

[Contents]

Safety Precautions
Revisions
Introduction
Parts of This Manual
How to Use This Manual
Abbreviations



Getting started

1 Getting started

- 1.1 What GPPW can do 1- 1
- 1.2 Easy installation of GPPW 1- 5
- 1.3 Required items to gain access to PLC 1- 9
- 1.4 Operation flow 1-11



Basics

1 Introduction

- 1.1 How to use the mouse 2- 1
- 1.2 Common mouse operations 2- 3
- 1.3 Screen configuration 2- 7

2 Basics for GPPW operations

- 2.1 What is a "project"? 2- 9
- 2.2 Starting GPPW 2-11
- 2.3 Ending a GPPW session 2-13
- 2.4 Designation of project 2-15
- 2.5 Frequent operations 2-19

3
**Offline
operations**

1 **Creating a circuit**

- 1.1 Creating a new project 3- 1
- 1.2 Creating a circuit with list expressions (mnemonic language) .. 3- 3
- 1.3 Creating a circuit with tool buttons 3- 7
- 1.4 Converting a created program 3-11
- 1.5 Creating a circuit with list commands..... 3-13
- 1.6 Saving a created project 3-15
- 1.7 Reading a saved project 3-17

2 **Editing a circuit**

- 2.1 Correcting part of a circuit 3-19
- 2.2 Cutting and copying a circuit block 3-21
- 2.3 Inserting or deleting a line 3-25
- 2.4 Creating and deleting a ruled line 3-27

3 **Searching a circuit**

- 3.1 Searching with a designated device 3-29
- 3.2 Searching with a step No. 3-31

4 **Replacing within a circuit**

- 4.1 Replacing with a designated device 3-33
- 4.2 Replacing open contact with close contact and vice versa 3-37

5 **Explaining circuit components**

- 5.1 Creating device comments 3-41
- 5.2 Creating statements for each circuit block 3-45
- 5.3 Creating a note for coil and application instruction 3-47

6 **Editing comments**

- 6.1 Correcting device comments 3-49
- 6.2 Deleting (cutting) device comments 3-51
- 6.3 Copying device comments 3-55
- 6.4 Searching statements and notes 3-57
- 6.5 Correcting statements and notes 3-59

3
**Offline
operations**

4
**Online
operations**

5
**Useful
functions**

7 **Printing**

7.1 Printing a circuit 3-61

7.2 Printing contacts or coils in use 3-63

7.3 Printing the device in use 3-65

7.4 Printing a list of device comments in use 3-67

1 **Writing and reading to/from the PLC CPU**

1.1 Writing data to the PLC CPU 4- 1

2 **Monitoring PLC status**

2.1 Monitoring circuit status 4- 4

2.2 Monitoring designated devices 4- 6

3 **Debugging a created circuit**

3.1 Turning ON/OFF contact positively 4- 8

3.2 Executing a program step by step 4-10

4 **Online change**

4.1 Writing data during a run of the PLC CPU 4-12

4.2 Changing data during monitoring, and writing during a run 4-14

1 **Offline operations**

1.1 Associating multiple programs 5- 1

1.2 Changing function keys in GPPA, GPPQ, and MEDOC formats · 5- 5

1.3 Setting the designated projects for quick start-up 5- 7

1.4 Converting files from GPPA format to GPPW format 5- 9

1.5 Changing project PLC type 5-17

2 **Operations with Windows functions**

2.1 Using Excel files as device comment 5-19

2.2 Using Word files as device comment 5-21

2.3 Opening and editing multiple projects 5-23



Useful functions

Appendix

3 **Using Logic Test functions**

- 3.1 Learning operation procedures 5-27
- 3.2 Creating emulation of I/O and special unit 5-29
- 3.3 Monitoring device status 5-33

Appendix

- App.1 Short cut key list A- 1
- App.2 Circuit creation list A- 7

Index

Part 3

Offline operations

3

1. Creating a circuit

- 1.1 Creating a new project 3-1
- 1.2 Creating a circuit with list expressions (mnemonic language) · 3-3
- 1.3 Creating a circuit with tool buttons 3-7
- 1.4 Converting a created program 3-11
- 1.5 Creating a circuit with list commands 3-13
- 1.6 Saving a created project 3-15
- 1.7 Reading a saved project 3-17

2. Editing a circuit

- 2.1 Correcting part of circuit 3-19
- 2.2 Cutting and copying a circuit block 3-21
- 2.3 Inserting or deleting a line 3-25
- 2.4 Creating and deleting a ruled line 3-27

3. Searching a circuit

- 3.1 Searching with a designated device 3-29
- 3.2 Searching with a step No. 3-31

4. Replacing within a circuit

- 4.1 Replacing with a designated device 3-33
- 4.2 Replacing open contact with close contact and vice versa · 3-37

5. Explaining circuit components

- 5.1 Creating device comments 3-41
- 5.2 Creating statements for each circuit block 3-45
- 5.3 Creating a note for coil and application instruction 3-47

6. Editing comments

- 6.1 Correcting device comments 3-49
- 6.2 Deleting (cutting) device comments 3-51
- 6.3 Copying device comments 3-55
- 6.4 Searching statements and notes 3-57
- 6.5 Correcting statements and notes 3-59

7. Printing

- 7.1 Printing a circuit 3-61
- 7.2 Printing contacts or coils in use 3-63
- 7.3 Printing device in use 3-65
- 7.4 Printing a list of device comments in use 3-67

3

3 Offline operations

1 Creating a circuit

A PLC CPU is only a box if a program is not installed.

It is necessary to create a circuit (program) that controls the PLC.

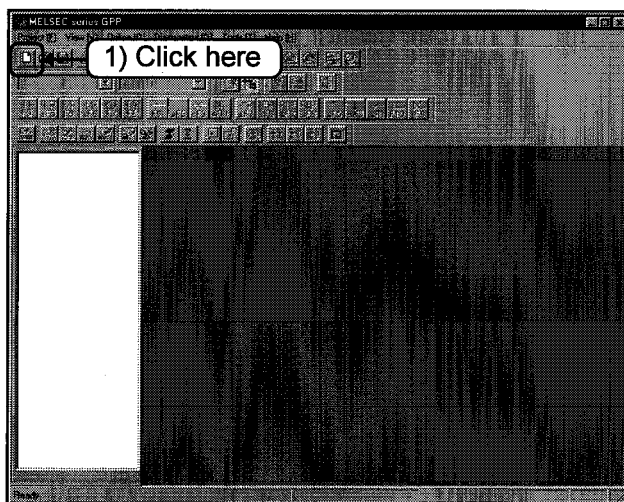
This chapter describes creating the project required for the circuit and its reading.

1.1 Creating a new project

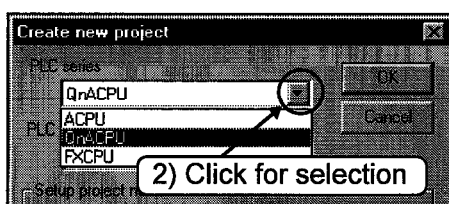
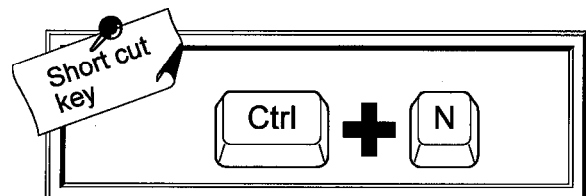
This section describes setting PLC series and PLC type and creating a new project.

Only one project can be opened with GPPW.

To open and edit multiple projects, it is necessary to start multiple GPPWs.



1) Click  on the tool bar.



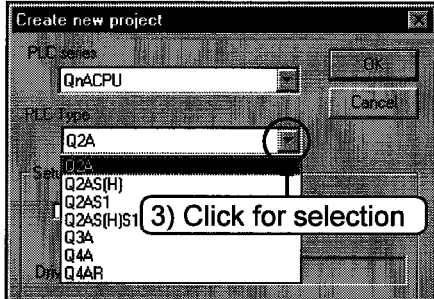
2) Click the [PLC series] from the list buttons.

Select the appropriate type corresponding to your PLC CPU series.

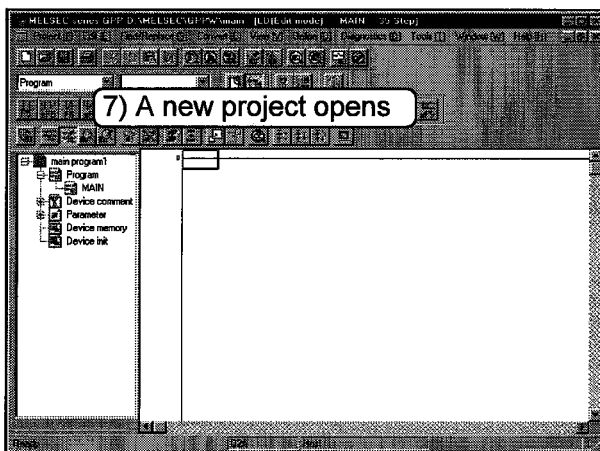
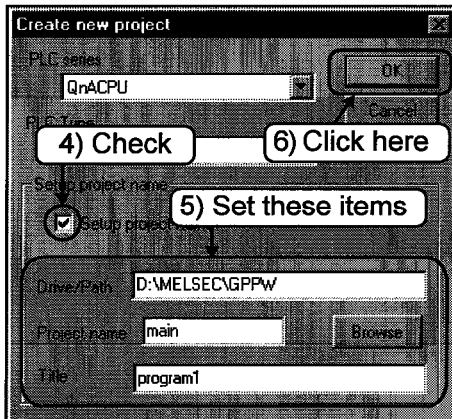


To the following page //

From previous page



(Setting a project name.)



