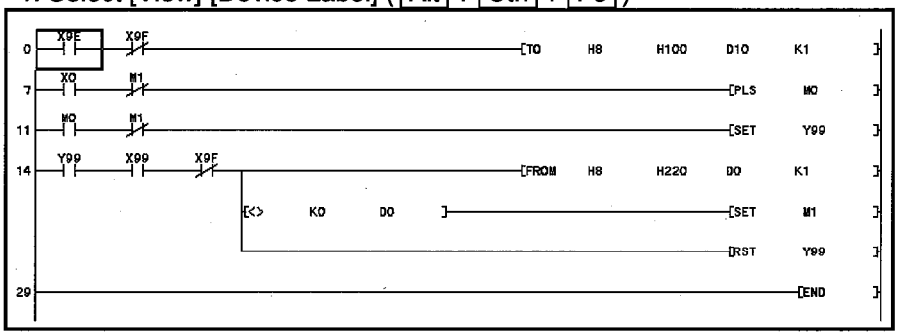
A	QnA	FX
•	•	•

[Purpose]

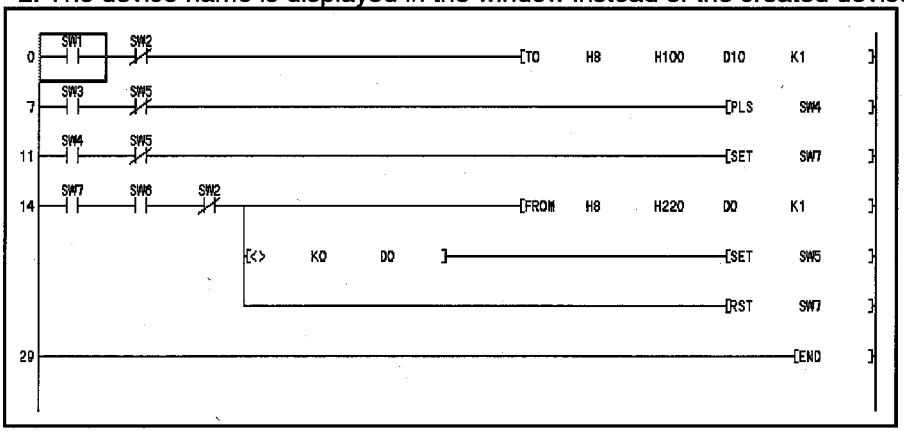
Displays the created device names in the circuit creation window.

[Operating Procedure]

1. Select [View]-[Device Label] (Alt + Ctrl + F6)



2. The device name is displayed in the window instead of the created device.



3. Select [View]-[Device Label] (Alt + Ctrl + F6) with the device names being displayed to hide the device names.

POINT

- Be sure to create the device names in the device comment edit window. When a device name has been created in A series, it cannot be input to the PLC or GPPA file.

6.5.5 Switching circuit and list modes

A	QnA	FX
•	•	•

[Purpose]

Switches the display modes of the edit window.

[Operating Procedure]

1. Select [View]-[Instruction list] or click  (Alt + F1) to set the list mode, or select [View]-[Ladder] or click  (Alt + F1) to set the circuit mode.

2. The mode of the edit window changes.
   (1) Circuit edit window ⟶ List edit window
   (2) List edit window ⟶ Circuit edit window

POINTS

- Circuit edit window ⟶ List edit window
  Switch the mode with the cursor positioned at any contact in the circuit edit window, and the cursor-positioned circuit block will be displayed at the top of the list edit window.
- List edit window ⟶ Circuit edit window
  Switch the mode with the cursor positioned at any instruction list in the list edit window, and the cursor-positioned circuit block will be displayed at the top of the circuit edit window.

6.6 Switching Read and Write Modes

6.6.1 Switching to read mode

A	QnA	FX
•	•	•

[Purpose]
Sets the read mode so that a circuit can be read.

[Description]
If a device or step No. is designated directly with the keyboard in read mode, a desired part of the circuit can be read.
(In write mode, no circuit can be retrieved (read) by direct input.)
If direct input is made in this mode, the following dialog box is displayed to enable the user to designate the device, step No. or instruction to be read.

Click here, and the search dialog box will be displayed for device designation.

In read mode, sequence circuits cannot be edited (i.e., neither circuit creation nor device replacement can be performed.)

[Operating Procedure]
Select [Edit]-[Read mode] or click (Shift + F2)

6.6.2 Switching to write mode

A	QnA	FX
•	•	•

[Purpose]
Sets the write mode when a circuit is edited.

[Description]
In write mode, sequence circuits can be edited (i.e., circuit creation or search and replacement can be performed).
(In read mode, circuits cannot be edited.)

[Operating Procedure]

Select [Edit]-[Write mode] or click (F2)

6.7 Changing T/C Setting Values

A	QnA	FX
•	•	•

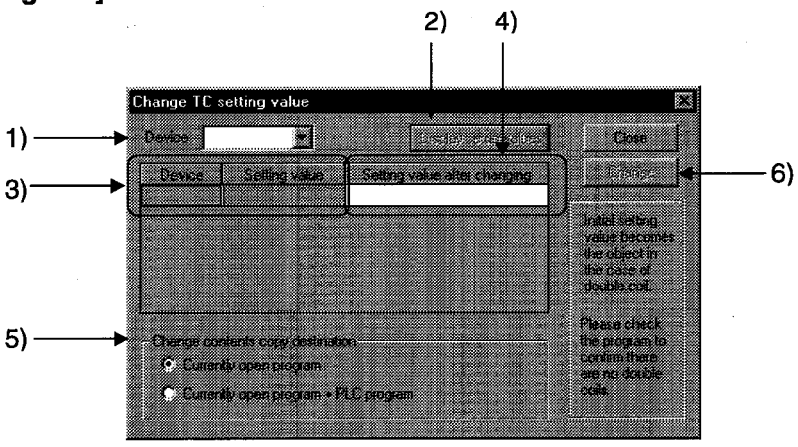
[Purpose]

Lists the setting values of timers and counters used in the program so that they can be changed at a time.

[Operating Procedure]

Select [Edit]-[Change TC setting]

[Dialog Box]



[Description]

1) Device

Designates the timer(s) or counter(s) for which the current setting values must be changed.

2) [Display setup values] button

Click this button to display the current setting values of the timers or counters designated by device input.

3) Device, Setting value

Displays the current setting values of the designated timer(s) or counter(s).

4) Setting value after changing

Designates the setting value of the timer or counter for which the current setting value is to be changed.

5) Change contents copy destination

⊙ Currently open program

Changes the setting values of the timers and counters in the open program at present.

⊙ Currently open program PLC program

Changes the setting values of the timers and counters in the open program at present and writes them to the PLC.

However, these setting values can be changed only between the constants.

6) [Change] button

Click this button for setting value change.

POINTS

- Setting values can be changed from constant (K) to indirect designation (D) and vice versa.
- For a high-speed counter of the FX series, setting value change between constant(K) and indirect designation(D) is not allowed in the online state. (same as write Online change)
- Devices with index modification cannot be designated.
- To input the changed setting value to a PLC, the setting value change must be made only between the constants.

K10→K1234	Can be set
K10→D10	Cannot be set
K10→ZR100	Cannot be set
ZR100→D100	Cannot be set

7. CREATING INSTRUCTION LIST

This chapter describes how to create, modify and read the sequence programs.

7.1 Common Notes on Instruction List Creation

This section describes the common items and restrictions on Instruction list creation, Instruction list display window, and Instruction list edit window.

1. Instruction list input dialog box

Input alphanumeric characters.

2. Program display area
   - Display does not depend on the number of END instructions.
     In addition, programs may be input after the END instructions.
     When a new Instruction list is created, the END instruction appears at the first line.
     No display takes place for NOP only.

3. Modification of existing Instruction list
   For creating a new instruction list, move the cursor to an incorrect instruction location in the input (overwrite) mode, then input a correct instruction there.
   For adding Instruction list, move the cursor to a line insert step in the input (insert) mode, then input an instruction.
   To switch input modes (overwrite and insert modes), press [Insert] key.

4. Deletion in units of instructions
   Move the line to be deleted, then press [Delete] key or [Shift] + [Delete] key.

5. The preceding or subsequent page of the current page can be displayed during a read/write operation.
   Click [Page Up] key to display the preceding page.
   Click [Page Down] key to display the subsequent page.

6. The following table lists the modes that can be used in Instruction list mode.

Mode	Availability
Read mode	•
Write mode	•
Monitor mode	×
Monitor write mode	×

7. Circuit symbol buttons on the toolbar, monitor/write monitor, monitor start/stop, step run, partial run, skip are disabled.

8. Device comment display
   No device comments are displayed.

9. Display with statements or notes
   When statements or notes have been created, they are always displayed (fixed processing).
   In A series and FX series, no step numbers are displayed.
   In QnA series, step numbers are displayed.
   Statements and notes can be created in the same way as for operations on the circuit edit window
   (see Section 10.3.1 and 10.4.1 for details.)

10. SFC programs (only for QnA series)
    These programs cannot be edited but displayed.
    SFC programs in FX series are represented as an instruction words Instruction list by step ladder instructions.

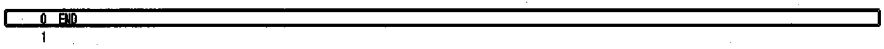
7.2 Creating a Program Instruction list

Sequence programs are input by the Instruction list instructions.
In addition, it is convenient to edit in the Instruction list mode the instructions that cannot be edited in the circuit mode.
For details on how to switch the Instruction list mode, see Section 6.5.5.

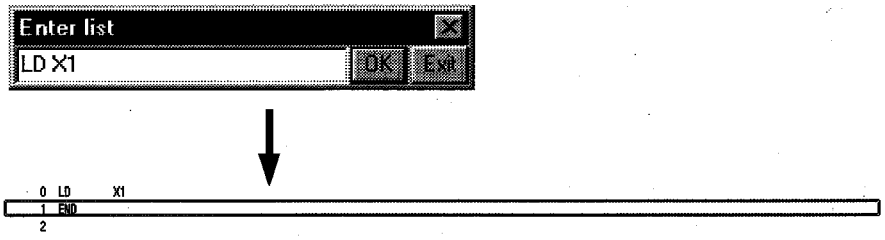
7.2.1 Inputting a contact or application instruction

A	QnA	FX
•	•	•

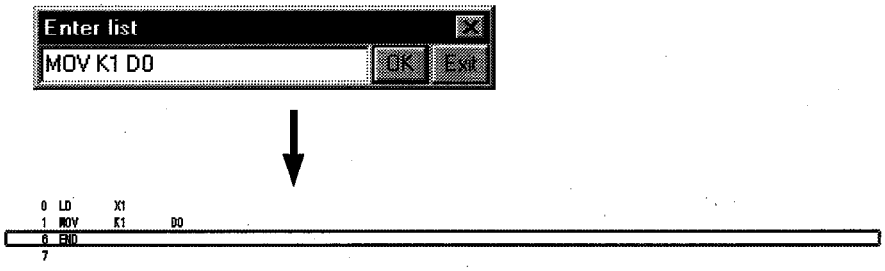
- For contact input (insert mode)
  1. Press [Insert] key to set the insert mode.



