MITSUBISHI ELECTRIC

MELSEC System Q

Programmable logic controller

Users Manual

Software
PPC-DRV-01

Art.-Nr.: 144447
09 07 2002
Version A

MITSUBISHI ELECTRIC INDUSTRIAL AUTOMATION

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SAFETY PRECAUTIONS

(Always read these instructions before using this equipment)

Before using this product, please read this manual and the relevant manuals introduced in this manual carefully and pay full attention to safety to handle the product correctly.
The instructions given in this manual are concerned with this product. For the safety instructions of the programmable controller system, please read the PLC CPU module user's manual. In this manual, the safety instructions are ranked as "DANGER" and "CAUTION".

⚠ DANGER	Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.
⚠ CAUTION	Indicates that incorrect handling may cause hazardous conditions, resulting in medium or slight personal injury or physical damage.

Note that the ! CAUTION level may lead to a serious consequence according to the circumstances. Always follow the instructions of both levels because they are important to personal safety.

Please save this manual to make it accessible when required and always forward it to the end user.

Design Instructions

⚠ DANGER

- When changing data and controlling status upon an operating sequencer from the PC CPU module, safety operation of the total system must always be maintained. For that purpose, configure an interlock circuit externally to the sequencer system.
  Countermeasures against communication errors caused by cable connection failure, etc. must be specified by means of on-line operation of PLC CPU from the PC CPU module.

⚠ CAUTION

- Read the manual thoroughly and carefully, and verify safety before running the online operations with connected PC CPU module, and with an operating PLC CPU (especially when performing forcible output and changing operation status). Operation error may result in damaging the system or an accident.

Notes on installation

⚠ CAUTION

- Be sure to disconnect power supply in all phases externally before mounting or removing units. Failing in disconnecting power supply in all phases may lead to damaging the product or out-of-control PC CPU module.

Notes on operations

- Notes on operation on Microsoft Windows 2000 Professional Operating System•Microsoft Windows NT Workstation Operating System Version 4.0

  Installation is allowed only under authorization of administrator on Windows 2000 Professional and Windows NT Workstation 4.0.

- Notes on multiple PLC system configuration

  (a) When configuring a multiple PLC system with PC CPU modules, use QCPU (Q mode) of function version B, and of a serial number having "03051" or later in first 5 digits.

  (b) When configuring a multiple PLC system with PC CPU modules, use motion CPU products with the following serial numbers or later.
  •Q172CPUN: First digit of serial number is "H" or later.
  •Q173CPUN: First digit of serial number is "G" or later.

  (c) Use of multiple PLC parameters specified on PC CPU module is not allowed on QCPU (Q mode) in a same system.
  Use multiple PLC parameters specified on QCPU (Q mode).

  (d) When multiple PLC parameters are used, the number of unoccupied slots set on GX IEC Developer "PC system settings" is not reflected on PC CPU settings utility. Specify the number of unoccupied slots on PC CPU setting utility again.

- Notes on using MELSEC-Q series compatible intelligent functional module

The MELSEC-Q series compatible intelligent functional modules shown below are not compatible with PC CPU module.
Specifying management CPU of the following MELSEC-Q series compatible intelligent function modules on PC CPU module results in intelligent functional module assignment error.

Type	Model name
Ethernet module	QJ71E71, QJ71E71-B2•QJ71E71-100
Serial communication module	QJ71C24•QJ71C24-R2
Intelligent communication module	QD51•QD51-R24

- Notes on using MELSECNET/H module

  Note that MELSECNET/H module controlled by PC CPU module has the following limitations on functions.

  (a) Not operational on remote I/O network. The system is operational only on inter-PC network.

  (b) Can not using the system as a relay station for inter-data-link transfer or routing data transfer. Use MELSECNET/H module controlled by PLC CPU as relay station for inter-data-link transfer or routing data transfer.

  (c) MELSECNET/H-specific instructions are not available.

  (d) SEND/RECV function is not available.

  (e) Activation of interrupt ladder program is not allowed.

- Notes on using CC-Link module

  Note that CC-Link module controlled by PC CPU module has the following limitations on functions.

  (a) CC-Link parameters specified on SWnD5C-J61P-E (n is 0 or later) are not available. Specify parameters with CC-Link utility provided by PPC-DRV-01.

  (b) CC-Link specific instructions are not available.

  (c) Activation of interrupt ladder program is not available.

  (d) Automatic activation of CC-Link is not allowed.

- Notes on using positioning module

  Parameters specified on GX Configurator-QP are not available on positioning module controlled by PC CPU module.
  Using bus interface function (QBF_ToBuf), write parameters on the buffer memory of the positioning module.