3) Click the list button to select the [PLC type].
Select the appropriate type corresponding to your PLC CPU series.

4) Check this to set the project name.

5) Set the project path, the project name and the heading.

Point

Click the **Browse** button and the following dialog box appears for setting.

Part 2, 2.4

6) Click the **OK** button.

7) A new project opens.

Hint!

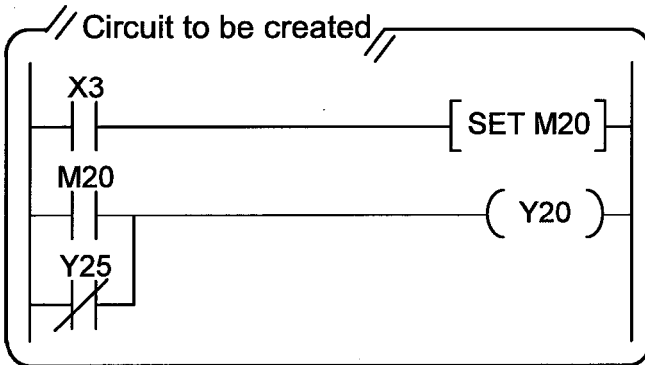
For project ...

Part 2, 2.1.

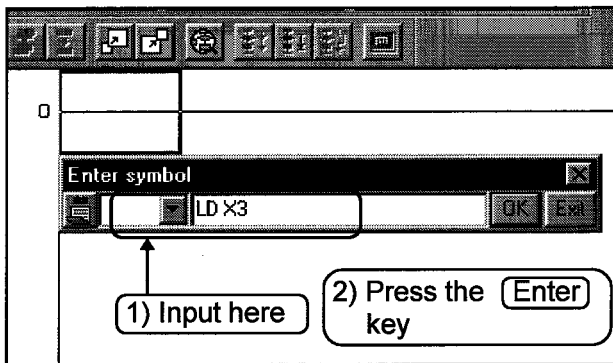
3 Offline operations

1.2 Creating a circuit with list expressions (mnemonic language)

This section explains creating an example circuit with list expressions. To create a circuit, be sure to change the mode to write mode.



Method to create a circuit in the left is explained.



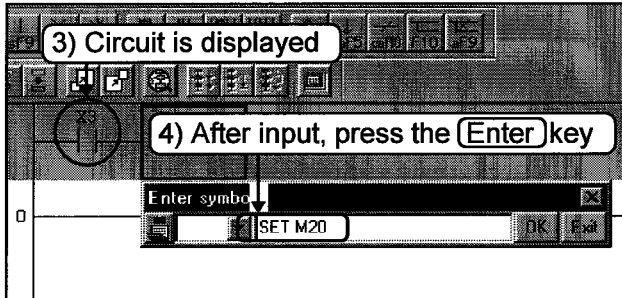
- 1) Input "LD_X3".
When the input is made, the circuit input window opens.
If the input is not correct, press the **[Esc]** key.
- 2) If the input is correct, press the **[Enter]** key.

Hint!

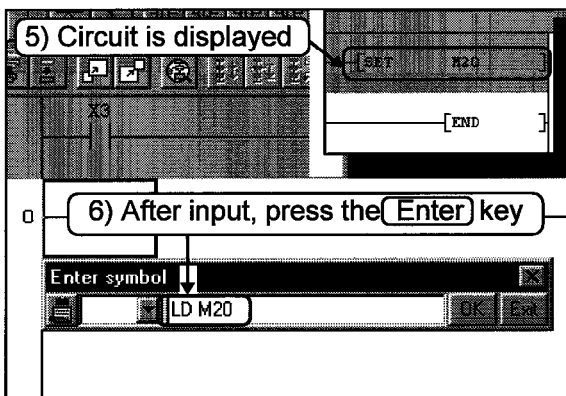
- Click the **[OK]** button to define the input.
- Click the **[Exit]** button to delete the input.

To the following page //

From previous page //



- 3) Input circuit ($\overline{X3}$) is displayed.
- 4) Input "SET M20". After the input, press the **Enter** key.



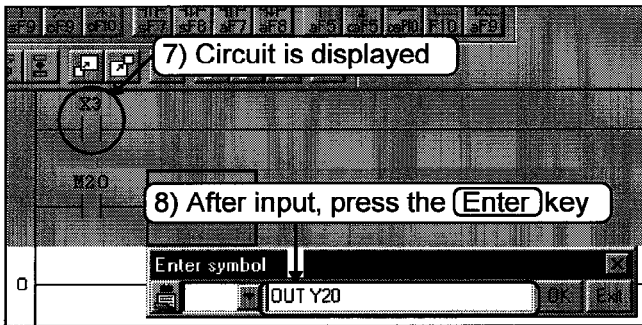
- 5) Input circuit ($\overline{[SET M20]}$) is displayed.
- 6) Input "LD M20". After the input, press the **Enter** key.



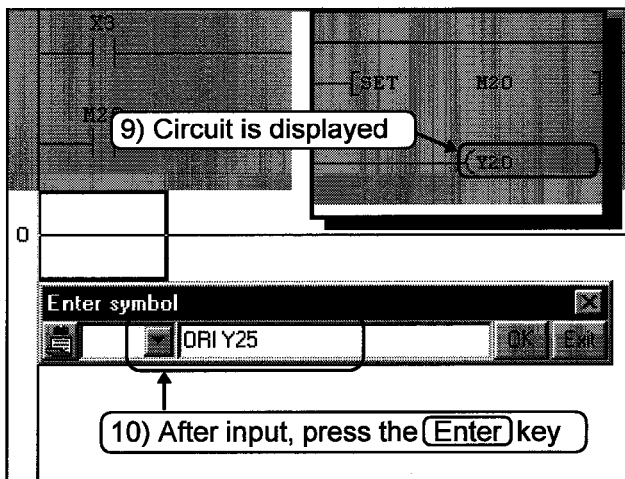
To the following page //

3 Offline operations

From previous page //



- 7) Input circuit ($\overline{M20}$) is displayed.
- 8) Input "OUT_Y20".
After the input, press the **Enter** key.

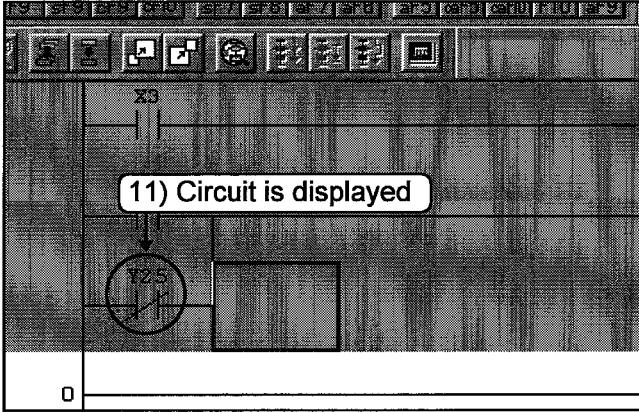


- 9) Input circuit ($\overline{Y20}$) is displayed.
- 10) Input "ORI_Y25".
After the input, press the **Enter** key.

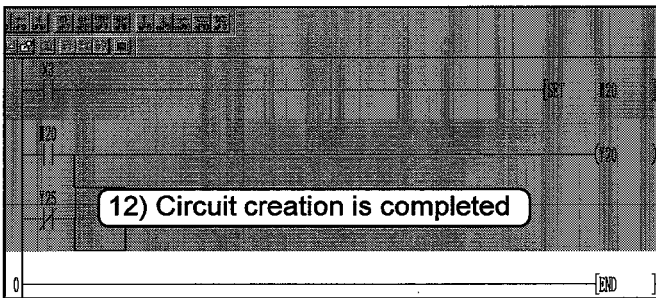


To the following page //

From previous page



11) Input circuit (Y_{25}) is displayed.



12) Now, the circuit creation is completed.

Point

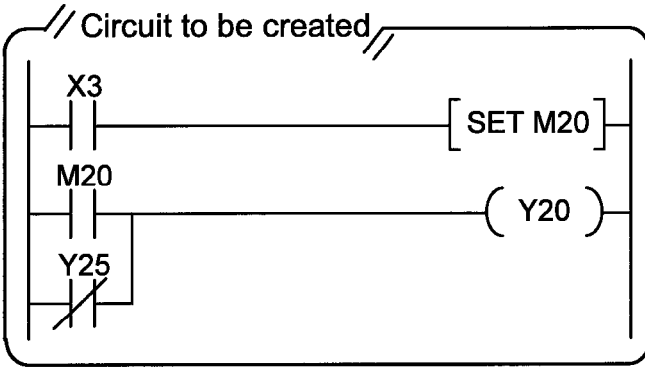
Conversion is required after creation of a circuit.