  2. Enter "LD X1", then the Instruction list input dialog box is displayed and entered data is displayed in the device instruction text box.
     Press [Enter] key to make input in the edit window.



- For application instruction input
  1. Enter "MOV K1 D0", then the Instruction list input dialog box is displayed with the entered data being displayed in the device instruction text box.
     Press [Enter] to make input in the edit window.

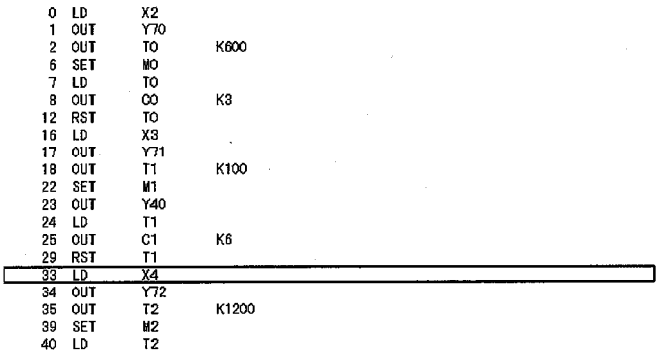


7.2 2 Changing the existing program in overwrite mode

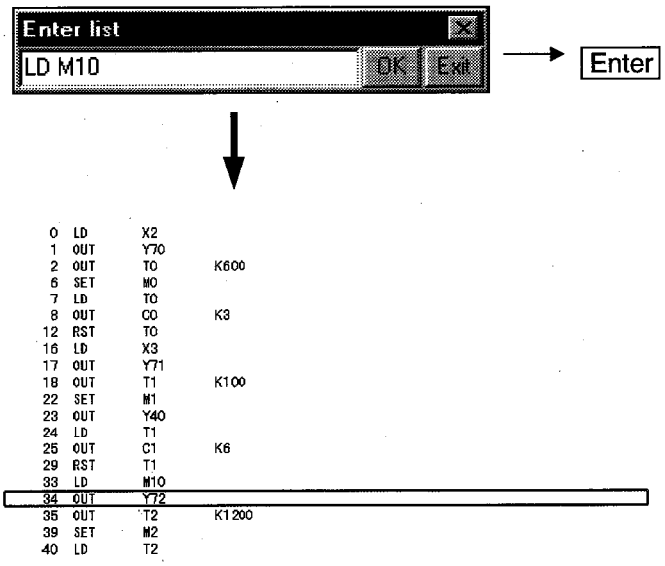
A	QnA	FX
•	•	•

1. Confirm that the overwrite mode is indicated on the status bar.
   Press [Insert] key to switch the insert and overwrite modes.

2. Move the cursor onto the program to be corrected in overwrite mode. List input dialog box



3. Enter an instruction or device (LD M10) for correction, then the list input dialog box is displayed with the entered data being displayed in the device instruction text box.
   Press [Enter] key to make input in the edit window.



Input alphanumeric characters.

7.2.3 Inserting or adding the existing program

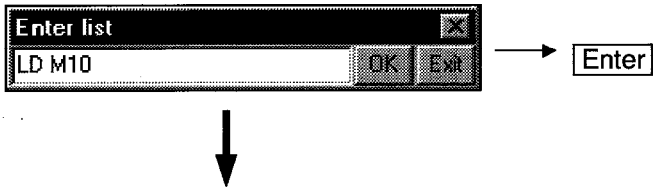
A	QnA	FX
•	•	•

1. Confirm that the insert mode is indicated on the status bar.
   Press [Insert] key to switch the insert and overwrite modes.

2. Move the cursor to the position to insert or add a program.

```
 0  LD    X2
 1  OUT   Y70
 2  OUT   T0     K600
 6  SET   M0
 7  LD    M10
 8  OUT   C0     K3
12  RST   T0
16  LD    X3
17  OUT   Y71
18  OUT   T1     K100
22  SET   M1
23  OUT   Y40
24  LD    T1
25  OUT   C1     K6
29  RST   T1
33  LD    X4
34  OUT   Y72
35  OUT   T2     K1200
39  SET   M2
40  LD    T2
41  OUT   C2     K2
45  RST   T2
49  LD    X5
```

3. Enter an instruction to be inserted or added or device (LD M10), then the list input dialog box is displayed with the entered data being displayed in the device instruction text box.
   Press [Enter] key to make input in the edit window.




```
 0  LD    X2
 1  OUT   Y70
 2  OUT   T0     K600
 6  SET   M0
 7  LD    T0
 8  OUT   C0     K3
12  RST   T0
16  LD    X3
17  OUT   Y71
18  OUT   T1     K100
22  SET   M1
23  OUT   Y40
24  LD    T1
25  OUT   C1     K6
29  RST   T1
33  LD    M10
34  OUT   Y72
35  OUT   T2     K1200
39  SET   M2
40  LD    T2
```

7.2.4 Deleting the existing program list

A	QnA	FX
•	•	•

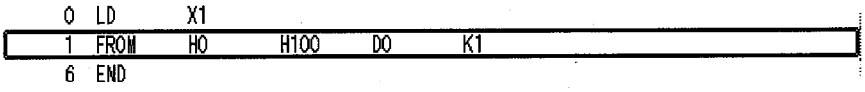
1. Move the cursor to a program to be deleted.
2. 2. Press [Delete] key or [Shift] + [Delete] key to delete the program.

```
 0  LD    X2
 1  OUT   Y70
 2  OUT   T0     K600
 6  SET   M0
 7  LD    M10
 8  OUT   C0     K3
12  RST   T0
16  LD    X3
17  OUT   Y71
18  OUT   T1     K100
22  SET   M1
23  OUT   Y40
24  LD    T1
25  OUT   C1     K6
29  RST   T1
33  LD    X4
34  OUT   Y72
35  OUT   T2     K1200
39  SET   M2
40  LD    T2
41  OUT   C2     K2
45  RST   T2
49  LD    X5
```

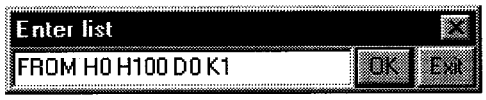
7.2.5 Changing the existing program

A	QnA	FX
•	•	•

1. Move the cursor to a program to be changed partially.



2. Press Enter key, and the program will be displayed in the list input dialog box.



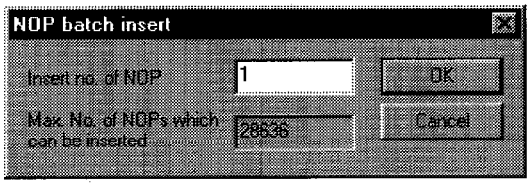
3. Change the program partially, then press Enter key.
   In write mode, the existing instruction is replaced with the new input instruction.
   In insert mode, the changed instruction is added.

7.2.6 Inserting NOPs

A	QnA	FX
•	•	•

- Inserting NOPs in units of lines
  Move the cursor to a location for inserting a NOP, then press [Shift] + [Insert] key (The NOP is inserted in the line above the cursor.)

- Insert NOPs at a time
  Move the cursor to a location for inserting NOPs, then select [Edit] - [insert NOP batch]. The following dialog box is displayed for confirmation.



  Input the number of NOPs to be inserted in insert no. of NOP text box, then click the [OK] button.

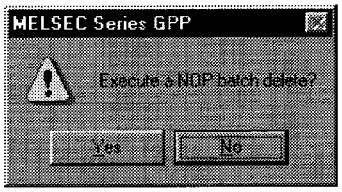
NOP insertion can take place even when the cursor has been positioned after the END line.

7.2.7 Deleting NOPs

A	QnA	FX
•	•	•

- Deleting NOPs in units of lines
  Move the cursor to a location for deleting a NOP, then press [Delete] key or [Shift] + [Delete] key to delete it. (The NOP in the line above the cursor is deleted.)

- Deleting NOPs
  Press [Enter] key, and the program will be displayed in the list input dialog box. Select [Edit]-[Delete NOP batch], and the following dialog box will be displayed.



  Click the [Yes] button, and NOPs will be deleted at a time.
  When there are NOPs after the END instruction, they are also deleted.

7.3 Find and Replace

7.3.1 Finding a device

A	QnA	FX
•	•	•

See Section 6.4.1 for details.

7.3.2 Finding an instruction

A	QnA	FX
•	•	•

See Section 6.4.2 for details..

7.3.3 Finding a step No.

A	QnA	FX
•	•	•

See Section 6.4.3 for details.

7.3.4 Finding a character string

A	QnA	FX
•	•	•

Searching for a statement or note takes place.
See Section 6.4.4. for details.

7.3.5 Replacing a device

A	QnA	FX
•	•	•

See Section 6.4.5 for details.

7.3.6 Replacing an instruction

A	QnA	FX
•	•	•

See Section 6.4.6 for details.

7.3.7 Changing an A or B contact

A	QnA	FX
•	•	•

See Section 6.4.7 for details.

7.3.8 Replacing a character string

A	QnA	FX
•	•	•

See Section 6.4.8 for details.

7.3.9 Changing the statement or note type

A	QnA	FX
•	•	•

See Section 6.4.9 for details.

7.3.10 Searching for a contact coil

A	QnA	FX
•	•	•

See Section 6.4.10 for details.

7.3.11 Searching for an instruction using a device

A	QnA	FX
•	•	•

See Section 6.4.11 for details.

7.4 Display

7.4.1 Displaying a device name

A	QnA	FX
•	•	•

[Purpose]

Displays the created device name on the circuit edit window.

[Operating procedure]

1. Select [View]-[Device label] (Alt + Ctrl + F6).

```
  0  LD    X2
  1  OUT   Y70
  2  OUT   T0    K600
  6  SET   M0
  7  LD    X1
  8  OUT   C0    K3
 12  RST   T0
 16  LD    X3
 17  OUT   Y71
 18  OUT   T1    K100
 22  SET   M1
 23  OUT   Y40
 24  LD    X5
 25  OUT   C1    K6
 29  RST   T1
 33  LD    X4
 34  OUT   Y72
 35  OUT   T2    K1200
 39  SET   M2
```

2. The device name is displayed in the window instead of the device.

```
  0  LD    COVER
  1  OUT   Y70
  2  OUT   T0    K600
  6  SET   M0
  7  LD    SAFTY
  8  OUT   C0    K3
 12  RST   T0
 16  LD    READY
 17  OUT   Y71
 18  OUT   T1    K100
 22  SET   M1
 23  OUT   Y40
 24  LD    PARTSB
 25  OUT   C1    K6
 29  RST   T1
 33  LD    PARTSA
 34  OUT   Y72
 35  OUT   T2    K1200
 39  SET   M2
```

7.5 Switching Read and Write Modes

7.5.1 Switching to read mode

A	QnA	FX
•	•	•

See Section 6.6.1 for details.

