Panasonic

PROGRAMMABLE TOOL SOFTWARE

Control FPWIN GR
Operational Guide Book

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2013.7 | panasonic.net/id/pidsx/global

Safety Precautions

Read and understand this specifications, instruction manual, installation manual and catalog to make proper use of the product.

WARNING

If critical situations that could lead to user's death or serious injury is assumed by mishandling of the product:

- Do not play the accompanying disk on an audio CD player or speakers of a personal computer.
  It could lead to the injury of your ears or the damage to the speakers due to mega volume.

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PLCTOOL

Introduction

Thank you for purchasing the FPWIN GR.

This Operational Guide Book was compiled with first -time users in mind, and explains how to set up the FPWIN GR software. It also contains an overview of how the software is operated. Please make sure you read it carefully and understand the contents before operating the software.

For more detailed information on using the software, please refer to the Help function.

For detailed information on instructions, please refer to the “Programming Manual”.

Table of Contents

Precautions before using this software

This Operational Guide Book was compiled with first -time users in mind, and explains how to set up the FPWIN GR. It also contains an overview of how the software is operated. For more detailed information on using the software, please refer to the Help function. For detailed information on instructions, please refer to the “Programming Manual”.

How programs are input

The FPWIN GR has three editing modes: “Ladder Symbol”, “Boolean Ladder”, and “Boolean Non-ladder”. This guide book focuses on the “Ladder Symbol” method in the explanations of the programming and editing functions.

Usage environment and types of PLCs that are supported

Please check the environment in which the FPWIN GR can be used.

Usage environment conditions:

Operating system	Windows® 98SE/ Windows® Me/ Windows® 2000/ Windows® XP/ Windows Vista®/ Windows® 7
Required hard disk capacity	At least 50MB
Recommended CPU	Pentium 100MHz or higher
Recommended installed memory	64MB or more (depend on OS)
Recommended screen resolution	800 x 600 or higher
Recommended display colors	High Color (16-bit or higher)

Regarding Account for Windows® 2000/ Windows® XP/ Windows Vista®/ Windows® 7

[When installing]

Make sure to install with the authorized account of Administrators (computer-system managers).

Applicable PLC types

All FP series types are supported: FP0, FP0R, FP SIGMA, FP-e, FP-X, FP1, FP-M, FP2, FP2SH, FP3, FP10SH

(It supports from FPΣ Ver2, FP-e Ver2.22, FP-X Ver2.5 and FP0R Ver2.8.)

◆NOTE

- **As for Windows® XP and Windows Vista®, only the 32-bit types are supported.**
- **As for Windows® 7, both the 32-bit and 64-bit types are supported.**

Compatibility between the DOS version NPST-GR software and the FPWIN GR

There are some areas which differ between the conventional DOS version software of the NPST-GR and the FPWIN GR. Please check the contents listed below carefully.

File compatibility

Files created with the NPST-GR Ver. 4 or Ver. 3 can be loaded (including I/O comments, remarks and block comments).

Files created with the FPWIN GR can be saved as NPST-GR files, but without the comments.

When programs and comments created with the FPWIN GR are downloaded to the PLC, comments cannot be loaded with the NPST-GR, but programs can be loaded.

Operation and function compatibility

There are no merge registration or loading functions. Instead, the Copy and Paste functions in Windows® should be used.

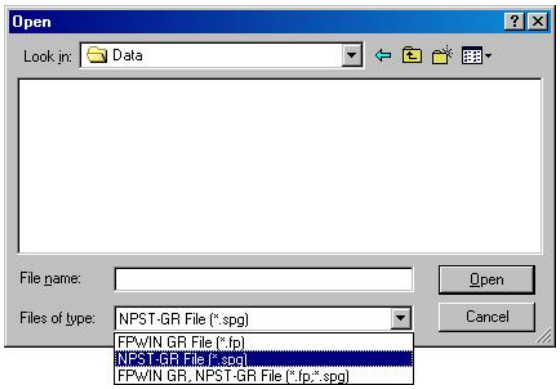
Verifications cannot be carried out targeting files. The files to be verified must first be loaded, and then verified.

There are no multi – point monitoring or multi –data monitoring functions.

The network status cannot be displayed on the online status display.

Programs transferred to the IC card in the FPWIN GR format cannot be read by NPST-GR.

Opening NPST-GR files



When loading conventional NPST-GR files from a disk, select “NPST-GR File (*.spg)” from the drop-down list under **“Files of type”**, as shown at the left.

Special precautions

Deleting programs

Before inputting programs in the PLC, always carry out the “Clear Program” operation.

 [Clearing Program] → Section 3.1.2

A note about saving programs

To ensure that programs are not accidentally lost, we strongly recommend that users follow the precautions listed below.

Hard copies should be created.

In case programs are lost, or files are destroyed or accidentally overwritten, the contents of the program should always be printed out and a hard copy stored somewhere for future use.

Passwords should be carefully specified.

The password setting is designed to prevent accidental overwriting of data, but if the password is forgotten, it makes it impossible to overwrite programs. Also, if a password is compulsorily canceled, the program will be deleted. When setting passwords, make sure they are written down in the specifications manual or another secure location.

ROM versions of programs should be created.

To prevent programs from being lost if the backup battery runs down, or accidentally overwritten at the workplace site, we recommend making a ROM copy of programs input to the RAM. If the PLC is being used over a long period of time, or if the program is being incorporated into the device before being shipped, this is especially important.

Precautions when connecting PLC with USB port

Note the following restriction for using a personal computer and PLC with USB connection.

PLC type	Applicable OS	FPWIN GR version
FP-X	Windows® 98 Windows® Me Windows® 2000 Windows® XP Windows Vista®	2.5 or later
FP0R	Windows® 2000 Windows® XP Windows Vista®	2.8 or later
FP-X,FP0R	Windows® 7	2.9 or later

Do not connect a computer to PLC with USB before installing FPWIN GR.

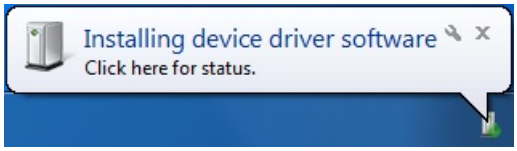
When connecting a personal computer to PLC with USB, the dialog boxes as below may be displayed.

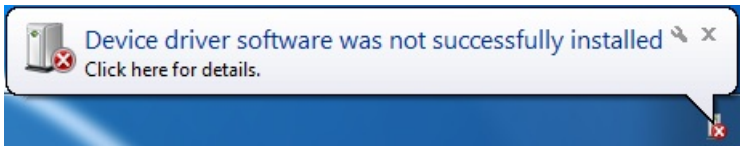
If the FPWIN GR has not been installed, click [Cancel] to close these dialog boxes.

Windows® XP

Windows® 98SE

For Windows® 7, although the following window appears, it will automatically disappear after a short time. (The driver is not installed.)





If the FPWIN GR of the applicable version has been installed, refer to Chapter 1.4, 1.5.

Additional Functions in Ver.2

1 Display screens offer greater flexibility

Window positions and sizes can be stored in the memory

The positions and sizes of the various windows, including the program editing screen, the relay monitor screen and the register monitor screen, can now be stored in the memory. In addition, when programs are read, the relay monitor screen and register monitor screen can now be displayed at the same time that the editing screen is displayed.

-To store window positions and sizes in the memory, select “Keep Window Position” on the “Option” menu. After this is done, the various windows are displayed at the positions and in the sizes stored in the memory.

-To select the screen to be displayed when the program is read, select ”Configuration” on the “Option” menu. Under the “Default Editing View” item displayed in the dialog box, turn on the check box for the screen to be displayed.

Remarks can be displayed to the right of the ladder bus

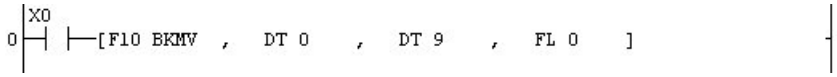
“I/O Comments” and “Remarks” can now be edited in the comment display bar, and remarks can be displayed to the right of the ladder bus line on the editing screen.

2 Search functions expanded

Detailed search of devices being used

Detailed searches can now be carried out using “Used I/O List...” and “Cross Reference...”.

In a program like that shown below, previously only the DT0 and FL0 would have been recognized as devices in use. Using the “Detailed Search” function included in Ver.2, however, DT0 to DT9 and FL0 to FL9, which are actually being used, can be recognized as devices in use. This enables devices not being used to be identified more accurately.



3 Program flow easy to understand at a glance

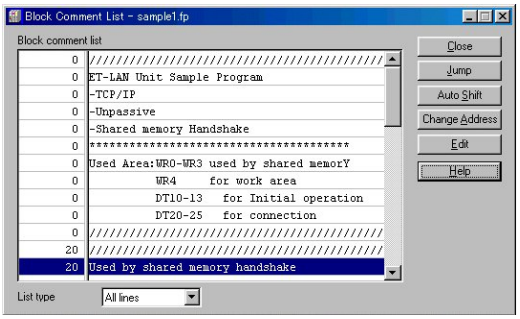
Pair instruction map function

A “Pair Instruction Map” function has been added that displays instructions that determine the flow of the program, such as MC/MCE, JP/LBL, and CALL/SUB/RET, in pairs, as a list, making it easy to see the overall flow of the program at a glance. This is very helpful in analyzing not only programs put together by the user, but programs created by others as well.

To access the pair instruction map function, select “Pair Instruction Map” on the “Search” menu.

Block comment list function

A new function has been added that lets block comment in the program be displayed as a list. The list display of block comment lets the user search for a target routine quickly and easily.



The block comment list function is accessed by selecting “Block Comment List” on the “Comment” menu.

4 Smoother testing and debugging

Forcible input/output devices can be stored in the memory

Now, even if the forcible mode has been canceled using “Force Input/Output”, devices that have already been registered can be stored in the memory.

I/O list can be loaded when devices are changed

It is now possible to load the “Used I/O List...” from the “Change Device” dialog box.

Automatic error discrimination function

If an operation error occurs in a PLC during programming or debugging, a status display dialog box is displayed automatically. This can be used to check the contents of the self -diagnosis error.

If an operation error occurs, the error address can be confirmed in the dialog box. Click on “Clear Error” button to clear the error.

To display the status, select “Status Display” on the “Online” menu.

If a syntax error occurs, the total check function is launched automatically. Check the contents of the error using this function.

5 User- tailored environment settings can be specified

The user can store individually tailored environments in the memory and bring them back later

The user can store his or her preferred environment tools in the memory and reproduce them as needed. Thus, if multiple users are sharing a single computer, each can store his or her own preferred tool environment and access it at any time.

[Elements that can be custom- tailored]

-Positions of tool bars, comment display bars, input field bars, entry bars, and ten-key bars

-Levels and positions at which function bars are displayed

-Zoom settings, text point settings, and various display color settings

-All operation environment settings and all types of customized settings

To store individual environments in the memory and bring them back later, select “Private Configuration” on the “Option” menu.

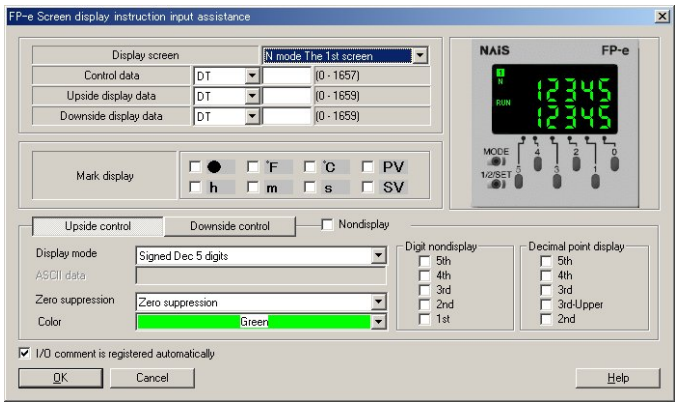
Customization function provided for right - click menu

The menus displayed when the right button of the mouse is clicked can now be customized. This enhances overall operation by letting the user, for example, launch the comment input function or minimize mouse pointer movements by clicking with the right button of the mouse. (These settings are saved in the individual environment settings described above.)

To customize right - click menus, select “Right- click Menu” on the “Customize” menu under “Option”.

6 Wizard Function (Programming without manual)

Enter setting items for the screen display instruction and the requested instruction will be automatically expanded.



Except for this wizard function, Positioning wizard, PID wizard and Scaling wizard are available.

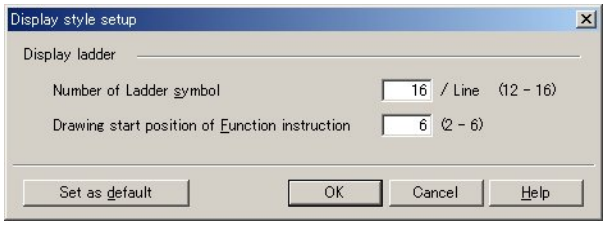
7 Text Input Mode

In the Ladder Symbol View Mode, Boolean Ladder View Mode, and Boolean Non-ladder View Mode, nimonic codes from the keyboard can be used in preference to the instruction entry with the function key (This is called as [Text input mode].).

To use Text input mode, select “Text input mode priority” on the “Edit” menu or click A Button.

8 Setting Display Ladder Style

Program ladder display status can be changed, and [Drawing start position of Function instruction] and [Number of Ladder symbol] per line can be set.

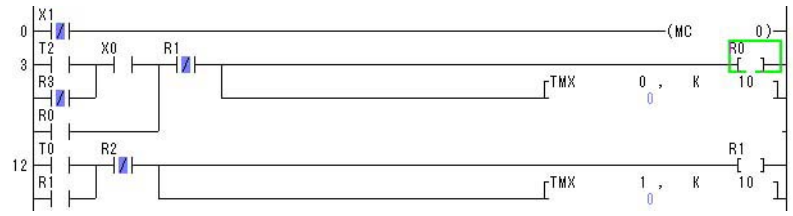


◆NOTE

- **In the other setting than the one that 12 is set to the [Number of Ladder symbol] and 2 is set to the [Drawing start position of Function instruction], the stored data of the program file (*. File) whose program is not yet changed completely cannot be read in the FPWIN GR versions earlier than Ver. 2.3. If you try to read it, the file is opened with the data unchanged.**
- **When you copy the selected range of the program and then try to paste it into the other view during program change, paste cannot be executed if the Display ladder style setting are different in both views (copy and paste views). After compiling the copy source program, select the range, copy it and paste it into the other view.**

9 Changing data in the Ladder Symbol View

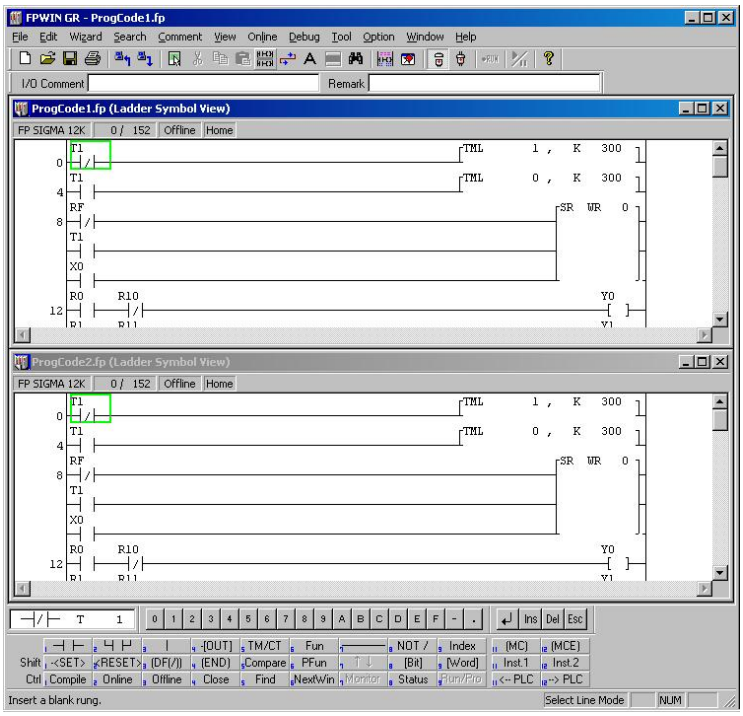
When the monitoring function is run, relays and data information can be confirmed in a ladder program in real time.



By double-click on the relay or on the register, you can change the status of relay or the value of data. By double-click pushing [Ctrl] on the relay or on the coil, you can execute forced I/O function.

10 Quickly jumping to mismatched point in a program

When the monitoring function is run, relays and data information can be confirmed in a ladder program in real time.



Executes to verify a program from any cursor position

Verifies the program codes locating posterior to a cursor position with more than 2 program windows open. The cursor jumps to the point where mismatch is found.

11 Other functions that have been added

Applicable PLCs

- FP SIGMA is supported. (”FP SIGMA” is displayed on the “Select PLC Type” menu of the FPWIN GR.)
- FP-e is supported.
- FP-X is supported. (Ver.2.5)
- FP SIGMA 32K is supported. (Ver.2.6)
- Supports the FP-X transistor type. (Ver.2.7)
  On the “Select PLC Type” menu of the FPWIN GR, the type names of FP-X are indicated as below.
  - Transistor type: FP-X C14T/P, FP-X C30T/P,C60T/P
  - Relay type (Existing FP-X) : FP-X C14R,FP-X C30R,C60R
- FP0R is supported. (Ver.2.8)

Overall operation

- Add the floating point type real number compare instruction (STF =, etc.).
- Add new instructions (F250, F251) of FP-X.
- Add new instructions (F4, F161, F230, F231, F354) of FP2/2SH.
- You can copy & paste by rectangle mode.
- Menus displayed by clicking the right button of the mouse can now be customized.
  ("Option" → "Customize" → "Right-click Menu")
- Individual operating environments can be saved and brought back.
  ("Option" → "Private Configuration")
- The active program can now be switched with a single click.
  ("Window" → "Switch Program")
- Settings for the monitor interval and the default display window have been added under "Configuration".
- The setting for the symbol width included under the "Configuration" in previous versions has been moved to "View Settings" on the "View" menu. Comment fonts can now also be specified using "View Settings".
- Added Text input mode. You can edit program by entering a character from a keyboard.
- You can design the start position of High-Level instruction. So, it is possible to display Maximum 5 contacts on the left side of High-Level instruction.
- Support [Undo] and [Redo] function.
- You can enter I/O comment simultaneously after inputting instruction.
- You can compile the program, even if the cursor is in the position of operand of High-Level instruction.
- Added SCAL/DSCAL/FSCAL instructions in [Wizard] function.

Printing

- "Print Style Setup" can now be used to specify comment fonts.
  If the comment font is specified using "Depend on View Settings", the printed output will appear exactly like the ladder displayed on the screen.
  The user can also now specify whether or not a background color will be used with block comments.
- You can print ladder list by color.

Online mode

- When downloading or uploading program, you can specify Station No. or Communication Setting. (Ver.2.5)
- A “Security Information” function has been added under “Tool” menu. (Ver.2.5)
- A “Upload Settings” function has been added under “Tool” menu. (Ver.2.5)
- A “Monitoring PC Link” item has been added under “Status Display”.
- SSTP instruction can now be monitored either on the editing screen or on the relay monitor.
- The widths of the various columns in the “Monitoring Registers” window can be changed and stored in the memory.
- I/O comments and remarks can now be input in the “Comment Display Bar”.
- Two supplementary lines can be drawn under “Time Chart Monitor”.
- You can synchronize the monitoring of Editing View and Data/Relay Monitor.
- In Monitoring Registers and Forced I/O, you can register only used device.
- In Monitoring Registers, you can change the value without pushing the [Enter] key.
- In Monitoring Relays, the default status is reversal of the present status.
- In Forced I/O, you can change the forced status by shortcut key and change the width of dialog.
- A “Monitoring VE Link” item has been added under “Status Display”. (Ver.2.71)
- A "FP Memory Loader Option" has been added in "Set PLC Password". (Ver 2.8)

Other additions

- The “MEWNET-H” settings software is now included with the program.
- The “FP series Programmable Controllers Programming Manual” is included in PDF file format.
- “MEWNET-W2 settings” function is included.
- [Data Editor] supported Data Memory Expansion unit.
- You can change number of column of [Data Editor].
- “MCU settings” function is included. (Ver.2.4)
- “MEWNET-VE settings” function is included. (Ver.2.71)

Chapter 1

Preparation and Overview

1.1 Installing the Software

Installing the software on a personal computer

The FPWIN GR should be installed on a personal computer, following the procedure outlined below.

1. Exit any applications currently running.

If there are any applications currently running, exit them.

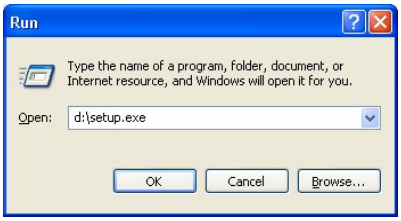
2. Set the setup CD in place.

Insert the FPWIN GR setup CD in the CD drive.

3. Select "Run...".

Either click on the **"Start"** button at the lower left of the screen, or press [CTRL] + [ESC] keys to display the Windows® menu, and select **"Run..."**.

4. Enter the name of the file to be run.



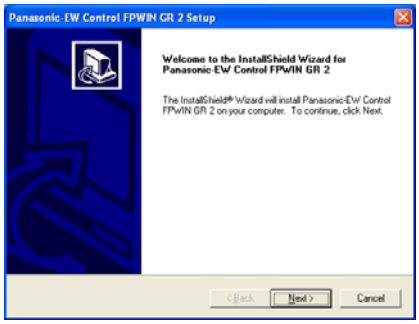
When **"Run..."** is selected, the dialog box shown at the left appears. Enter d:\setup.exe and click on **"OK"** button.

NOTE:
The drive name (d:) may vary depending on the computer operating environment.
When installing in Windows Vista® or Windows® 7, the message, which asks whether to execute Setup.exe, is displayed. Please select "Allow" to continue the installation.

◆NOTE

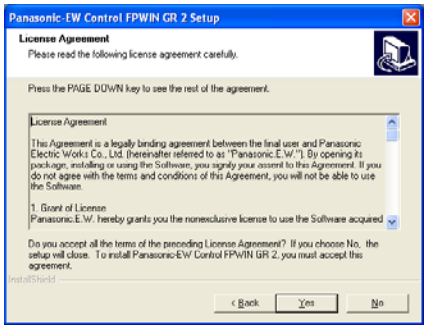
- **For using the FPWIN GR, prepare a personal computer that any of Windows® 98, Windows® ME, Windows® 2000, Windows® XP, Windows Vista® and Windows® 7 has been installed. Also, make sure to install with the authorized account of Administrators (Computer-system managers) when you install this software in Windows® 2000/Windows® XP/Windows Vista®/Windows® 7.**
- **Make sure to install with the authorized account of Administrators (Computer-system managers), when you install this software.**
- **The computer in which the FPWIN GR is being installed must have at least 50 MB of hard disk space available.**
- **As for Windows® XP and Windows Vista®, only the 32-bit types are supported.**
- **As for Windows® 7, both the 32-bit and 64-bit types are supported.**
- **The above instructions assume that Windows® is installed on the C drive, and that the CD drive is the D drive. If the drives are different, or if the program is being installed through a network, enter the appropriate drive names based on the relevant operating environment.**

5. A confirmation message is displayed.



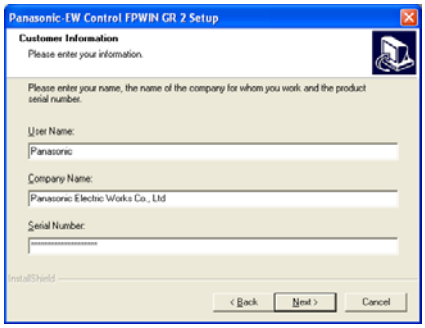
The setup program is booted and a confirmation message is displayed. Check the contents and click on **"Next >"** button. To interrupt the operation, click on the **"Cancel"** button.

6. Confirm the licensing agreement.



A dialog box is displayed in which the licensing agreement can be confirmed. To indicate agreement with all of the licensing items, click on the **"Yes"** button. The setup process begins. Selecting **"No"** cancels the FPWIN GR setup procedure.

7. Register your user information.

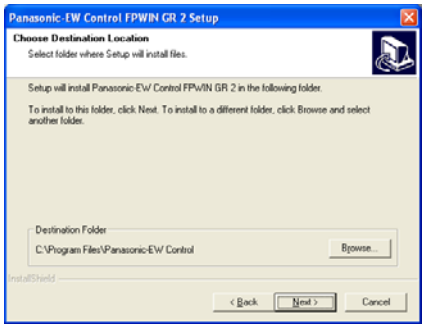


A user information dialog box is displayed. Fill in the data for the "Name", "Company Name", and "Serial No." items, and click on **"Next >"**.

The serial number is printed on the user card included in the FPWIN GR package. Make sure it is entered correctly.

The information entered here can be confirmed on the splash screen when the FPWIN GR is booted, and under **"About"** in the **"Help"** menu.

8. Select the destination to which the program is to be installed.



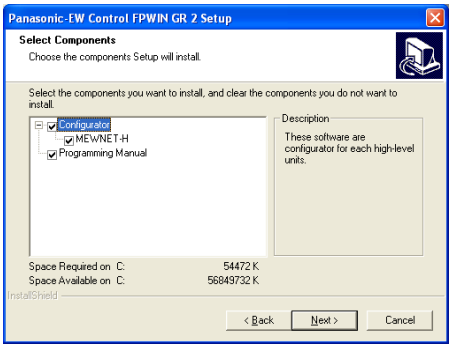
A confirmation dialog box is displayed, showing the folder in which the program is to be installed. To install the program in the displayed folder, click on the **"Next >"** button.