☞ Part 3, 1.4. ☞

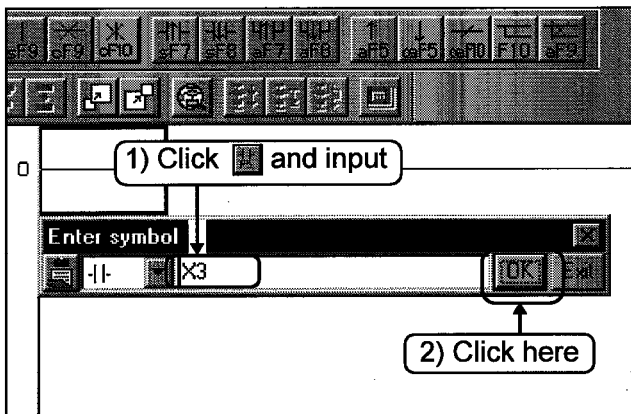
3 Offline operations


1.3 Creating a circuit with tool buttons

This section explains creating an example circuit with tool buttons. To create a circuit, be sure to change the mode to write mode. (This section deals mainly with mouse operations.)



Method to create a circuit in the left is explained.

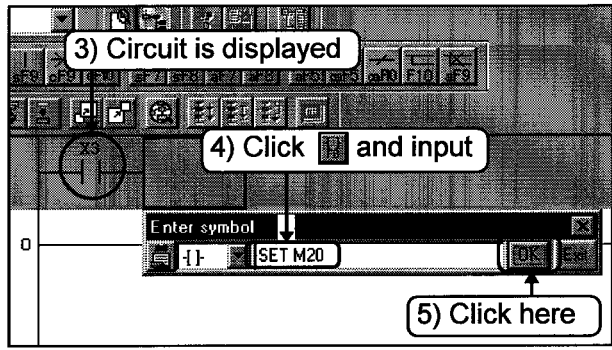



- 1) Click  on the tool bar and the circuit input window opens. Input "X3". If the input is not correct, click the **Exit** button.
- 2) If the input is correct, click the **OK** button.

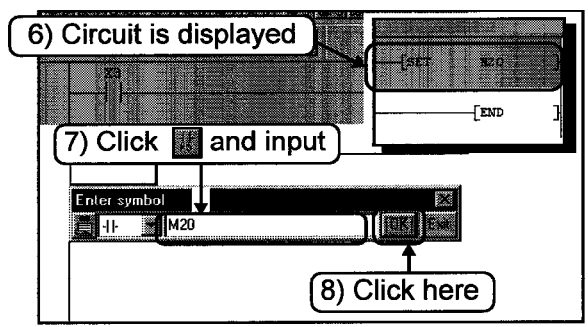



To the following page //

From previous page //



- 3) Input circuit ($\overset{x3}{-|+}$) is displayed.
- 4) Click  on the tool bar and input "SET_M20".
- 5) Click the button.



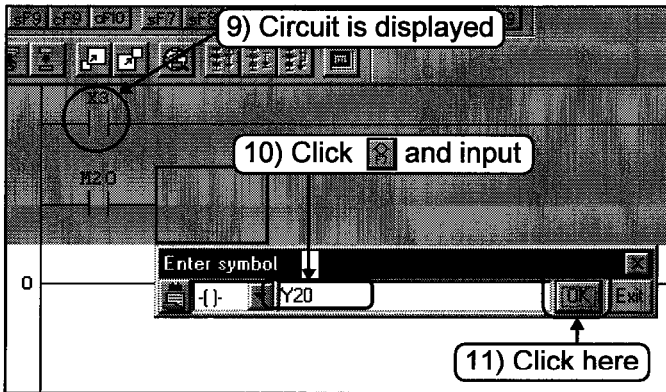
- 6) Input circuit ($\overset{-[SET M20]-}{-|+}$) is displayed.
- 7) Click  on the tool bar and input "M20".
- 8) Click the button.




To the following page //

3 Offline operations

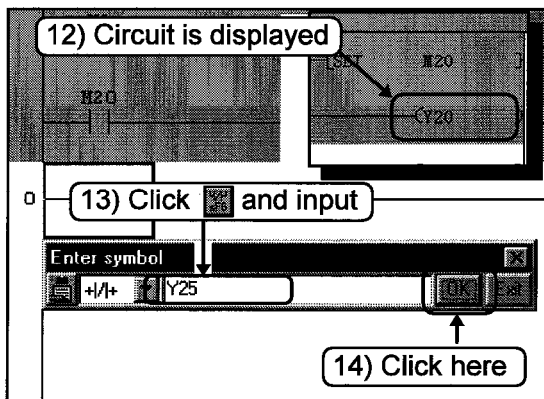
From previous page




9) Input circuit ($\overset{M20}{-|+}$) is displayed.

10) Click  on the tool bar and input "Y20".

11) Click the button.



12) Input circuit ($-(Y20)-$) is displayed.

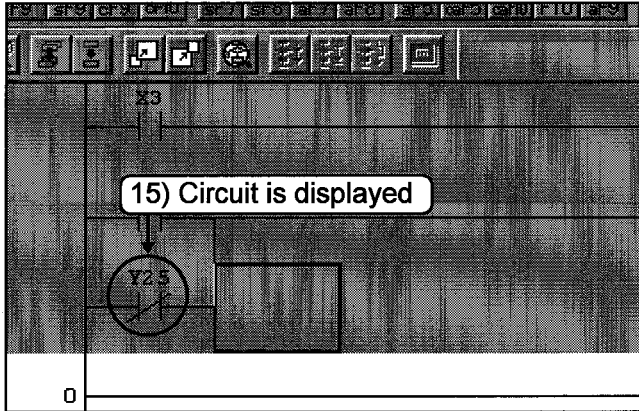
13) Click  on the tool bar and input "Y25".

14) Click the button.

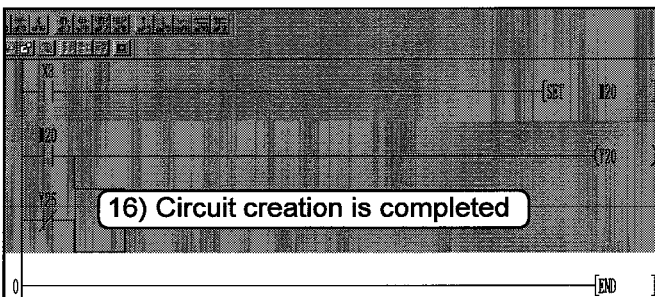


To the following page

From previous page



15) Input circuit ($\overset{Y25}{\text{---}}$) is displayed.



16) Now, the circuit creation is completed.

Point

Conversion is required after creation of a circuit.

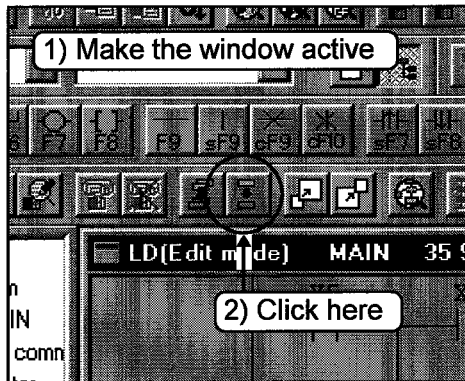
Part 3, 1.4.


3

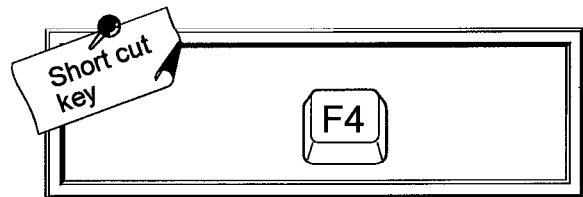
Offline operations

1.4 Converting a created program

This section explains converting a created program (circuit).



- 1) Click the window for the circuit to be converted and make it active.
- 2) Click  on the tool bar. Now, conversion is complete.



Hint!

If an error occurs during conversion, the faulty area on the circuit turns gray. Check the circuit.

MEMO

A large, empty rectangular area with rounded corners, intended for writing a memo. The area is bounded by a thick black line and is completely blank.

3

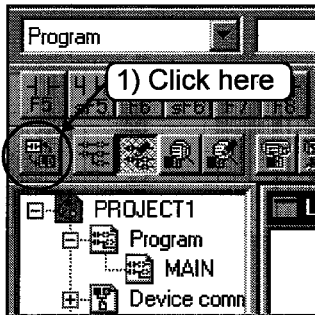
Offline operations

1.5 Creating a circuit with list commands

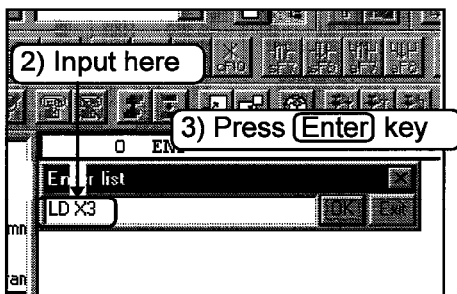
This section explains creating the circuits described in 1.2 and 1.3 with list commands. Be sure to set the operation to the write mode before circuit creation.

```
List to be created//  
LD      X3  
SET     M20  
LD      M20  
ORI     Y25  
OUT     Y20  
END
```

Operations for creating a list as shown to the left are explained.