7.5.2 Switching to write mode

A	QnA	FX
•	•	•

See Section 6.6.2 for details.

7.5.3 Switching to circuit mode

A	QnA	FX
•	•	•

See Section 6.5.5 for details.

7.6 Changing T/C Setting Values

A	QnA	FX
•	•	•

See Section 6.7 for details.

8. Conversion

There are three kinds of menu provided for conversion, [Convert], [Convert (All programs being edited)], and [Convert (Online change)].
This chapter describes normal conversion and batch program conversion.
For conversion from the [Convert (Online change)] menu, see Section 17.7.

8.1 Converting an Edit Program

A	QnA	FX
•	•	•

[Purpose]
Converts the program currently being edited (in the active window).

[Operating Procedure]
Select [Convert]-[Convert].

8.2 Converting Multiple Edit Programs

A	QnA	FX
•	•	•

[Purpose]
Converts multiple edit programs at a time.

[Operating Procedure]
Select [Convert]-[Convert (All programs being edited)].

[Description]
Edit programs are converted in the order that the sequence programs have been opened.

9. SETTING DEVICE COMMENTS

This chapter describes the points to be noted on comment creation with GPPW. In addition, it describes how to input the device comments created with GPPW to ACPU, QnACPU or FXCPU and how to input the data created with GPPA, GPPQ, FXGP(DOS) or FXGP(WIN) to GPPW.

POINT

- Although the FX project created using the SW2D5-GPPW is displayed in the project list display when the SW0D5-GPPW or SW1D5-GPPW is started, it is not possible to read a project.

9.1 Points to be Noted before Comment Creation with GPPW

A	QnA	FX
•	•	×

This section describes the points to be noted and settings that vary depending on whether to handle comments only on peripheral devices or to input them to PLC.
The comments of special registers and special relays are created in the following installation directory:(MELSEC\GPPW\SAMPLECOMMENT)
Copy them to projects for which sequence programs are created.

Sample-1 Comments of special relay and special register of ACPU except A1FX
Sample-2 Comments of special relay and special register of A1FX
Sample-3 Comments of SM, SD, J1\SB and J1\SW of QnACPU
Sample-4 Comments of special relay and special register of FXCPU

See Section 5.7 for details on the copying procedure.

9.1.1 Editing comments only on peripheral devices

A	QnA	FX
•	•	•

(1) In A series, QnA series and FX series, the created comments can be saved. Neither parameter settings nor comment range settings are required.

(2) Both common comments and comments by program can be created. Common comments can be created independent of comments for the main program and subprograms. (see Section 9.5 for details.)

(3) The common comment data name is fixed to "COMMENT."

(4) There are two methods for creating comments by program. The first method sets a comment data name according to the data name of a sequence program. The second method sets a data name different from the sequence program name. (see Sections 5.8 and 9.5 for details.)

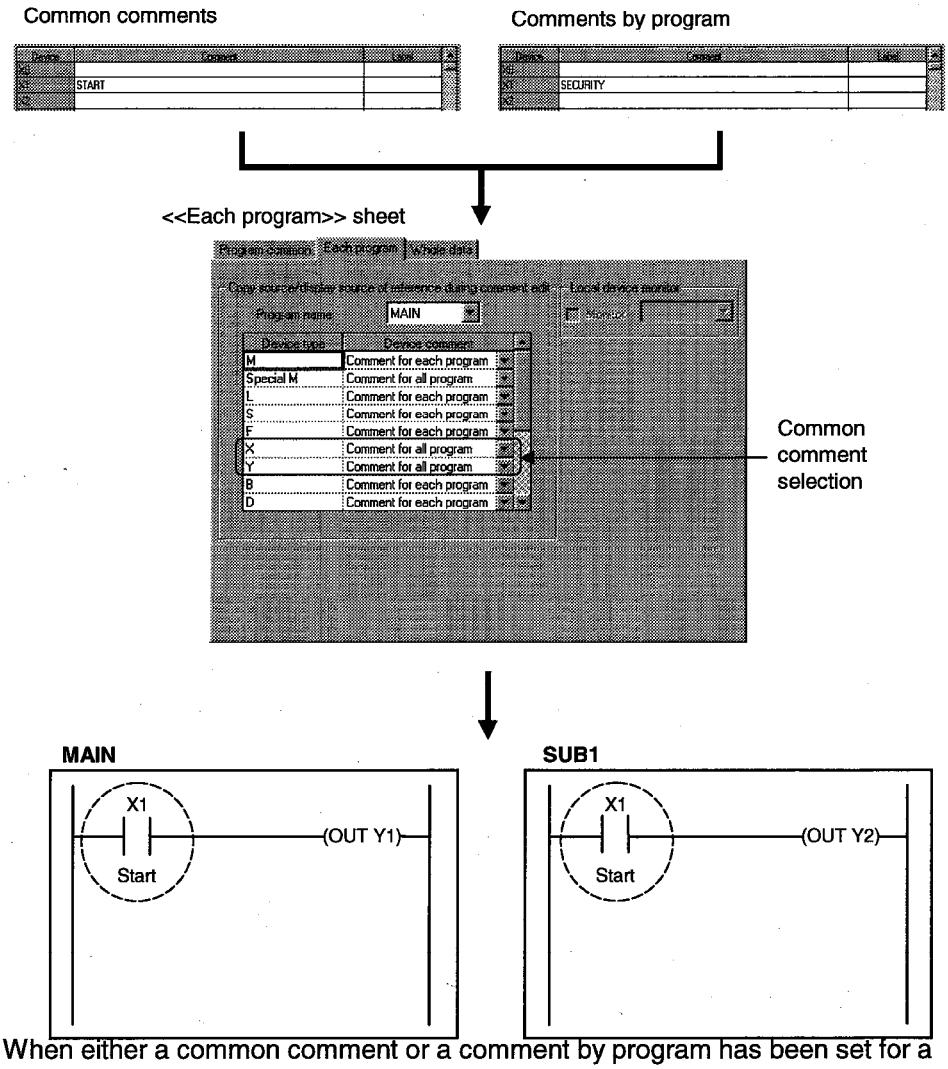
(5) The devices subject to comment creation are all displayed (for monitoring) or printed out.

(6) When creating a device name in A series, note that it cannot be input to ACPU or GPPA files.

POINT

- When a common comment and a comment by program have been set for the same device, click <<Each program>> tab on the dialog box displayed by selecting [Tools] → [Option] to set a comment to be displayed in units of devices (see Section 16.7 for details.).

Where there are same devices



When either a common comment or a comment by program has been set for a device, the set comment is displayed automatically.

9.1.2 Writing to PLC

9.1.2 (1) Writing to ACPU

A	QnA	FX
•	×	×

(1) Writing to ACPU takes place according to the memory size setting (comment, extended comment) and write comment range setting (see Section 9.9) in the PLC parameter.
Only comment1/2 and extended comment 1 can be input to the PLC (Extended comments 2 to 4 cannot be input.)

(2) Comment1 (4032 comments x 15 character) can be input to ACPU while Comment2 (4032 comments x 16 character) can be input to ACPU.

(3) Devices other than X, Y, SP.M (special relay), and SP.D (special register) must be saved in the extended comment 1 area.
(See Sections 9.5 and 9.9 for details.)

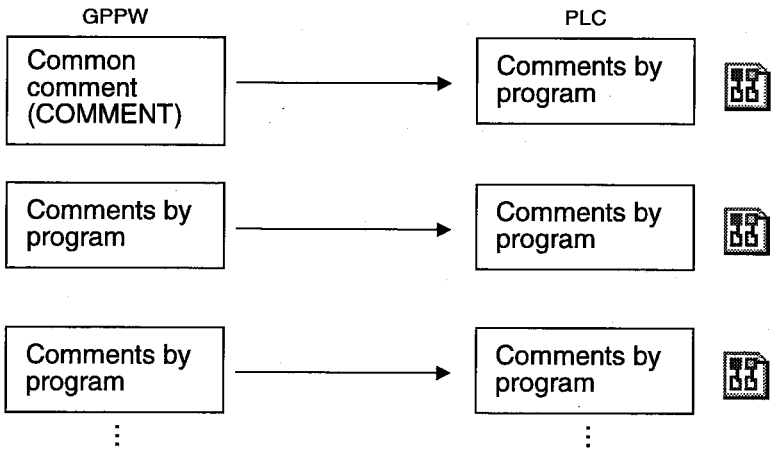
(4) When a comment has been created in more than 17 characters with GPPW, the comment part in the 18th character and after is not input to the PLC .

(5) When X and Y areas are overlapping in a common comment, Y comment is not input because X takes precedence over Y.

9.1.2 (2) Writing to QnACPU

A	QnA	FX
×	•	×

(1) Common comments or comments by program can be input to the PLC or GPPQ files according to the steps of editing.

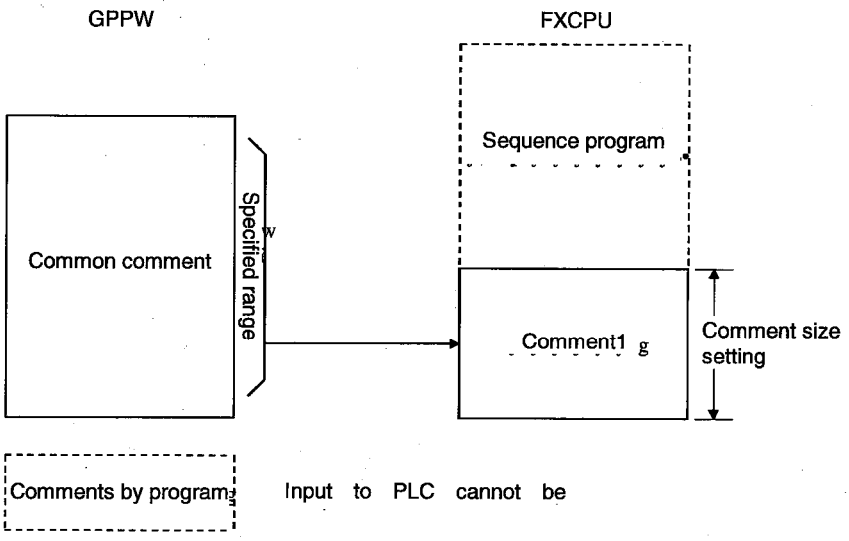


9.1.2 (3) Writing to FXCPU

A	QnA	FX
×	×	•

(1) Writing to FXCPU can take place according to the memory size setting (comment size) and write comment range setting (see Section 9.9.) in the PLC parameter.