The folder displayed from the beginning, "c:\Program Files\Panasonic-EW SUNX Control\FPWIN GR", may be used. To install the program in a different folder, click on the **"Browse..."** button and specify a folder.

When installing in Windows® 7 (64-bit edition), the folder displayed from the beginning is "C:Program Files (x86)\Panasonic-EW SUNX Control".

Although it can be changed, continue the installation in this folder when possible.

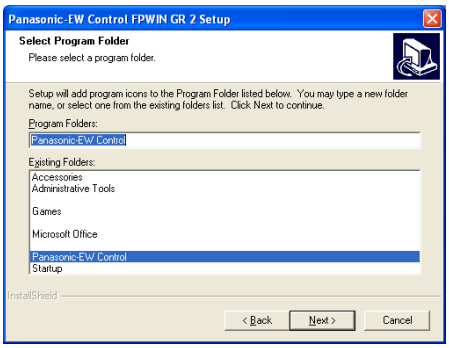
9. Select the component, which is to be installed.



Select the component, which is to be installed.

If you want to install all compo, please push [Next] button.

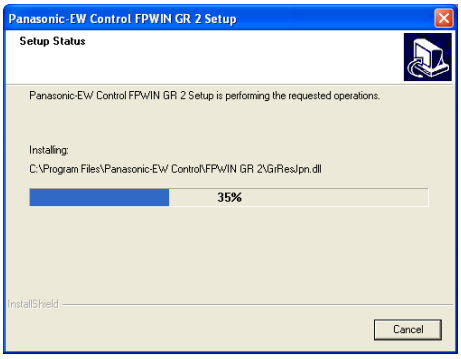
10. Select the program folder.



A confirmation dialog box is displayed, showing the program folder. To use the displayed folder, click on the **"Next >"** button.

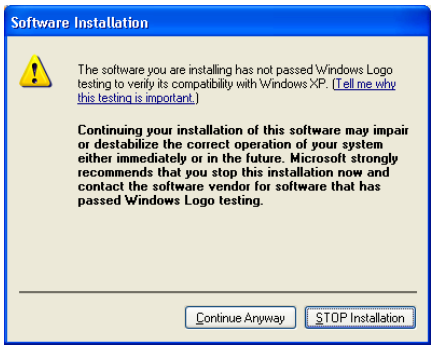
The "Panasonic-EW SUNX Control" folder displayed from the beginning may be used. To change to a different folder, enter the name of the folder.

11. The installation begins.



A message is displayed on the screen, indicating that installation is in progress, and the FPWIN GR setup begins.

12. When installing in Windows® XP, the following dialog is displayed 2 times.
When installing in Windows Vista®, please go to No.13 below.
When installing in any other OS, the following dialog is not displayed. Please go to No. 15 below.



USB driver, which is needed to connect FP-X to the computer via USB cable, will be installed.

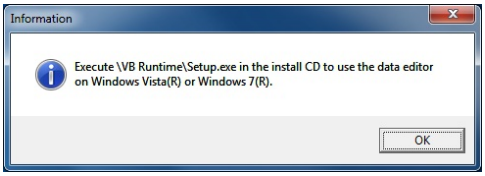
Please select [Continue Anyway] button.

13. When installing in Windows Vista®, the following dialog is displayed 2 times after the above dialog.
(When installing in Windows® 7, the following dialog is displayed only once.)

Install the driver which is needed to connect FP-X to the computer via USB cable.

Select “Install this driver software anyway” to continue the installation.

14. The message needed to activate the Data Editor on Windwos Vista® or Windows® 7 is displayed.
Confirm the content, and click on “OK” button.

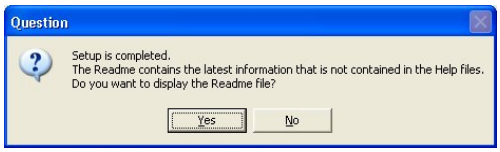


For using the Data Editor on Windows Vista® or Windows® 7, the runtime of Visual Basic should be registered. Make sure to execute\VB Runtime\Setup.exe in the installation CD after completing the above installation.

15. Description for Adobe Acrobat Reader is displayed.

If you need, please install from CD.

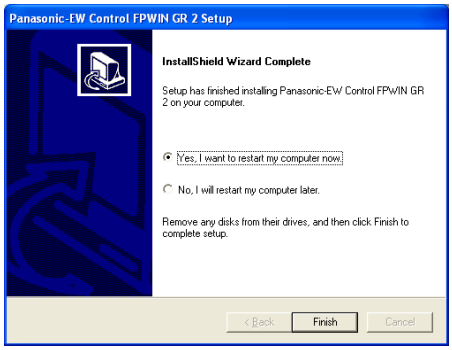
16. Confirm the Readme file display.



When the setup process is finished, a dialog box is displayed, indicating that the setup has been completed.

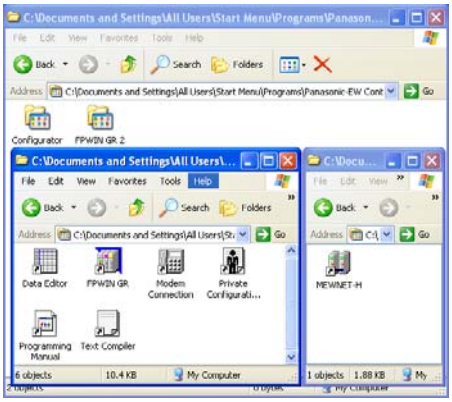
To display the Readme file, click on the **“Yes”** button.

17. Confirm rebooting of the computer.



When the entire process has been completed, a dialog box is displayed, indicating that the computer should be rebooted. Select either the “Yes, I want to restart my computer now” button, or the “No, I will restart my computer later” button, and click on the **“Finish”** button.
The computer must be rebooted before the FPWIN GR can be used, so rebooting is recommended at this point.

18. The FPWIN GR group icon is displayed.



If the setup process is concluded without rebooting the computer, the FPWIN GR group icon is displayed on the computer.

To boot the FPWIN GR, click on the group icon.

◆ REFERENCE

The group icon mentioned above is displayed only when the installation has just been completed. For information on booting the program, see section 1.3 “Booting and Exiting the FPWIN GR”, and section 1.2 “Setting Up a Desktop Shortcut”.

◆ NOTE

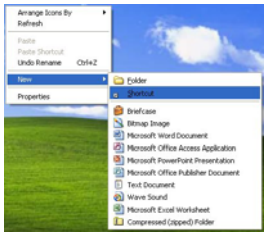
- **Never remove the CD while the installation is in progress.**
- **From version 2.9, the install folder is changed to "\Program Files\Panasonic-EW SUNX Control", and the program folder is changed to "Panasonic-EW SUNX Control".**
  If a version older than Ver.2.9 has been installed, it should be uninstalled.

1.2 Setting Up a Desktop Shortcut

If an icon called “Shortcut to FPWIN GR” is created on the desktop, the FPWIN GR can be booted simply by double-clicking on that icon. This is faster and simpler than the usual booting procedure.

The FPWIN GR shortcut icon is not automatically created as part of the usual installation process. To create the icon, follow the procedure below.

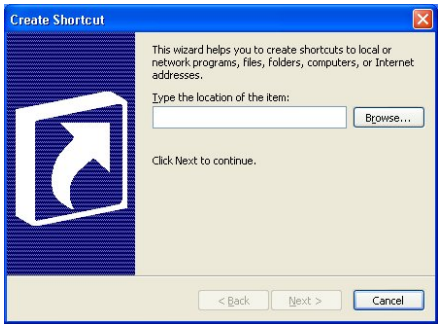
1. Select the shortcut creation menu.



Without selecting any icon, click the right button of the mouse on the desktop.

Then select **“New”** and **“Shortcut”** from the menu.

2. Enter the file name.



When the shortcut creation menu is selected, a dialog box like that shown at the left is displayed, so that the file name can be input. In our explanation, we will proceed by clicking the **“Browse...”** button.

3. Search for the FPWIN GR file.

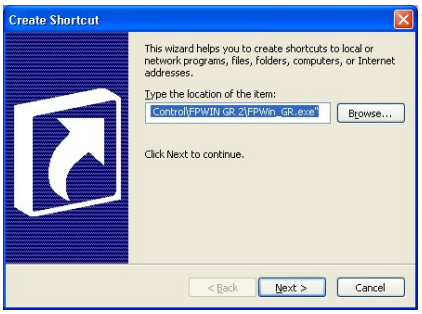
Clicking on the **“Browse...”** button displays the file reference dialog box shown at the left.

Open the folders in the following order: [Program Files] → [Panasonic-EW SUNX Control] → [FPWIN GR2].

4. Select the FPWIN GR file.

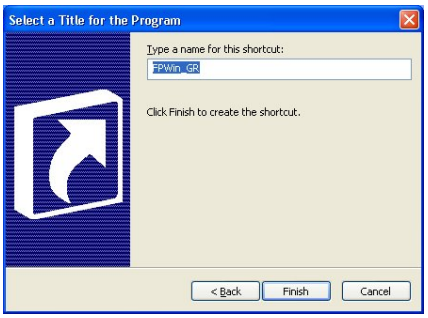
Select the installed FPWIN GR file, either by clicking on **"Open"** button, or double-clicking with the mouse.

5. Click on the "Next >" button.



When the FPWIN GR is selected, the dialog box where the file name is input appears again. Click on the **"Next >"** button to proceed.

6. Select the name of the shortcut.



Select a name to be displayed beneath the shortcut icon, and click on the **"Finish"** button.

The name "FPWIN GR", which is displayed from the beginning, may also be used. To change to another name, enter that name.

7. This completes creation of the shortcut icon.

You have now finished creating your shortcut icon to be displayed on the desktop.

If the procedure has been successfully completed, the icon showed at the left will be displayed.
Double-clicking on this icon boots the FPWIN GR.

1.3 Booting and Exiting the FPWIN GR

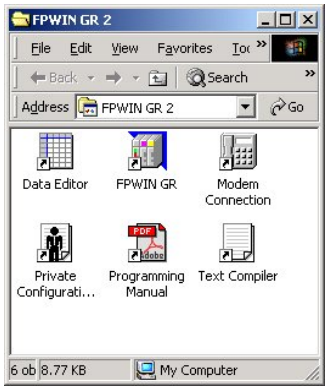
1.3.1 Booting the FPWIN GR

Booting procedure

1. Boot the FPWIN GR.

Using either of the methods described below to boot the FPWIN GR.

Boot from the FPWIN GR group icon.

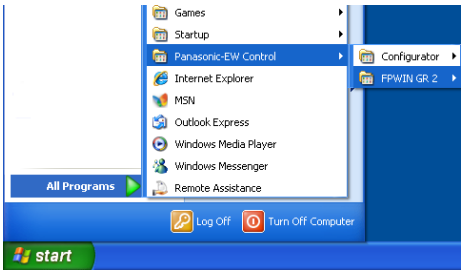


Double-click on the icon.

Boot from the shortcut icon you created.

Double-click on the icon.

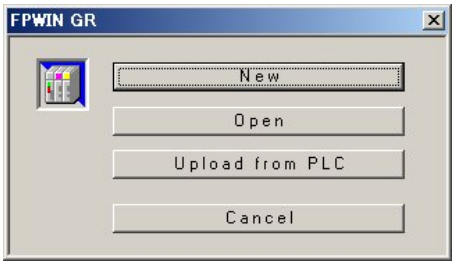
Boot from the Windows® Start menu.



Click on the “Start” button, or press CTRL + ESC keys to display the Windows® menu and boot from the “Programs” menu. Select “Panasonic-EW SUNX Control” and then “FPWIN GR 2”.

2. Select the Startup menu.

When the FPWIN GR has been booted using any of the above methods, the Startup menu is displayed on the screen. Click on any of the following four buttons.



“New” button:
This is selected to start creating a new program.

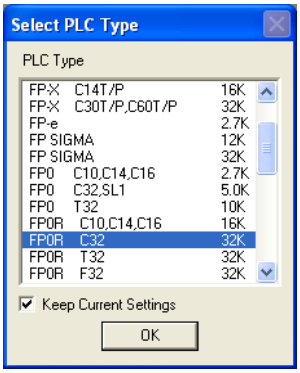
“Open” button:
Select this to load a program that has been saved on a disk and edit it.

“Upload from PLC” button:
Select this to load a program from the PLC and edit it. The system switches automatically to the online mode.

“Cancel” button:
This boots the FPWIN GR without loading a program.

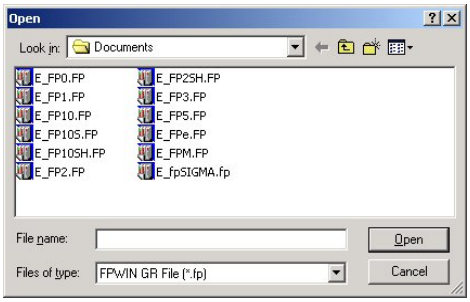
☛ next page

2- 1. If “New” was selected, select the type of PLC to be used.



If **“New”** was selected on the Startup menu, a dialog box is displayed on the screen, showing the types that can be selected.
Select the type of PLC being used, and click on the “**OK**” button.

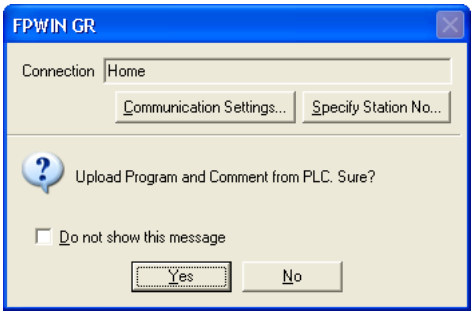
2- 2. If “Open” was selected, a data file is opened.



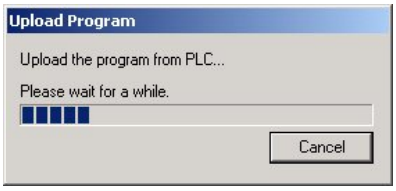
If **“Open”** was selected on the Startup menu, a dialog box is displayed on the screen, showing the files that can be opened. Select the file to be edited and double-click on it with the mouse, or click on the **“OK”** button.

☛ next page

2- 3. If “Upload from PLC” was selected, data is loaded from the PLC.



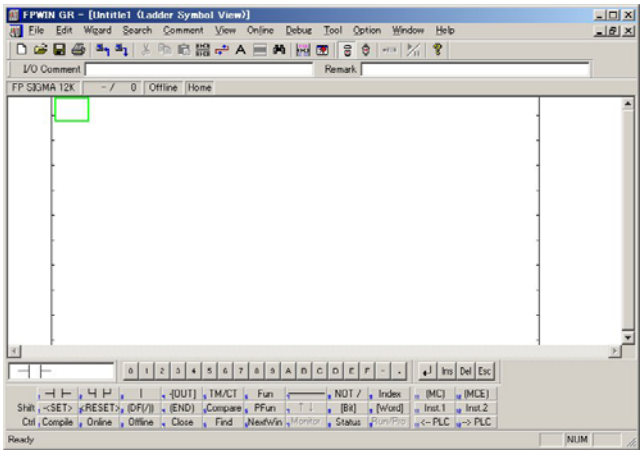
If **“Upload from PLC”** was selected on the Startup menu, a dialog box is displayed on the screen, confirming that data is to be uploaded. Click on the **“Yes”** button.



Uploading of the program begins. If all of the data is uploaded successfully, a dialog box is displayed confirming the change in the PLC mode. To change to the RUN mode, click on the **“Yes”** button.

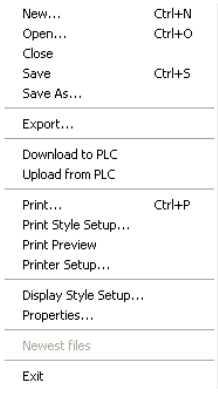
3. The initial FPWIN GR screen is displayed.

If the FPWIN GR is booted normally, the initial screen shown below is displayed.



1.3.2 Exiting the FPWIN GR

Exiting operation



The FPWIN GR can be exited by clicking on **"File"** on the menu bar and selecting **"Exit"** from the displayed menu.

It can also be exited by clicking on the button in the upper right corner of the screen.

1.4 Connecting FP-X to the computer via USB cable

Necessary installing FPWIN GR Ver.2.5 or higher

Before connecting to FP-X to the computer, it is necessary to install FPWIN GR Ver.2.5 or higher.

Regarding installation, please refer to '1.1.Installing the Software'.

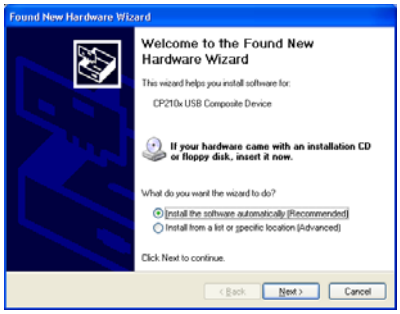
When you connect FP-X to the computer via USB cable after installing FPWIN GR Ver.2.5 or higher

In this case, it is necessary to install USB driver.

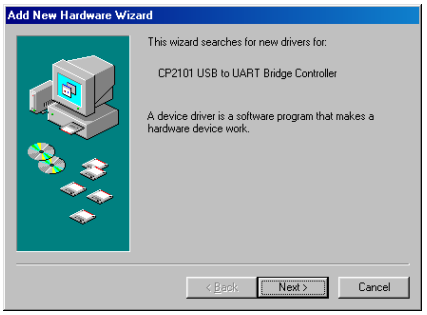
USB drive is copied under \Program Files\Panasonic-EW SUNX Control\FP-X USB.

If your operating system is Windows® ME, Windows® 2000 or Windows® 7, USB driver is automatically installed, but your operation system is Windows® 98SE or Windows® XP, the following dialog is displayed.

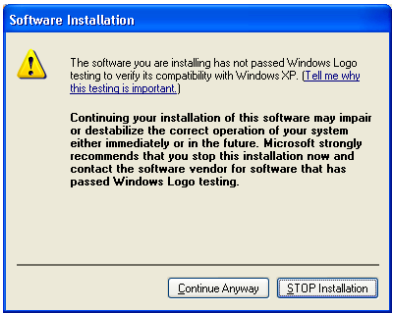
Windows® XP



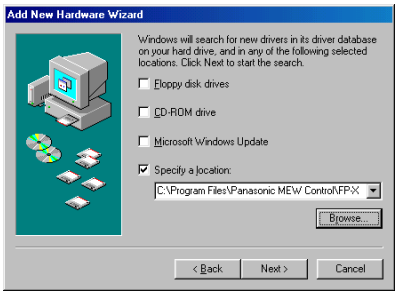
Windows® 98SE



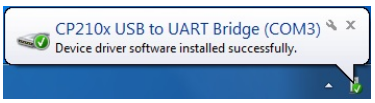
If your operating system is Windows® XP, please select [Install the software automatically (Recommended)], and push [Next] button. Along the way, right dialog is displayed 2 times. Then, please select [Continue Anyway] button.



If your operation system is Windows® 98 SE, please select [Search for the best driver for your device (Recommended)]. After then, select [Specify a location] and specify "c:\Program Files\Panasonic-EW SUNX Control\FP-X USB" on right dialog.



If your operation system is Windows® 7, the following dialog is displayed.



◆NOTE

If your operation system is Windows® 7, FPWIN GR Ver.2.9 or later version is required.

Select C-NET(RS232C) as network type in Communication Settings.

When you connect FP-X via USB cable, please select C-NET(RS232C) as Network type.

Please confirm the specified COM port by the following way.

1. At first, connect FP-X to the computer via USB cable.

2. Display Device Manager by the following way.

- In case of Windows® 98SE

  [My computer] -> [Control panel] -> [System] -> Click [Device Manager] tab -> Select [View devices by type]

- In case of Windows® Me

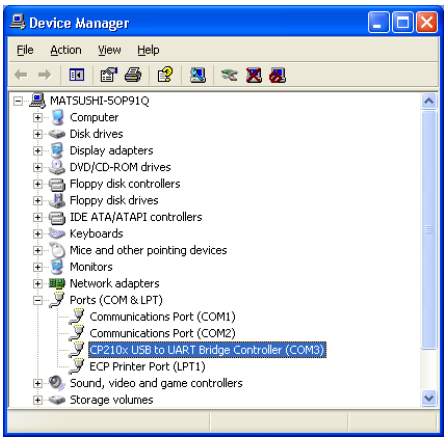
  [My computer] -> [Control panel] -> [View all Control Panel options] -> [System] -> Click [Device Manager] tab -> Select [View devices by type] tab

- In case of Windows® 2000

  [My computer] -> [Control panel] -> [System] -> Click [Hardware] tab -> Click [Device Manager] button -> Click [View]menu -> [Device by type]

- In case of Windows® XP

  [My computer] -> [View System information] -> Click [Hardware] tab -> Click [Device Manager] button -> Click [View] menu -> [Device by type]



- In case of Windows Vista® or Windows® 7

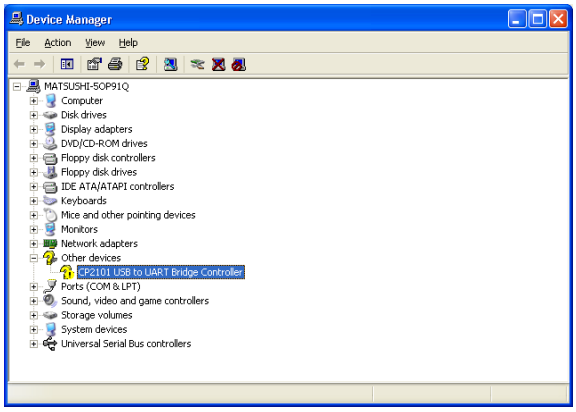
  [Windows Start Menu] -> [Computer] -> [System Properties] -> [Device Manager]

3. If [CP201x USB to UART Bridge Controller (COM3)] is displayed in Ports (COM&LPT), please specify 3 as port No.

When it is not possible to communicate with FP-X

There is a possibility that the USB driver is not normally installed.

After you connects the computer with FP-X by using the USB cable, please right-click in "CP2101 USB to UART Bridge Controller" to which '?' mark has adhered, and delete it.



Afterwards, please disconnect and connect the USB cable again, and install the driver while referring to the former page.

1.5 Connecting FP0R with USB Cable

FPWIN GR Ver.2.8 or later is required.

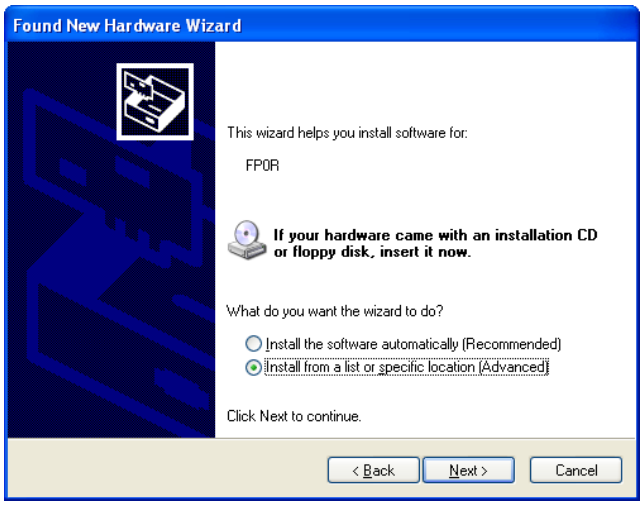
You must install the FPWIN GR Ver.2.8 or later before connecting the FP0R. For information on the installation, refer to Chapter 1.1.

After the installation, the USB driver has been copied in "\Program Files\Panasonic-EW SUNX Control\FP0R USB".

Procedure of installing the driver (e.g.: Windows® XP)

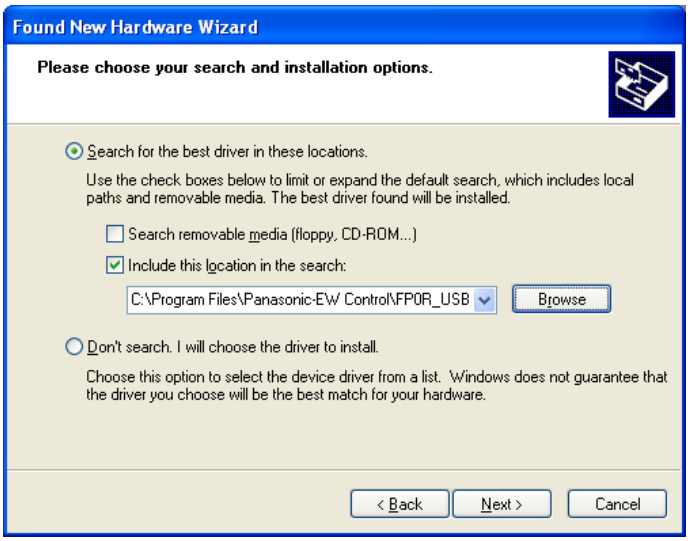
1. Once the FP0R is connected, the following screen is displayed. Select “No, not this time”, and click “Next>”.