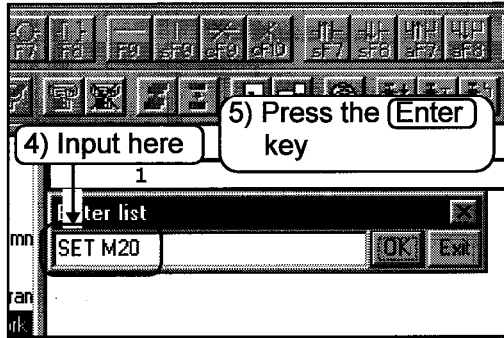
- 1) Click the  button to switch to the list display.



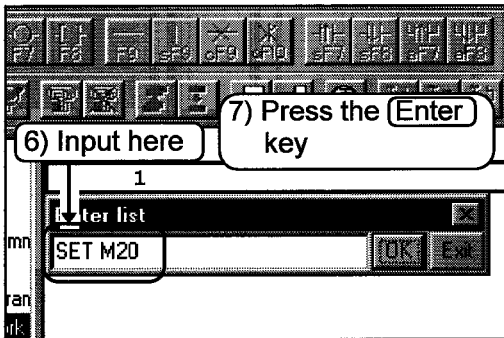
- 2) Input "LD X3". Press the **(Esc)** Key if input is wrong.
- 3) After inputting correctly, press the **(Enter)** key.

To the following page //

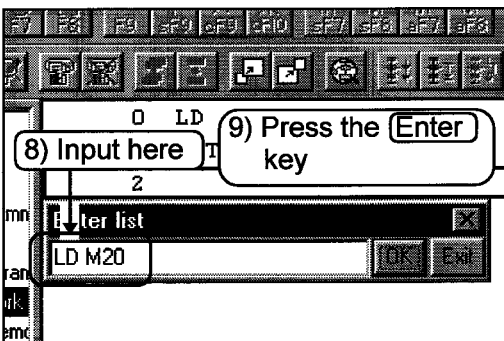
From previous page



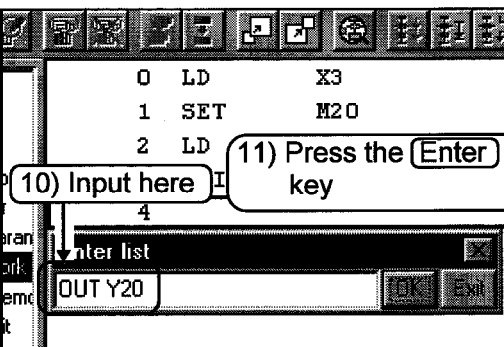
- 4) Input "SET M20".
- 5) Press the **(Enter)** key.



- 6) Input "LD M20".
- 7) Press the **(Enter)** key.



- 8) Input "ORI Y25".
- 9) Press the **(Enter)** key.



- 10) Input "OUT Y20".
- 11) Click the **OK** button.
Now, programming with list commands is complete.

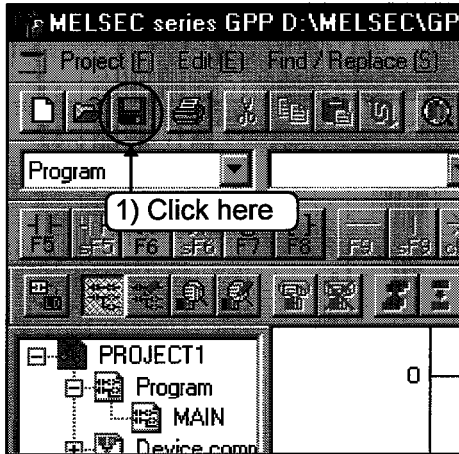
3

Offline operations

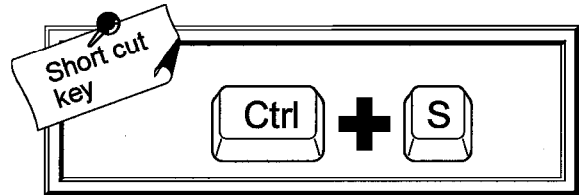
1.6 Saving a created project

The created circuits, comments and parameters are saved by project.
This section explains saving created projects.

—Saving a new project or overwriting a project—



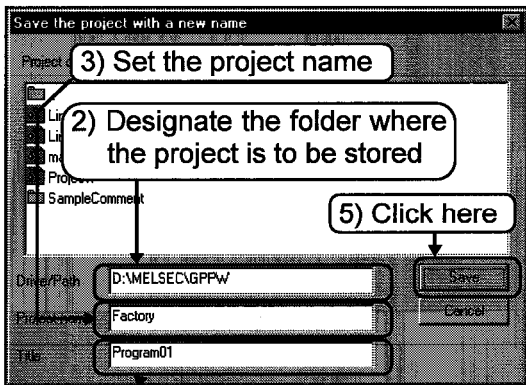
1) Click  on the tool bar.



Point

For overwriting, this completes the saving operation.



(For saving a new project only)



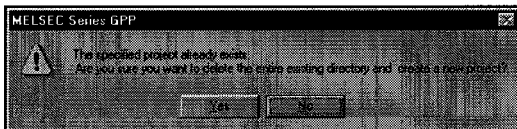
- 2) Designate the folder where the project is to be stored.
- 3) Set the project name.
- 4) Set a heading as required.
- 5) After setting the items, click the **Save** button.

Hint!

For more details of designating method of the project, see...

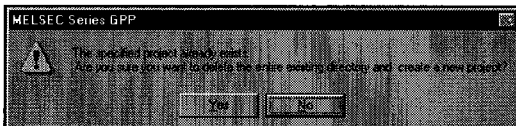
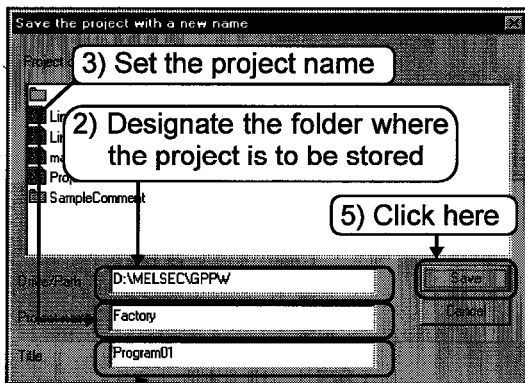
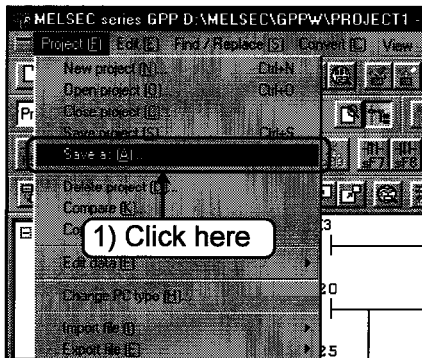
 *Part 2, 2.4.* 

4) Set a heading(Any)



6) Click **Yes** button. Now, saving is completed.

—Saving a new project or overwriting a project—



1) Click [Project]-[Save as] on the menu.

2) Designate the folder where the project is to be stored.

3) Set the project name.

4) Set a heading as required.

5) After setting the items, click the **Save** button.

Hint!

For more details of designating method of the project, see...

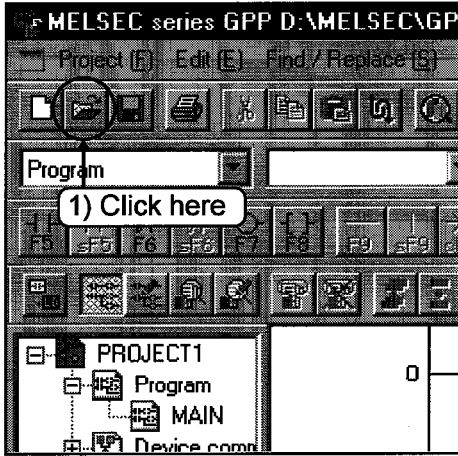
Part 2, 2.4.

6) Click **Yes** button. Now, saving is completed.

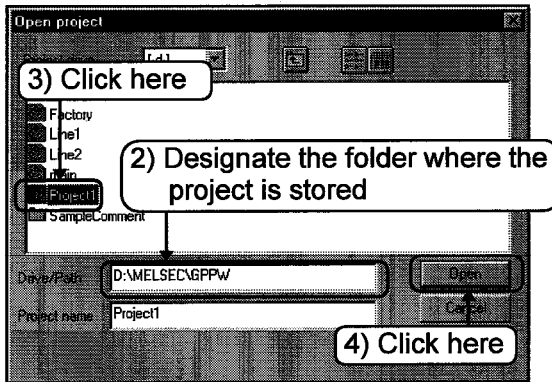
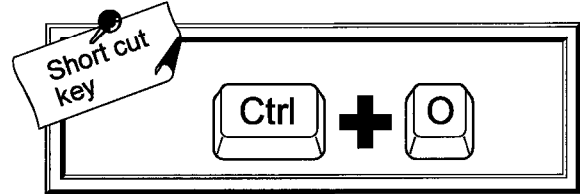
3 Offline operations

1.7 Reading a saved project

This section explains reading a created project.