(2) Only common comments can be input to FXCPU as device comments. Comments by program cannot be input to the PLC (see Section 9.5.)



(3) The number of comment1 characters that can be input to FXCPU from GPPW is 16 characters.
Though GPPW allows comments of up to 32 characters, only 16 characters are input to the PLC .
In addition, FXGP(DOS) allows only characters to be used for Comment1 and the maximum number of characters is 15.
To display all comments normally by FXGP(DOS), device comments must be created in up to 15 characters.

(4) The number of comment1 that can be input to FXCPU varies depending on the memory size setting in the PLC parameter.

9.1.3 Writing GPPA and GPPQ files to peripheral devices

9.1.3 (1) Writing a GPPA file

A	QnA	FX
•	×	×

(1) Writing a GPPA file takes place according to the memory size setting (comment, extended comment) and write comment range setting in the PLC parameter.

(2) Comment1 (4032 comments x 15 characters) and comment2 (4032 comments x 16 characters) can be input to files.

(3) When extended comments 1 to 4 are input in GPPA files, each comment must be created in up to 16 characters. Up to 3986 comments can be input.

(4) Devices other than X, Y, SP.M (special relay),Cand SP.D (special register) created in a common comment must be saved in the extended comment area. (see Sections 9.5 and 9.9 for details.)

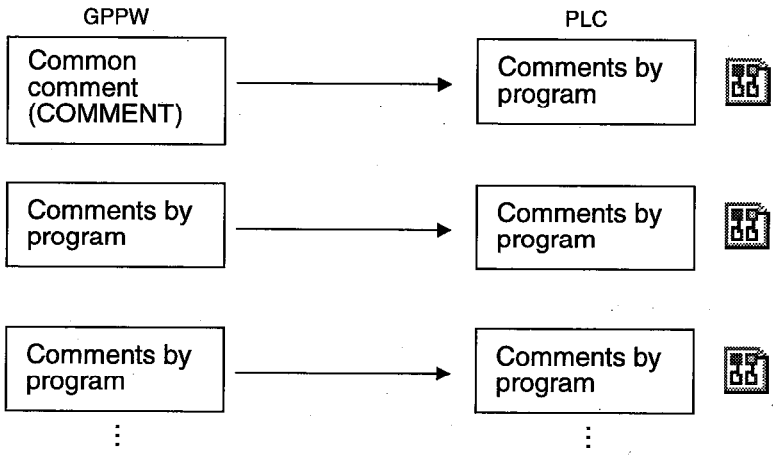
(5) When a comment has been created in more than 17 characters with GPPW, the comment part of the 17th character and after is not input to the files.

(6) When X and Y areas are overlapping in the common comment, the Y comment is not input because X takes precedence over Y.

9.1.3 (2) Writing a GPPQ file

A	QnA	FX
×	•	×

(1) Common comments and comments by program can be input to the PLC or GPPQ file according to the steps of editing.



9.1.3 (3) Writing an FXGP(DOS) or FXGP(WIN) file

A	QnA	FX
×	×	•

Only common comments can be input to FXGP(D0S) or FXGP(WIN) files.
Comments by program cannot be input to these files.

(1) Writing an FXGP(DOS) file
Though GPPW permits up to 32 characters to be used, only the first 16 characters can be input in writing an FXGP(DOS) file.
Up to 3400 comments can be input.

(2) Writing an FXGP(WIN) file
All common comment data is input.
However, only alphanumeric characters and symbols (· + - * / = . ? # $ % & : ; _) are effective for device names. (see Section 9.6.1 for details.)
Device names including the characters not permitted are deleted in writing an FXGP(WIN) file.

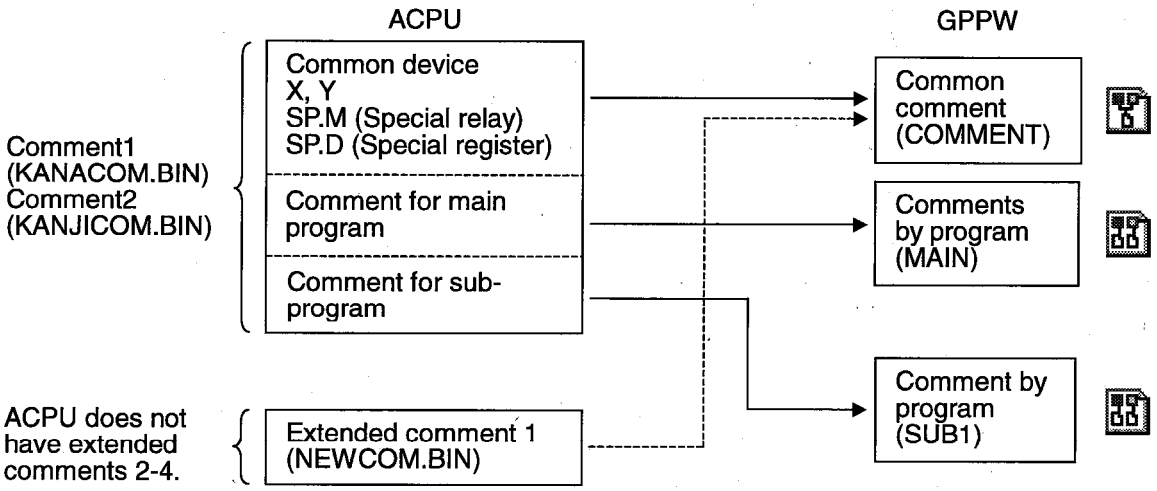
9.2 Reading from PLC

9.2.1 Reading from ACPU

A	QnA	FX
•	×	×

(1) When the comments X and Y created by the PLC or GPPA are read into GPPW, they are pasted onto the edit windows X and Y respectively.

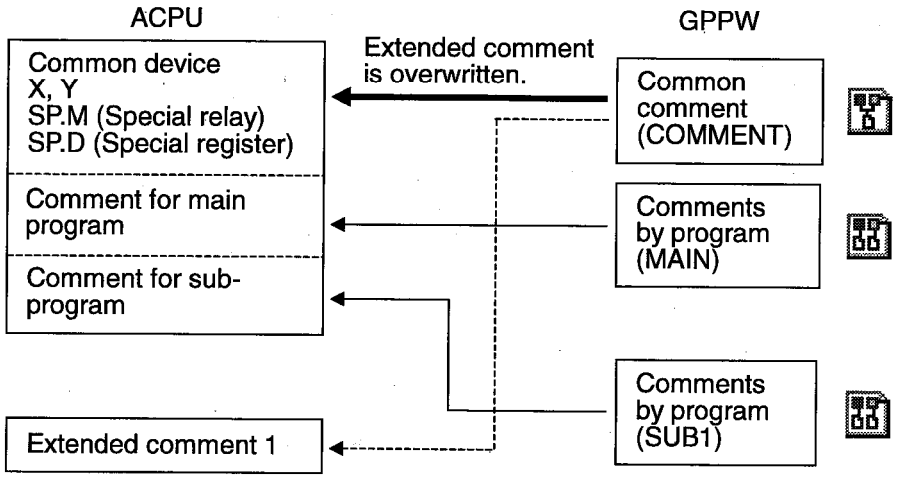
(2) When comment1/2 and extended comments have been set for the existing data, both comments are read into GPPW common comments.
In addition, when comment1/2 and extended comments are overlapping, the latter extended comments are read with precedence.



The comments for the main program and subprograms include the device comments, M, L, S, B, F, T, C, D, W, R, P, and I.

[Notes on reading and writing common comments]

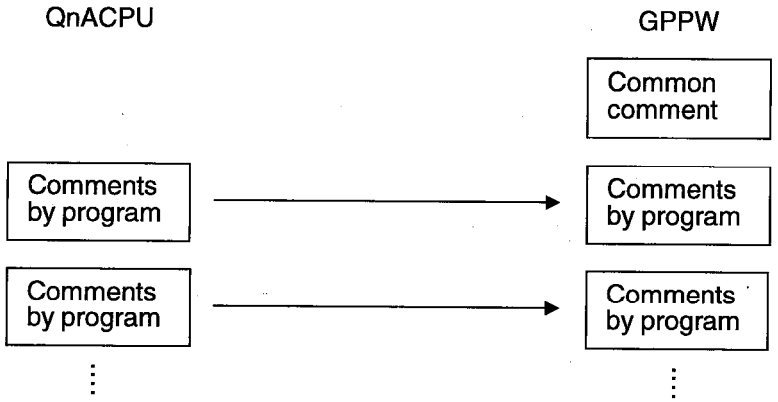
When the common devices X0 to XF and extended comments Y0 to YF are overlapping (in files created on the preceding page) , if they are read into GPPW, then input to ACPU, care should be taken because the comments Y0 to YF read from the extended comments are input to the common devices and the original common device comments are overwritten.



9.2.2 Reading from QnACPU

A	QnA	FX
×	•	×

1. The comments created by GPPQ are read as they are.
   The GPPW common comments are not read.

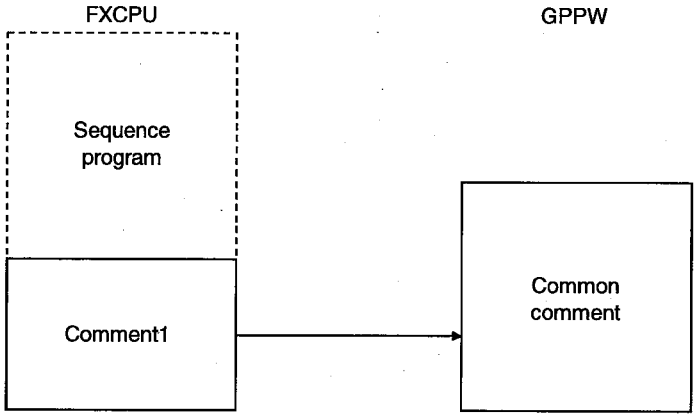


When the file "COMMENT" has been created as a QnACPU or GPPQ file, it is read into GPPW as a common comment.