- Notes on accessing remote stations from PC CPU module

  Simultaneous remote access to 9 or more stations from PC CPU module using utilities, user program provided by PPC-DRV-01, and Mitsubishi-product software package may result in degraded communication performances.
  Limit the number of stations to 8 or less for simultaneous remote station access from PC CPU module.

- Notes on interrupt process

  Interrupt operation is used in communications of PC CPU module.
  Activation of a program prohibiting interrupts may disable communications.
  On the other hand, activation of a program using interrupts frequently may reduce the speed of communication.

Table of Contents

About Generic Terms and Abbreviations

Unless otherwise specified, this manual uses the following generic terms and abbreviations to describe the system.

Generic term/Abbreviation	Description
PPC-DRV-01	Abbreviation for bus interface driver software package of MELSEC-Q series compatible PC CPU module
PC CPU module	Abbreviation for MELSEC-Q series compatible PC CPU module
AnNCPU	Generic term for A0J2HCPU•A1SCPU•A1SCPU-S1•A1SCPUC24-R2•A1SHCPU•A1SJCPU•A1SJCPU-S3•A1SJHCPU•A1SJHCPU-S8•A1NCPU•A2CCPU•A2CCPUC24•A2CCPUC24-PRF•A2CJCPU•A2NCPU•A2NCPU-S1•A2SCPU•A2SCPU-S1•A2SHCPU•A2SHCPU-S1•A3NCPU•A1FXCPU
AnACPU	Generic term for A2ACPU•A2ACPU-S1•A2ACPUP21/R21•A2ACPUP21/R21-S1•A3ACPUP21/R21•A3ACPU
AnUCPU	Generic term for A2UCPU•A2UCPU-S1•A2USCPU•A2USCPU-S1•A2ASCPU•A2ASCPU-S1•A2ASCPU-S30•A2USHCPU-S1•A3UCPU•A4UCPU
ACPU	Generic term for AnNCPU•AnACPU•AnUCPU
QnACPU	Generic term for Q2ACPU•Q2ACPU-S1•Q2ASCPU•Q2ASCPU-S1•Q2ASHCPU•Q2ASHCPU-S1•Q3ACPU•Q4ACPU•Q4ARCPU
QCPU(A mode)	Generic term for Q02CPU-A•Q02HCPU-A•Q06HCPU-A
QCPU(Q mode)	Generic term for Q02CPU•Q02HCPU•Q06HCPU•Q12HCPU•Q25HCPU
PLC CPU	Generic term for ACPU•QnACPU•QCPU(A mode)and QCPU(Q mode)
Motion CPU	Generic term for Q172CPU•Q173CPU
QJ71LP21	Abbreviation for QJ71LP21•QJ71LP21-25•QJ71LP21G•QJ71LP21GE type MELSECNET/H network modules Described as QJ71LP21•QJ71LP21-25•QJ71LP21G•QJ71LP21GE to indicate specifically.
QJ71BR11	Abbreviation for QJ71BR11 type MELSECNET/H network module
MELSECNET/H module	Generic term for QJ71LP21 and QJ71BR11
MELSECNET/H	Generic term for Q-compatible MELSECNET/H network system
MELSECNET/H board	Generic term for Q80BD-J71LP21-25/Q80BD-J71LP21G/Q80BD-J71LP21GE /Q80BD-J71BR11 type MELSECNET/H interface boards
MELSECNET/10	Generic term for AnU-compatible and QnA/Q4AR-compatible MELSECNET/10 network systems
MELSECNET/H(10Mbps)	Abbreviation for MELSECNET/H module operating at communication rate of 10Mbps
MELSECNET/H(25Mbps)	Abbreviation for MELSECNET/H module operating at communication rate of 25Mbps
MELSECNET/H mode	Abbreviation for MELSECNET/H module used on MELSECNET/H
MELSECNET/10 mode	Abbreviation for MELSECNET/H module used on MELSECNET/10
Generic term/Abbreviation	Description
CC-Link	Abbreviation for Control & Communication Link system
CC-Link module	Abbreviation for QJ61BT11 type CC-Link system master/local module
CC-Link board	Generic term for A80BDE-J61BT11 type CC-Link system master/local interface board and A80BDE-J61BT13 type CC-Link local interface board
Input module	Generic term for QX10•QX28•QX40•QX40-S1•QX41•QX42•QX70•QX71•QX72•QX80•QX81
Output module	Generic term for QY10•QY18A•QY22•QY40P•QY41P•QY42P•QY50•QY68A•QY70•QY71•QY80•QY81P
I/O composite module	Generic term for QH42P•QX48Y57
I/O module	Generic term for input module, output module and I/O mix module
Interrupt module	Abbreviation for QI60
Intelligent functional module	Generic term for Q64AD•Q68ADV•Q68ADI•Q62DA•Q64DA•Q68DAV•Q68DAI•Q64TCTT•Q64TCTTBW•Q64TCRT•Q64TCRTBW•Q64TD•Q64RD•QD62•QD62E•QD62D•QD75P1•QD75P2•QD75P4•QD75D1•QD75D2•QD75D4•QD70P4•QD70P8•QJ71LP21•QJ71LP21-25•QJ71LP21G•QJ71LP21GE•QJ71BR11•QJ61BT11•QJ71FL71•QJ71FL71-B2•QJ71DN91