- 1) Click  on the tool bar.



- 2) Designate folder where the project is stored.
- 3) Click the project to read.
- 4) Click the button to read the designated project.

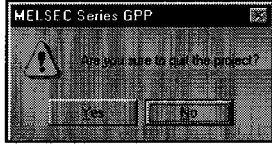
Hint!

For more details of designating method of the project, see...

 *Part 2, 2.4.* 

—The dialog box is displayed in the following cases—

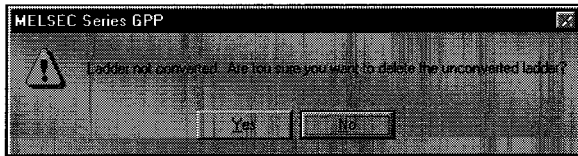
(If another project is opened)



Yes Ends the current project.

No Does not end GPPW.

(If another project is opened
without circuit conversion)



Yes Ends GPPW without
converting the circuit.

No Does not end GPPW.
(Continues editing the
circuit.)

3 Offline operations

2 Editing a circuit

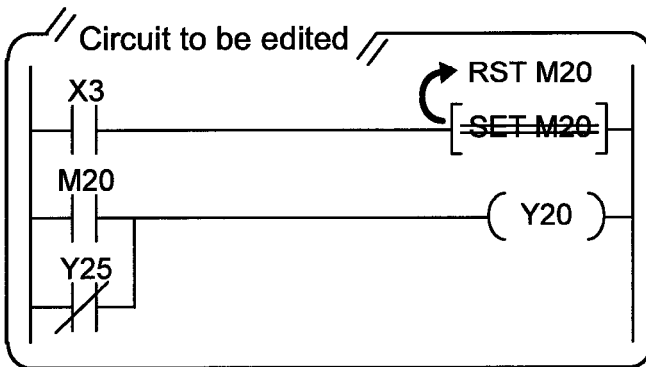
Editing (cut, copy, paste) is indispensable for circuit creation.

This chapter explains editing operations that are important for circuit creation.

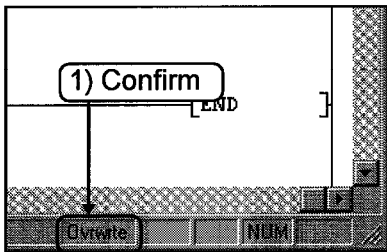
Be sure to switch to write mode before editing circuits.

2.1 Correcting part of a circuit

This section explains correcting part of a circuit.



This section explains operations for editing part of circuit shown on the left. (SET M20 → RST M20)



To the following page

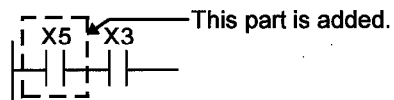
- 1) Confirm that "Ovrwrte" is displayed at the lower right of the screen.

Point

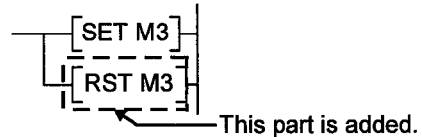
If "Insert" is displayed, press the **Ins** key to change the display to "Ovr wrte."

If "Insert" is displayed, a contact or a coil is added to the circuit.

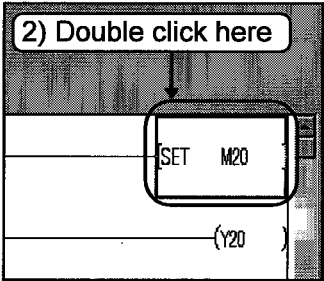
<If you try to change X3 to X5>



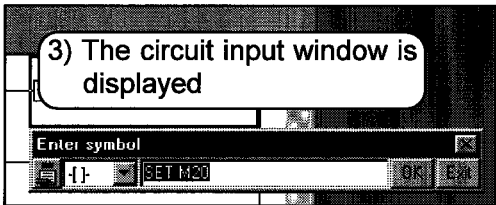
<If you try to change SET to RST>



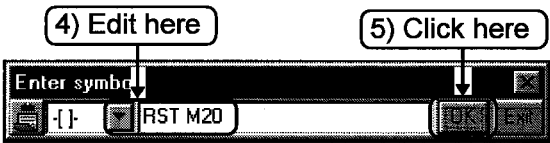
From previous page



2) Double click the area to be edited.

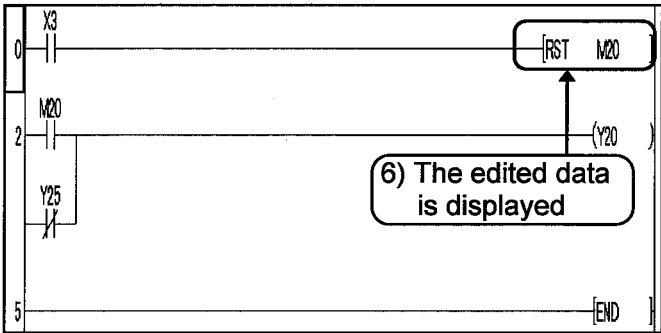


3) The circuit input window is displayed.



4) Clicking the window displays the cursor (|). Edit the data to "RST_M20".

5) After editing, click the **OK** button.



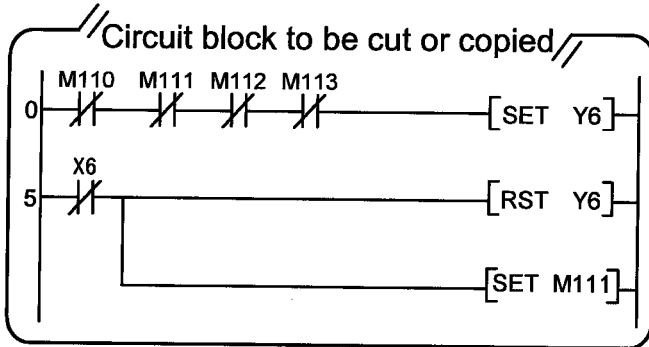
6) The edited circuit is displayed.

3

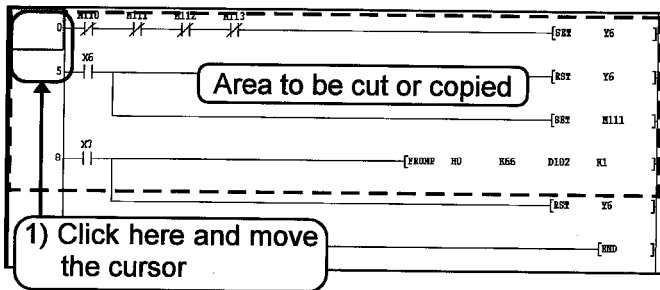
Offline operations

2.2 Cutting and copying a circuit block

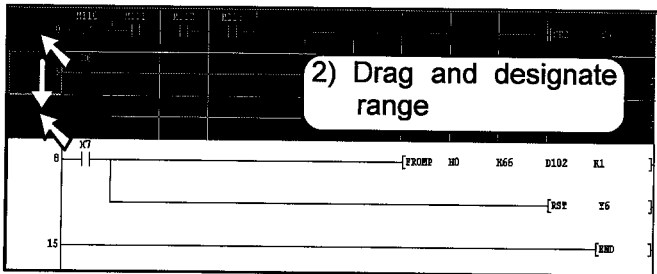
This section explains operations for cutting and copying a circuit block.



This section explains operations for cutting and copying the circuit block shown on the left.



- 1) Click the step number of the circuit block to be cut or copied, and move the cursor.



- 2) Drag the mouse vertically to designate the range to be cut or copied. The designated area is highlighted.

Hint!

To designate a single-line circuit block, drag horizontally for easier range designation.



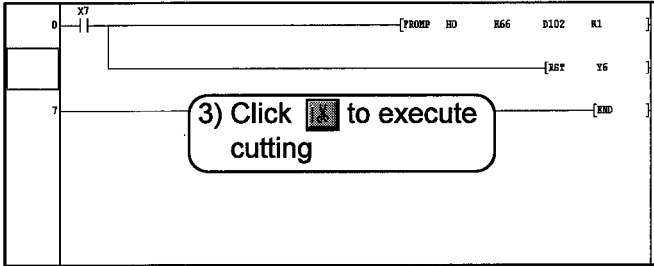
To the following page


From previous page

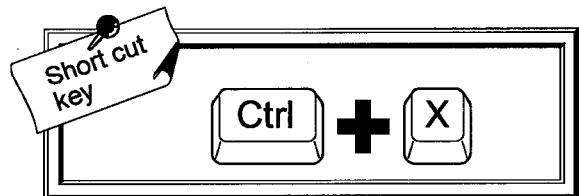


To cut the circuit : Go to 3).
 To copy the circuit : Go to 4) to 7).