9.2.3 Reading from FXCPU

A	QnA	FX
×	×	•

1. Comments in FXCPU are read as common comments as they are.



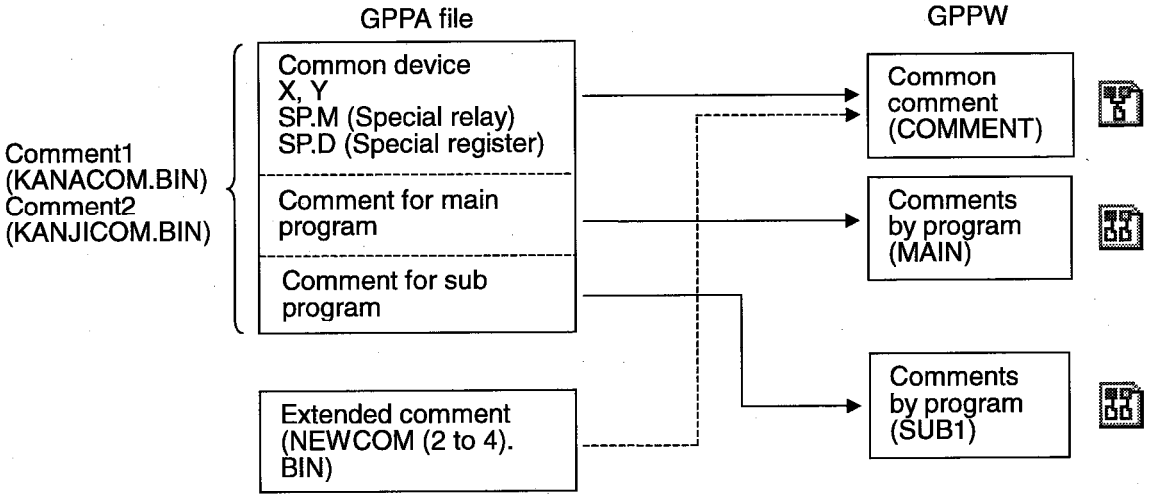
9.3 Reading GPPA and GPPQ Files from FD or HD

9.3.1 Reading a GPPA file

A	QnA	FX
•	×	×

(1) When the comments X and Y created by the PLC or GPPA are read into GPPW, they are pasted onto the edit windows X and Y respectively.

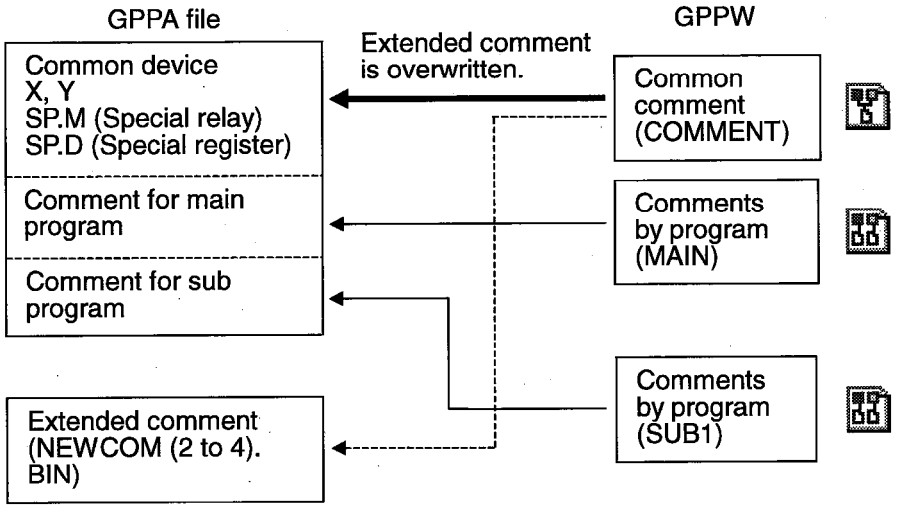
(2) When comment1/2 and extended comments have been set for the existing data, both comments are read into GPPW common comments.
In addition, when comment1/2 and extended comments are overlapping, the latter extended comments are read with precedence.
When the extended comments 1 to 4 have been set for the same device, the extended comment 1 is read with top precedence, then the extended comment 2 is read next, ... and the extended comment 4 is read last.



The comments for the main program and subprograms include the device comments, M, L, S, B, F, T, C, D, W, R, P, and I.

[Notes on reading and writing common comments]

When the common devices X0 to XF and extended comments Y0 to YF are overlapping in GPPA files (created on the preceding page), if they are read into GPPW, then input to GPPA files, care should be taken because the comments read from the extended comments are input to the common devices X0 to XF and the original common device comments are overwritten.

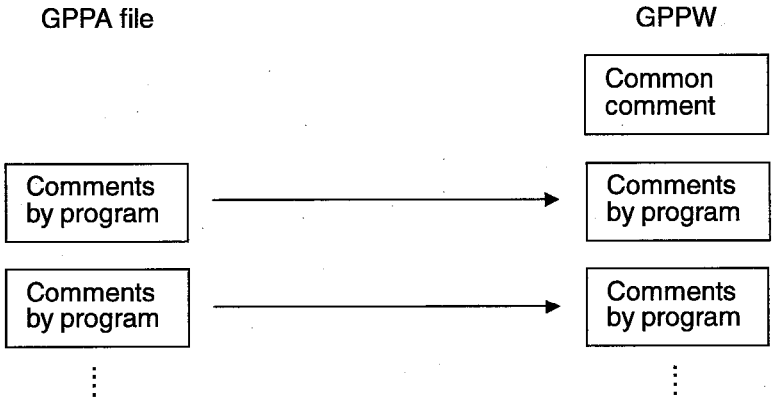


The comments for the main program and subprograms include the device comments, M, L, S, B, F, T, C, D, W, R, P, and I.

9.3.2 Reading a GPPQ file

A	QnA	FX
×	•	×

1. The comments created by GPPQ are read as they are.
   The GPPW common comments are not read.



When the file "COMMENT" has been created as a GPPQ file, it is read into GPPW as a common comment.

9.3.3 Reading an FXGP(DOS) or FXGP(WIN) file

A	QnA	FX
×	×	•

Comments are read as common comments.

(1) Reading an FXGP(DOS) file
All comments are read.

(2) Reading an FXGP(WIN) file
Though FXGP(WIN) allows up to 50 characters to be input, only the first 32 characters are read for GPPW input.
The number of comments is not limited and all comments are read.

9.4 List of Device Comments

A	QnA	FX
•	•	•

The following table summarizes the types of devices available for sequence program creation and their comment settings.

[A series]

Device Name		Symbol	Comment Setting
Bit device	Input	X	•
	Output	Y	•
	Internal relay	S*/M/L	•
	Annunciator	F	•
	Special relay	SP.M	•
	Link relay	B	•
Timer/counter	Timer	T	•
	Counter	C	•
Word device	Data register	D	•
	Special register	SP.D	•
	Index	V, Z	×
	Link register	W	•
	File register	R	•
Others	Pointer	P	•
	Accumulator	A	×
	Interrupt pointer	I	•
	Nesting	N	×

* : In the case of A1FXCPU selection, S comments or extended comments cannot be created.

[QnA series]

Device Name		Symbol	Comment Setting
Bit device	Input	X, DX	•
	Output	Y, DY	•
	Internal relay	M	•
	Step relay	S	•
	Latch relay	L	•
	Annunciator	F	•
	Special relay	SM	•
	FB input	FX	×
	FB output	FY	×
	Edge relay	V	•
	Link relay	B	•
	Link special relay	SB	•
Timer/counter	Timer	T	•
	Counter	C	•
	Count timer	ST	•
Word device	Data register	D	•
	Special register	SD	•
	Link register	W	•
	File register	R	•
	Sequence file R	ZR	•
	Link special register	SW	•
	FB data	FD	×
Others	Pointer	P	•
	Interrupt pointer	I	•
	Nesting	N	×
Extended specification	Index	Z	×
	I/O No.	U	•
	Buffer register	G	×
	SFC block device	BL	•
	Step relay (step relay with a block specification)	BL\S	•

[FX series]

Device Name		Symbol	Comment Setting
Bit device	Input	X	•
	Output	Y	•
	Internal relay	M	•
	State	S	•
	Special relay	M	•
Timer/counter	Timer	T	•
	Counter	C	•
Word device	Data register	D	•
	Special register	D	•
	Index	V, Z	×
	(RAM) file register	D	•
Others	Pointer	P	•
	Interrupt pointer	I	•

9.5 Common Comments and Comments by Program

A	QnA	FX
•	•	•

[Device comment system]

Device comments include common comments and comments by program.

[Common comment]

A series

Settings are required when a common comment is assigned for all sequence programs in CPU types with subprograms.

QnA series

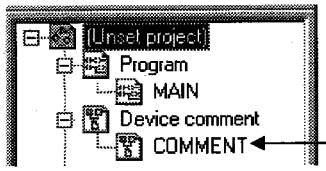
Settings are required when single comment data is used in common for creation of multiple programs.

These settings can also be made even when multiple programs are not present.

FX series

Settings are required when a comment is assigned for the main program (MAIN).

In FX series connection, these settings are not related to subprograms (SUB) because only one program file is created.



The common comment name is fixed to COMMENT.
The common comment can be changed to comments by program later.

[Comments by program]

A series

Settings are required when a comment is assigned for each program during main sequence program creation or sub-sequence program creation.

QnA series

Settings are required when a comment is assigned for each program.

FX series

Settings are required when comments other than common comments are assigned for the main program (MAIN).

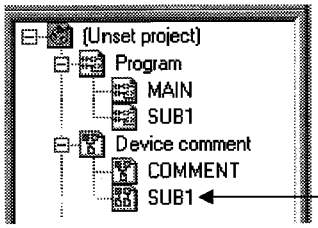
In FX series, only common comments are automatically created in new project creation.

When comments by program are required, they must be added newly. (see Section 5.8 for details.)

Comments by program cannot be input to FXCPU and FXGP(DOS) or FXGP(WIN) files. When input to FXCPU or FXGP(DOS) or FXGP(WIN) files is required, comments must be created as common comments or the comments by program must be changed to common comments for operation. (see Section 9.8 for details.)

[Setting of comment data by program]

See Section 5.8 for details on operation methods.

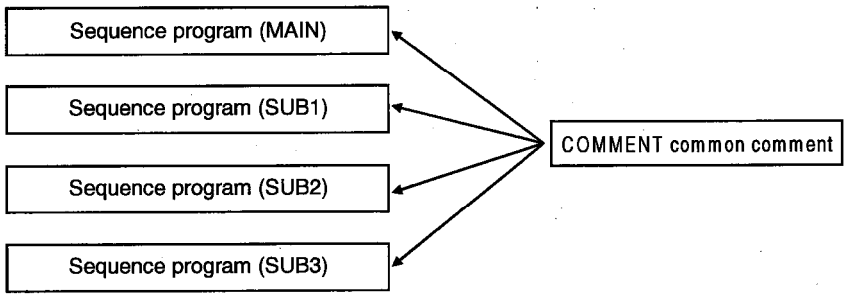


Once the comments by program are set, they are displayed as shown in the figure to the left.