2. Select “Install from a list of specific location”, and click “Next>”.

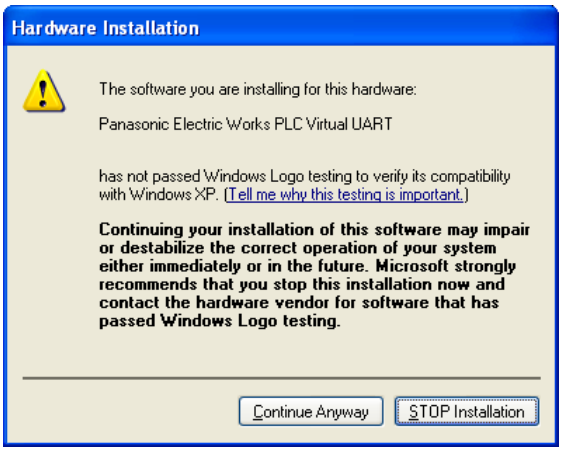


3. Select “Search for the best driver in these locations”, and check “Include this location in the search”.

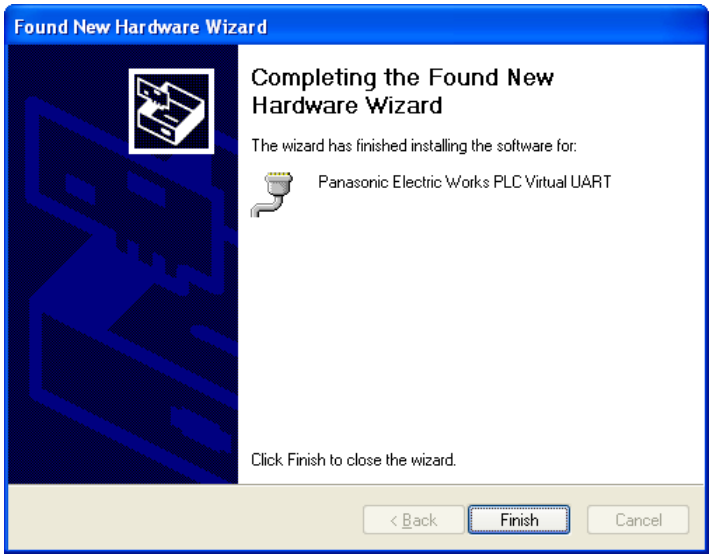
   Then, click the “Browse” button to specify the folder that the USB driver of FP0R has been stored, and click “Next>”.



4. Although the following dialog box appears during the installation, click “Continue anyway”.



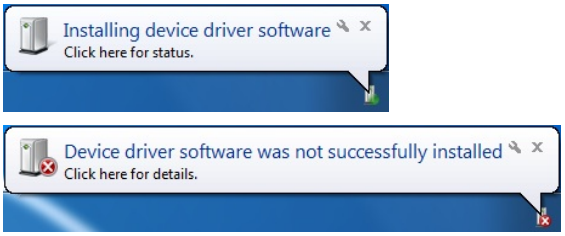
5. Click “Finish” on the following screen to be displayed.



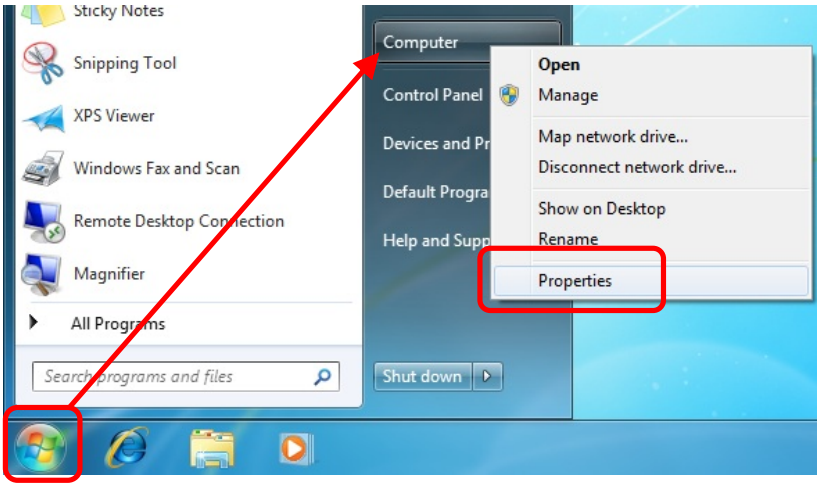
For information on the communication settings to connect the FP0R with USB, refer to 1.4.

Procedure of installing the driver (e.g.: Windows® 7)

1. Once the FP0R is connected, the following screen is displayed.
   (It will automatically disappear after a short time.)

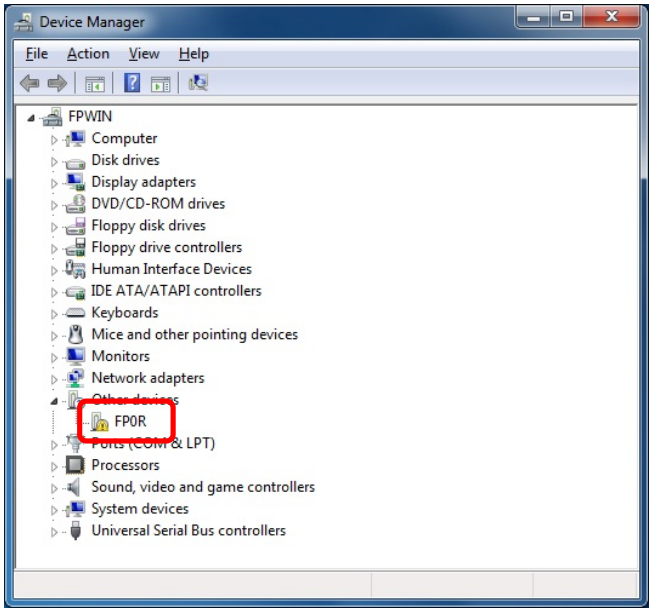


2. Click the start menu and move the mouse pointer to "Computer", and right-click on it to select "Properties".

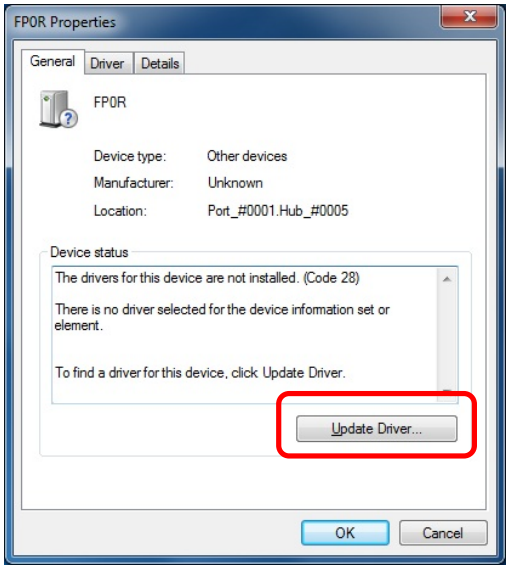


3. As the following screen is displayed, click "Device Manager".

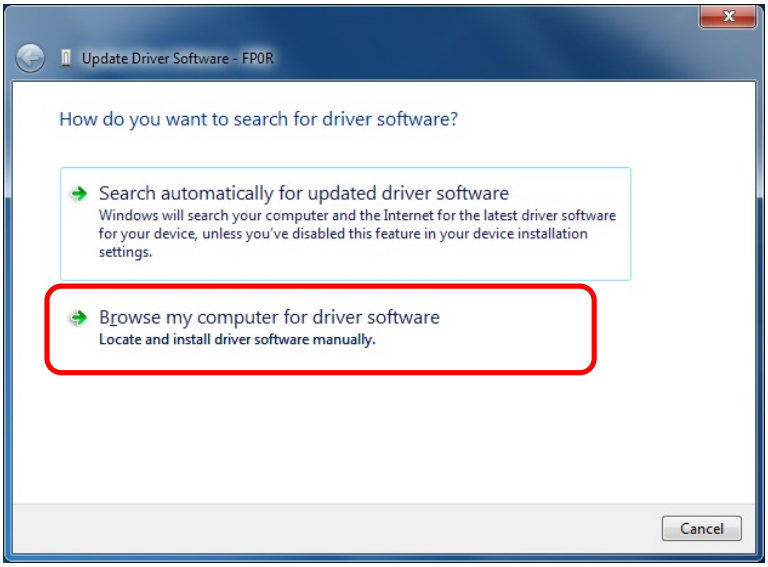
4. Double-click on "FP0R".



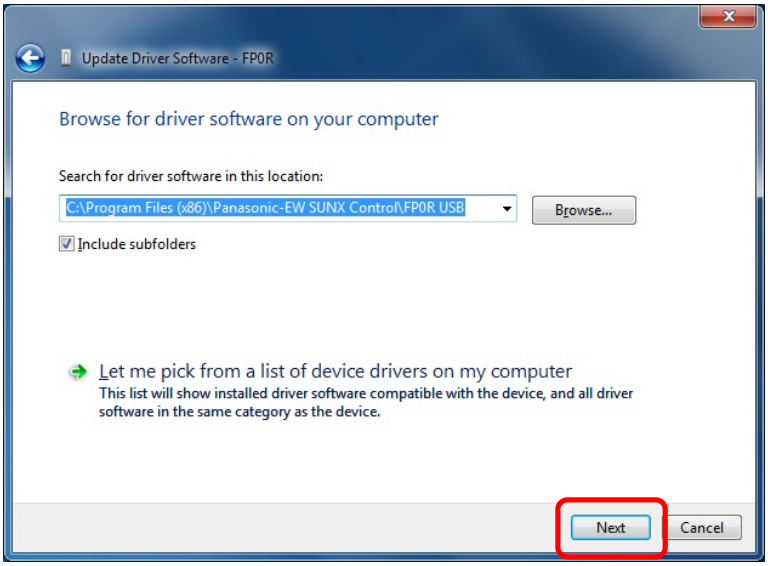
5. Click "Update Driver...".



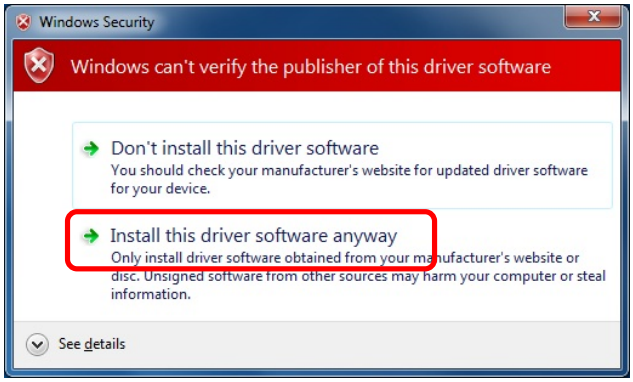
6. Click "Browse my computer for driver software".



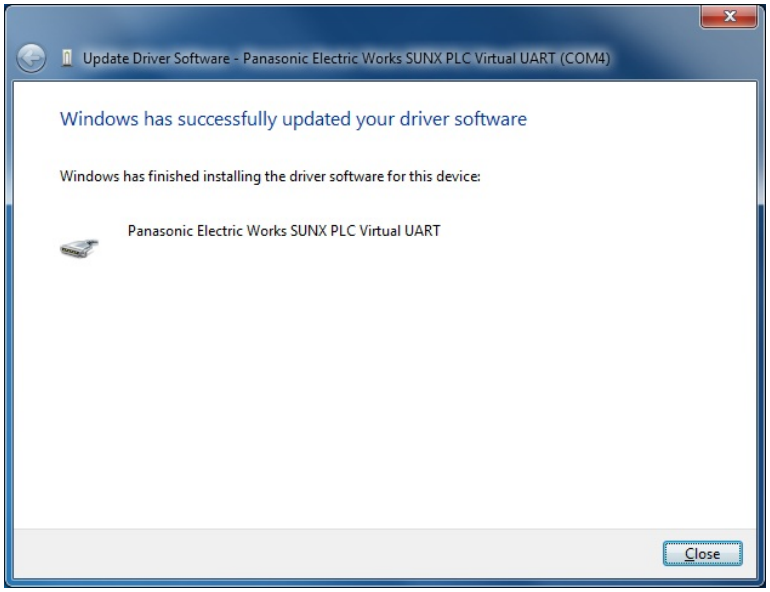
7. Click the "Browse..." button to specify the folder that the USB driver of FP0R has been stored, and click "Next".
   If the location was not changed when installing FPWIN GR, the USB driver of FP0R has been stored in "C:\Program Files\Panasonic-EW SUNX Control\FP0R USB".



8. Although the following warning dialog box appears, click "Install this driver software anyway".



9. The installation of the driver software begins. Once the installation completes successfully, the following screen will be displayed.



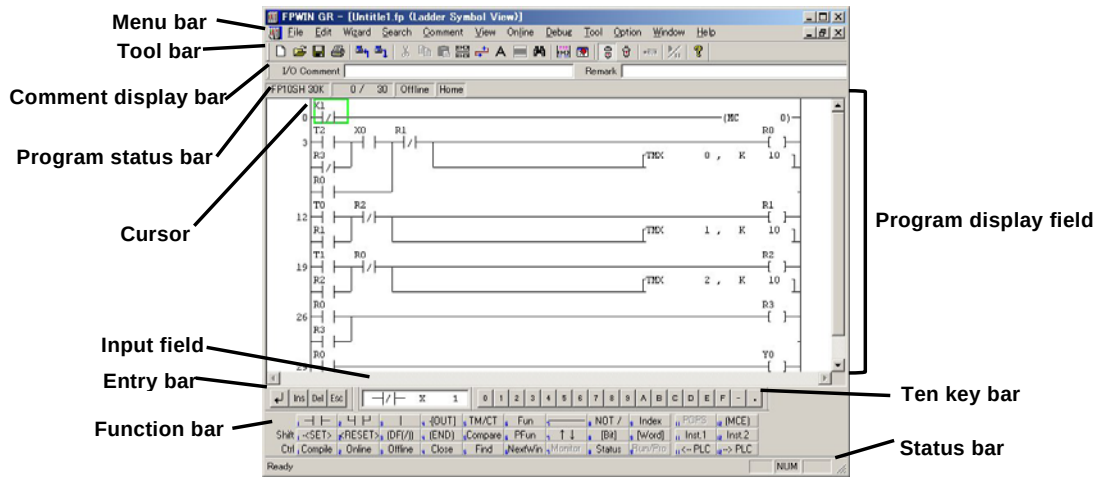
In this case, the USB port has been assigned to "COM4". However, it may differ depending on the environment of the PC you use.

Chapter 2

Names of Parts and Basic Operation

2.1 FPWIN GR Screens and Menus

2.1.1 Names and Functions of Parts



Menu bar

All of the FPWIN GR operations and functions are available here in menu format. Each menu matches the relevant application.

Tool bar

Functions that are frequently used in the FPWIN GR can be accessed here using buttons.

Comment display bar

This displays any comments linked to the device and the instruction at the cursor position.

Program status bar

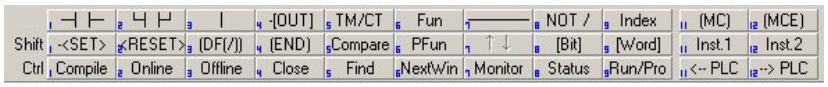
This displays the selected PLC type, the number of steps in the program and the status of communication between the FPWIN GR and the PLC.

☛ next page

Status bar

This shows the operation status of the FPWIN GR.

Function bar



When a program is input, instructions and functions can be selected using the mouse and the function keys located here.

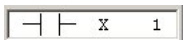
Entry bar

The [Enter], [Ins], [Del], and [Esc] keys can be input here using the mouse.

Ten key bar

Numeric values 0 to 9, letters A to F, and other values can be entered here, using the mouse.

Input field

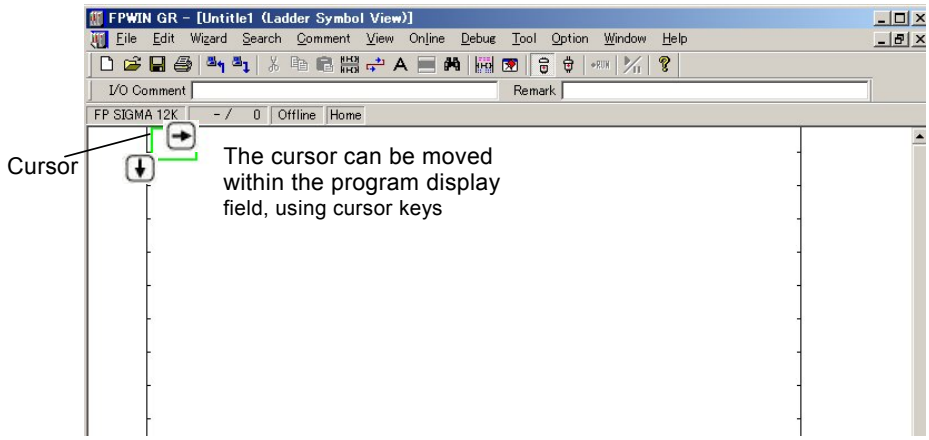


Normally, this displays instructions and operands at the cursor position. When a program is being edited, it displays instructions and operands currently being edited.

2.2 Basic Operation of the FPWIN GR

Cursor

The cursor can be moved within the program display field, using the four arrow keys (↑,↓,←,→) and by clicking the mouse. Instructions input using the function bar are input at this cursor position.

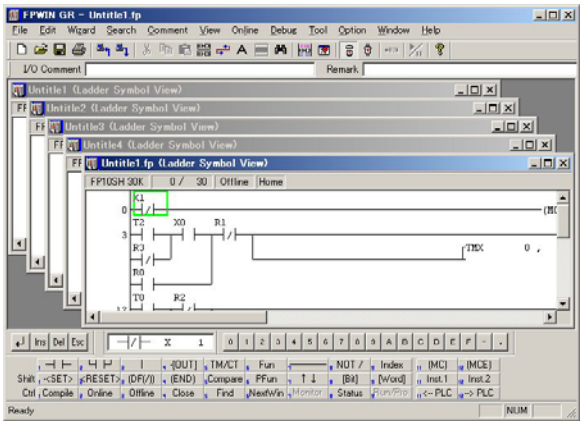


The Home key can be used to move the cursor to the beginning of the line, and the End key to move it to the end of the line.

The CTRL + Home keys can be used to move the cursor to the beginning of the program, and the CTRL + End keys to move it to the last line of the program.

Windows

With the FPWIN GR, multiple program windows can be opened.



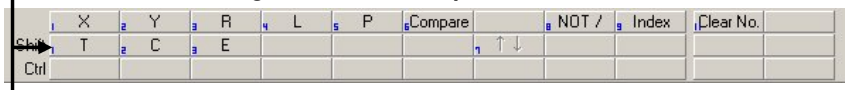
The various windows can be moved using the CTRL + TAB keys, or the CTRL + F6 keys.

Inputting instructions

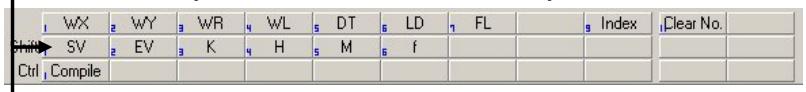
When programming, instructions can be input by clicking the mouse on the function bar, or by using the F1 to F12 function keys in conjunction with the Home and CTRL keys.
The function bar display changes based on the program input conditions, as shown below. Instructions are input at the cursor position in the program display field.

Instruction input keys (initial display)

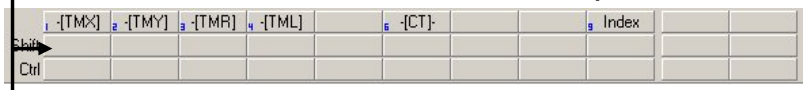
When an index register has been input



When a comparison instruction has been input

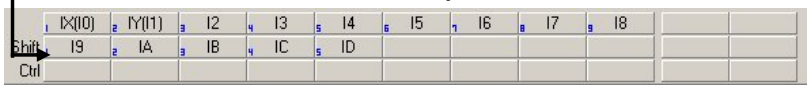


When a timer or counter instruction has been input



When the high- level instruction or similar instruction has been input

When a contact or coil has been input



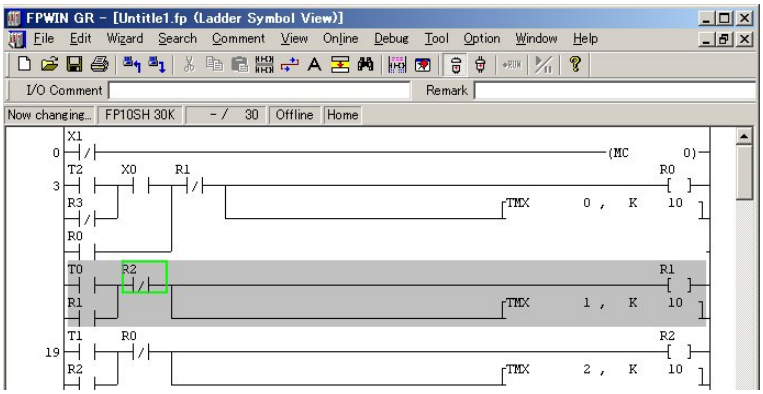
◆NOTE

When inputting instructions using SHIFT + F11 keys or SHIFT + F12 keys, please be aware that there are some PLC types which do not support the displayed instructions. Check the programming manual for PLC types which do support the instructions.

2.3 Program Conversion (Compile)

An overview of the program conversion (compile)

In the Ladder Symbol View mode, the “program conversion” is necessary in order to enter a program that has been written in ladder symbol. When a program has been created or edited in the Ladder Symbol View mode, the area inside the program display field is highlighted in gray, as shown below. This indicates that the ladder in the highlighted area is being edited, and that program conversion is necessary. At this point, the message is displayed on the program status bar indicating that conversion is taking place.



Programs can be converted by clicking with the mouse on Compile on the function bar, or by pressing the CTRL + F 1 keys. Program creation or editing can be continued in the highlighted range up to 33 lines, but if this is done, the program in its entirety should be converted after the programming or editing has been completed.

Confirming and canceling the edit status

Pressing the Return ↵ key during program input automatically switches to the Edit mode, and the system waits for the area of the screen that is displayed in gray to be converted.

- Changing the input contents of instructions and devices

  Press the CTRL + F 1 keys and convert the program. The input contents are confirmed and the program is changed.

- If the Return ↵ key was pressed erroneously

  Either press the CTRL + H keys, or select **“Edit”** on the menu bar and then **“Quit Editing”**, and cancel the Edit mode.

SHORTCUT

When using the FPWIN GR for programming, you will frequently be converting programs and returning to the program before edit.
Remembering to use the following shortcut keys can make your programming considerably more efficient.
Program conversion (Compile)..... CTRL + F 1 keys
Return to program before edit (Quit Editing) ... CTRL + H keys

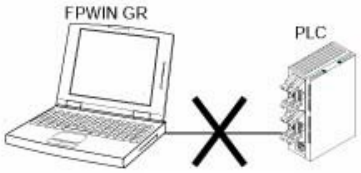
2.4 Online Editing and Offline Editing

An overview of online editing and offline editing

With the FPWIN GR, there are two operation modes. In offline editing, the FPWIN GR is operated by itself, using a personal computer. In online editing, the FPWIN GR is operated in conjunction with a PLC, using communication between the two units.

Offline editing 

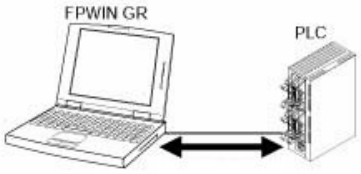
In this mode, the FPWIN GR is used by itself to create and edit programs, and there is no communication with a PLC.



There is no communication between the FPWIN and PLC.

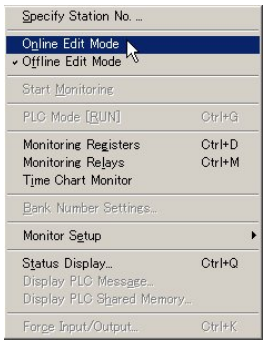
Online editing 

In this mode, PLC programs can be edited and data in the PLC can be monitored, using communication between the FPWIN GR and the PLC.



The FPWIN and PLC are in communication.

Switching modes



Switching between the online and offline editing modes is done by clicking with the mouse on **"Online"** on the menu bar, or using the [Alt] + [L] keys to switch between **"Online Edit Mode"** and **"Offline Edit Mode"** on the displayed menu.

The modes can also be switched without using menu operation, by the means described below.

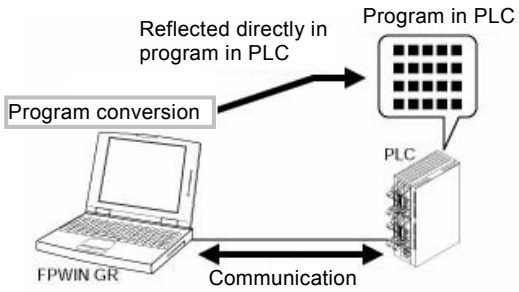
- Keyboard operation
CTRL + F 2 (Online) keys and CTRL + F 3 (Offline) keys

- Tool bar operation
Clicking on  and 

Online editing

In online editing, as shown in the diagram below, programs in the PLC can be edited or monitored through communication between the FPWIN GR and the PLC.

With online editing, the contents of programs edited with the FPWIN GR, system register settings, and other data are reflected directly in the PLC.



◆ KEY POINT

There are two types of online editing.

- **Editing in the PROG. mode**
  With this method, programs in the PLC are rewritten with the PLC in the PROG. mode. The program status bar displays the status via the Online PLC = REMOTE PROG **status indicators.**

- **Editing in the RUN mode**
  With this method, programs in the PLC are rewritten with the PLC in the RUN mode. The program status bar displays the status via the Online PLC = REMOTE RUN **status indicators.**
  PLC processing continues based on the edited program, so be sure that editing is done properly.