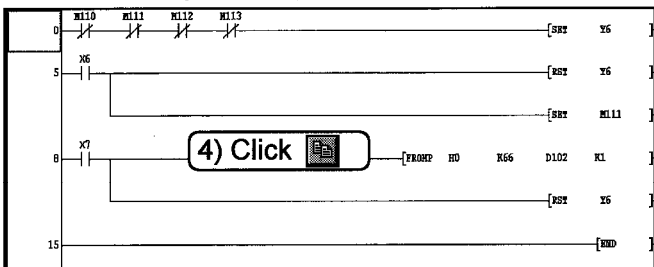
(To cut the circuit)



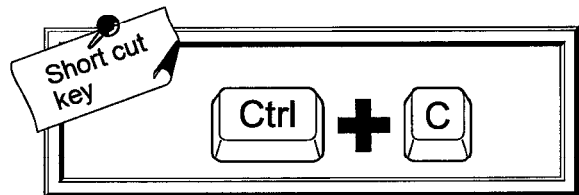
3) Click  on the tool bar. The circuit in the designated range is cut. After cutting, the remaining circuits are shifted upward to fill the vacancy.



(To copy the circuit)



4) Click  on the tool bar.

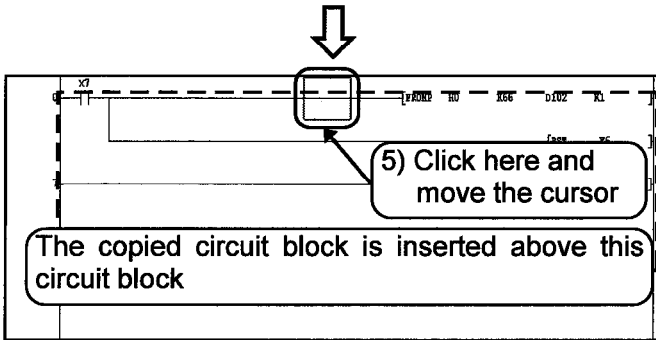


To the following page

3

Offline operations

From previous page



- 5) Click (anywhere) on the circuit block under the line to be pasted with the copied block.

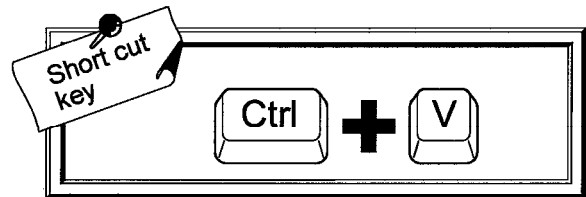
Point

- The circuit block is inserted above the cursor position.
- The circuit block cut or copied are always inserted when pasted. To overwrite, delete the line to be overwritten before pasting.

Part 3, 2.3.

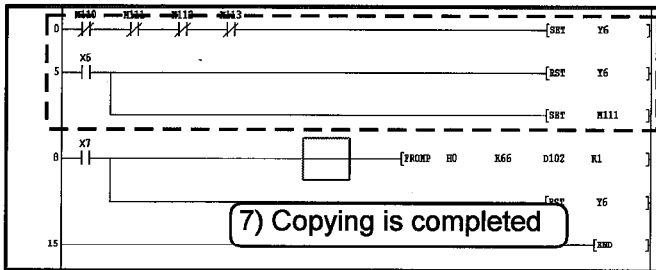


- 6) Click  on the tool bar.



To the following page

From previous page

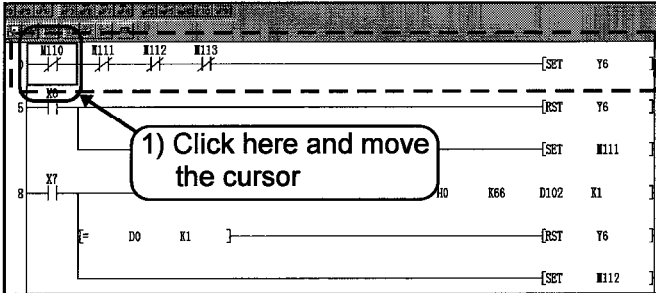


7) The copied circuit block is pasted.

3 Offline operations

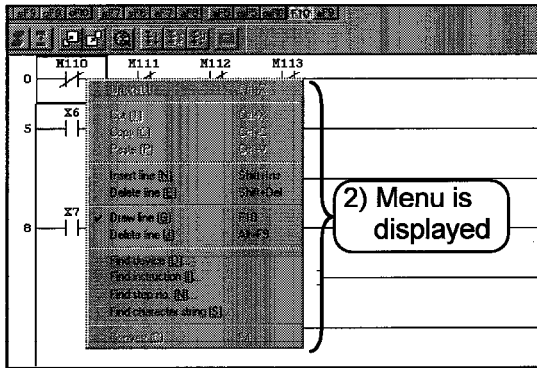
2.3 Inserting or deleting a line

This section explains operations for inserting or deleting a line.



- 1) Click (anywhere) on the line to be inserted or deleted, and move the cursor.

Point
The line is inserted above the cursor line.



- 2) Right-click on the circuit creation screen to display the menu.



To inset a line, go to 3).
To delete a line, go to 5).

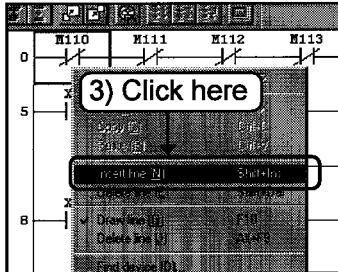


To the following page //

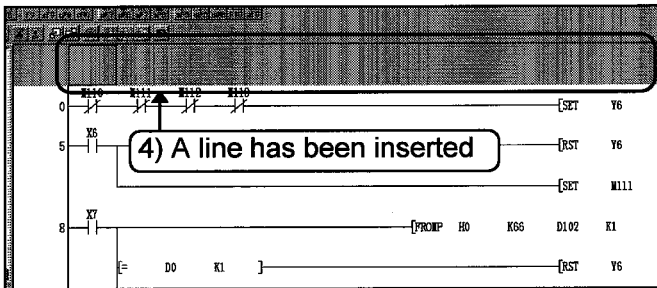
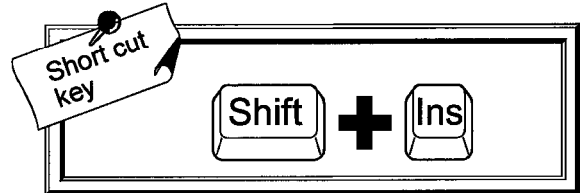
From previous page



(To insert a line)

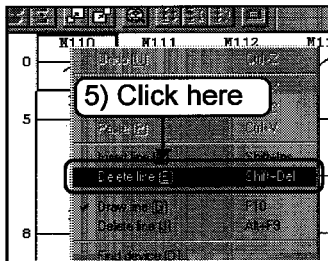


3) Click the [Insert line] menu.

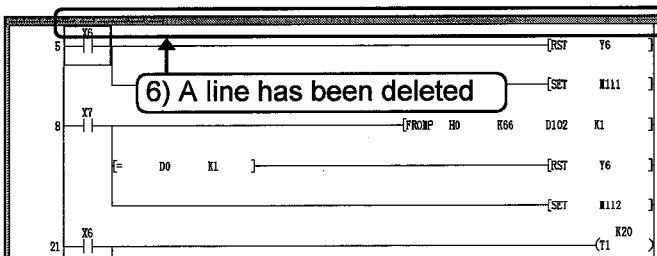
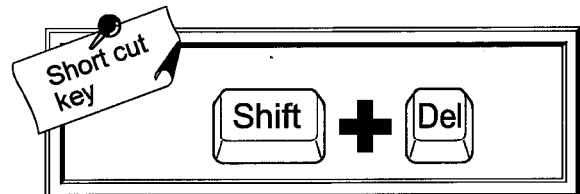


4) A line is inserted above the cursor line.

(To delete a line)



5) Click the [Delete line] menu.



6) A line is deleted at the cursor.