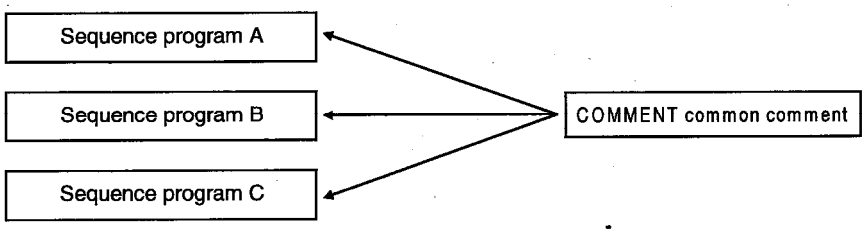
[Creation of only common comments]

Schematic diagram

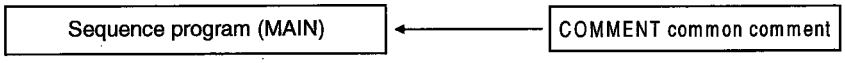
A series (A4UCPU selection):



QnA series

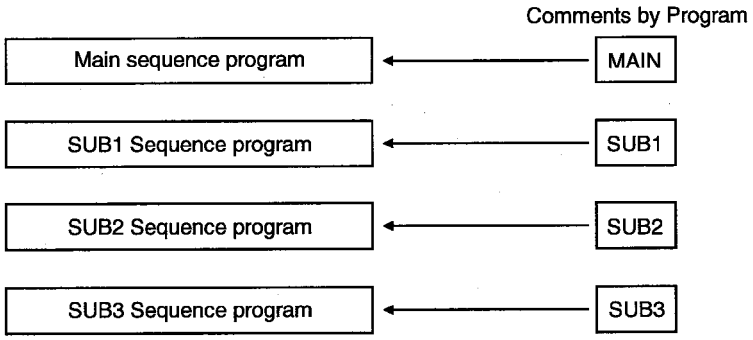


FX series:

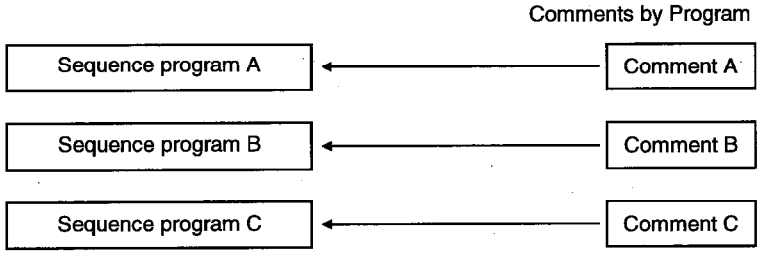


[Creation of only comments by program]

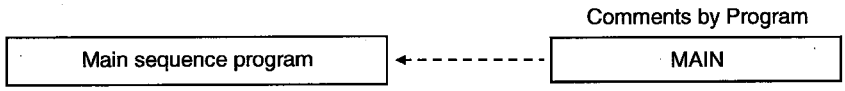
A series (A4UCPU selection):



QnA series:



FX series:



9.6 Creating Device Comments

9.6.1 Creating device comments on the device comment edit window

A	QnA	FX
•	•	•

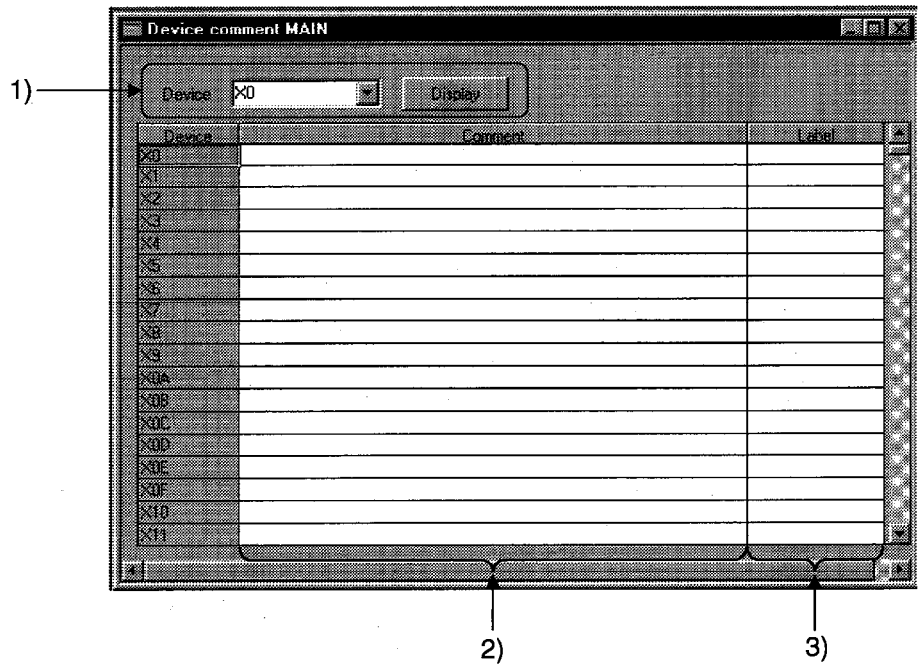
[Purpose]

Assigns the meaning for a device for easy-to-view programs. This function is helpful in creating the devices.

[Operating Procedure]

- For creation of common comments
  Device comment in the project data list → COMMENTO
- For creation of comments by program
  Set the data type (comments by program), name of new data to be added, and title in the dialog box displayed by selecting [Project] → [Edit data] → [New].

[Dialog Box]



[Description]

1) Device
   Designates a device for comment creation.
   After device designation, click the Display button.
   Once the device name is set, it is registered.

2) Comment
   Sets a comment for each device.
   Comment1..... To be created in 15 characters.
   (see APP.11.2 for comment setting in the FX PLC .)
   Comment2..... To be created in 16 characters.

3) Label
To be used when a device is set as an actual switch name.
A device name must be set in up to 8 characters.

<Example> Difference in displaying the device name and device comment

When a device name has been created in A series, it cannot be input to an ACPU/GPPA file even if input is attempted.
In such a case, the device name must be created again with GPPA.
However, the GPPA device name is effective only in printing and cannot be displayed on the circuit creation window.

POINTS

- When either common comments or comments by program have already been created, the created device comments are displayed unconditionally.
- When a device comment is input to an FXGP(WIN) file, it must be set only in alphanumeric characters and symbols (· + - * / = . ? # $ % & : ; _).
  Device names including the characters not permitted are deleted in writing them.
- The number of comment characters can be changed to 32 characters in the <<Data>> sheet on the dialog box displayed by selecting [Tools] → [Options].
  However, the number of comment characters is restricted as follows for input to ACPU or FXCPU (Comment1 only).
  Comment1..... Up to 15 characters(For FX series, see Section Appendix 11.2)
  Comment2..... Up to 16 characters

9.6.2 Creating device comments for the created circuit

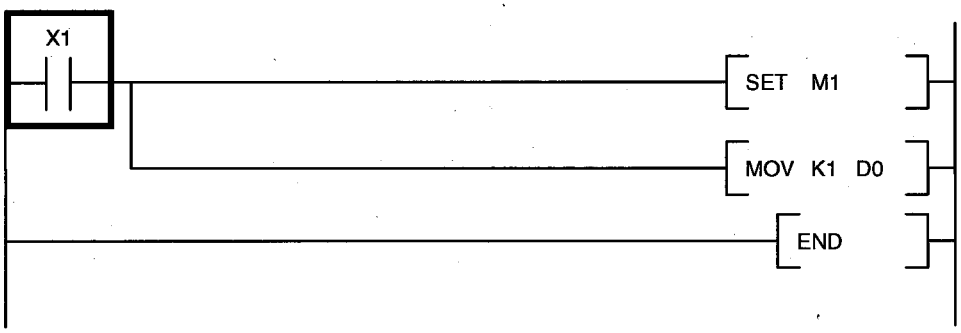
A	QnA	FX
•	•	•

[Purpose]

Assigns the meaning for a device for easy-to-view programs.
This function is helpful in modifying or adding device comments.

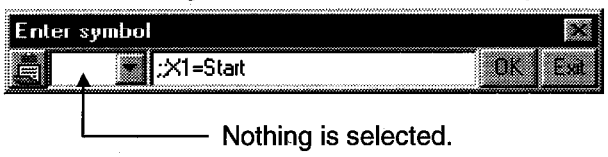
[Operating Procedure]

1. Move the cursor to a device comment creation location.

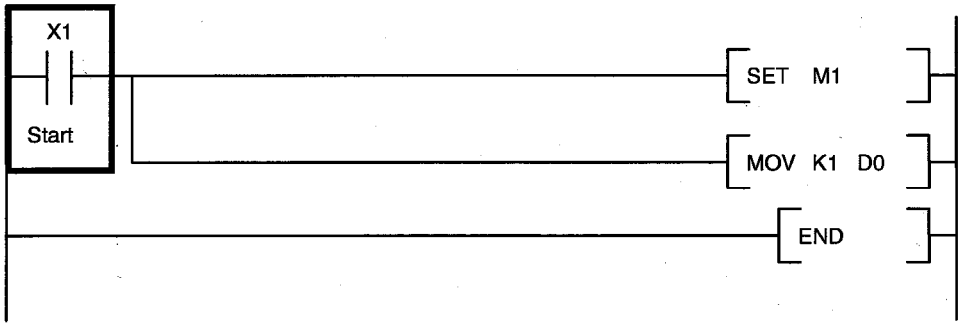


2. Press Enter key.

3. Make settings as follows for the circuit input dialog box. (Input two semicolons.)



4. Comment display takes place as follows.



9.6.3 Creating device comments after creating a circuit

A	QnA	FX
•	•	•

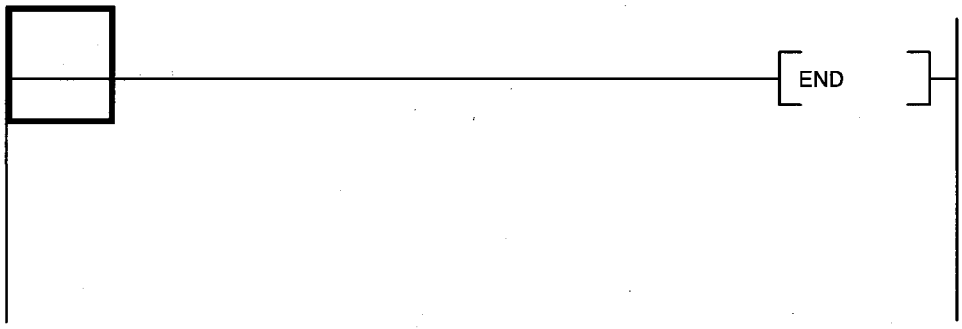
[Purpose]

Assigns the meaning for a device for easy-to-view programs.
This function is helpful to create device comments and the circuit at the same time.