The "Edit in RUN Mode" operation works differently depending on the type of PLC being used.

- **PLCs in which the RUN status continues during program rewriting**
  - FP0, FP0R, FP-X, FP SIGMA, FP-e, FP2, FP2SH, FP3, FP-C, FP10SH

- **PLCs in which the system switches to PROG. mode while the program is rewritten, and then back to RUN mode after rewriting is finished**
  - FP1, FP-M

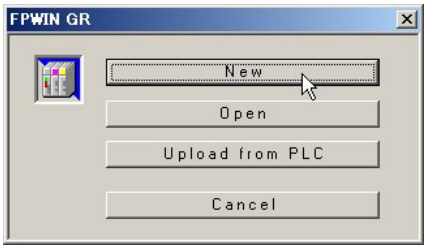
Chapter 3

Creating and Editing Programs

3.1 Before Creating a Program

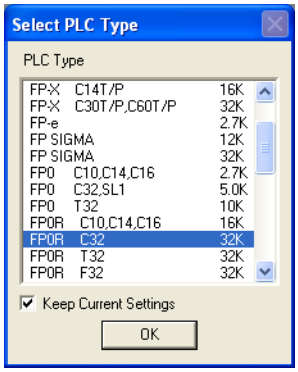
3.1.1 Booting the FPWIN GR and Selecting the Type of PLC

1. Boot the FPWIN GR and select “New” on the startup menu.



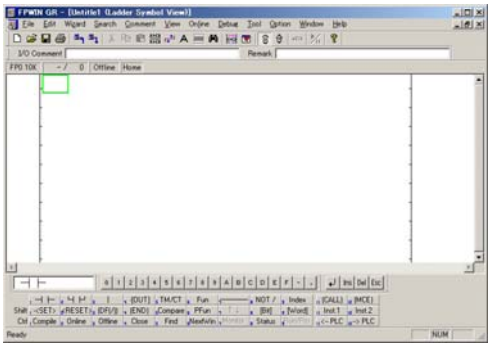
Boot the FPWIN GR, and when the startup menu is displayed, select **“New”**.

2. Select the type of PLC.



A dialog box indicating the selectable types is displayed on the screen. Select the type of PLC to be used, and click on the **“OK”** button.

3. The FPWIN GR boots.



The FPWIN GR boots in the new program creation mode.
The user can go ahead and begin programming.

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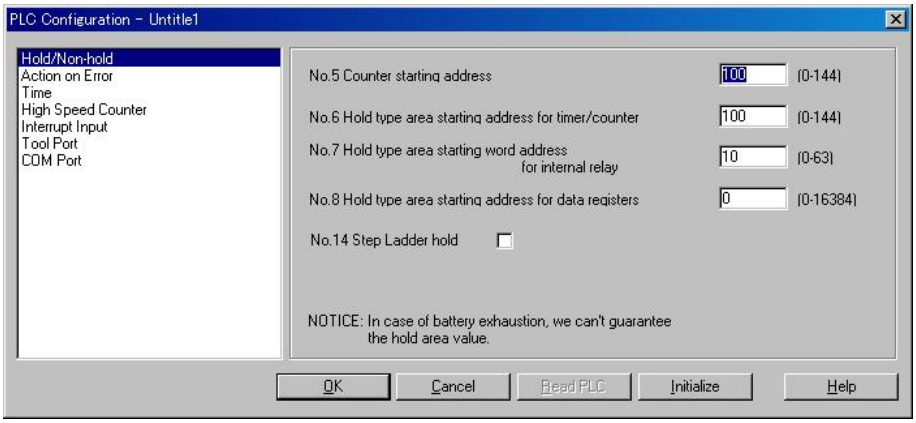
◆ KEY POINT

PLC Configuration settings

Different types of PLCs have different memory capacities, different numbers of I/O points, and different instructions and functions that can be used. For this reason, the PLC environment settings (PLC configuration settings) are stored together with the program in the NPST-GR and FPWIN GR files.

If “New” is selected on the startup menu, the FPWIN GR sets these settings automatically to match the type being used. To change any of the set values, select “PLC Configuration” on the “Option” menu, and change the contents of the system register.

Example of PLC Configuration settings dialog box

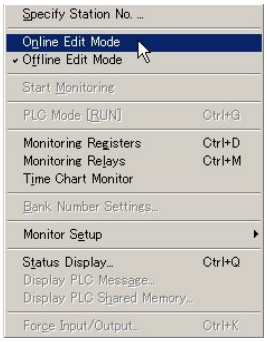


3.1.2 Clearing Programs

Always run the “Clear Program” operation before entering a new program in the PLC.

Procedure for clearing programs

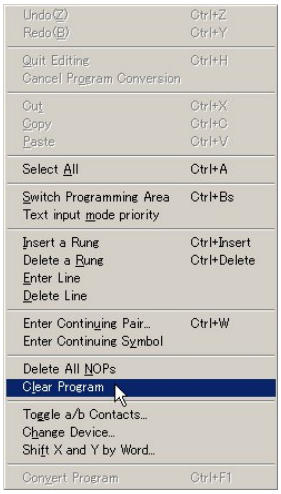
1. Connect the PLC, and switch to the online editing mode.



Connect the personal computer from which the FPWIN GR is being run and the PLC, using the specified cable, and select **“Online Edit Mode”** on the FPWIN GR **“Online”** menu.

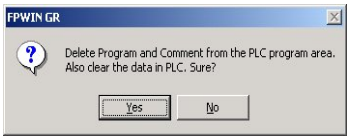
For information on connecting the computer and the PLC, please refer to the hardware manual for the relevant PLC.
The online editing mode can also be accessed by clicking on the icon on the tool bar.

2. Run the “Clear Program” on the “Edit” menu.



Check to make sure the system is in the online editing mode, and select **“Clear Program”** on the **“Edit”** menu.

3. Clear the program.



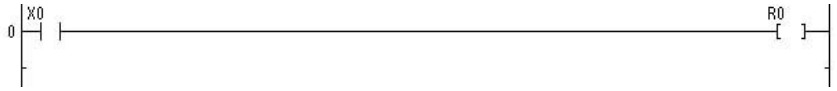
When the confirmation dialog box shown at the left is displayed, click on **“Yes”** to delete the program.

3.2 Creating Programs

3.2.1 Inputting a Sample Program

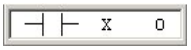
This section explains how to input the circuit shown below as a sample program.

The program is input by clicking with the mouse on the various instruction icons displayed on the function bar at the bottom of the screen. Programs can also be input using the function keys on the keyboard to which the various instructions are assigned.



1. Input relay X0.

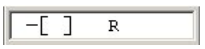
First, input the relay X0 on the first line of the sample program. Move the cursor to the upper left corner of the program display field, and follow the procedure below to input the relay.

Procedure	Input field display
1.Press F1 (⊣⊢).	
2.The function bar changes to a bit display. Press F1 (X).	
3. After the type of relay has been input, click with the mouse on 0 on the ten-key bar, or press the 0 key on the keyboard.	
4.Press the Return ↵ key to enter the instruction.	

Screen display

2. Input the coil R0.

After the relay X0 has been input, input the coil R0, following the procedure below.

Procedure	Input field display
1. Press F4 (-[OUT]).	
2. The function bar changes to a bit display. Press F3 (E).	
3. After the type of coil has been input, press 0 (0).	
4. Press the Return ↵ key to enter the instruction.	

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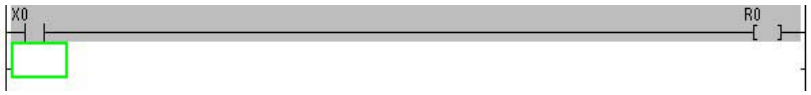
Screen display



- The coil (OUT) instruction is automatically input at the right end, and the cursor moves to the beginning of the next line.

◆ KEY POINT

- **To draw a horizontal line, press the F7 (——) key. (To delete a horizontal line, press the Delete key.)**
  The F3 (Offline) key enters a vertical line to the left of the cursor position. Pressing this key once more deletes the vertical line.
- **To configure the circuit, use the arrow keys (↑, ↓, ←, →) to move the cursor and input the relays. Then press the F7 (-[OUT]) key and the F3 (|) key to connect them.**
- **The keys are convenient for direct device input.**
  When inputting a program, the devices listed below can be input directly using the keys, in addition to being input from the function bar.

During basic instruction input

Device type	Input using function bar	Direct input using keys
X	F1 key	X key
Y	F2 key	Y key
R	F3 key	R key
T	SHIFT + F2 key	T key
C	SHIFT + F3 key	C key

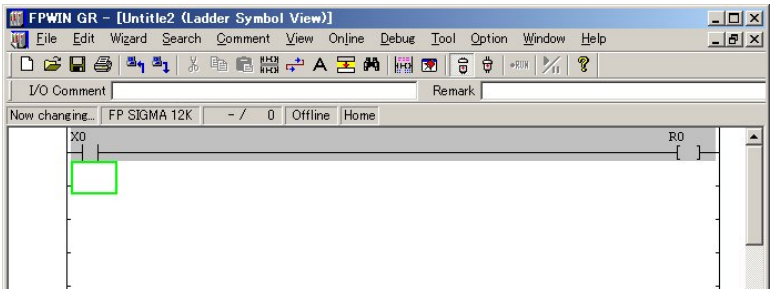
During input of high- level instructions, timer instruction, etc.

Device type	Input using function bar	Direct input using keys
K	SHIFT + F3 key	K key
H	SHIFT + F4 key	H key
DT	F5 key	D key

3.2.2 Checking the Sample Program

Program conversion (Compile)

When a program has been created or edited in the ladder symbol the area inside the program display field is highlighted in gray, as shown below. This indicates that program conversion needs to be carried out on the ladder in the highlighted area.



Programs can be converted by clicking with the mouse on Compile on the function bar, or by pressing the CTRL + F 1 keys. Program creation or editing can be continued in the highlighted range, but if this is done, the program in its entirety should be converted after the programming or editing has been completed.

Running the program conversion (Compile) operation

-Using the menu Select **"Convert Program"** on the **"Edit"** menu.

-Keyboard operation Press CTRL + F 1 keys.

-Select items from the displayed menu by clicking the right button of the mouse.

◆ KEY POINT

Program conversion (Compile) can be carried out on up to 33 lines at a time. With the FPWIN GR, it is not possible to edit 34 or more lines of the program at one time.

3.2.3 Returning to Program Before Edit (Quit Editing)

If an error is made while programming, the "Return to program before edit" function can be run to go back to the version of the program that existed before the changes were made (right after the previous PG conversion (Compile) was run).

Returning to the version of the program conversion prior to changes

-Using the menu Select **"Quit Editing"** on the **"Edit"** menu.

-Using the keyboard Press CTRL + H keys.

-Select items from the displayed menu by clicking the right button of the mouse.

3.2.4 Undo / Redo

If an error is made while programming, the “Undo” function can be run to go back to the version of the program that existed before the changes were made (right after the previous operation).

Returning to the version of the program prior to changes

-Using the menu Select **“Undo”** on the **“Edit”** menu.

-Using the keyboard Press CTRL + Z keys.

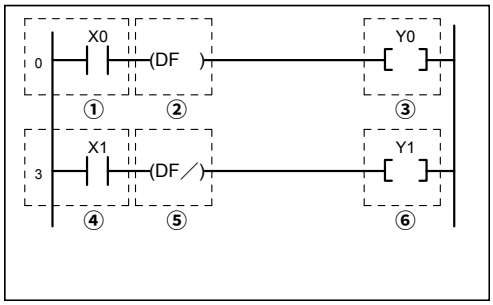
If you later decide you did not want to undo an action, Select **“Redo”** on the **“Edit”** menu or press CTRL + Y keys.

3.2.5 Inputting Instructions from the Function Bar

DF	Leading edge differential

DF/	Trailing edge differential

Ladder notation



DF: The relay goes on for one scan only, when the leading edge of the signal is detected.

DF/: The relay goes on for one scan only, when the trailing edge of the signal is detected.

The [DF(/)] key is used to switch between (DF) and (DF/).

Key operation procedure

1	F1 (⊣ ⊢)
	F1 (X) 0 ↵
2	SHIFT + F3 (DF(/)) ↵
3	F4 (-[OUT])
	F2 (Y) 0 ↵
4	F1 (⊣ ⊢)
	F1 (X) 1 ↵
5	SHIFT + F3 (DF(/)) SHIFT + F3 (DF(/)) ↵
6	F4 (-[OUT])
	F2 (Y) 1 ↵

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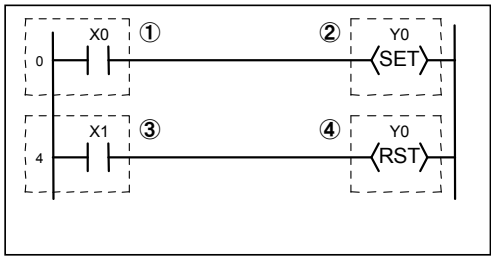
SET	Set

RST	Reset

Ladder notation



When the execution condition of the SET instruction goes on, the specified relay goes on, and remains on regardless of changes in the status of the execution condition.

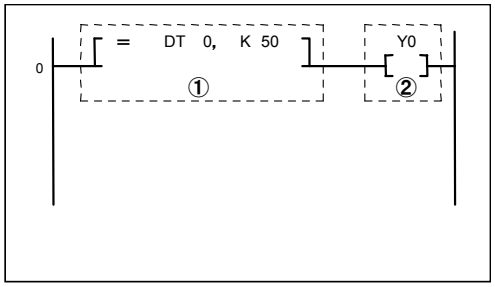
When the execution condition of the RST instruction goes on, the specified relay goes off, and remains off regardless of changes in the status of the execution condition.

Key operation procedure

1	F1 (⊣ ⊢)
	F1 (X) 0 ↵
2	SHIFT + F1 (-<SET>)
	F2 (Y) 0 ↵
3	F1 (⊣ ⊢)
	F1 (X) 1 ↵
4	SHIFT + F2 (<RESET>)
	F2 (Y) 0 ↵

ST=	16- bit data comparison

Ladder notation



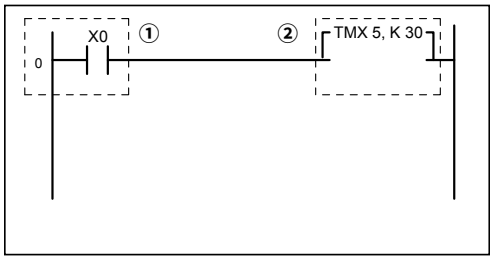
A logical operation is initiated in response to the results of the comparison carried out on two operands.

Key operation procedure

1	F1 (⊣ ⊢)
	F6 (Compare)
	F6 (=) ↵
	F5 (DT) 0 ↵
	SHIFT + F3 (K) 5 0 ↵
2	F4 (-[OUT])
	F2 (Y) 0 ↵

TM	Timer

Ladder notation



Key operation procedure

1	F 1 (⊣ ⊢) F 1 X 0 ↵
2	F 5 TM/CT F 1 -[TMX] 5 ↵ SHIFT + F 3 K 3 0 ↵

An on-delay timer is created.

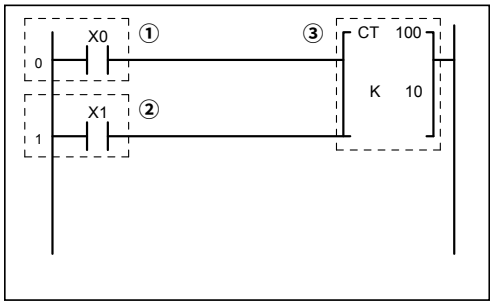
TMR: Unit of 0.01 seconds
TMX: Unit of 0.1 seconds
TMY: Unit of 1.0 seconds

A unit of TML: 0.001 seconds can also be used with some PLC types.

The timer coil moves to the right end when the program is converted (PG conversion is carried out).

CT	Counter (preset subtraction type)

Ladder notation



Key operation procedure

1	F 1 ⊣ ⊢ F 1 X 0 ↵
2	F 1 ⊣ ⊢ F 1 X 1 ↵
3	F 5 TM/CT F 6 -[CT]- 1 0 0 ↵ SHIFT + F 3 (K) 1 0 ↵

A preset subtraction type of counter is created.

The counter instruction moves to the right end when the program is converted (PG conversion is carried out).

3.2.6 Inputting Instructions not Found on the Function Bar

Inputting other instructions

Instructions that do not appear on the function bar can be input by pressing SHIFT + F11 (Inst.1) keys or SHIFT + F12 (Inst.2) keys to bring up the instruction entry dialog box.

Instructions can then be selected from the dialog box.

Instruction entry dialog box

If SHIFT + F11 (Inst.1) keys are pressed to input the instruction, the list shown at the left is displayed. Select the instruction to be input from the list and click on the **"OK"** button.

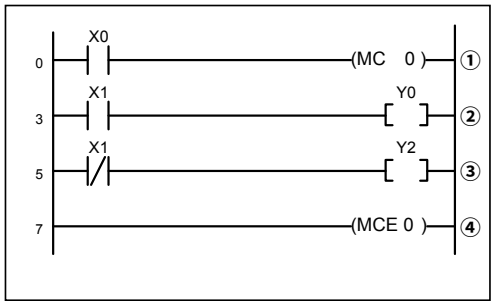
If the **"Assign to Key"** check box is on, as shown at the left, when a instruction is selected, the selected instruction will be assigned to a function key.

Instructions selected with the [Inst.1] key will be assigned to the F11 function key, and those selected with the [Inst.2] key will be assigned to the F12 key.

(MC)	Master control relay

(MCE)	Master control relay end

Ladder notation



When the execution condition is on, the program between MC0 and MCE0 is executed.

Key operation procedure

1	F1 (⊣ ⊢)
	F1 (X) 0 ↵
	SHIFT + F11 (Inst.1) After selecting (MC) 0 ↵
2	F1 (⊣ ⊢)
	F1 (X) 1 ↵
	F4 (-[OUT])
	F2 (Y) 0 ↵
3	F1 (⊣ ⊢)
	F8 (NOT /)
	F1 (X) 1 ↵
	F4 (-[OUT])
	F2 (Y) 2 ↵
4	SHIFT + F12 (Inst.2) After selecting (MCE), 0 ↵

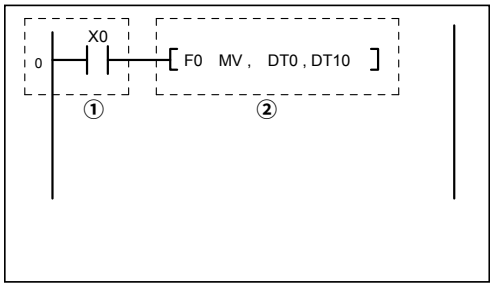
3.2.7 Inputting High- level Instructions

How high- level instructions are input

High-level instructions are input by pressing the F6 (Fun) key. Check to make sure the cursor is positioned in the [Fun] input field, and then input the number of the high- level instruction.

F0	16- bit data move

Ladder notation



This transfers 16 bits of data from the specified source address to the destination address.

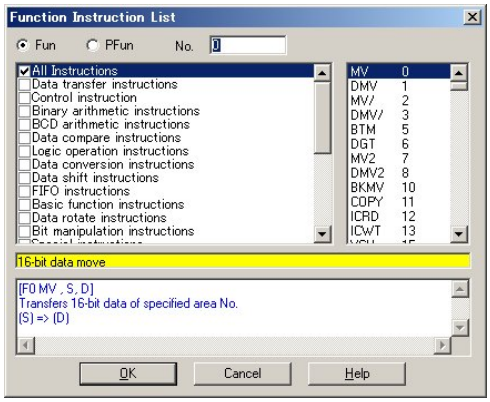
Key operation procedure

1	F1 (⊣⊢)
	F1 (X) 0 ↵
2	F6 (Fun) 0 ↵
	F5 (DT) 0 ↵
	F1 (DT) 1 0 ↵

You can change the drawing start position of Function instruction by selection "Display Style Setup" on "File" menu from Ver.2.30.

◆ KEY POINT

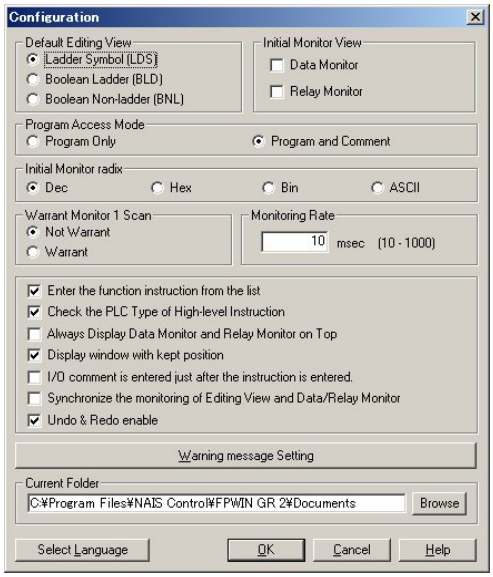
Function instruction list



When the F6 (Fun) key is pressed to input a function instruction (such as the high- level instruction), the instruction can also be input by selecting it from the "Function Instruction List" shown at the left, as well as by inputting it using key operation.

☛ next page

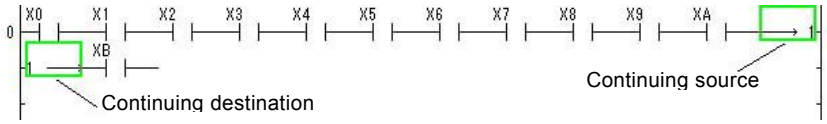
FPWIN GR Configuration dialog box



To switch between using the keys to input a function instruction and selecting instructions from the "Function Instruction List", select "FPWIN GR Configuration" on the "Option" menu, and then turn the check box labeled "Enter the function instruction from the list" displayed in the dialog box on or off.

3.2.8 Continuing Input

In the Ladder Symbol mode, if a ladder diagram is input that does not fit on one line, a line return can be input at the point at which the line returns. The input just before the bus line returns at the right end is called the continuing source, and the data at the beginning of the next line is called the continuing destination.



There are two types of continuing input: “Enter Continuing Pair” and “Enter Continuing Symbol”.

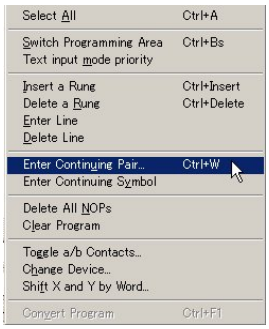
Enter continuing pair: The continuing source and continuing destination are specified as a pair.

Enter continuing symbol: The continuing source and the continuing destination are specified individually.

Operation procedure for continuing pair entry

With continuing source and continuing destination, the same number is assigned to both, and the user specifies from where to where the return is to be made. The operation can be interrupted by pressing the ESC key.

1. Specify the continuing pair entry.



Continuing pair entry is selected on the **“Edit”** menu, by selecting **“Enter Continuing Pair”**.

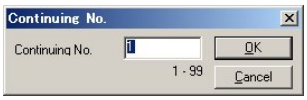
The entry can also be specified in the following ways:

-Using the keyboard Press the CTRL + W keys.

-Using the tool bar Click on .

-Click with the right button of the mouse to display a menu from which the entry can be selected.

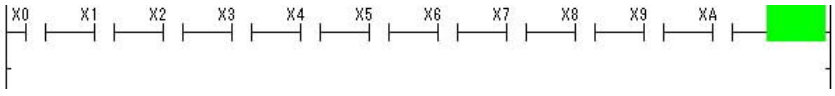
2. Specify the continuing number.



When the continuing number dialog box is displayed, specify a number.

3. Determine the position of continuing source (right end).

Specify the position of continuing source. is displayed on the status bar. Either press the Return key at the position of continuing source (right end), or click with the mouse.



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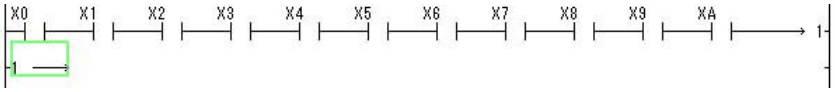
4. Determine the position of continuing destination (left end).

When the position of continuing source (right end) has been determined, the message Specify the position of continuing destination. is displayed on the status bar. Either press the Return ↵ key at the position of continuing destination (left end), or click with the mouse. The continuing pair entry is set at the specified number.

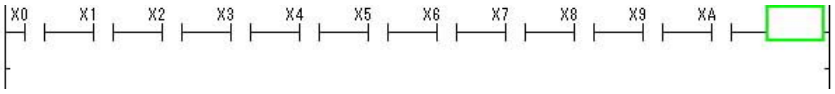


Operation procedure for continuing symbol entry

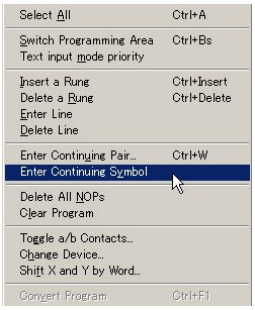
If **"Enter Continuing Symbol"** has been specified, move the cursor and determine the position of continuing source (right end) or the position of continuing destination (left end). The operation can be interrupted by pressing the ESC key.

1. Move the cursor to the position of continuing source (right end).

First, move the cursor to the position of continuing source (right end).