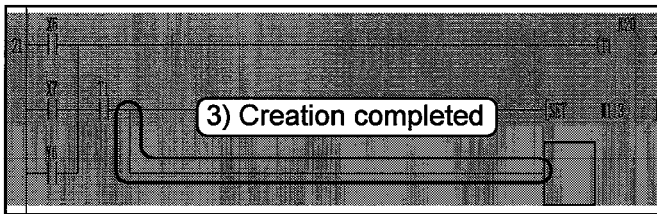
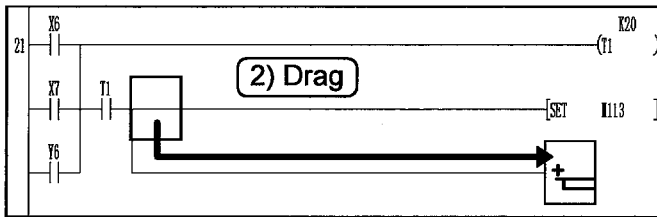
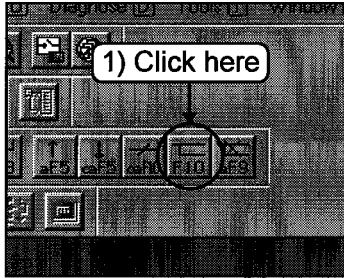
3

Offline operations

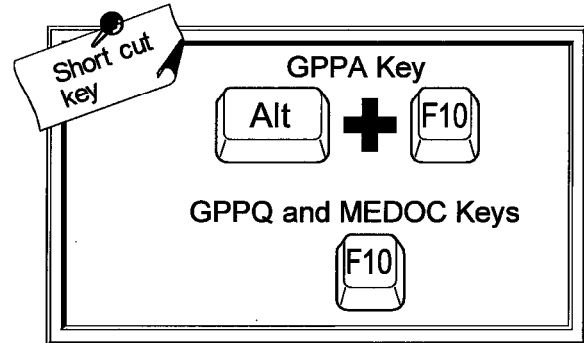
2.4 Creating and deleting a ruled line

This section explains creating or deleting a ruled line.

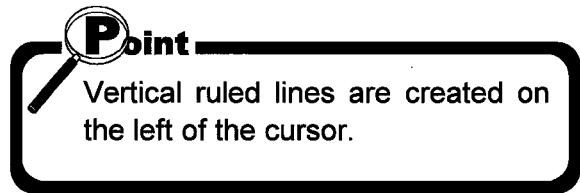
—Creating a ruled line—



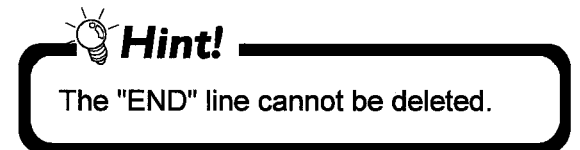
- 1) Click  on the tool bar.



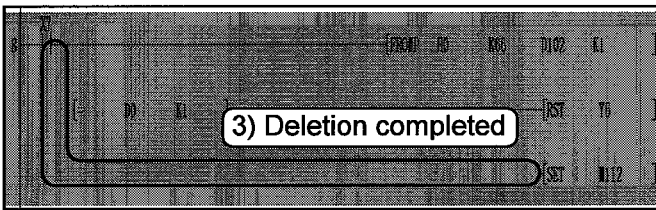
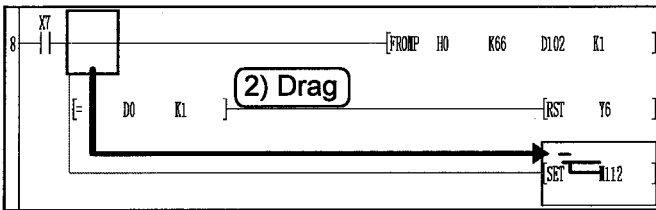
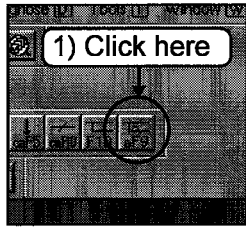
- 2) Drag the mouse from the start position to the end position.



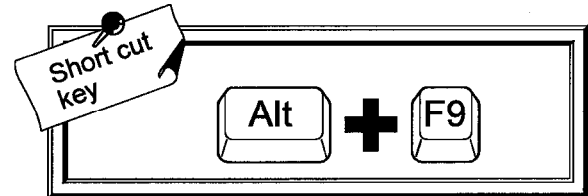
- 3) Release the left mouse button. Ruled lines are created.



—Deleting a ruled line—



1) Click  on the tool bar.



2) Drag the mouse from the start position to the end position.

3) Release the left mouse button. Deletion is completed.



Hint!

The "END" line cannot be deleted.

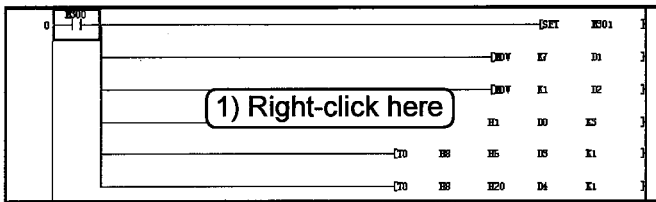
3 Offline operations

3 Searching a circuit

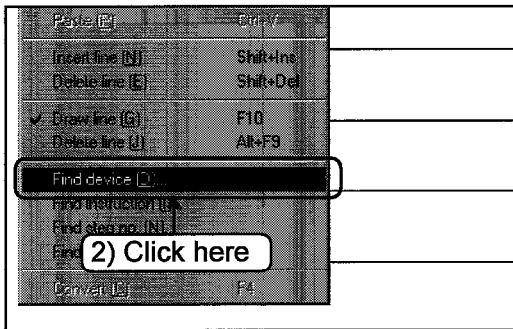
This operation quickly finds circuits to be edited, debugged, or monitored.

3.1 Searching with a designated device

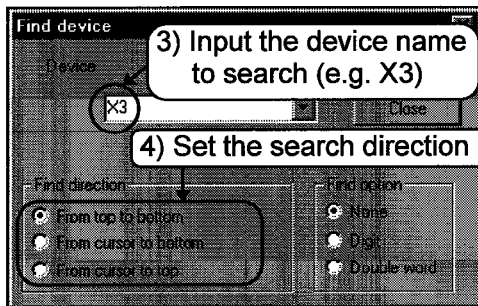
This section explains operations for searching circuits for the designated device name.



- 1) Right-click on the circuit creation screen, or click  on the tool bar.



- 2) Click the [Find device] menu. (Not required when operating from the tool bar.)



- 3) Input the device name to search.
- 4) Set the find direction.

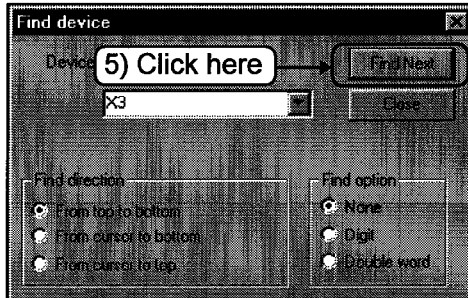
Hint!

Find direction

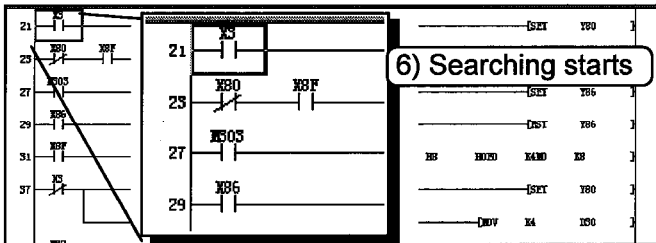
- "From top to bottom"
Searches from the 0 step to the END command.
- "From cursor to bottom"
Searches from the cursor position to the END command.
- "From cursor to top"
Searches from the cursor position to the 0 step.

To the following page //

From previous page



5) Click the **Find Next** button.

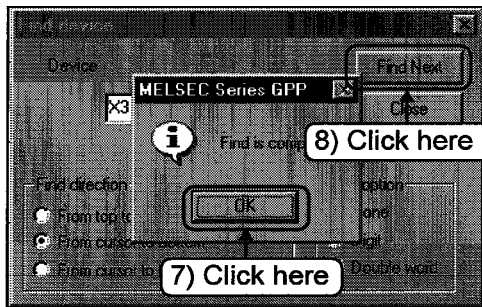


6) Starts searching.
The cursor moves to the circuit found first.



Hint!

Every time the **Find Next** button is clicked, the cursor moves to circuits with the designated device name one after another.



7) If there is no circuit with the designated device name in the following steps, a dialog box to notice the end of search is displayed.

Click the **OK** button.

8) Click the **Close** button.

Now, operations for searching devices are completed.



Hint!

Find option

- "Digit"

If the searched device is designated as "X1", "K4X0" or "MOVK4X0 D0" is searched because it contains devices "X0 to X7".

- "Double word"

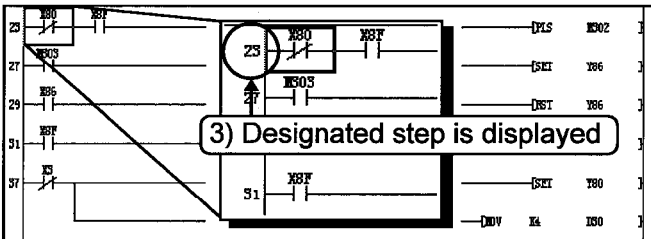
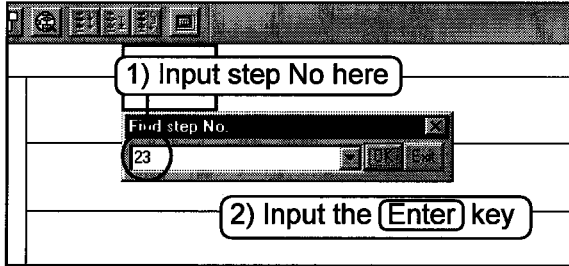
If the search device is designated as "D1", "D0" or "DMOV D0 R0" is searched because it contains both devices of D0 and D1.