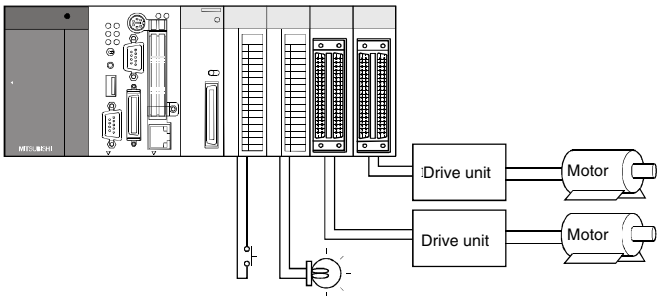
1 Outline

Thank you for purchasing the MELSEC-Q series compatible PC CPU module bus interface driver software package. Before use, please read this document carefully to understand functions and performances of the MELSEC-Q series compatible PC CPU module bus interface driver software package thoroughly.

1.1 Features

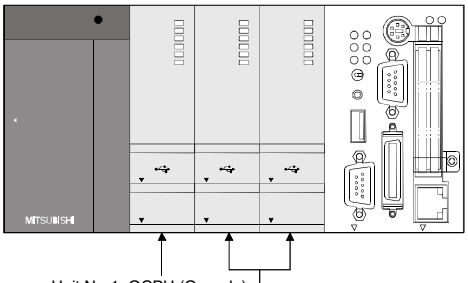
The features of the MELSEC-Q series compatible PC CPU module bus interface driver software package (referred to as PPC-DRV-01 in this document) are summarized below.

I/O modules and intelligent functional modules are controlled from PC CPU module.
A user program created with bus interface function is capable of controlling I/O modules and intelligent functional modules that are managed on PC CPU module.



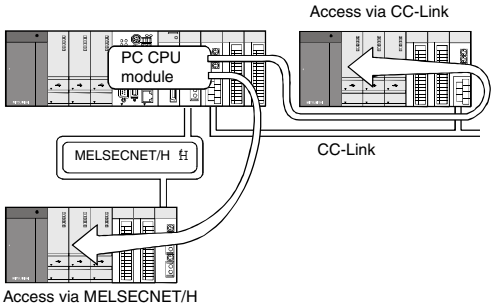
Each unit is controllable from the PC CPU module

① Building multiple PLC system is allowed.
Construction of a multiple PLC system configured of QCPU (Q mode), motion CPU and PC CPU module is allowed.



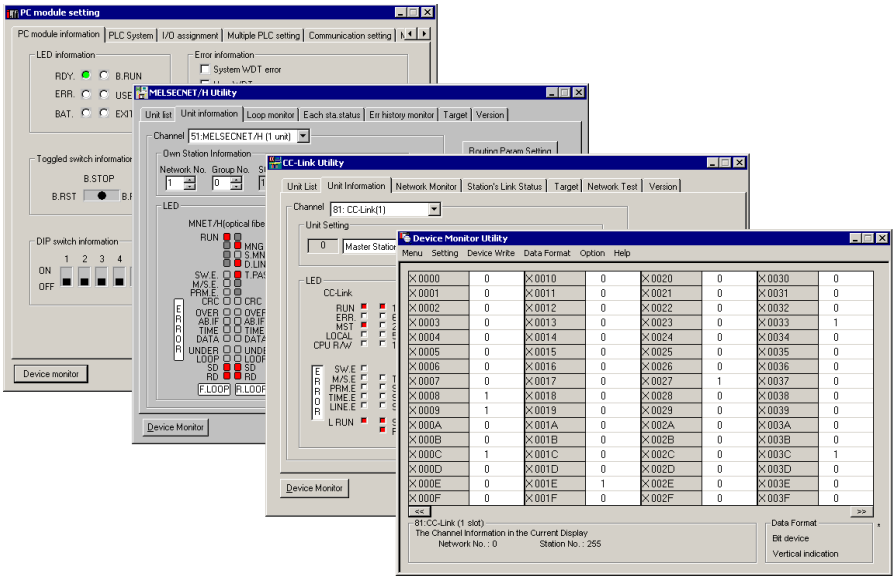
Contructing a multiple PLC system with up to 3 units is allowed.