2. Specify the continuing symbol entry.



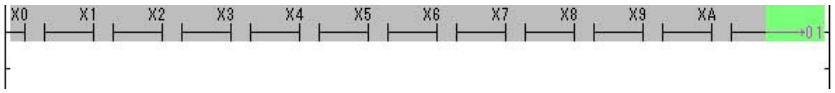
The continuing symbol entry is selected on the **"Edit"** menu, by selecting **"Enter Continuing Symbol"**.

There is another way to specify the entry, besides using the menu:

- Click with the right button of the mouse to display a menu from which the entry can be selected.

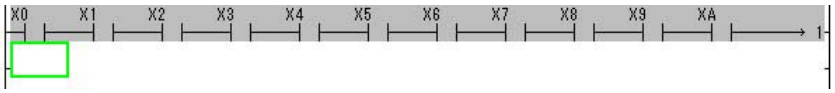
3. Specify the continuing number.

The message Enter the continuing No. is displayed on the status bar. Enter a two-digit continuing number. For example, to input No. 1, press 0 1 ↵ keys.



4. Move the cursor to the position of continuing destination (left end).

Next, move the cursor to the position of continuing destination (left end).



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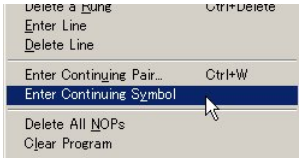
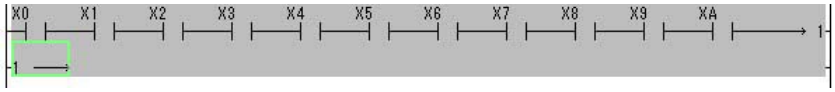
5. Specify the continuing symbol entry.



The continuing symbol entry is selected on the **"Edit"** menu, by selecting **"Enter Continuing Symbol"**.

6. Specify the continuing number.

The message Enter the continuing No. is displayed on the status bar. Enter a two-digit continuing number. For example, to input No. 1, press 0 1 ↵ keys.

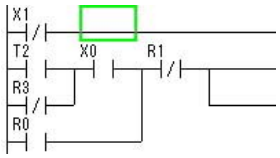


3.3 Correcting Programs

3.3.1 Deleting Instructions and Horizontal Lines

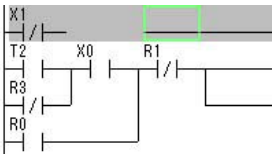
To delete instructions and horizontal lines, move the cursor to the position of the instruction or horizontal line to be deleted, and press the Delete key.

Move cursor to line to be deleted



Press Delete key.

The line is deleted, and the cursor moves.

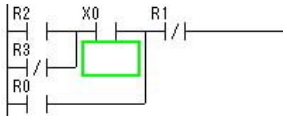


Reference: To draw a horizontal line, press the F7 (—) key.

Deleting vertical lines

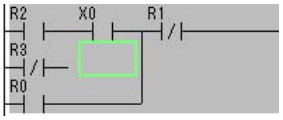
To delete a vertical line, move the cursor to the right of the vertical line to be deleted, and press the F3 (|) key.

Move cursor to right of vertical line to be deleted



Press F3 (|) key.

The vertical line is deleted.

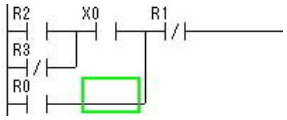


Reference: Pressing the F3 (|) key once again inserts a vertical line at that position.

3.3.2 Adding Instructions

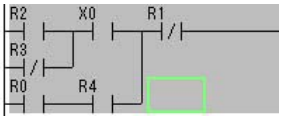
To add a relay on a horizontal line, it is not necessary to first delete the horizontal line; relays should be added on horizontal lines using the usual procedure. In the example shown below, the R4 relay is being added to the horizontal line.

Move cursor to position where relay is to be added



F1 (⊣⊢)
F3 (E) 4 ↵

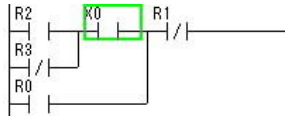
Relay is added



3.3.3 Changing Relay Numbers and Timer Set Value

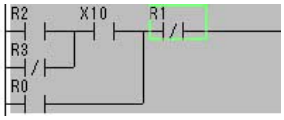
Move the cursor to the position of the relay to be changed, and input the relay, using the usual procedure. In the example below, the X0 relay is changed to the X10 relay.

Move cursor to position where change is to be made



Press [1] [0] [↵] keys.

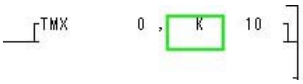
Relay number is changed



Changing timer set value

Move the cursor to the set value and change the value. In the example below, K10 is changed to K20.

Move cursor to position where change is to be made



Press [2] [0] [↵] keys.

Set value is changed

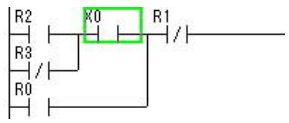
Reference: When the cursor reaches a position where the set value of timer can be changed, the current set value is displayed in the input field, and the function bar changes to a word display.

3.3.4 Inserting Instructions

Instructions can be inserted between instructions that have already been input.

To insert the instruction in front of the cursor, press the [Insert] key to confirm the instruction, and to insert it after the cursor position, press [SHIFT] + [Insert] keys. In the example below, the R4 relay is inserted in front of X0.

Move cursor to insert position



[F1] (⊣ ⊢)
[F3] (E) [4] [↵]

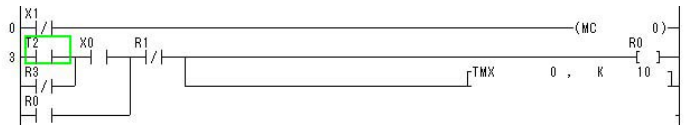
R4 relay is inserted in front of X0

3.3.5 Inserting Rung

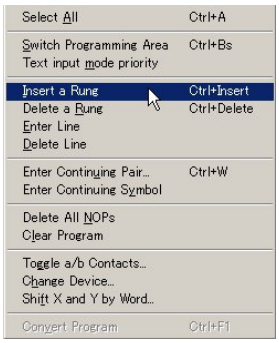
To insert the rung in an existing program, where additions or other changes will be made to the program, move the cursor to the position where the rung or rungs will be inserted, and then follow the procedure below.

Operation procedure

1. Move the cursor to the position where the rung will be inserted.



2. Insert the rung.



To insert the rung, select **"Insert a Rung"** on the **"Edit"** menu.

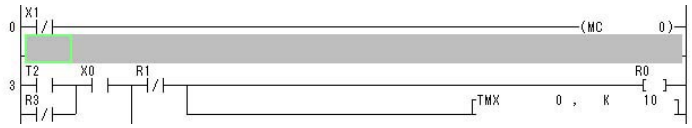
The insertion can also be specified in the following ways:

-Using the keyboardPress the CTRL+Insert keys.

-Using the tool bar Click on 

- Click with the right button of the mouse to display a menu from which the insertion can be made.

3. The rung is inserted.



3.3.6 Deleting Rung

To delete a blank rung which is no longer needed, move the cursor to the position of the rung to be deleted, and follow the procedure below.

Operation procedure

-Using the menu: Select **"Delete a Rung"** on the **"Edit"** menu.

-Using the keyboard: Press CTRL+Delete keys.

-Click with the right button of the mouse to display a menu from which the deletion can be made.

3.4 An Introduction to Other Functions

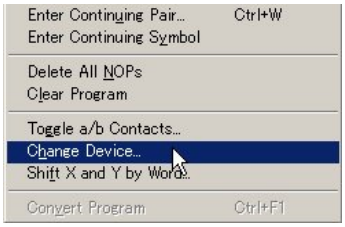
3.4.1 Changing Devices

An overview of the function for changing devices

This function is used to change types and numbers of relays in a program, and to change operand and numbers of instruction, and other parameters. Any relevant I/O comments can also be changed at the same time. (The remarks are not changed.)

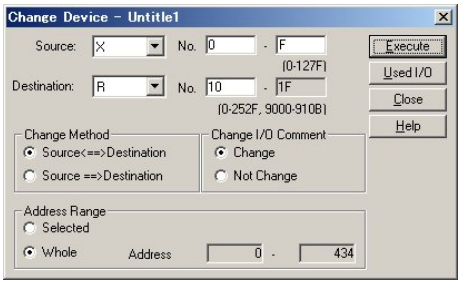
Operation procedure

1. Select the "Change Device".



To change a device, select **"Change Device"** on the **"Edit"** menu.

2. Specify the item of the device to be changed.

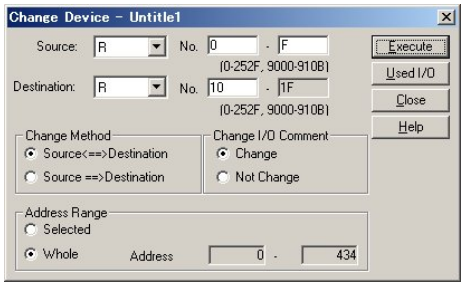


Specify the source device to the change and the range to which the change applies, as well as the destination device and the number from which the change is to start. Then click on the **"Execute"** button.

Devices which can be specified include the following:

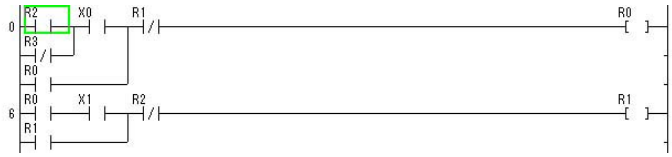
X, Y, R, T, C, L, E, P, WX, WY, WR, WL, DT, SV, EV, FL, LD, JP, MC, MCE, LOOP, LBL, NSTP, SSTP, NSTP, NSTL, CSTP, CALL, FCAL, SUB, and SRWR.

Example of a device change



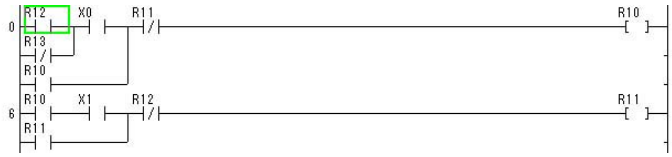
As shown at the left, [Source: R0 - RF] and [Destination: R10 - R1F] are specified, and then the **"Execute"** button is clicked. This changes the addresses of R0 - RF to R10 - R1F, as shown below.

Before the change



▼

After the change



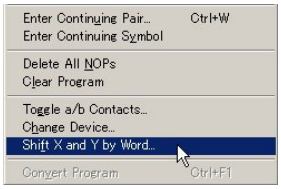
3.4.2 Shifting X and Y by Word

An overview of the XY word shift function

This function is used to shift relay numbers and coil numbers in the program in word units.
If the configuration or specifications of input/output unit have been changed, executing **"Shift X and Y Word"** makes it easier to make changes in the program. Relevant I/O comments can also be changed at the same time. (The remarks are not changed.)

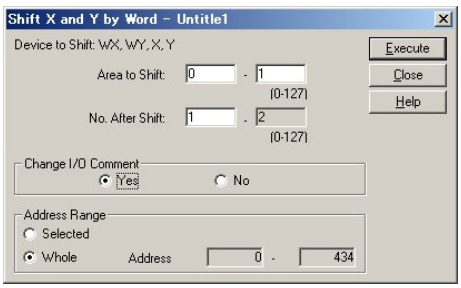
Operation procedure

1. Select the "Shift X and Y by Word".



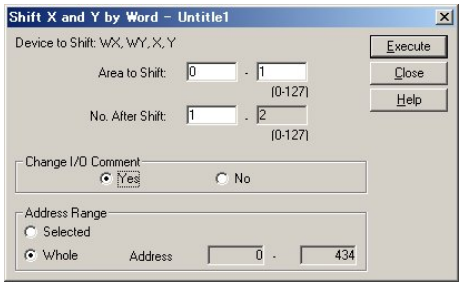
To select the shift X and Y by word, select **"Shift X and Y Word"** on the **"Edit"** menu.

2. Specify the item of device X and Y to be shifted.



Specify the area targeted for the shift, as well as the number following the shift, in word units. Then click on the **"Execute"** button.

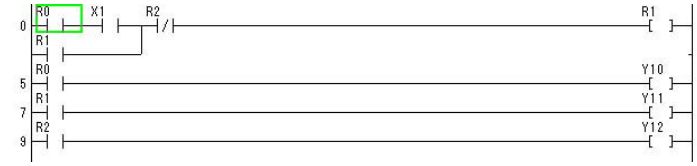
Example of shifting X and Y by word



As shown at the left, [Area to Shift: 0 - 1] and [No. After Shift: 1 - 2] are specified, and then the **"Execute"** button is clicked. This shifts X0 - X1F to X10 - X2F, and Y0 - Y1F to Y10

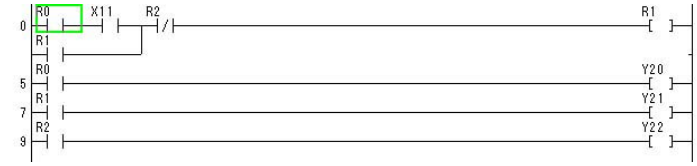
- Y2F, as shown below.

Before the change



▼

After the change



◆NOTE

The XY word shift functions also shifts the input relays [X] and output relays [Y] for the specified number range. To specify only the input relays [X] or only the output relays [Y], use the "Change Device" function described on the page 3-24.

Example: If the area of 0 to 1 has been specified as the target for the shift, this area will be targeted regardless of whether or not it is used in the program.

Input relays [X] X0 to XF
X10 to X1F

Output relays [Y] Y0 to YF
Y10 to Y1F

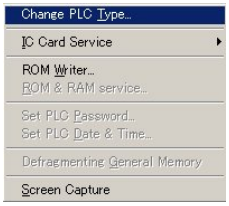
3.4.3 Changing PLC Types

An overview of the PLC type changing function

To shift a program which has been created to a different PLC type, the type targeted by the programming can be changed using the PLC type changing function if the two types have different settings. When changing PLC types, each device is checked for the range of device numbers, the program capacity, and to see if basic instructions/high- level instructions are used.

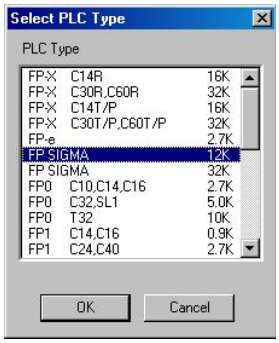
Operation procedure

1. Select the "Change PLC Type".



To change PLC types, select **"Change PLC Type"** on the **"Tool"** menu.

2. Specify the PLC type to be changed.



Select the PLC type to be changed, and click on the **"OK"** button. When converting FPΣ 12 K to FPΣ 32 k, the dialog, which is needed to perform conversion, is displayed after clicking on the "OK" button.

3. Make sure the PLC type change has been completed.

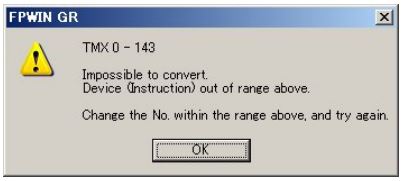
If the PLC type has been successfully changed, the message shown below is displayed.

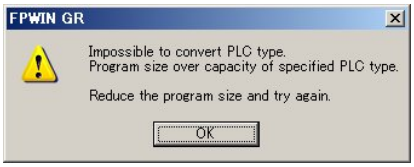
If the system registers have been initialized, the following confirmation message is displayed. Press the **"OK"** button.

☛ next page

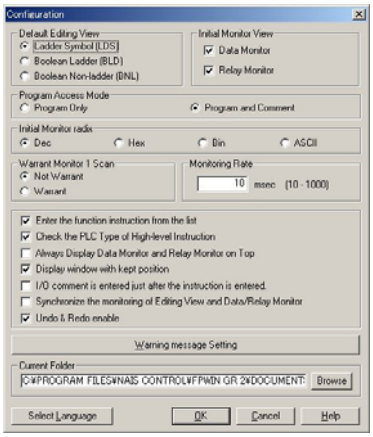
◆NOTE

If there are certain instructions that cannot be used on the selected PLC type, or device numbers for areas that cannot be specified, a message like one of those shown below is displayed.
Examples of type change error messages





The range of device numbers in the program prior to the type change must match that of the type after the change. Make any necessary changes in the device number ranges. (Any differences in the special data register DT9000 and DT90000 types will be converted automatically.)
The program capacities must also match. If necessary, delete part of the program prior to the change.
If there are any instructions in the program prior to the change which cannot be used after the change, edit them before the change is made.



For high- level instructions, “Configuration” can be selected on the “Option” menu, and the “Check the PLC Type of High- level Instruction” check box in the displayed dialog box turned on or off to specify whether or not high-level instructions will be checked.

System registers are not initialized in the PLC type listed below, and should be initialized by the user if necessary.
FP0 2.7 k <- -> FP0 5 k
FP1 0.9 k <- -> FP1 2.7 k <- -> FP1 5 k
FP3 10 k <- -> FP3 16 k
FP2 16 k <- -> FP2 32 k
FP2SH 60 k <- -> FP2SH 120 k
FP10SH 30 k <- -> FP10SH 60 k <- -> FP10SH 120 k
In any PLC types other than the above, the system registers are initialized. However, when converting FPΣ 12 k to FPΣ 32 k, the process for initializing the system registers varies according to the settings of the PLC type change.

Chapter 4

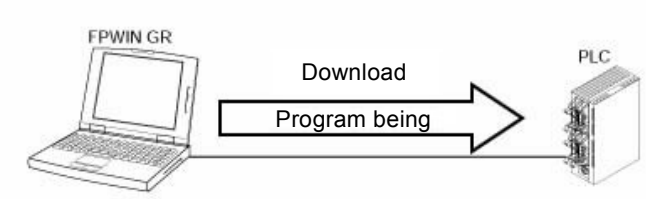
Transmitting Programs

4.1 Sending a Program to the PLC

An overview of program transmission

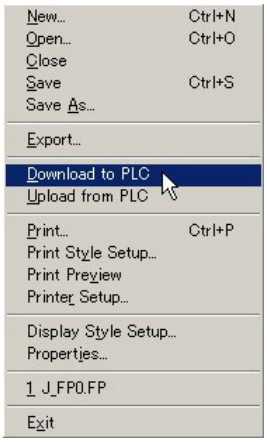
This function is used to send programs created and edited with the FPWIN GR to the PLC. To use this function, the personal computer and the tool port of the PLC should be connected with a cable.

Program transmissions such as downloading and uploading require communication between the FPWIN GR and the PLC. The FPWIN GR switches automatically to the online editing mode for such transmissions.



Operation procedure

1. Select the PLC to which the data is to be downloaded.



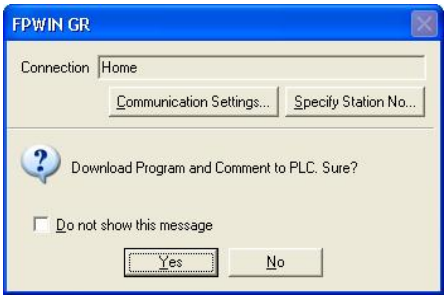
To send a program to the PLC, select **"Download to PLC"** on the **"File"** menu.

This can also be done in the following ways:

-Using the keyboardPress the CTRL + F12 keys.

-Using the tool bar Click on 

2. Confirm the dialog box message.

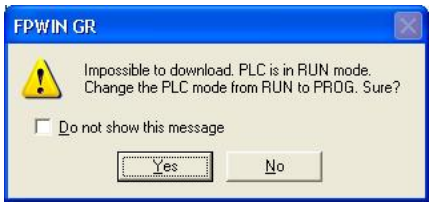


When **"Download to PLC"** is selected, a dialog box like that at the left appears.

To continue the downloading process, click on the **"Yes"** button.

☛ next page

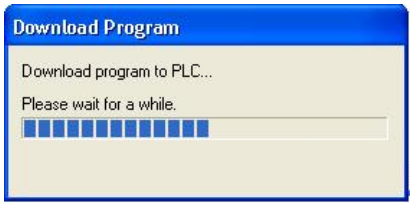
3. Confirm switching of the PLC operation mode.



If the PLC is in the RUN mode, a dialog box like that at the left appears.

To switch to the PROG. mode, click on the **"Yes"** button.

4. Display during downloading



The dialog box shown at the left is displayed while the program is being downloaded.

5. Confirm switching of the PLC operation mode.

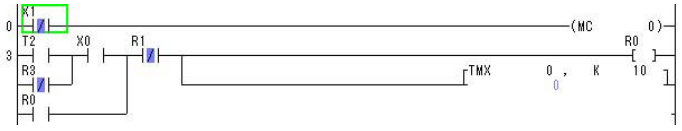
If downloading is successfully completed, the dialog box shown at the left is displayed.

To switch to the RUN mode, click on the **"Yes"** button.

6. Downloading to the PLC is completed.

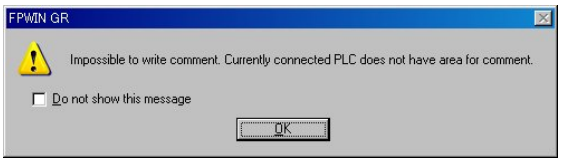
When the program has been downloaded to the PLC and the PLC has switched back to the RUN mode, the program status bar display changes to the following:

The program display switches to the monitoring status shown below.



◆NOTE

Precautions when downloading a program that has comments If a program containing comments is downloaded to a PLC with no area for writing comments, the comments will not be sent to the PLC. Please be aware that, if the same program is later returned (uploaded) to the FPWIN GR, the comments will have disappeared.



If the other PLC has no comment writing area, a dialog box like that shown will be displayed.

4.2 Verifying Programs

An overview of the program verification function

This function verifies the program on the currently active editing screen with a program stored in the PLC, or with a program on an editing screen in a different window, to see if they match. Verified items include system registers, program sizes, program codes, and other data.

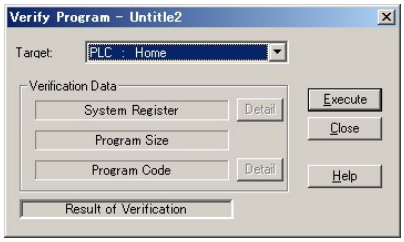
Operation procedure

1. Select the "Verify Program".

The program to be verified is selected under **"Verify Program"** on the **"Debug"** menu.

This can also be done in the following way:
-Using the keyboardPress the (CTRL)+(E) keys

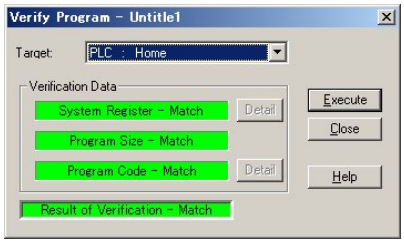
2. Select the target to be verified.



Select **"Verify Program"** to display the dialog box shown at the left.

Select the target to be verified, and click on the **"Execute"** button to start the program verification.

3. Display of verification results



When the verification is finished, the results are displayed.

◆ EXPLANATION

If the two programs being verified have both been saved, first open each of the programs. Then press the ▼ button of the "Target" item in the "Verify Program" dialog box to specify a program name.

4.3 Totally Check Program Function

An overview of the totally check program function

This function checks programs in the PLC and displays an error message if an error is detected. The totally check program function works only in the PROG. mode, when online with the PLC.

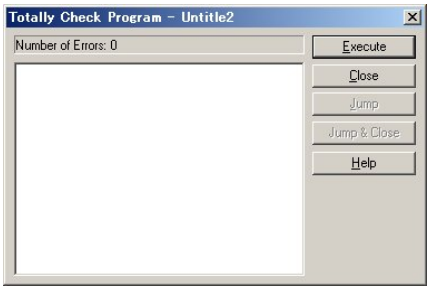
There is a possibility that the contents of the program displayed on the screen are different from those of the program stored in the PLC, so always run the **"**Verify Program" function before running a totally check program function.

Operation procedure

1. Select the "Totally Check Program".

Select the totally check program function by selecting **"Totally Check Program"** on the **"Debug"** menu.

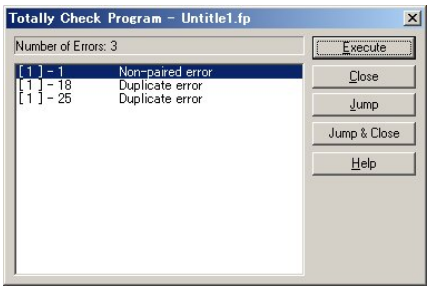
2. Run the totally check program function.



When "Totally Check Program" is selected, a dialog box like that shown at the left appears.

Clicking on the "Execute" button starts the totally check.

3. The totally check results are displayed.



If an error or errors exist, the number of errors, addresses and error contents are displayed.

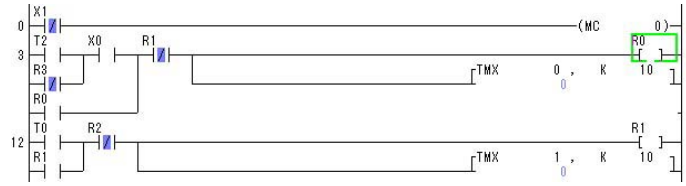
Selecting (highlighting) the item to be searched and clicking on the **"Jump"** button jumps the cursor on the edit screen to the error address.

Selecting (highlighting) the item to be searched and clicking on the **"Jump & Close"** button, closes this dialog box and causes the edit screen cursor to jump to the error address.

4.4 Starting and Stopping Monitoring

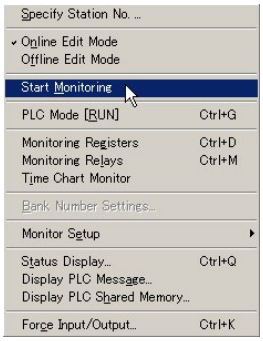
An overview of the monitoring function

When the monitoring function is run, relays and data information can be confirmed in a ladder program in real time.