[Operating Procedure]

1. Check the Device comment check box on the dialog box displayed by selecting [Tools] → [Options].

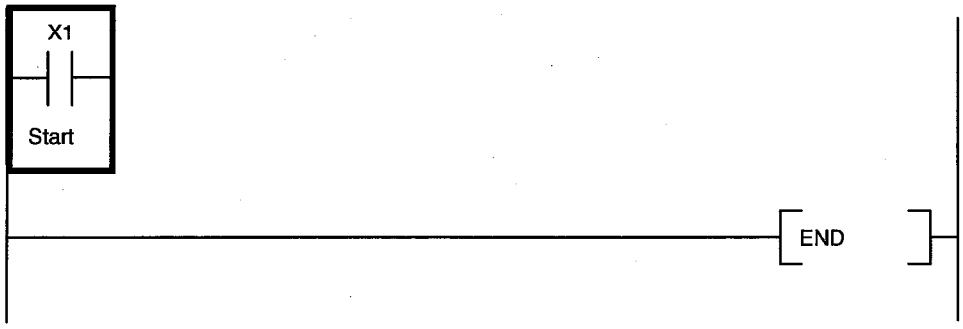
2. Move the cursor to a device comment creation location.



3. Enter a contact and/or a device and click the OK button.

4. Enter a device comment and click the OK button.

5. Comment display takes place as follows.



9.7 Deleting Device Comments

9.7.1 Deleting all device comments and device names

A	QnA	FX
•	•	•

[Purpose]
Deletes all device comments and device names set so far.

[Operating Procedure]
Display the device comment edit window, then select [Edit] → [Clear all (all devices)].

9.7.2 Deleting display device comments and device names

A	QnA	FX
•	•	•

[Purpose]
Deletes the device comments and device names being displayed.

[Operating Procedure]
Display the device comment edit window, then select [Edit] → [Clear all (displayed devices)].

9.8 Setting Comment Types

A	QnA	FX
•	•	•

[Purpose]

Switches the comment type from common comments to comments by program and vice versa.

<Example>

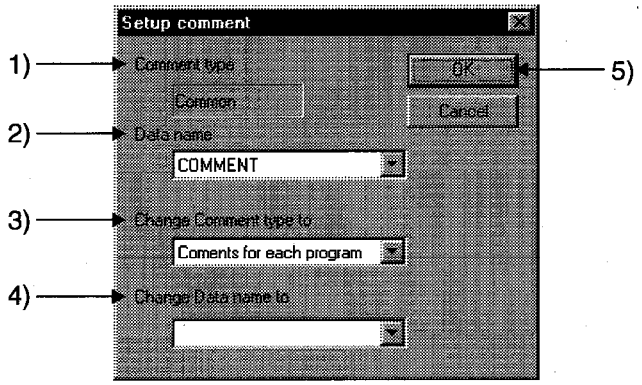
Settings are required when common comments are changed to SUB1 (comments by program) or comments by program are changed to common comments (COMMENT).

Before change		After change
COMMENT (common comment)	→	SUB1 (comments by program)
MAIN (comments by program)	→	MAIN (comments by program)

[Operating Procedure]

Display the device comment edit window, then select [Edit] → [Setup comment].

[Dialog Box]



[Description]

1) Comment type
   Indicates the type of the data selected for Data name.

2) Data name
   Designates a data name for comment type change.

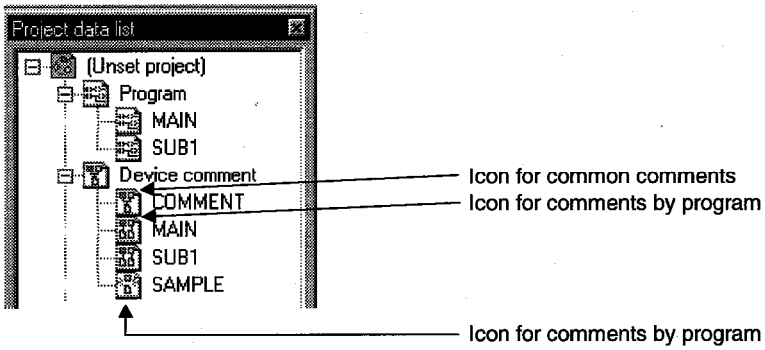
3) Change comment type to
   Classifies data set in the data name field into two categories: common comments and comments by program.

4) Change Data name to
   Changes the existing data name.
   This data name must be designated in up to 8 characters.

5) [OK] button
   Click this button after making necessary settings.

POINTS

- Common comments and comments by program can be classified from the device comment icons in the project data list.



..... This icon is displayed for comments corresponding to the sequence programs.

..... This icon is displayed for comments not corresponding to the sequence programs.

- One common comment is allowed within one program.
  In addition, the common comment data name is fixed to "COMMENT."
- Up to 124 comments by program can be set.

9.9 Setting Comment Ranges

A	QnA	FX
•	•	•

[Purpose]

Sets a data range when data created with GPPW is written to an A, QnA or FX series CPU or a GPPA, GPPQ, FXGP(DOS) or FXGP(WIN) file is written to the FD or HD.

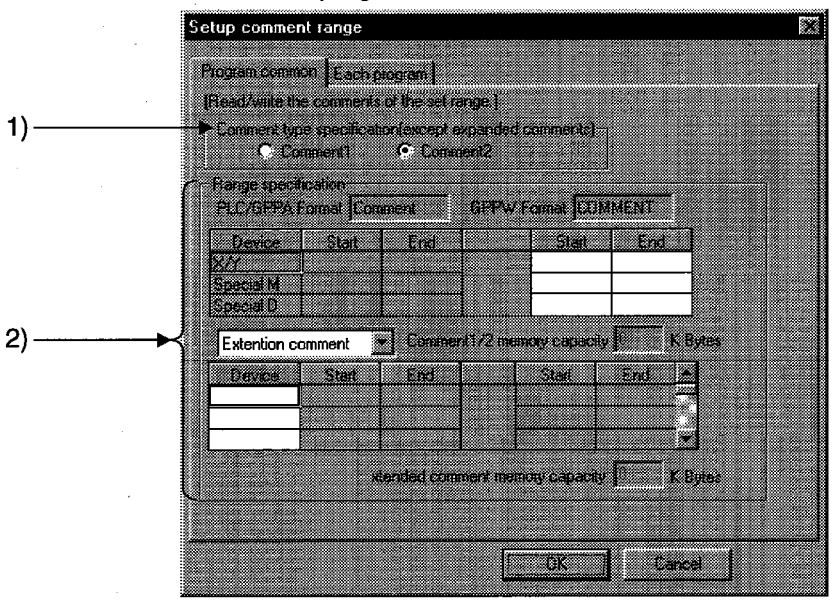
[Operating Procedure]

Display the device comment edit window, then select [Edit] → [Setup comment range].

- When A series is started

[Dialog Box]

<<Common programs>> sheet



[Description]

1) Comment type specification

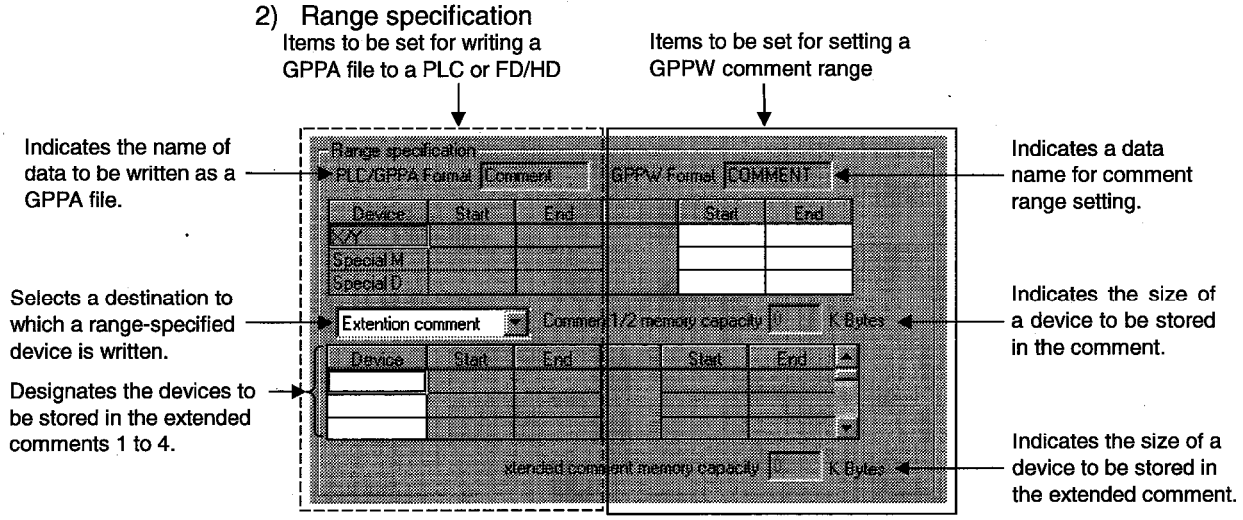
⊙ Comment1

To be selected when a device comment has been created as a Comment1.

⊙ Comment2

To be set when a device comment has been created as a Comment2.

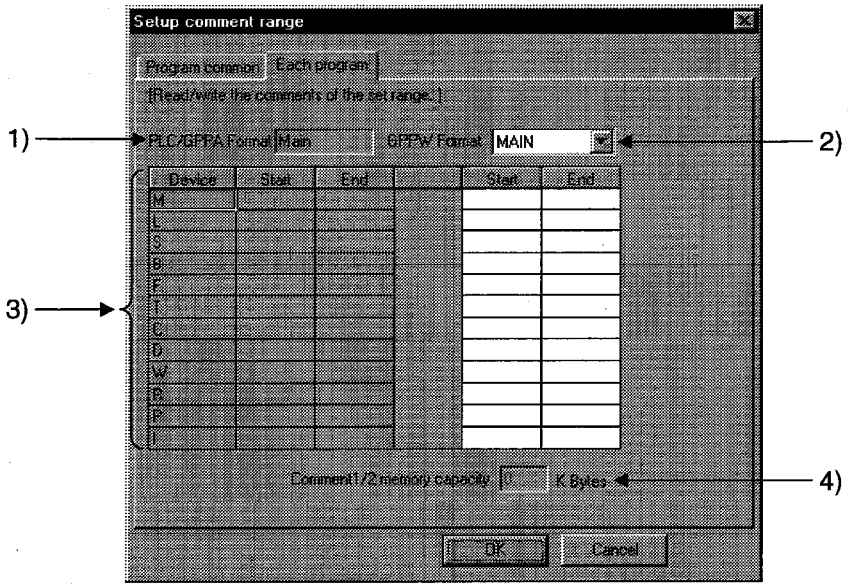
2) Range specification



If the starting and end positions of a range are designated in GPPW files, they are reflected in the PLC /GPPA table.