Access from PC CPU module is allowed via CC-Link and MELSECNET/H.
A user program created with MELSEC data link function is capable of accessing to PLC CPU of other stations via CC-Link and MELSECNET/H.



Access via MELSECNET/H

Various settings are specified on utilities.
PC CPU setting utilities allows easily specifying I/O assignment and multiple PLC settings, etc.
The utilities also allow specifying and executing parameters of CC-Link module and MELSECNET/H modules and device monitoring of accessing target system.



Settings and monitoring performed on each utility

The system is compatible with various OS products.
PPC-DRV-01 is compatible with the following OSs.

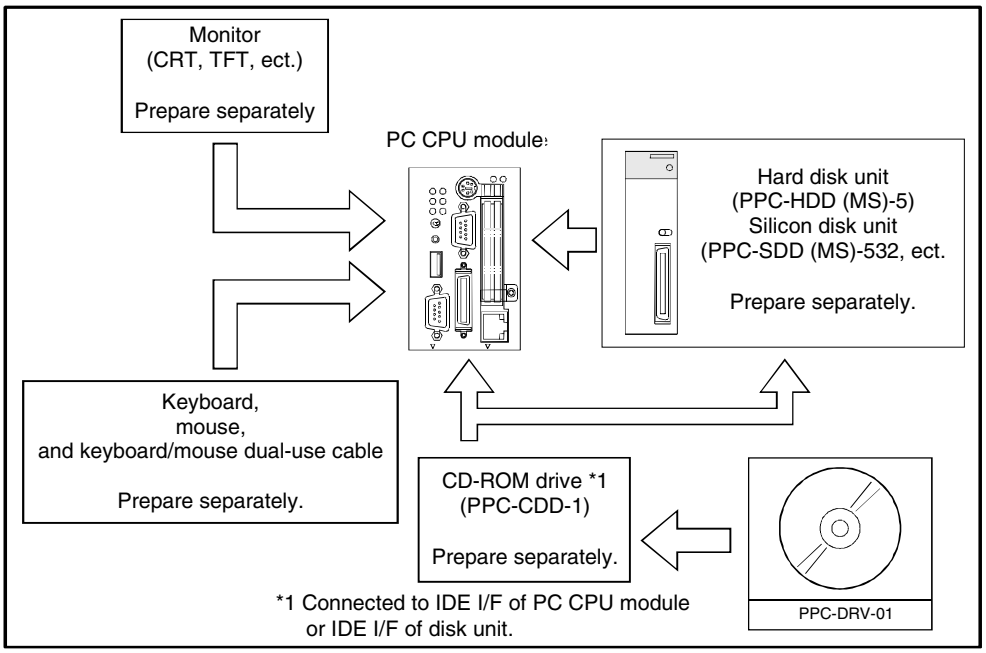
Compatible OS•Microsoft Windows 2000 Professional Operating System
(Japanese and English editions)
Microsoft Windows NT Workstation Operating System Version 4.0
(Japanese and English editions)
Microsoft Windows NT Embedded Operating System Version 4.0
(Japanese and English editions)

2 System Configuration

This section describes system configuration, accessible modules, and operating environment.

2.1 System Configuration

The following summarizes system configuration required for installation of PPC-DRV-01.



2.2 Accessible Modules

This section describes the modules accessible from PC CPU module.

2.2.1 CPU module

The following summarizes CPU modules that are accessible when configuration of multiple PLC module with PC CPU module is allowed.

Type	Model name
PLC CPU ①	Q02CPU•Q02HCPU•Q06HCPU•Q12HCPU•Q25HCPU
Motion CPU ②	Q172CPUN•Q173CPUN

① When configuring multiple PLC system with PC CPU module, use products of function version B, and of a serial number having “03051” or later in first 5 digits.
For checking function version and serial number, refer to manual of QCPU (Q mode) to be used.

② When configuring multiple PLC system with PC CPU module, use products of the following serial numbers or later.
(1) Q172CPUN First digit of serial number is “H” or later.
(2) Q173CPUN First digit of serial number is “G” or later.

2.2.2 I/O module and intelligent functional module

The following summarizes the modules accessible from PC CPU module to I/O control or buffer memory.
On the module, PC CPU module must be specified as control CPU.

Type	Model name
Input module	QX10•QX28•QX40•QX40-S1•QX41•QX42•QX70•QX71•QX72•QX80•QX81
Output module	QY10•QY18A•QY22•QY40P•QY41P•QY42P•QY50•QY68A•QY70•QY71•QY80•QY81P
I/O composite module	QH42P•QX48Y57
Analog-digital converter module ①	Q64AD•Q68ADV•Q68ADI
Digital-analog converter module ①	Q62DA•Q64DA•Q68DAV•Q68DAI
High-speed counter module	QD62•QD62D•QD62E
Positioning module ①	QD75P1•QD75P2•QD75P4•QD75D1•QD75D2•QD75D4•QD70P4•QD70P8
Temperature control module ①	Q64TCTT•Q64TCRT•Q64TCTTBW•Q64TCRTBW
Thermocouple input module ①	Q64TD•Q64RD
Interrupt module	QI60
MELSECNET/H module ①	QJ71LP21•QJ71LP21-25•QJ71LP21G•QJ71BR11
CC-Link module ①	QJ61BT11
DeviceNet module	QJ71DN91

① Use products of function version B or later.
② Use products of function version B, and of a serial number having "03052" or later in first 5 digits.