With the FPWIN GR, monitoring is initiated automatically when the FPWIN GR goes online, for example when a program is sent to the PLC. When the FPWIN GR switches back from the online to the offline mode, monitoring stops automatically. The settings for starting and stopping monitoring can be entered separately for each of the various windows.

Operation procedure



To start monitoring, select **"Online"** on the menu and then place a check mark by **"Start Monitoring"** in the displayed menu by clicking on it.
Re-click to undo the checkmark and stop the monitor.

This can also be done in the following ways:

-Using the keyboard
Press the CTRL + F 7 (Monitor) keys.

-Using the tool bar
Click on  .

Note

From Ver.2.5, you can set the value by double-click the relay or register in a ladder view.

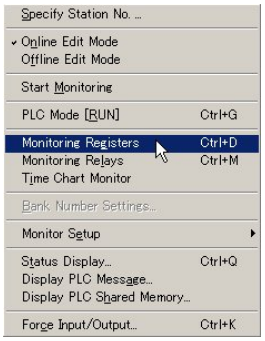
4.5 Monitoring Registers

An overview of the register monitoring function

Devices to be monitored in word units, such as data registers, can be registered, displayed as a table and monitored. Data can also be written and changed.

Operation procedure

1. Select the "Monitoring Registers".



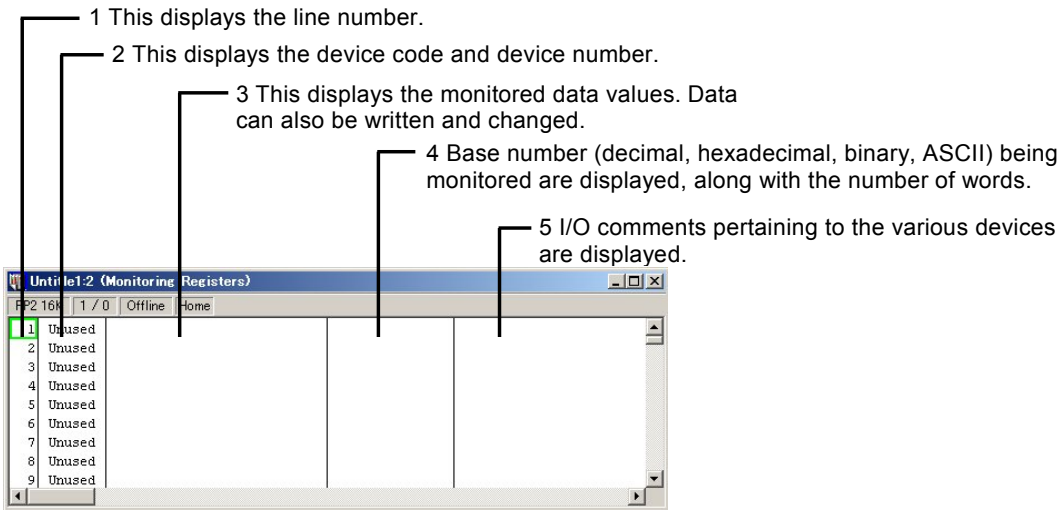
Register monitoring is selected by selecting **"Monitoring Registers"** on the **"Online"** menu.

This can also be done in the following way:

-Using the keyboard
Press the CTRL+D keys.

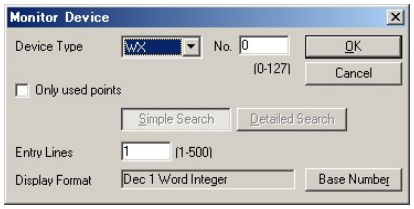
2. The registers monitoring window (screen) is displayed.

When **"Monitoring Registers"** is selected, the following window is displayed.



To change the column width, click the vertical separator and drag it.
To save the column width, right - click in this dialog and select [Keep list width], or select [Keep list width] from the control menu.
To initialize the column width, right - click in this dialog and select [Reset list width], or select [Reset list width] from the control menu.

3. Register the device to be monitored.



The above dialog box can also be displayed by selecting the following on the menu: “Online” → “Monitor Setup” → “Monitor Device Settings”.

Pressing the [Enter] key at 1 (the line number display column) or 2 (the registered device display column) in the register monitoring window, or double-clicking with the mouse, displays the monitor device dialog box shown at the left.

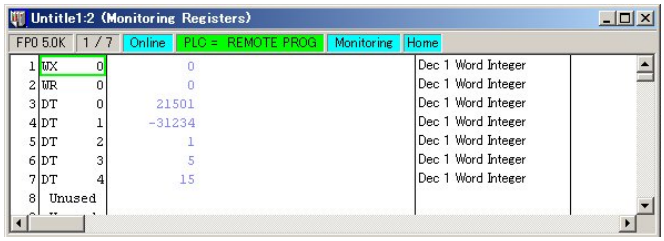
Specify the type of device, the device number, and the number of registrations to be monitored, and click on the **“OK”** button.

Clicking on the **“Base Number”** button, lets you specify the base number (format) to be used when data is displayed.

-When continuous data elements are being registered together in one registration, set the number of items for the **“Entry Lines”** parameter.

- Ex.: If DT0 to DT9 are being registered, enter “10” for the **“Entry Lines”** parameter.

4. Begin monitoring.



If a line is being inserted in order to add a device to be monitored, press CTRL + Insert keys, and if a line is being deleted, press CTRL + Delete keys.

After specifying the devices to be monitored, start monitoring in the online edit mode. This displays the values for the devices listed in 3 (the monitoring display column) of the register monitoring window.

Starting/stopping monitoring

-Using the menu

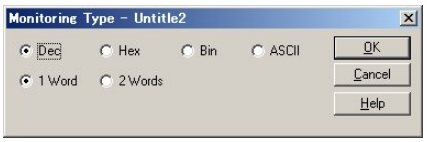
Select “Online” and then “Start Monitoring”.

-Using the keyboard
Use the CTRL + F 7 (Monitor) keys.

-Using the tool bar
Click on  .

◆ KEY POINT

Change the displayed radix.



The above dialog box can also be displayed using the following menu operations: “Online” → “Monitor Setup” → “Base Number Settings”. It can also be displayed by clicking on the “Base Number” button in the register monitoring window described earlier.

Either press the [Enter] key at 4 (the monitor base number display column) of the register monitoring window, or double-click with the mouse to display the monitor display format (base number) dialog box shown at the left.

Specify the base number to which the display format (base number) is to be changed, and click on the **“OK”** button.

To use real-number monitoring, select a Dec (Decimal) or 2 words.

Write the data.

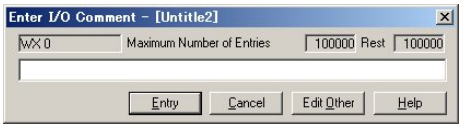
The above dialog box can also be displayed using the following menu operations: “Online” → “Monitor Setup” → “Enter Value”.

When using the online monitoring function, either press the [Enter] key at 3 (the monitor display column) of the register monitoring window, or double- click with the mouse to display the data writing (Entering Value) dialog box shown at the left.

Specify the value to be written, and click on the **“OK”** button.

From Ver.2.5, you can set the value by double-click the register in a ladder view.

Write a comment.



Either press the [Enter] key at 5(the comment display column) of the register monitoring window, or double- click with the mouse to display the I/O comment input (Enter I/O comment) dialog box shown at the left.

Specify the comment, and click on the **“Entry”** button.

CTRL + TAB keys can be used to move between the monitoring screen and the program screen.
If the various windows are enlarged to the maximum size, the program screen will be hidden behind the monitoring screen. To display the program screen, use CTRL + TAB keys to switch the window, or select “The Horizontal” or “Tile Vertical” on the “Window”.

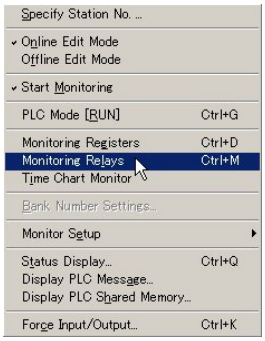
4.6 Monitoring Relays

An overview of the relay monitoring function

With this function, relays and coils to be monitored can be registered and displayed in table form, so that the on/off statuses can be monitored. This function can also be used to turn relays on and off.

Operation procedure

1. Select the relay monitoring function.



The relay monitoring function is selected by selecting **"Monitoring Relays"** on the **"Online"** menu.

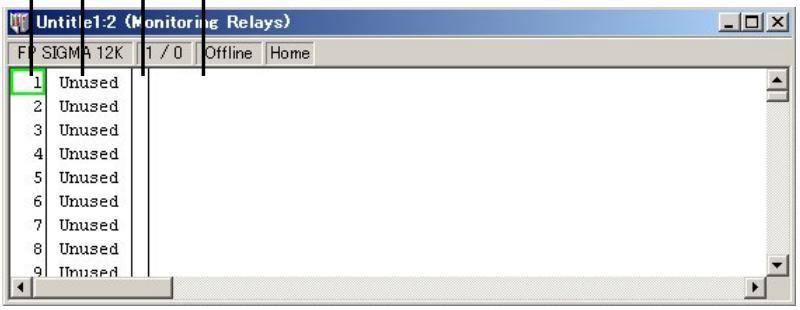
This can also be done in the following way:

-Using the keyboard
Press the CTRL + M keys.

2. The relay monitoring window (screen) is displayed.

When **"Monitoring Relays"** is selected, the following window is displayed.

1 This displays the line number.
2 This displays the device code and device number.
3 This displays the on/off statuses of the relays and coils being monitored. Relays can also be turned on and off.
4 I/O comments pertaining to the various devices are displayed.



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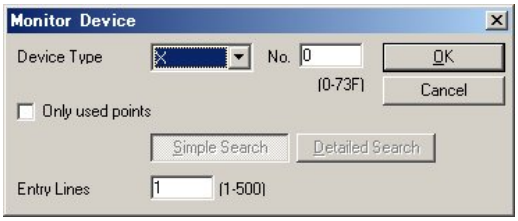
3. Register the relays to be monitored.



The menu operation selections “Online” → “Monitor Setup” → “Monitor Device Settings” can be used to display the above dialog box.

Pressing the [Enter] key at 1 (the line number display column) or 2 (the registered device display column) in the relay monitoring window, or double- clicking with the mouse, displays the monitor device dialog box shown at the left.

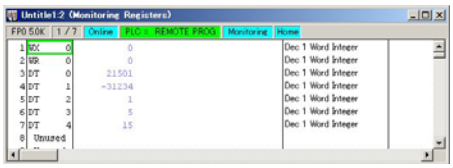
Specify the type of relay to be monitored, the number, and the number of registrations (entry lines), and click on the **“OK”** button.

When continuous data elements are being registered together in one registration, set the number of items for the **“Entry Lines”** parameter.

- Ex.: If X0 to XF are being registered, enter

“16” for the **“Entry Lines”** parameter.

4. Begin monitoring.



If a line is being inserted in order to add a device to be monitored, press CTRL + Insert keys, and if a line is being deleted, press CTRL + Delete keys.

When a relay or coil is turned on, the 3 (monitoring display column) section for that relay or coil is highlighted.

After specifying (highlighting) the devices to be monitored, start monitoring in the online edit mode. The on/off statuses of the relays and coils are displayed in 3 (the monitoring display column) of the relay monitoring window.

Starting/stopping monitoring

-Using the menu
Select **“Online”** and then **“Start Monitoring”**.

-Using the keyboard
Use the CTRL + F7 (Monitor) keys.

-Using the tool bar
Click on .

◆ KEY POINT

Write the data.

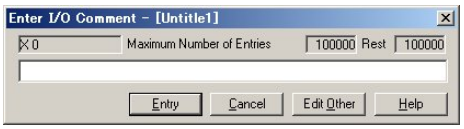
The above dialog box can also be displayed using the following menu operations: “Online” → “Monitor Setup” → “Enter Value”.

When using the online monitoring function, either press the [Enter] key at 4 (the monitor display column) of the relay monitoring window, or double- click with the mouse to display the data writing (Enter Value) dialog box shown at the left.

Set the value you wish to write and click the **“OK”** button.

From Ver.2.5, you can set the value by double-click the relay in a ladder view.

Write a comment.



Either press the [Enter] key at 5 (the comment display column) of the relay monitoring window, or double-click with the mouse to display the I/O comment input (Enter I/O comment) dialog box shown at the left.

Specify the comment, and click on the **“Entry”** button.

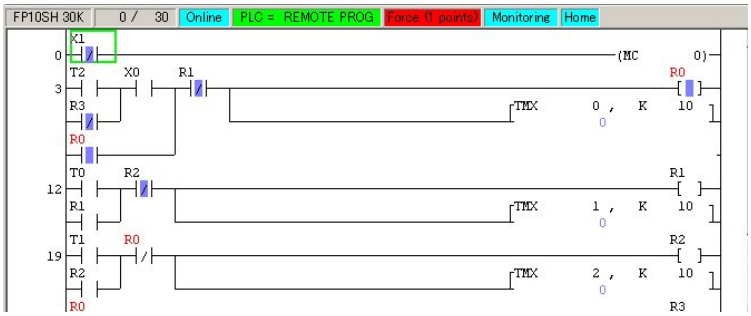
CTRL + TAB keys can be used to move between the monitoring screen and the program screen.
If the various windows are enlarged to the maximum size, the program screen will be hidden behind the monitoring screen. To display the program screen, use CTRL + TAB keys to switch the window, or select “Sort and Display” on the “Window”.

4.7 Forced Input and Output

An overview of the forced input/output function

The forced input/output function is used to forcibly turn relays and coils specified in a program on and off, regardless of the program itself. It is used for wiring of external input/output circuits, checks, simple manual operation, and other operations and adjustments.

Example of screen during forced input/output



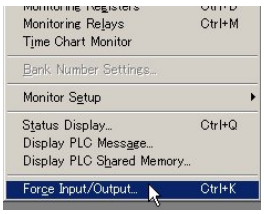
If there are relays and/or coils that are being turned on and off forcibly, a display such as Force (1 points) appears on the program status bar, and the relays and coils for which forced input/output is being used are indicated as such by a special color on the ladder diagram (the default color is red).

When the PLC mode is switched from RUN to PROG., or from PROG. to RUN, all forced input/output in the PLC main unit is canceled.

- **From Ver.2.5, you can execute [Force Input/Output] function by [Ctrl] + double-click the relay or coil in a ladder view.**

Operation procedure

1. Select the forced input/output.

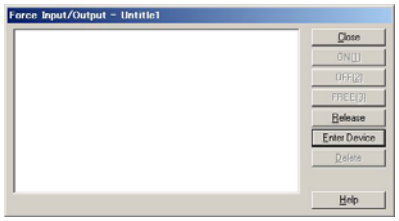


Forced input/output is selected by selecting **"Force Input / Output"** on the **"Online"** menu.

This can also be done in the following way:

-Using the keyboard
Press the CTRL + K keys.

2. The forced input/output dialog box is displayed.



Selecting “Force Input / Output” displays the dialog box shown at the left.

To register relays and coils targeted for forced input/output, click on the “Enter Device” button.

3. Register the device targeted for forced input/output.

Specify the type of device targeted, the number, and the number of registrations (Enter Lines), and click on the **“OK”** button.

If two or more registrations are specified, the numbers are registered automatically in sequential order.

4. Execute the forced input/output function.

Forced input/output can be specified for up to 16 points.

After selecting the device targeted for forced input/output, click on the **“ON (1)”** button.

This turns the selected device on forcibly, regardless of the program contents. Clicking on the **“OFF (2)”** button turns the selected device off.

Clicking on the **“FREE (3)”** button returns operation to that specified by the program.

5. Cancel the forced input/output.

To cancel the forced input/output function, click on the **“Release”** button.

Forced input/output of the registered device is canceled, and a message reading “All points were cancelled” is displayed at the bottom of the dialog box.

◆ KEY POINT

An explanation of the forced input/output dialog box
This dialog box displays relays registered on the list, the status of the forced input/output for each relay, and I/O comments.

Explanation of buttons

ON(1) **: Input/output is turned on forcibly for the selected relay, regardless of the program.**

OFF(2) **: Input/output is turned off forcibly for the selected relay, regardless of the program.**

FREE(3) **:This specifies that operation be executed as specified by the program contents for the selected relay. If the PLC is in the PROG. mode, however, or if a relay was forcibly turned on or off without the on/off status being changed in the program, the status initiated by the forced input/output will be maintained.**

Release **: This cancels all registered relays. If only the Cancel function is used, however, if the PLC is in the PROG. mode, or if a relay was forcibly turned on without the on/off status being changed in the program, the status initiated by the forced input/output (the on status) is maintained in some cases, so that the relay does not go off. To turn the relay off, a forcible off should be executed for that relay, and then the relay should be canceled.**

Delete **: This deletes the currently selected (highlighted) relay from the registration.**

◆ EXPLANATION

Multiple devices can be turned on and off at the same time by pressing the CTRL + Space keys to select the devices, or by pressing the CTRL key and clicking on each device.

◆ NOTE

The forced input/output function is extremely hazardous. Make sure sufficient attention is given to the status of peripheral devices and equipment before executing this function.

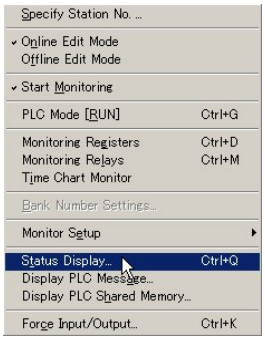
4.8 Status Display

An overview of the status display

This displays items involving the creation of the program. If connected online, it also displays the running status of the PLC. If an error occurs, this can be used to view the error content and to clear the error.

Operation procedure

1. Select the status display

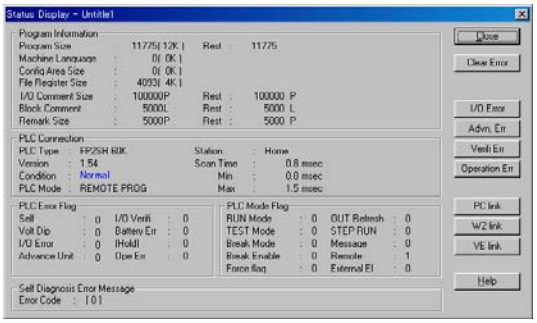


The status display is selected by selecting **"Status Display"** on the **"Online"** menu.

This can also be done in the following way:

-Using the keyboard
Press the CTRL + Q keys.

2. The status display dialog box is displayed.



Selecting **"Status Display"** displays the dialog box shown at the left.

◆ KEY POINT

Clearing errors
PLC errors can be cleared by pressing the "Clear Error" button.
Operation errors, remote IO system errors, and other types of errors can be cleared. Syntax errors cannot be displayed or cleared.
For operation errors, pressing "Operation Err" button displays the address for the error.
Depending on the PLC version, there may be times when error information cannot be displayed.

Chapter 5

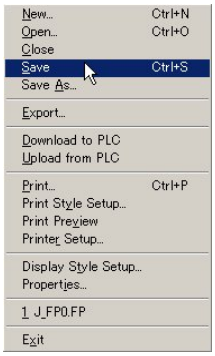
Saving a Program

5.1 Saving a Program

An overview of the program saving function

With the FPWIN GR, data such as programs, PLC system registers, and comments can be saved as a single file. Select **"Save"** to overwrite the previous file contents, and **"Save As..."** if a new program is being saved for the first time, or if the program is being saved under a different file name.

Operation procedure (Save)



To overwrite previous contents and save a program, select **"Save"** on the **"File"** menu.

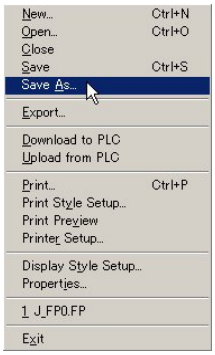
This can also be done in the following ways:

-Using the keyboard
Press the CTRL + S keys.

-Using the tool bar
Click on .

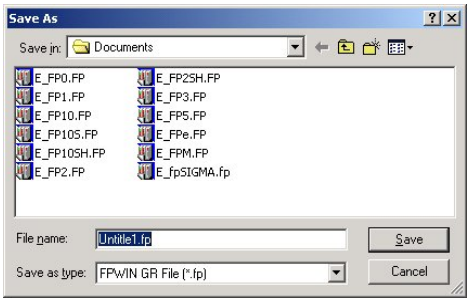
Operation procedure (Save As)

1. Select the "Save As...".



To save a program under a different file name, select **"Save As..."** on the **"File"** menu.

2. Enter the file name.



Selecting **"Save As..."** displays a dialog box like that shown at the left.

Enter the new file name in the **"File name"** box, and click on the **"Save"** button.

◆ EXPLANATION

Files created when saving
With the FPWIN GR, only one file is created when the data is saved, and the expansion is ".fp". The following contents are saved to this file:

- **Program itself**
- **Contents of system register settings (including I/O unit assignments and remote assignments)**
- **Comments (I/O comments, remarks, block comment)**
- **PLC type**
- **Contents of relay monitoring and register monitoring registrations**
- **Display style settings (Number of Ladder symbol, Drawing start position of Function Instruction)**
- **Printing style settings**
- **Title and author**

◆ NOTE

If comments disappear when files are saved
If the following procedure is carried out on a PLC that does not have a comment memory, any comments that have been entered will be lost.
Be aware of this when overwriting the contents of previously saved files.

1. The program was created with comments included.

2. The program was downloaded to the PLC.

3. The program was saved and exited.

4. The program was uploaded from the PLC.

5. The file was overwritten and saved under the same file name.

When the program is loaded at step 4 , it does not include any comments, so when it is overwritten and saved at step 5 , the comments are lost.

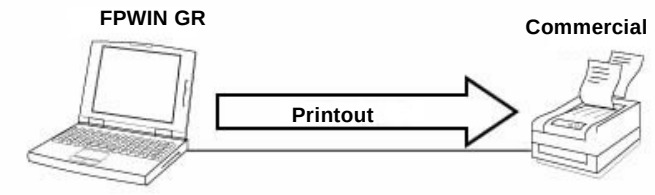
Chapter 6

Printing a Program

6.1 Printing a Program

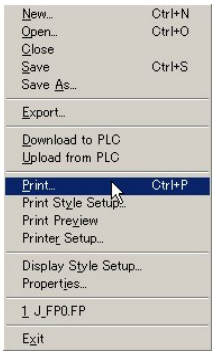
6.1.1 Printing

This function is used to print programs, I/O lists, system registers, and other information.



Operation procedure

1. Select the printing function.



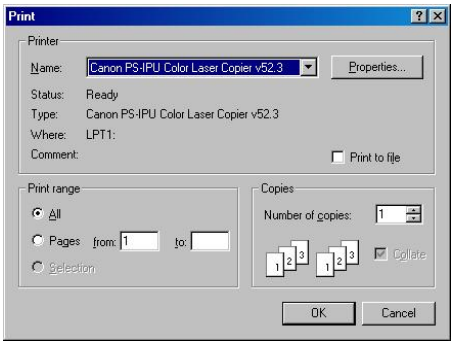
The printing function can be selected by selecting **"Print..."** on the **"File"** menu.

This can also be done in the following ways:

-Using the keyboard
Press the CTRL + P keys.

-Using the tool bar
Click on .

2. The printing dialog box is displayed.



When **"Print..."** is selected, the dialog box shown at the left is displayed.

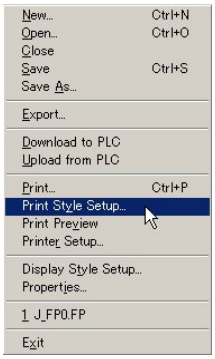
Check the printer to be used for printing, specify the printing range and number of copies to be printed, and click on **"OK"** button.

6.1.2 Setting the Printing Style

In the default settings, only ladder diagrams are specified as the contents to be printed.
If necessary, use the **"Print Style Setup"** parameters to select other items to be printed.

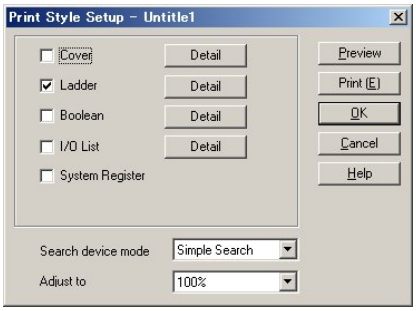
Operation procedure

1. Select the printing style settings.



The printing style can be selected by selecting **"Print Style Setup"** on the **"File"** menu.

2. The printing style dialog box is displayed.



When **"Print Style Setup"** is selected, the dialog box shown at the left is displayed.

Place a check mark for those items to be printed.

Detail: This lets the user enter more detailed settings for the various items.

Preview: This enables the image to be viewed and checked before it is printed.

Print (E): Printing starts.

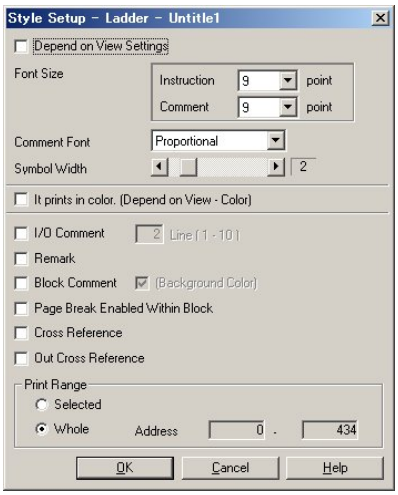
OK: This enters the contents of the check marks and returns to the editing screen.