3

Offline operations

3.2 Searching with a step No.

This section explains operations for displaying the step of the designated number on the screen.



- 1) Input the step number to be displayed.

Point

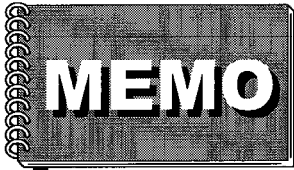
For searching with step No, no operation is required to display menu. Inputting a step No. automatically displays the Step No. Search window.

- 2) Press the (Enter) key.

- 3) The circuit of the designated step number is displayed.

Hint!

To continue searching a step number, repeat the above procedures.



A large, empty rectangular area with rounded corners, outlined by a thick black border, intended for writing a memo.

3 Offline operations

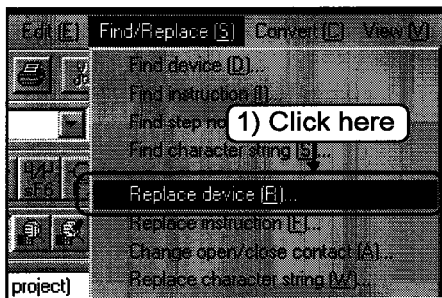
4 Replacing within a circuit

This chapter explains replacing a circuit device or command with the designated device or command.

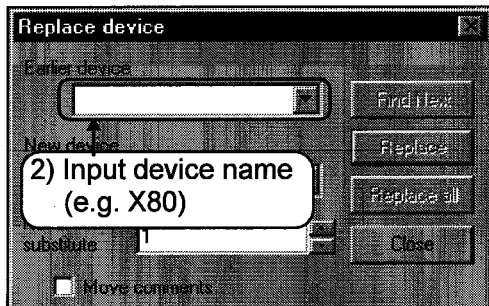
Be sure to set the operation to the write mode before replacing circuit.

4.1 Replacing with a designated device

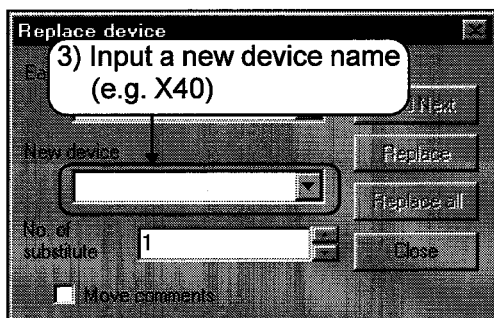
This section explains replacing a device in a circuit with the designated device.



- 1) Click the [Find/Replace]-[Replace device] menu.



- 2) Input the name of the device to be replaced (old device name).

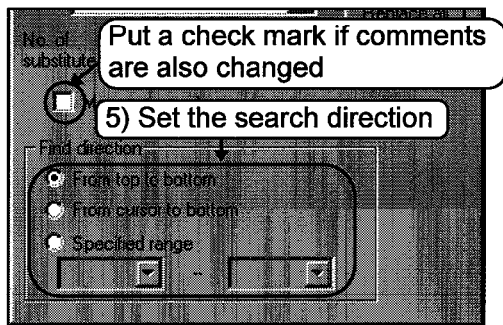
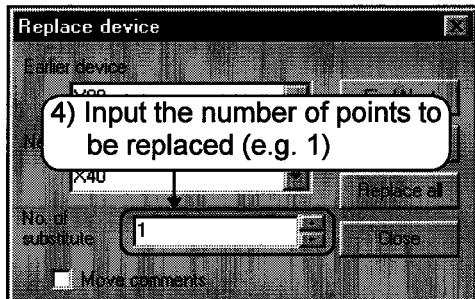


- 3) Input a device name after replacement (new device name).



To the following page //

From previous page //



To the following page //

- 4) Input the number of points to be replaced from the old device.

Hint!

Example of setting number of points for replacement

Old device: X0, New device: X20

Number of points for replacement: 3

X0	→	X20
X1	→	X21
X2	→	X22

Three devices from X0 will be replaced.

- 5) Set the find direction.

Hint!

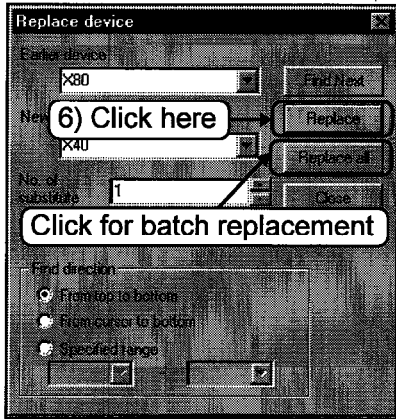
Find direction

- [From top to bottom]
Searches from 0 step to END command.
- [From cursor to bottom]
Searches from the cursor position to END command.
- [Specified range]
Searches within the designated step range.

3

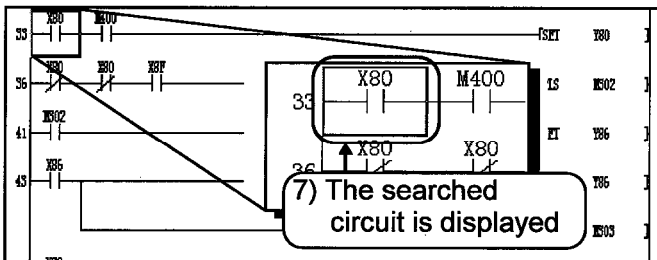
Offline operations

From previous page //



6) Click the **Replace** button.

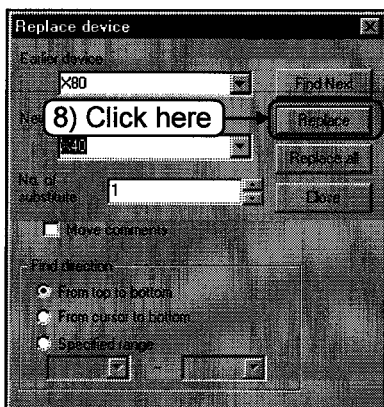
To replace the old devices in the circuit with the new devices in a batch, click the **Replace all** button.



7) The cursor is displayed on the circuit found first (X80).

Point

The first click on the **Replace** button does not replace the character string but searches the old string. Next click on the **Replace** button executes replacement of the searched character string.



8) Click the **Replace** button.

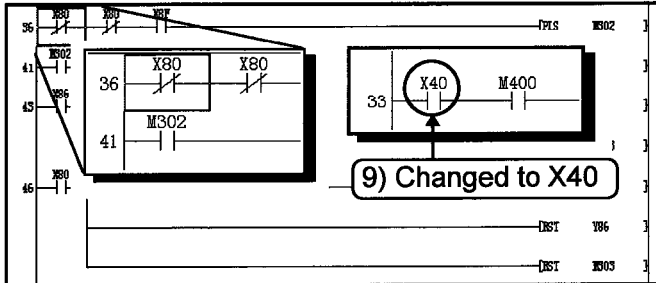
Hint!

To search the next device without replacement, click the **Find Next** button.

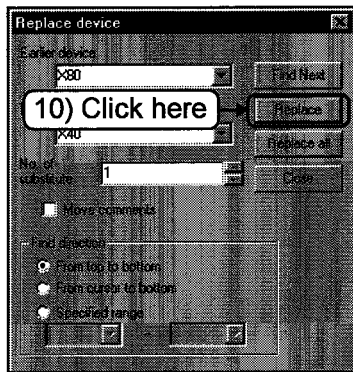


To the following page //

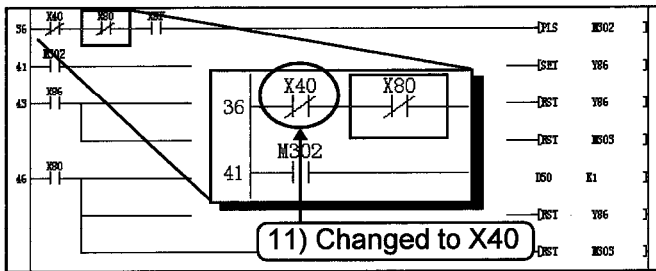
From previous page



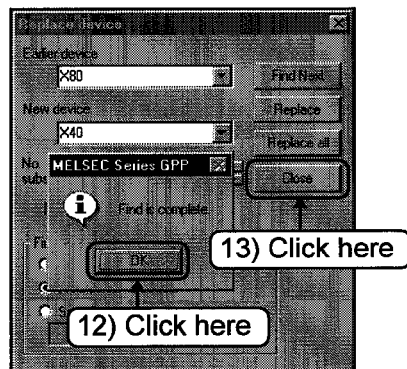
9) X80 of step 33 is changed to X40, and the cursor moves to the next old device (X80).



10) Click the **Replace** button.



11) X80 of step 36 is changed to X40, and the cursor moves to the next old device (X80).



12) If there is no old device name in the following steps, a dialog box to notice the end of search is displayed.

Click the **OK** button.

13) Click the **Close** button.

Now, operations for replacing devices are completed.



Hint!

Every time the **Replace** button is clicked, old device names are changed to the new device names one after another.