2.3 Operating Environment

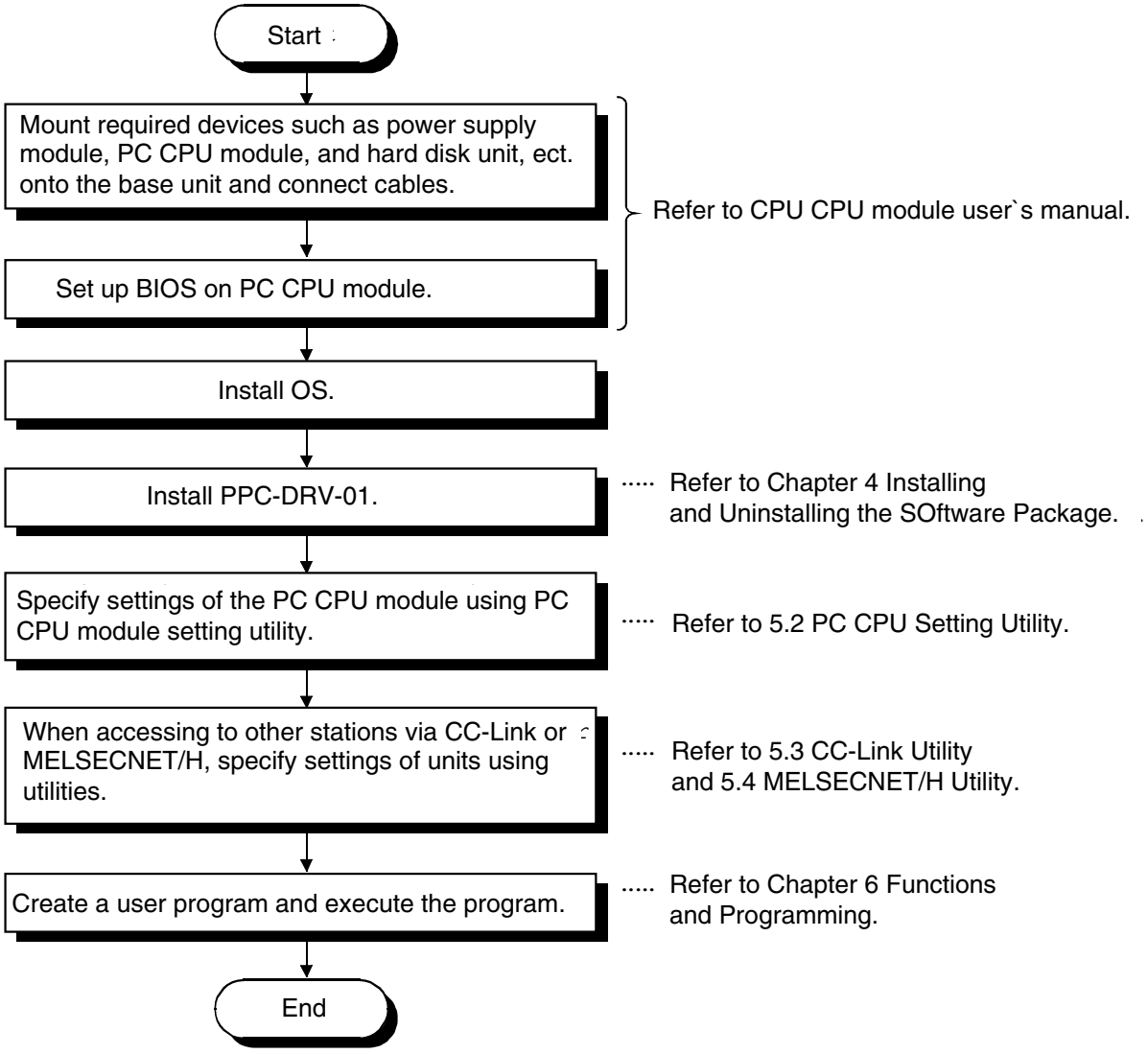
The following summarizes operating environment of PPC-DRV-01.