Cancel: This deletes the contents of the check marks and returns to the editing screen.

Help: This displays the Help function.

◆ KEY POINT

To print data that includes comments, press the “Detail” button for the ladder, and place a check mark by the comment item.

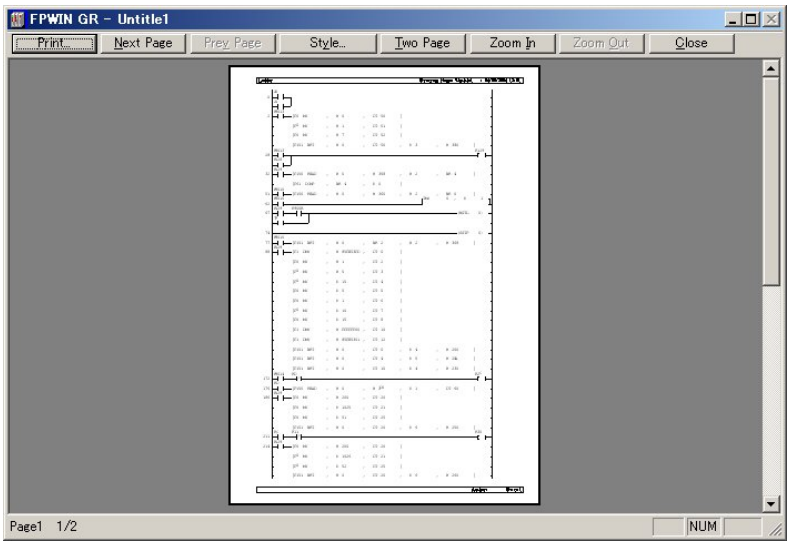


◆ EXPLANATION

To print a cover title, an item concerning the author, open “Properties” on the “File” menu, and fill in the “Title” and “Author” entries.

◆ KEY POINT

Printing preview
To view and check the image before it is printed, select “Print Preview” on the “File” menu, or double- click on “Preview” in the printing style settings dialog box.
Printing preview screen



Explanation of buttons

Print... : This initiates printing.

Next Page : If there are multiple pages, this jumps to the next page.

Prev Page : This jumps to the previous page.

Two Page : This displays two pages at the same time.

Zoom In : This enlarges the preview screen.

Zoom Out : This reduces the preview screen.

Close : This closes the printing preview screen and returns to the editing screen.

Chapter 7

Inputting Comments

7.1 An Overview of Comments

Types of comments

There are three types of comments which can be input, described below.

I/O comments

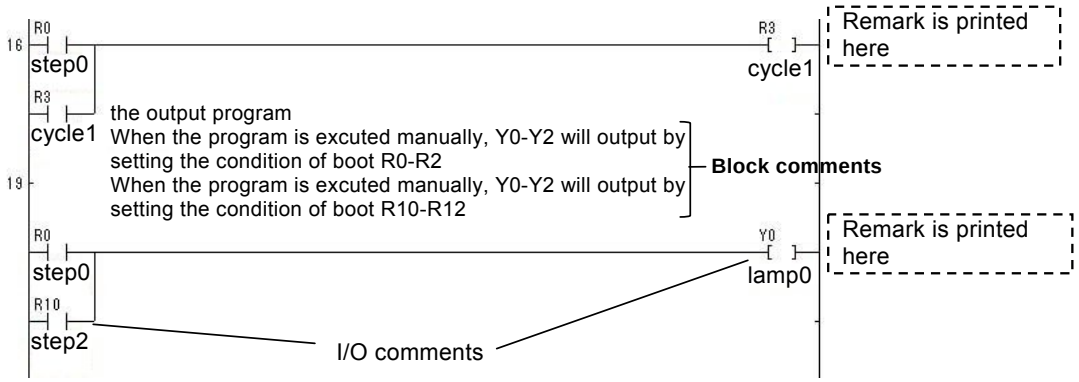
These are comments which are attached to the various devices, such as input/output relays, internal relays, and data registers. They can be displayed on the screen and printed.

Remarks

These can be attached at the output coil position, and if the data is printed out, they are printed at the right side of the ladder diagram. They are not displayed on the screen.

Block comments

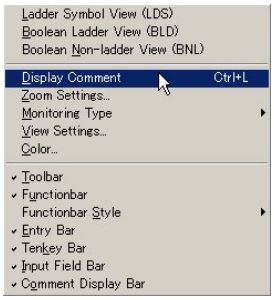
These comments are attached to block unit explanations in the ladder diagram, and when input, are introduced between ladder diagrams. They can be displayed on the screen and printed.



Switching the comment display on the screen

The following procedure is required in order to display the input comments on the screen.

1. Select the comment display function.



To display a comment on the screen, select **"Display Comment"** on the **"View"** menu.

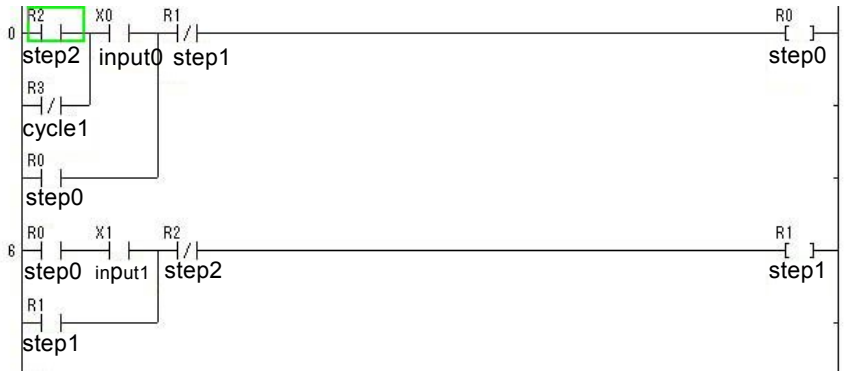
This can also be done in the following ways:

-Using the keyboard
Press the CTRL + L keys.

-Using the tool bar
Click on  .

2. The comments are displayed.

The ladder diagram is expanded vertically, and I/O comments are displayed on the screen. All block comments are displayed.



◆NOTE

Precautions concerning saving files when comments are input Comments written to programs are not written to the PLC, except for the types listed below. When saving program loaded from a PLC, make sure the correct operation procedure is used.

PLC types to which comments are written

FP SIGMA, FP-X, FP0R All types

FP2 .....Only if an optional comment memory has been installed

FP2SH .....Types with a comment memory

FP3 .....Types with a comment memory (only I/O comments of 12 characters)

FP10SH .....Only if an optional ROM operation board or IC card board has been installed

The volume of comments which can be written varies depending on the type.

PLC types to which comments cannot be written
All types and cases other than those noted above

Cases in which comments are lost when a file is saved
If the following procedure is carried out on a PLC that does not have a comment memory, any comments that have been entered will be lost. Be aware of this when overwriting the contents of previously saved files.

1. The program was created with comments included.

2. The program was downloaded to the PLC.

3. The program was saved and exited.

4. The program was uploaded from the PLC.

5. The file was overwritten and saved under the same file name.

When the program is loaded at step 4 , it does not include any comments, so when it is overwritten and saved at step 5 , the comments are lost.

◆ KEY POINT

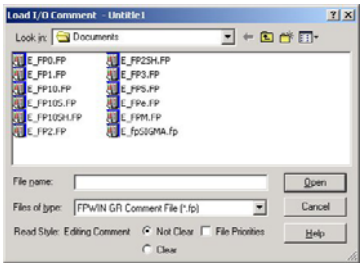
Loading comments
It is possible to read only comments from a file that has been saved.
Operation procedure

1. Upload the program from the PLC.

2. Select “Load I/O Comment” on the “Comment” menu.

3. Specify the program in which the comments have been saved, and load it.

I/O comment files by PLC type (special internal relays, special data registers)



Files to which I/O comments for special internal relays and special data registers have been input for the relevant PLC type are installed in the “Documents” folder. If “Load I/O Comment” is used to load the J_*.fp and E_*.fp files that matches the PLC type being used from this folder, it takes less time to input I/O comments for special internal relays and special data registers.

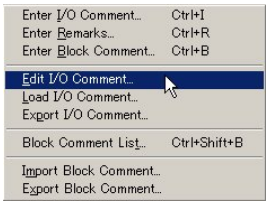
7.2 I/O Comments

An overview of I/O comments

These are comments that are attached to devices such as input and output relays, internal relays, and data registers. They can be displayed on the screen and printed. The edit I/O comment menu is convenient for inputting I/O comments.

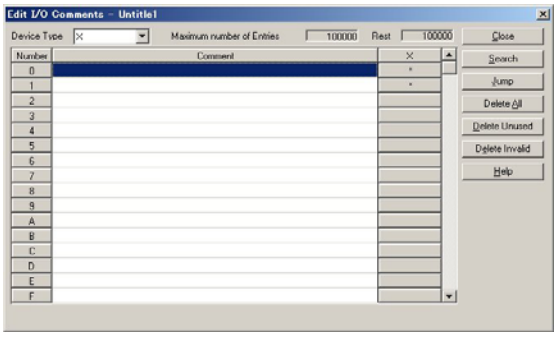
Operation procedure

1. Select the I/O comment edit function.



The I/O comment edit function can be selected by selecting **"Edit I/O Comment"** on the **"Comment"** menu.

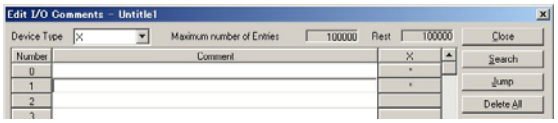
2. The I/O comment edit dialog box is displayed.



Selecting **"Edit I/O Comment"** displays a dialog box like that shown at the left.

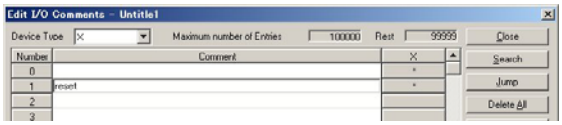
Select **"Device Type"**, and align the cursor with the position at which the comment is to be input.

3. Prepare to input the comment.



Pressing the [Enter] key indents the area. The system waits for input to be entered.

4. Enter the comment.

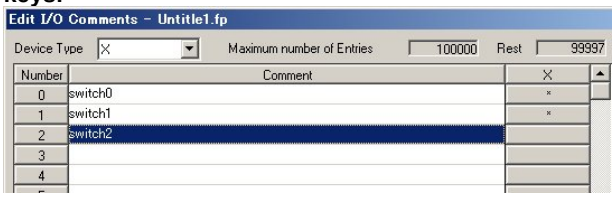


Enter the text and press the [Enter] key. This completes the input procedure.

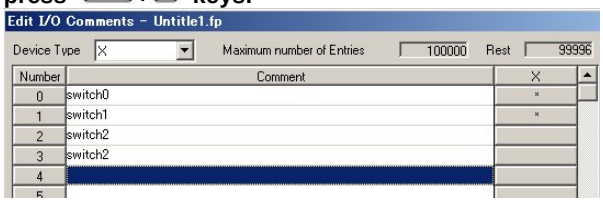
◆ KEY POINT

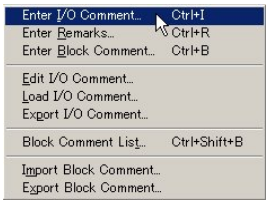
If similar comments are being input consecutively, the following shortcut is convenient.

1. Align the cursor with the comment that is to be copied, and press CTRL+C keys.



2. Move the cursor to the area to which the comment is to be pasted, and press CTRL+V keys.





When entering I/O comments on a ladder diagram, select **"Enter I/O Comment"** on the **"Comment"** menu.

This can also be done in the following way:

-Using the keyboard
Press the CTRL+I keys.

By setting of [FPWIN GR Configuration], you can enter I/O comment at the same time when entering the instruction in program editing.

7.3 Block Comments

An overview of block comments

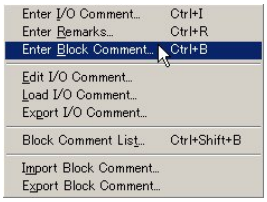
Block comments are input between the blocks of the ladder diagram. They can be displayed on the screen and printed.

Operation procedure

1. Move the cursor.

Move the cursor to the position right after where the block comment is to be input.

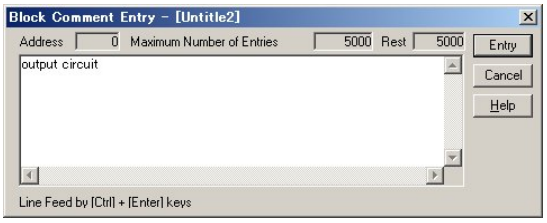
2. Select the “Enter Block Comment”.



Select “Enter Block Comment” on the “Comment” menu. This can also be done in the following way:

-Using the keyboard
Press the CTRL + B keys.

3. The block comment dialog box is displayed.



Selecting “Enter Block Comment” displays a dialog box like that shown at the left.

Enter the text in the input window and press the [Enter] key. This completes the input procedure.

◆ KEY POINT

If the comment display is switched using “Display Comment” on the “View” menu, or by pressing CTRL + L keys, the number of lines for the block comments displayed on the screen changes.

[Block Comment List] function is added from Ver.2. or later.

7.4 Remarks

An overview of remarks

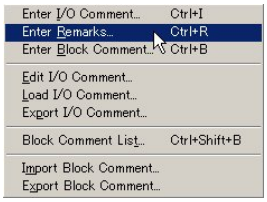
The remarks can be input only at the output coil position. When printed out, they are printed to the right of the bus line of the ladder diagram.

Operation procedure

1. Move the cursor.

Move the cursor to the output coil position where the remark is to be input.

2. Select the "Enter Remarks".



Select "Enter Remarks" on the "Comment" menu. This can also be done in the following way:

-Using the keyboard
Press the CTRL + R keys.

3. The remark input dialog box is displayed.

Selecting **"Enter Remarks"** displays a dialog box like that shown at the left.

Enter the text in the input window and press the [Enter] key. This completes the input procedure.

◆ KEY POINT

The remarks that have been input can be confirmed using the comment display bar.
You can also enter the remarks in Comment Display Bar.

Chapter 8

Searches

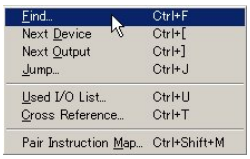
8.1 Device Searches

An overview of the device search function

This function lets you search for a specified relay, coil, and operand in a program.

Operation procedure

1. Select the search function.



To search for a device, select **"Find"** on the **"Search"** menu.

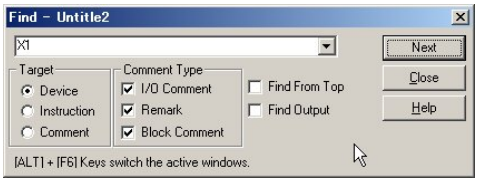
This can also be done in the following ways:

-Using the keyboard
Press the CTRL + F keys.

-Using the tool bar
Click on .

-Using the function bar
Press CTRL + F 5 (Find).

2. The search dialog box is displayed.



When **"Find"** is selected, a dialog box like that shown at the left is displayed.

Turn on the **"Device"** radio button, and enter the relay, coil, or operand to be searched.

If **"Find Output"** is turned on, only output (coils) will be searched.

To search for X1, enter "X1", and to search for DT100, enter "DT100".

Constants such as "K1000" and "M ABCD" can also be searched.

The relay, coil, operand, or instruction where the cursor is currently positioned serves as the default display.

Pressing the ▪ button displays items searched previously.

If a check mark is placed by "Find From Top", the search will start at the beginning (top) of the program.

3. Start the search.

Clicking on **"Next"** button or pressing the [Enter] key starts the search. The cursor moves to the relay, coil, or operand found in the search. Each time the [Enter] key is pressed or **"Next"** button is clicked, the next instance subsequent to that address is searched.

If the search is continued to the end of the program, it automatically begins searching again from the beginning (top) of the program. Following that, the first time that the search target is found, the message "Program was searched until the end" is displayed on the status bar.

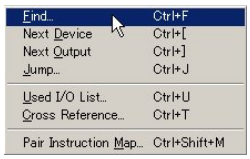
8.2 Instruction Searches

An overview of the instruction search function

This function lets you search a specified instruction in a program.

Operation procedure

1. Select the search function.



To search a instruction, select **"Find"** on the **"Search"** menu.

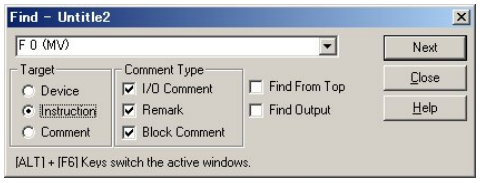
This can also be done in the following ways:

-Using the keyboard
Press the CTRL + F keys.

-Using the tool bar
Click on .

-Using the function bar
Press CTRL + F 5 (Find).

2. The search dialog box is displayed.



When **"Find"** is selected, a dialog box like that shown at the left is displayed.

Turn on the **"Instruction"** radio button, and enter the instruction to be searched.

To search for FUN 0, enter "F0", and to search for PFUN 0, enter "P0".

The relay, coil, operand, or instruction where the cursor is currently positioned serves as the default display.

Pressing the button displays items searched previously.

If a check mark is placed by "Find From Top", the search will start at the beginning (top) of the program.

3. Start the search.

Clicking on **"Next"** button or pressing the [Enter] key starts the search. The cursor moves to the relay, coil, or operand found in the search. Each time the [Enter] key is pressed or **"Next"** button is clicked, the next instance subsequent to that address is searched.

If the search is continued to the end of the program, it automatically begins searching again from the beginning (top) of the program. Following that, the first time that the search target is found, the message "Program was searched until the end" is displayed on the status bar.

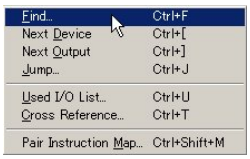
8.3 Comment Searches

An overview of the comment search function

This function lets you search a specified comment (I/O comment, remarks, or block comment) in a program.

Operation procedure

1. Select the search function.



To search a comment, select **"Find"** on the **"Search"** menu.

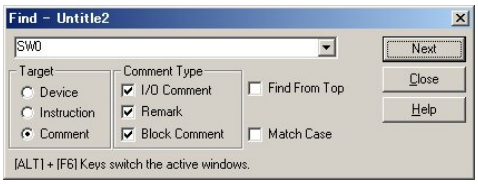
This can also be done in the following ways:

-Using the keyboard
Press the CTRL + F keys.

-Using the tool bar
Click on .

-Using the function bar
Press CTRL + F5 (Find).

2. The search dialog box is displayed.



When **"Find"** is selected, a dialog box like that shown at the left is displayed.

Turn on the **"Comment"** radio button, and, after selecting the type of comment, enter the comment to be searched.

If a check mark is entered for **"Match Case"**, the search distinguishes between upper- and lower-case characters.

-To search for SW0, enter "SW0".

The relay, coil, operand, or instruction where the cursor is currently positioned serves as the default display.

Pressing the button displays items searched previously.

If a check mark is placed by "Find From Top", the search will start at the beginning (top) of the program.

If a comment is searched with the comment display function turned off, the mode will automatically switch to the comment display mode.

3. Start the search.

Clicking on **"Next"** button or pressing the [Enter] key starts the search. The cursor moves to the relay, coil, or operand found in the search. (If block comments are being searched, the cursor moves to the comment line.) Each time the [Enter] key is pressed or **"Next"** button is clicked, the next instance subsequent to that address is searched.

If the search is continued to the end of the program, it automatically begins searching again from the beginning (top) of the program. Following that, the first time that the search target is found, the message "Program was searched until the end" is displayed on the status bar.

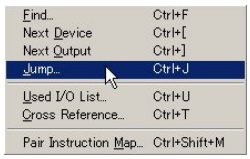
8.4 Address Jumps

An overview of the address jump function

This function causes processing to jump to a specified address, and displays the program written to that address.

Operation procedure

1. Select the address jump function.

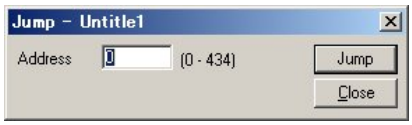


To select the address jump function, select **"Jump"** on the **"Search"** menu.

This can also be done in the following way:

-Using the keyboard
Press the CTRL + J keys.

2. The address jump dialog box is displayed.



With the FP10SH and FP2SH, if the 120k step type is being used, a program number parameter is also displayed.

When **"Jump"** is selected, a dialog box like that at the left appears.

Enter the address to which the jump is to be made.

Click on the **"Jump"** button or press the [Enter] key. The cursor moves to the specified address, and the dialog box is closed.

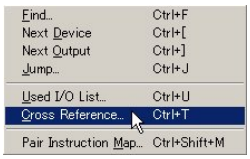
8.5 Cross Reference

An overview of the cross referencing function

This function displays a table of relay, coil, register, and instruction addresses used in the program, and jumps to those addresses.

Operation procedure

1. Select the cross reference function.

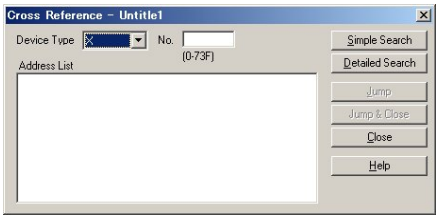


To select the cross referencing function, select **"Cross Reference"** on the **"Search"** menu.

This can also be done in the following way:

-Using the keyboard
Press the CTRL + T keys.

2. The cross reference dialog box is displayed.

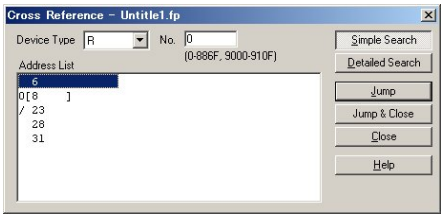


Selecting **"Cross Reference"** displays a dialog box like that shown at the left.

On the **"Device Type"** pull -down menu, select the device to be searched, and click on **"Simple Search"** or **"Detailed Search"** button.

"Device Type" displays the default display of the relay, coil, operand, instruction, or other element at the current cursor position.

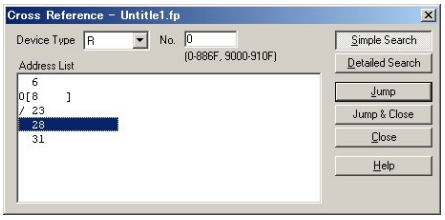
3. The addresses of the displayed devices are displayed.



Clicking on "Simple Search" or "Detailed Search" button displays all of the addresses being used by the specified device.

With the FP10SH and FP2SH, if the 120k step type is being used, the program area number is also displayed in brackets [ ].

4. The search begins.



Select (highlight) the address to which processing is to jump, from the displayed **"Address List"**.

Click on the **"Jump"** button or press the [Enter] key. The cursor moves to the specified address.

Clicking on **"Jump & Close"** button causes the cursor to move to the specified address and then closes the dialog box.

◆ KEY POINT

When making changes to a program in the ladder symbol mode, these addresses cannot be displayed.

Items which can be searched include the following relays, coils, registers, and instructions.

Relays ..... X, Y, R, L, T (TM), C (CT), E, P

Registers ..... WX, WY, WR, WL, DT, SV, EV, FL, LD

Instructions . MC, MCE, JP, LBL, LOOP, SSTP, NSTL, NSTP, CSTP, CALL, FCAL, SUB, INT

Chapter 9

Menu Tables

9.1 Menu Tables

File

Item	Key operation	Contents
New	CTRL + N	Creates new program.
Open...	CTRL + O	Loads programs and comments from a file.
Close	———	Closes a program being edited.
Save	CTRL + S	Overwrites an existing file with the program and comments being edited, and saves the updated data.
Save As...	———	Saves the program and comments being edited under a new file name.
Export	———	Programs created with FPWIN GR are saved in the NPST-GR format.
Download to PLC	CTRL + F12	Sends program and comments to a PLC.
Upload from PLC	CTRL + F11	Uploads program and comments from a PLC.
Print...	CTRL + P	Prints the information in a program, I/O list, system register, etc.
Print Style Setup	———	Specifies items to be printed and printing format.
Print Preview	———	Confirms the image to be printed.
Printer Setup...	———	Specifies the printer used for printing, and the paper size.
Display Style Setup...	———	Specifies the Number of Ladder symbol and Drawing start position of Function instruction in Ladder Symbol View.
Properties	———	Specifies the file properties (title, author).
Exit	———	Exits the FPWIN GR.

Edit

Item	Key operation	Contents
Undo (Z)	CTRL + Z	The program changed with the instruction is restored to the previous status.
Redo (B)	CTRL + Y	The program restored by the Undo command is returned to the previous status.
Quit Editing	CTRL + H	Returns to the previous program, before it was converted.
Cancel Program Conversion		Cancel the program conversion and return to the previous status.
Select Rect Mode	CTRL + SHIFT + R	Switches the rectangle mode when you copy & paste program on ladder symbol view.
Cut	CTRL + X	Deletes the specified portion of the program in line or block units, and stores it on the clipboard.
Copy	CTRL + C	Copies the specified portion of the program in line or block units, and stores it on the clipboard.
Paste	CTRL + V	Pastes the contents of the clipboard.
Select All	CTRL + A	Selects the entire program.
Switch Programming Area	CTRL + Back space	Switch between the two programming areas that FP10SH and FP2SH.
Text input mode priority		Text input mode priority
Insert a Rung	CTRL + Insert	Inserts a rung in the program.
Delete a Rung	CTRL + Delete	Deletes a rung from the program.
Enter Line		Specifies two points and connects them with a line.
Delete Line		Specifies two points and deletes the line between them.
Enter Continuing Pair	CTRL + W	Specify continuing pair to connect the ladder diagram from current line to the line below.
Enter Continuing Symbol		Specify continuing number individually for connecting the ladder diagram.
Delete All NOPs		Deletes all NOP instructions from a program.
Clear Program		Deletes a program and any I/O comments in it.
Toggle a/b Contacts		Specifies a device and contact number, and reverses the a and b contacts.
Change Device		Specifies a range to be changed and changes the device type and number.
Shift X and Y by Word		Shifts relay numbers and coil numbers in word units.
Convert Program	CTRL + F 1	Compiles a program created in ladder symbol, which is being edited.