[Dialog Box]

<<Each program>> sheet (for main program and subprograms)



[Description]

1) PLC/GPPA Format
Indicates the name of data to be written as a GPPA file.

2) GPPW Format
Designates MAIN or SUB1.
Even if SUB2, SUB3 or SUB4 is created with GPPW, it cannot be designated in this setting item.

3) Device range setting
Designates a range of devices to be written to a PLC or a peripheral device.

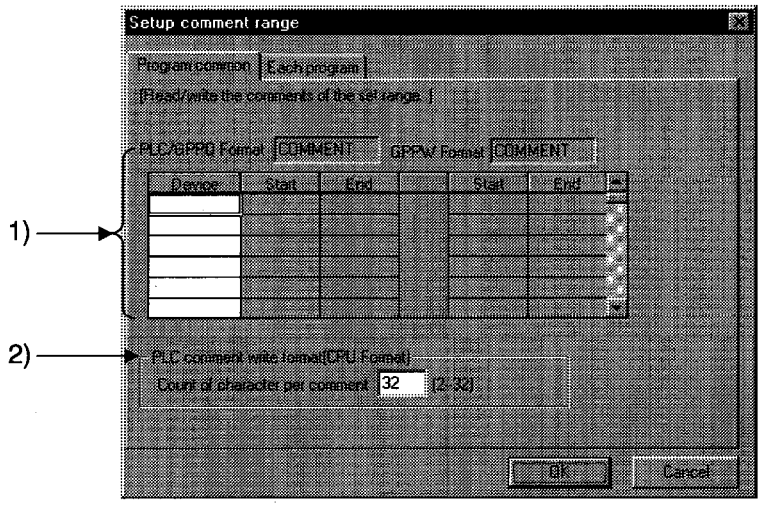
4) Comment1/2 memory capacity
Indicates the size of a device to be saved in the comment or extended comment.

[Operating Procedure]

- When QnA series is started

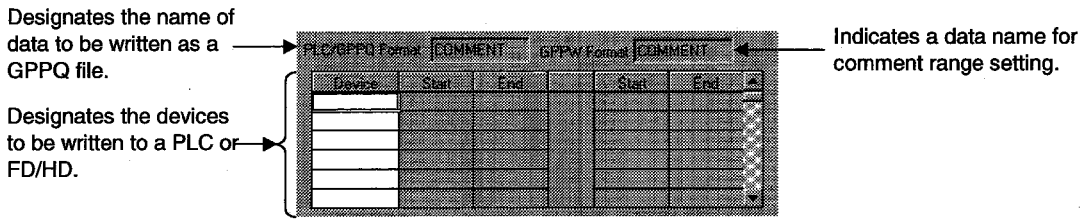
[Dialog Box]

<<Program common>> sheet



[Description]

1) Range setting

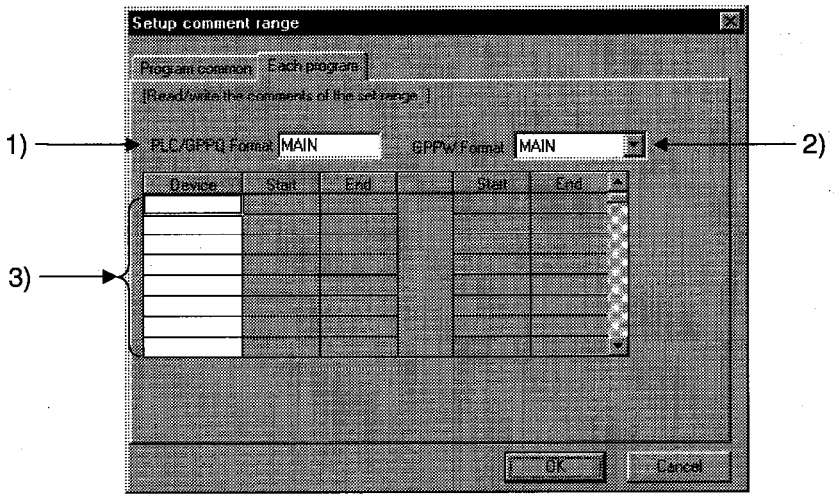


If the starting and end positions of a range are designated in GPPW files, they are reflected in the PLC /GPPA table.

2) PLC comment write format (PLC Format)
Designates how many characters are to be written to a PLC.

[Dialog Box]

<<Each program>> sheet



[Description]

1) PLC /GPPQ Format
   Designates the name of data to be written as a GPPQ file.

2) GPPW Format
   Indicates a data name for comment range setting.

3) Device range setting
   Designates the devices to be written to a PLC or peripheral device.

POINT

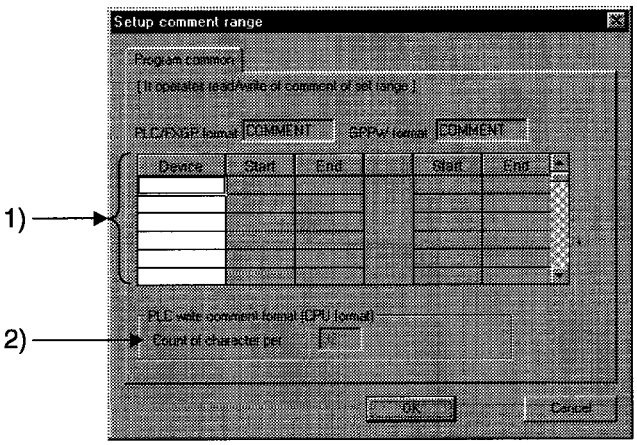
- To make input to ACPU, the comment1/2 memory size must be designated in the memory size parameter. (The memory size displayed here is not reflected to the parameter memory size.)
  If no size is designated, an error occurs.
  No settings are required when the other files are used for input.

[Operating Procedure]

- When FX series is started

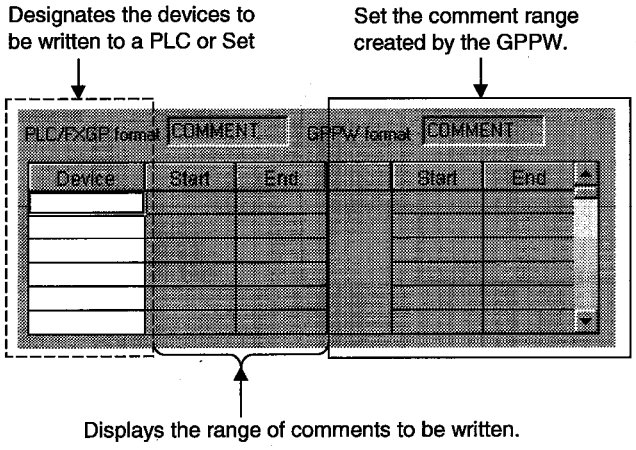
[Dialog Box]

<<Program common>> sheet



[Description]

1) Range setting



2) PLC write comment form (PLC form).
Setting is not possible for the FX series.

POINT

- Comments by program cannot be written to PLC and FD/HD (see Section 9.5).

9.10 Finding and Replacing a Character String

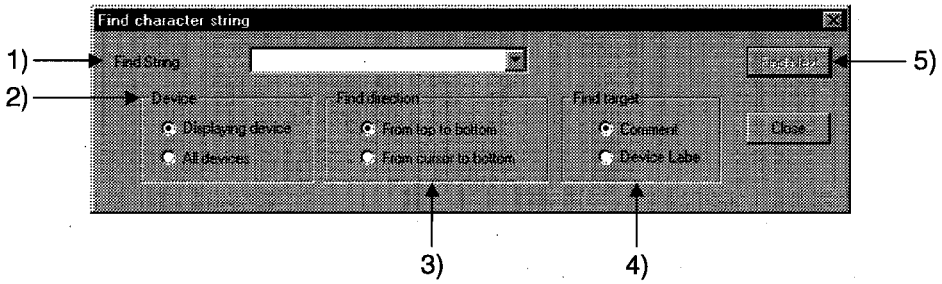
9.10.1 Finding a character string

A	QnA	FX
•	•	•

[Purpose]
Corrects or edits the created comment.

[Operating Procedure]
Display the device comment edit window, then select [Find/Replace] → [Find character string].

[Dialog Box]



[Description]

1) Find character
Enter a character string to be searched for.

2) Device
Select a radio button to designate whether to search for the devices being displayed in the window or all the devices subject to comment creation.

3) Find direction
Select a radio button to designate whether to search for devices from the beginning or at the cursor position.

4) Find type
Check a radio button to designate a comment or device name.

5) [Find Next] button
Click this button after making necessary settings.

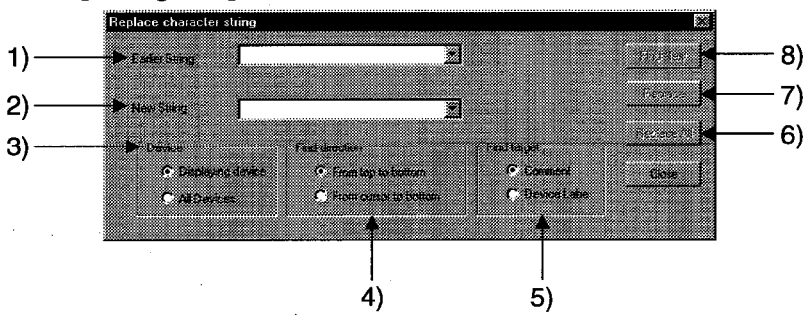
9.10.2 Replacing a character string

A	QnA	FX
•	•	•

[Purpose]
Corrects or edits the created comment.

[Operating Procedure]
Display the device comment edit window, then select [Find/Replace] → [Replace character string].

[Dialog Box]



[Description]

1) Earlier string
Enter the current comment.

2) New String
Enter the new comment to be set.

3) Device
Select a radio button to designate whether to replace only the devices being displayed in the window or all the devices subject to comment creation.

4) Find target
Select a radio button to designate whether to search for devices from the beginning (in search direction) or at the cursor position.

5) Find target
Select a radio button to designate a comment or device name.

6) [Replace all] button
Click this button to replace all the devices being edited.

7) [Replace] button
Click this button to replace one device and search for the next.

8) [Find Next] button
Click this button to search for the next occurrence of the device designated in Old character string.