Item	Description
Applicable models	MELSEC-Q series compatible PC CPU module
Applicable OS	Microsoft Windows 2000 Professional Operating System(Japanese and English editions)•Microsoft Windows NT Workstation Operating System Version 4.0(Japanese and English editions) ①• Microsoft Windows NT Embedded Operating System Version 4.0(Japanese and English editions)
Programming language ②	Microsoft Visual Basic 6.0 (Japanese and English editions) Microsoft Visual C++ 6.0 (Japanese and English editions)
Display	Resolution: SVGA or higher(Recommended : 1024 x 768 dots)
Required memory	64MB or more
Free hard disk space	20MB or more
Disk drive	CD-ROM disk drive

① Service Pack5 or higher is required when using Windows NT Workstation 4.0
② User program created in Japanese environment is not executable in English environment.
User program created in English environment is not executable in Japanese environment.

3 Procedures before Starting and Settings

This chapter describes procedures and settings for operating PC CPU module.



4 Installing and Uninstalling the Software Package

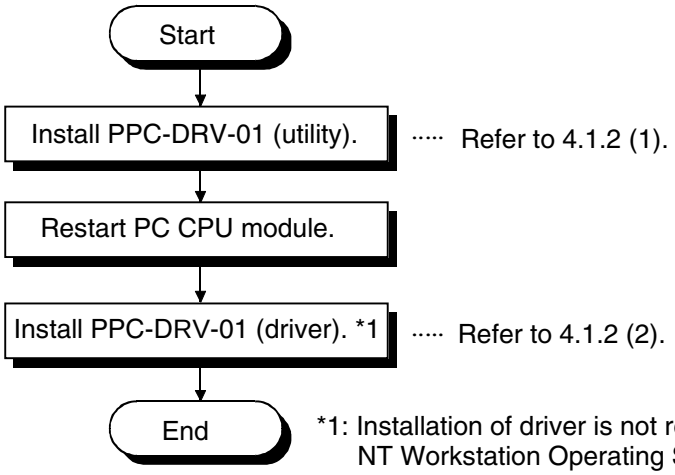
This chapter describes procedures of installing and uninstalling PPC-DRV-01.

4.1 Installing the software package

This section describes installation of PPC-DRV-01.

4.1.1 Installing Procedures

This section describes installation procedures of PPC-DRV-01.



*1: Installation of driver is not required if OS is Microsoft Wondows NT Workstation Operating System Version 4.0.

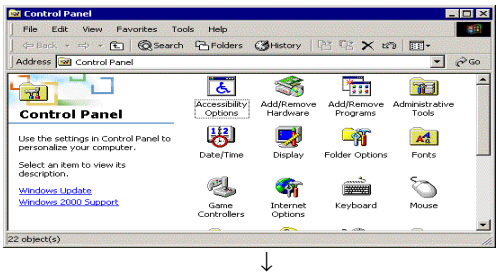
4.1.2 Installing

This section describes installation of PPC-DRV-01. Microsoft Windows 2000 Professional Operating System is used for description in this section.
Note that the screen is different from that of Microsoft Windows NT Workstation Operating System Version 4.0. Perform the installation with reference to “REMARK.”

POINT

(1) When Windows 2000 or Windows NT used, log in as a user who has the administrator privilege.
(2) Remove all the applications that are included in the startup, then restart Windows before installing PPC-DRV-01.
(3) When installing PPC-DRV-01 from FD, use Disk 1 to Disk 6 of the FDs.
(4) To install PPC-DRV-01, use "Add/Remove Application" in "Control Panel."
As an alternative method, you can execute "Setup.exe".
Double-click "Setup.exe" in CD-ROM, then start the installation from item [6.] below.

Installing utilities



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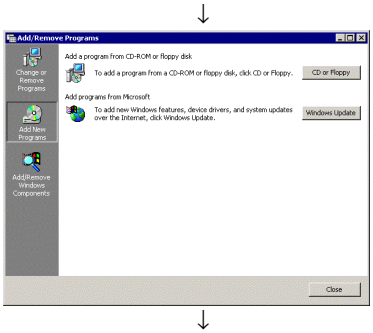
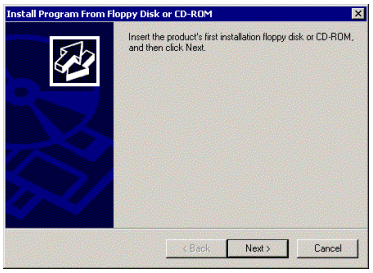
1. Turn on the power to the PC CPU module and start Windows.
2. Open [Start] - [Settings] - [Control Panel].

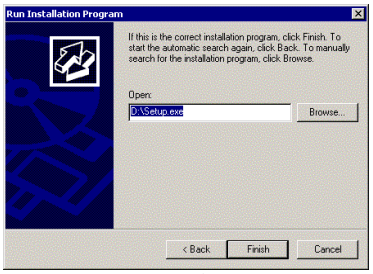


3. Open "Add/Remove Application" and select "Add New Program."
When the screen shown at the left is displayed, click the [CD or Floppy] button.