Wizard

Item	Key operation	Contents
Positioning auxiliary function	———	Enter parameters in the setting items for the PLC positioning instruction, so that the requested instruction will be automatically expanded.
PID instruction input assistance	———	Enter values in setting items for the PID instruction and the requested instruction will be automatically expanded.
FP-e Screen display instruction assistance	———	Enter setting items for the screen display instruction and the requested instruction will be automatically expanded.
Scaling instruction input assistance	———	Enter parameters in the setting items for the PLC scaling instruction, so that the requested instruction will be automatically expanded.

Search

Item	Key operation	Contents
Find	CTRL + F5	Finds a relay, coil, or operand in a program.
Next Device	CTRL + [	The next address to be used by the specified device is searched.
Next Output	CTRL +]	The next address to be used by the specified output coil is searched.
Jump	CTRL + J	Jumps to a specified address.
Used I/O List	CTRL + U	Displays a list of usage statuses for relays, coils, registers, and instructions.
Cross Reference	CTRL + T	Displays a list of addresses used for relays, coils, registers, and instructions, and enables jumping to those addresses.
Pair instruction Map	CTRL + SHIFT + M	This function allows you to understand the flow of entire program easily by listing the pair instructions that determine the program flow such as MC-MCE, JP-LABEL, or CALL SUB-RET.

Comment

Item	Key operation	Contents
Enter I/O Comment	CTRL + I	Enters comments for various devices such as I/O relays, internal relays, and data registers.
Enter Remarks	CTRL + R	Enters output comments, which are printed to the right of the ladder.
Enter Block Comment	CTRL + B	B Enters a comment between lines of a ladder program.
Edit I/O Comment	———	Enables editing of I/O comments in list format.
Load I/O Comment	———	Loads only I/O comments from a file.
Export I/O comment	———	Save I/O comments in a test file(.txt) or CSV file (.csv).
Block Comments List	CTRL + SHIFT + B	This function lists the block comments in the program, and allows you to understand the process of the entire program easily.
Import Block Comment	———	Loads block comments saved in a text file (.txt) to the program being edited.
Export Block Comment	———	Saves block comments from the program being edited to a text file (.txt).

View

Item	Key operation	Contents
Ladder Symbol View (LDS)		Switches the screen to ladder symbol view mode.
Boolean Ladder View (BLD)		Switches the screen to boolean ladder view mode.
Boolean Non-ladder View (BNL)		Switches the screen to boolean non-ladder view mode.
Display Comment	CTRL + L	Switches display of comments on screen on/off.
Zoom Settings		Enlarges/reduces size of display in window.
Monitoring Type		Changes display radix used to monitor data on edit screen.
View Settings...		Change the instruction font, font size of comments, comment font, ladder symbol width, and number of lines of I/O comments in the window.
Color		Changes display color in various parts of edit screen.
Toolbar		Displays tool bar.
Function bar		Displays function bar.
Function bar Style		Selects function bar display style.
Entry Bar		Displays entry bar.
Tenkey Bar		Displays ten key bar.
Input Field Bar		Displays input field bar.
Comment Display Bar		Displays comment display bar.

Online

Item	Key operation	Contents
Specify Station No.	———	Specifies the communication station number.
Online Edit Mode	CTRL + F 2	Selects the Online Edit mode.
Offline Edit Mode	CTRL + F 3	Selects the Offline Edit mode.
Start Monitoring	CTRL + F 7	Starts/stops monitoring in Online Edit mode.
PLC Mode [RUN]	CTRL + F 9	Changes the PLC operation mode.
Monitoring Registers	CTRL + D	Monitors values stored in relays, coils, and registers.
Monitoring Relays	CTRL + M	Monitors on/off statuses of relays and coils.
Time Chart Monitor	———	The menu for the time chart monitor is displayed.
Bank Number Settings	———	Switches bank of index register and file register to be monitored.
Monitor Setup	———	Specifies data or relay monitoring.
Status Display	CTRL + F 8	Displays the program environment and PLC status.
Display PLC Message	———	Displays messages from the PLC.
Display PLC Shared Memory	———	Displays the contents of the shared memory in the high-level unit.
Force Input/Output	CTRL + K	Forcibly turns relays and coils on and off.

Debug

Item	Key operation	Contents
Totally Check Program	———	Checks a program in the PLC.
Verify Program	CTRL + E	Verifies the currently active program with one in the PLC or one in a different window, and checks them.
Verify Program Code	CTRL + SHIFT + E	Verifies the codes locating posterior to the cursor position in a program in a different window, and jumps to an error point.
Setting Test-run	———	Enters settings for test operation.
Performing Test-run	———	Tests a program to see if it runs as designed.

Tool

Item	Key operation	Contents
Change PLC Type		Changes PLC type in program being edited.
IC Card Service		Executes operations specified by data on an IC card.
ROM Writer		Handles data communication with a ROM writer.
ROM & RAM Service		Sends files between the ROM and RAM.
Internal Memory <=> Master Memory		Sends files between the Internal memory of FP-X and Master memory
Security Information		Display security information of PLC.
Upload Settings		Set disable or enable to upload the program from PLC.
Set PLC Password		Sets the PLC password.
Set PLC Date & Time		Sets the PLC date and time.
Defragmenting General Memory		General-purpose memory is re-organized.
Screen Capture		Copies screen image data for a specified area to the Clipboard.

Option

Item	Key operation	Contents
PLC Configuration		Sets PLC system registers.
Allocate I/O MAP		Makes I/O assignments for the units installed in the slots.
Allocate Remote I/O MAP		Makes I/O assignments for units installed in slave slots in a remote I/O system.
MEWNET-W2 Settings		Sets the network parameters of MEWNET-W2
MCU Settings		Sets the parameters of MCU
MEWNET-VE Settings		Sets the network parameters of MEWNET-VE
Communication Settings		Sets conditions for communication between the PLC and computer.
FPWIN GR Configuration		Sets the operating environment for the FPWIN GR.
Customize		Customize use of CTRL + Function key and right click menu.
Keep Window Position		Saves each window position
Private Configuration		This function allows you to save and call up your favorite tool configuration.

Window

Item	Key operation	Contents
New Window		Opens the new window and displays the contents of the currently active window in it.
Cascade		Displays windows in a superimposed display.
Tile Horizontal		Displays windows aligned from top to bottom.
Tile Vertical		Displays windows aligned from left to right.
Arrange Icons		Arranges the smallest- size icons for the windows in an orderly row.
Switch Program		This function allows you to change the active program by a simple operation when editing multiple programs opening many windows.

Help

Item	Key operation	Contents
How to Operate		Displays the FPWIN GR operation method.
Instruction List		Displays a list of basic instructions and high-level instructions, and a list of functions.
Special Internal Relay		Displays a list of special internal relays and what they do.
Special Data Register		Displays a list of special data registers and what they do.
About		Displays the FPWIN GR version.

9.2 Function Bars

Default display

Default status

The actions of the function keys are as described below.

Key	Display	Description
F1	⊣⊢	Draws the ⊣⊢ symbol at the cursor position.
F2	⊔⊓	Draws the ⊔⊓ symbol at the cursor position.
F3	|	Enters or deletes a vertical line to the left of the cursor position.
F4	-[OUT]	Enters the OUT instruction at the cursor line.
F5	TM/CT	Enters a timer or counter at the cursor position.
F6	Fun	Enters a Function instruction (such as the high- level instruction) at the cursor position.
F7	———	Enters a horizontal line at the cursor position.
F8	NOT /	Inverts the operation results up to the cursor position.
F9	Index	Enters an index modifier at the cursor position.
F10		
F11	(MC)	Enters a Master Control instruction at the cursor position.
F12	(MCE)	Enters a Master Control End instruction at the cursor position.

The instructions that can be input using F11 or F12 key are switched using SHIFT + F11 keys or SHIFT + F12 keys.

Status with the SHIFT key pressed

When the SHIFT key is pressed, the actions of the function keys are as described below.

Key	Display	Description
F 1	-<SET>	Enters the SET instruction at the cursor position.
F 2	<RESET>	Enters the RST instruction at the cursor position.
F 3	(DF(/))	Enters a DF or DF/ instruction at the cursor position.
F 4	(END)	Enters an END instruction.
F 5	Compare	Enters a data comparison instruction.
F 6	PFun	Enters a PFun instruction (such as the high-level instruction) at the cursor position.
F 7	↑↓	Enters a leading edge and trailing edge detection at the cursor position.
F 8	[Bit]	Switches the function bar display to a bit display.
F 9	[Word]	Switches the function bar display to a word display.
F10		
F11	Inst.1	Enters the instruction not found on the function bar.
F12	Inst.2	Enters the instruction not found on the function bar.

Holding down the F 3 key switches between DF and DF/.

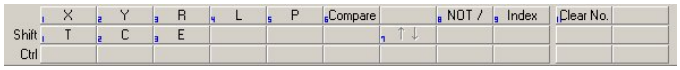
Status with the CTRL key pressed

When the CTRL key is pressed, the actions of the function keys are as described below.

Key	Display	Description
F 1	1 Compile	Carries out a PG conversion (compile).
F 2	2 Online	Switches to the online editing mode.
F 3	3 Offline	Switches to the offline editing mode.
F 4	4 Close	Closes the active window.
F 5	5 Find	Searches for the instruction, comment, or other element.
F 6	6 NextWin	Moves to the next window.
F 7	7 Monitor	Starts/stops the monitoring function.
F 8	8 Status	Displays the status.
F 9	9 Run/Pro	Switches the PLC operation mode.
F10		
F11	11 <-- PLC	Loads a program from the PLC.
F12	12 --> PLC	Writes a program to the PLC.

Bit display

When a relay or coil is input, the function bar changes to a bit display, as shown below.



Default status

The actions of function keys are as described below.

Key	Display	Description
F 1	X	Enters relay X in relation to the selected instruction.
F 2	Y	Enters relay Y in relation to the selected instruction.
F 3	R	Enters relay R in relation to the selected instruction.
F 4	L	Enters relay L in relation to the selected instruction.
F 5	P	Enters relay P in relation to the selected instruction.
F 6	Compare	Enters a data comparison instruction.
F 7		
F 8	NOT /	Inverts the operation up to the cursor position.
F 9	Index	Enters an index modifier at the cursor position.
F10		
F11	Clear No.	Clears only the device number.
F12		

Status with the SHIFT key pressed

When the SHIFT key is pressed, the actions of the function keys are as described below.

Key	Display	Description
F 1	T	Enters relay T in relation to the selected instruction.
F 2	C	Enters relay C in relation to the selected instruction.
F 3	E	Enters relay E in relation to the selected instruction.
F 4		
F 5		
F 6		
F 7	↑↓	Enters the leading edge and trailing edge detection at the cursor position.
F 8		
F 9		
F10		
F11		
F12		

Word display

When the high- level instruction or similar instruction is input, the function bar changes to a bit display, as shown below.

Default status

The actions of the function keys are as described below.

Key	Display	Description
F 1	WX	Enters WX at the cursor position.
F 2	WY	Enters WY at the cursor position.
F 3	WR	Enters WR at the cursor position.
F 4	WL	Enters WL at the cursor position.
F 5	DT	Enters a data register at the cursor position.
F 6	LD	Enters a link data register at the cursor position.
F 7	FL	Enters a file data register at the cursor position.
F 8		
F 9	Index	Enters an index modifier at the cursor position.
F10		
F11	Clear No.	Clears only the device number.
F12		

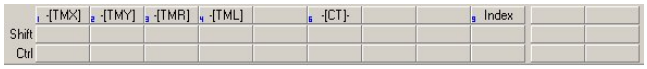
Status with the SHIFT key pressed

When the SHIFT key is pressed, the actions of the function keys are as described below.

Key	Display	Description
F 1	1 SV	Enters a timer set value at the cursor position.
F 2	2 EV	Enters the timer elapsed value at the cursor position.
F 3	3 K	Enters a decimal constant at the cursor position.
F 4	4 H	Enters a hexadecimal constant at the cursor position.
F 5	5 M	Enters a character constant at the cursor position.
F 6	6 f	Enters a real number at the cursor position.
F 7		
F 8		
F 9		
F10		
F11		
F12		

Timer/counter display

When a timer or counter is input, the function bar changes to a timer/counter display, as shown below.



Default status

The actions of the function keys are as described below.

Key	Display	Description
F 1	1 -[TMX]	Enters a 0.1-second timer at the cursor position.
F 2	2 -[TMY]	Enters a 1-second timer at the cursor position.
F 3	3 -[TMR]	Enters a 0.01-second timer at the cursor position.
F 4	4 -[TML]	Enters a 0.001-second timer at the cursor position.
F 5		
F 6	6 -[CT]-	Enters a counter at the cursor position.
F 7		
F 8		
F 9	9 Index	Enters an index modifier at the cursor position.
F10		
F11		
F12		

Comparison display

When a comparison instruction is input, the function bar changes to a comparison display, as shown below.

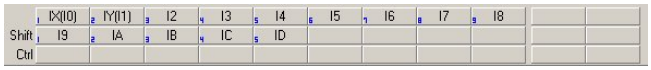
Default status

The actions of the function keys are as described below.

Key	Display	Description
F 1	D	Specifies a double word.
F 2	F	Specifies a floating point.
F 3		
F 4		
F 5		
F 6	=	Enters the comparison operand =.
F 7	>	Enters the comparison operand >.
F 8	<	Enters the comparison operand <.
F 9		
F10		
F11		
F12		

Index display

When an index register is input, the function bar changes to an index register display, as shown below.



Default status

The actions of the function keys are as described below.

Key	Display	Description
F 1	IX(I0)	Enters index register IX or I0.
F 2	IY(I1)	Enters index register IY or I1.
F 3	I2	Enters index register I2.
F 4	I3	Enters index register I3.
F 5	I4	Enters index register I4.
F 6	I5	Enters index register I5.
F 7	I6	Enters index register I6.
F 8	I7	Enters index register I7.
F 9	I8	Enters index register I8.
F10		
F11		
F12		

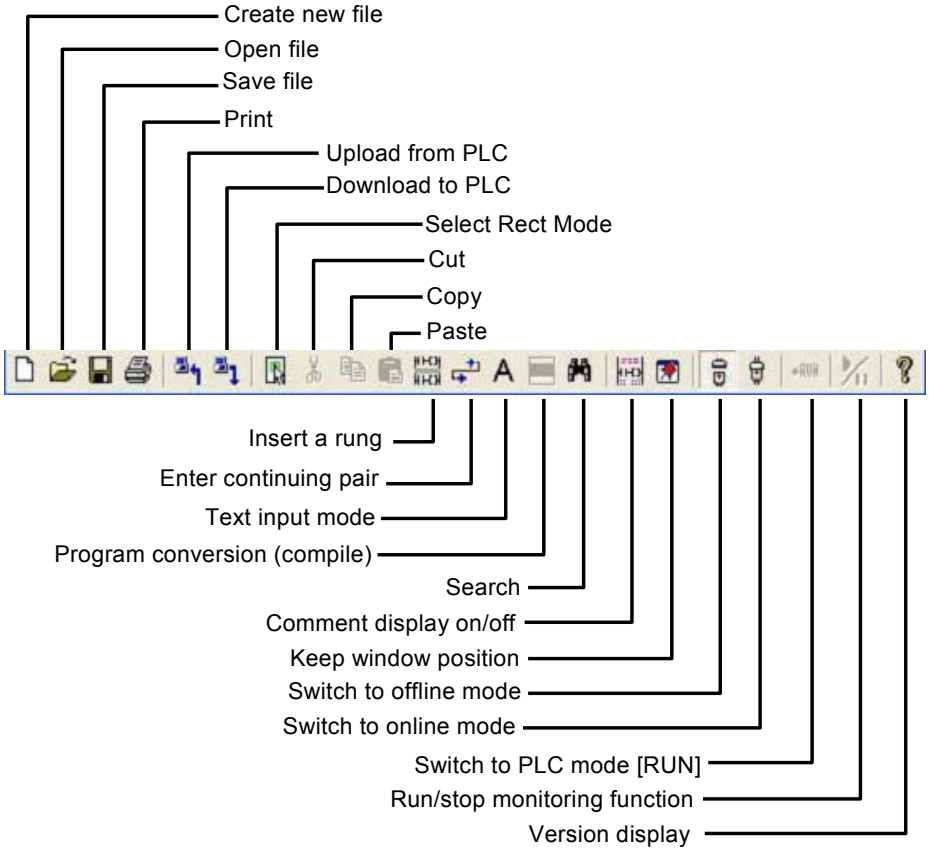
Status with the SHIFT key pressed

When the SHIFT key is pressed, the actions of the function keys are as described below.

Key	Display	Description
F 1	1 I9	Enters index register I9.
F 2	2 IA	Enters index register IA.
F 3	3 IB	Enters index register IB.
F 4	4 IC	Enters index register IC.
F 5	5 ID	Enters index register ID.
F 6		
F 7		
F 8		
F 9		
F10		
F11		
F12		

9.3 Tool Bar List

The functions of the various tool bar icons are shown below.



Chapter 10

Precautions Concerning Usage

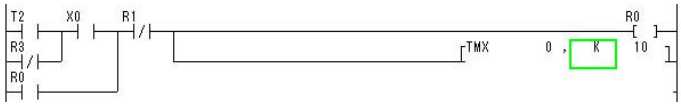
10.1 What Do I Do If ... ?

The PG conversion doesn't work.

When a program is input, there may be times, depending on the cursor position, when the system enters the input standby mode, and the PG conversion function doesn't work.
If this happens, move the cursor to a position in the input field at which nothing displayed, and then try the "PG conversion" function again.

Case in which PG conversion can't be carried out - - - When the cursor is at the timer set value position.

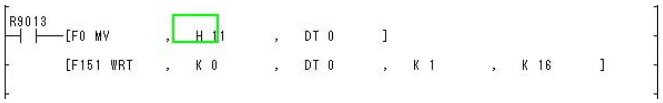
Cursor position



Input field display

Case in which PG conversion can't be carried out - - - When the cursor is at the high- level instruction operand position.

Cursor position



Input field display

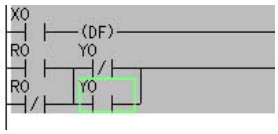
The timer coil cannot be input.

If the cursor is close to the bus line, the message Cursor Position Error is displayed, and the timer coil cannot be input. Move the cursor farther to the left of the bus line and try inputting the timer coil again.

A vertical line cannot be deleted.

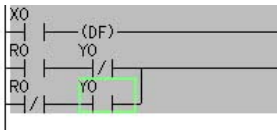
To delete a vertical line, move the cursor to the right of the target line, and press the F3 ( ) key. Pressing the F3 ( ) key once again inserts a vertical line.

Move the cursor to the right of the vertical line.



Press the F3 ( ) key.

The vertical line disappears.



The Edit mode was entered by mistake.

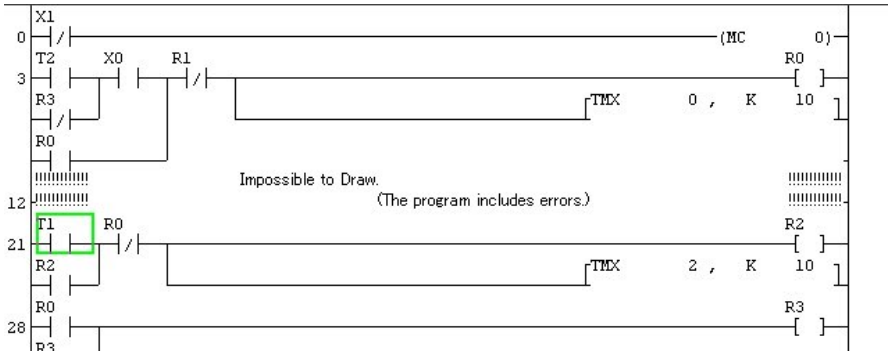
If the ↵ key was pressed by mistake, the area targeted by the program change will be displayed in gray, and the system will wait for a PG conversion to be carried out. If this happens, either press the CTRL + H keys, or select **"Quit Editing"** on the **"Edit"** menu, and cancel the edit mode. The right button of the mouse can also be clicked to display the menu.

The message “Impossible to Draw” is displayed.

While inputting a ladder diagram, if a status occurs that cannot be accommodated by the program, the message “Impossible to Draw” may appear. If this happens, use one of the procedures described below to recover from the input error status.

Solution 1

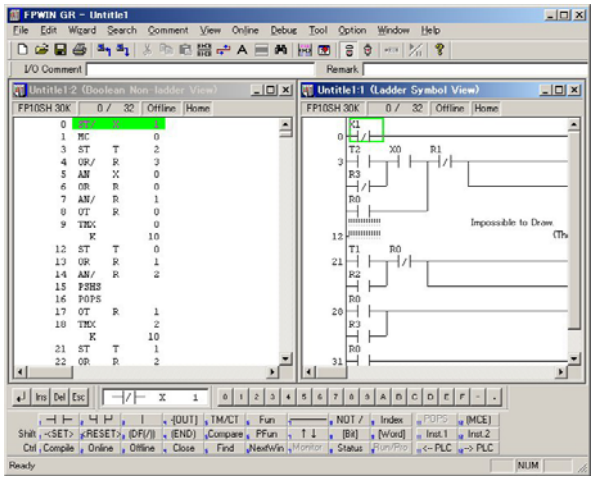
1. Specify the area in which “Impossible to Draw” is displayed using the mouse and pointer, and highlight the displayed color.



2. Delete the area in which “Impossible to Draw” is displayed, using the Delete key.
3. Try inputting the program again.

Solution 2

1. Select “Boolean Non-ladder View” on the “View” menu.
2. Correct the relevant program area, using boolean non-ladder editing input.

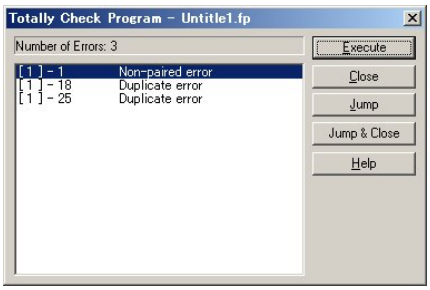


The same type of correction can also be made using boolean ladder editing.

When changing to the RUN mode, the message “Error in PLC” is displayed.

There is a possibility that a syntax error has occurred. Run the total check function by selecting **“Totally Check Program”** on the **“Debug”** menu.

Total check function dialog box

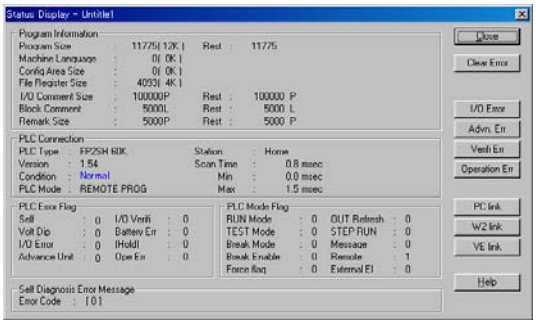


“Totally Check Program” section 4.3

The PLC ERROR LED lights.

Select **“Status Display”** on the **“Online”** menu, and check the contents of the self -diagnosis error.

Status display dialog box



If the error is an operation error, the error address can be confirmed in this dialog box. Click on the **“Clear Error”** button to clear the error.

“Status Display” section 4.8

Record of changes

Manual No.	Date	Description of Changes
ARCT1F308E/ ACG-M308E	Apr. 2000	First edition
ARCT1F308E-1/ ACG-M308E-1	Aug. 2000	2nd edition
ARCT1F332E/ ACG-M332E	Dec. 2002	3rd edition Additional Functions in Ver.2
ARCT1F332E-1/ ACG-M332E-1	Nov. 2003	4th edition Additional Functions in Ver.2.3
ARCT1F332E-2/ ACG-M332E-2	July. 2004	5th edition Additional Functions in Ver.2.4
ARCT1F332E-5/ ACG-M332E-5	Mar. 2005	6th edition Additional Functions in Ver.2.5
ARCT1F332E-6/ ACG-M332E-6	Sep. 2005	7th edition Additional Functions in Ver.2.6
ARCT1F332E-7/ ACG-M332E-7	Aug. 2006	8th edition Additional Functions in Ver.2.7
ARCT1F332E-8/ ACG-M332E-8	Mar. 2007	9th edition Additional Functions in Ver.2.71
ARCT1F332E-9/ ACG-M332E-9	Jun. 2007	10th edition Additional Functions in Ver.2.72
ARCT1F332E-10/ ACG-M332E-10	Feb. 2008	11th edition Additional Functions in Ver.2.73
ARCT1F332E-11/ ACG-M332E-11	Apr. 2009	12th edition Additional Functions in Ver.2.80
ARCT1F332E-12/ ARCG-M332E-12	Dec.2010	13th edition Additional Functions in Ver.2.90
ARCT1F332E-13/ ARCG-M332E-13	Jul.2013	14th edition Change in Corporate Name

Please contact .....

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