[REMARK]
When Windows NT Workstation 4.0 is used, open "Add/Remove Application" and click the [Install...] button.

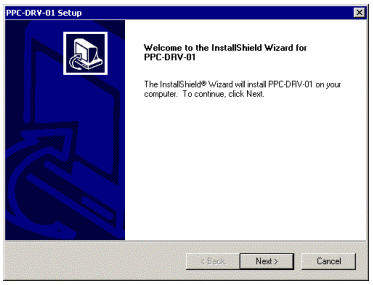


4. When the screen shown at the left is displayed, insert CD-ROM into the CD-ROM drive and click the [Next>] button. When installing from FD, insert Disk 1 into the FD drive.

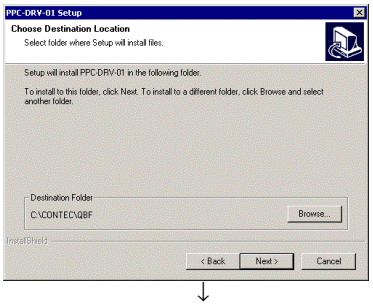


5. When the screen shown at the left is displayed, "Setup.exe" has been found. Click the [Finish] button and start the installation.
If "Setup.exe" was not found, click the [Browse...] button and change to the location where "Setup.exe" exists.

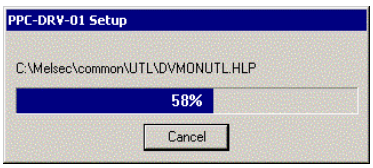
6. When the screen shown at the left is displayed, select "English" and click the [OK] button.



7. When the screen shown at the left is displayed, click the [Next>] button.

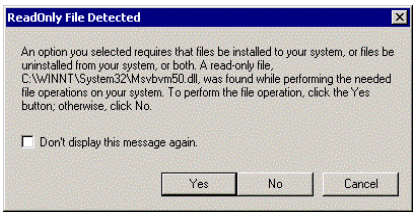


8. Specify the installation destination folder.
The default installation destination folder of PPC-DRV-01 is "C:\CONTEC\QBF."
To accept the default, click the [Next>] button.
To change the installation destination folder, click the [Browse...] button.



9. The installation will start. Switch floppy disks in the order, as instructed on the screen.

[REMARK]
If the following screen is displayed during installation, click the [Yes] button and continue with the installation.



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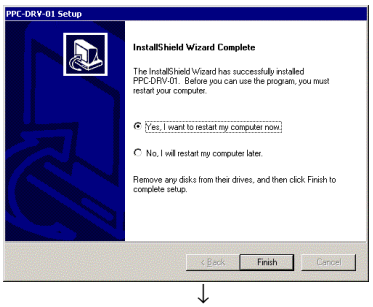

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(Complete)

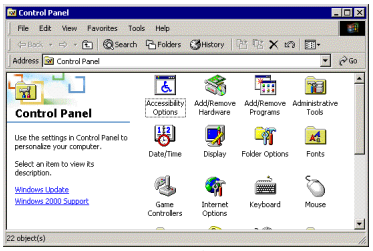
10. The installation is complete when the screen shown at the left is displayed. To restart, verify that "Yes, I want to restart my computer now" is checked, then click the [Finish] button.
To restart later, check "No, I will restart my computer later," then click the [Finish] button.

POINT	
(1)	If the installation failed to complete and it is possible to uninstall the software package, execute the uninstall procedure.
(2)	To reinstall the software package, uninstall it first, restart the PC CPU module, and then reinstall.

Installing driver

This section describes installation procedures of PC CPU module drivers required when using Windows 2000 Professional.

POINT	
(1)	Installation of PC CPU module is not required if Windows NT Workstation 4.0 is used.
(2)	When installing driver from FD, use Disk 7 of the FDs.



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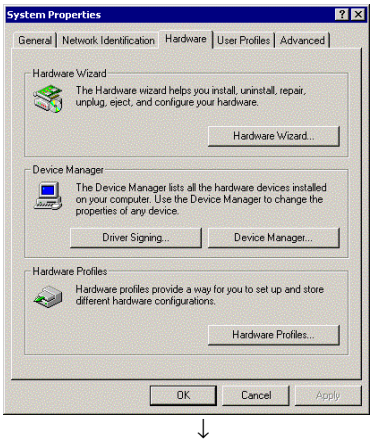

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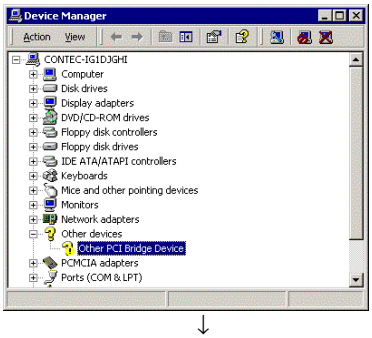
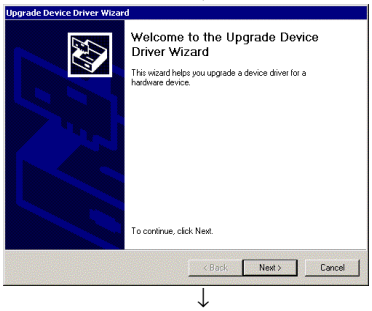
1. Open [Start] - [Settings] - [Control Panel].

2. Open “System” and select “Hardware,” and then click the [Device Manager] button.

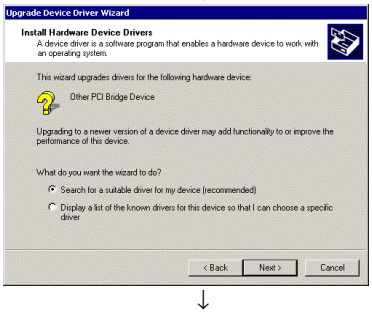


3. When the screen shown at the left is displayed, select “Other PCI Bridge device” and click  (property) in the tool bar.

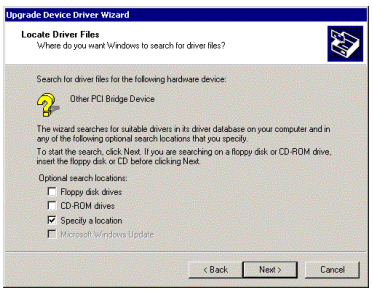
4. When the screen shown at the left is displayed, select “General” and click the [Reinstall Driver] button.



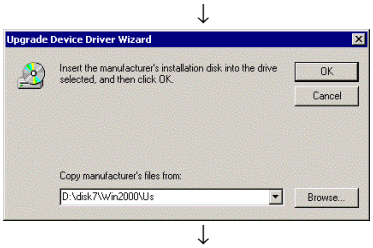
5. When the screen shown at the left is displayed, click the [Next>] button.



6. When the screen shown at the left is displayed, select "Search for a suitable driver for my device (recommended)", then click the [Next>] button.



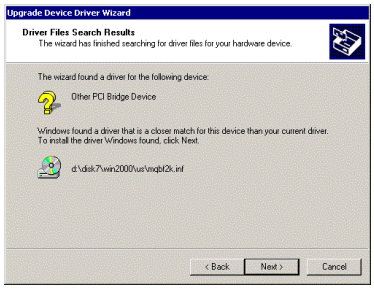
7. When the screen shown at the left is displayed, select "Specify a location" and click the [Next>] button.



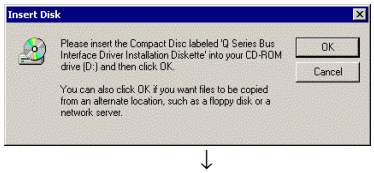
8. When the screen shown at the left is displayed, enter "D:\disk7\Win2000\Us" for "Copy manufacturer's files from." Insert CD-ROM into the CD-ROM drive, then click the [OK] button. (“D:\” above is CD-ROM drive name. Enter a CD-ROM drive name to be used.)

[REMARK]

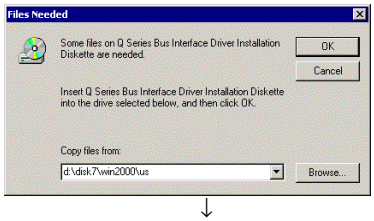
When installing driver with FD, specify search location as “A:\Win2000\Us,” insert Disk 7 into FD drive, and then click the [OK] button.



9. When the screen shown at the left is displayed, click the [Next>] button.



10. When the screen shown at the left is displayed click the [OK] button.



11. When the screen shown at the left is displayed, enter “D:disk7\Win2000\Us” and click the [OK] button.
If clicking the [OK] button does not start installation, click the [Browse…] button to specify “D:\disk7\Win2000\Us\Mqbf2k.sys”directly, and then click the [OK] button. (“D:\” above is CD-ROM drive name. Enter a CD-ROM drive name to be used.)

[REMARK]
When installing driver with FD, enter “A:\Win2000\Us” in “Copy files from” and click the [OK] button. If clicking the [OK] button does not start installation, click the [Browse…] button to specify “A:\Win2000\Us\Mqbf2k.sys” directly, and then click the [OK] button.

(Complete)

12. The installation is complete when the screen shown at the left is displayed. Click the [Finish] button.

4.2 Icons to be Registered

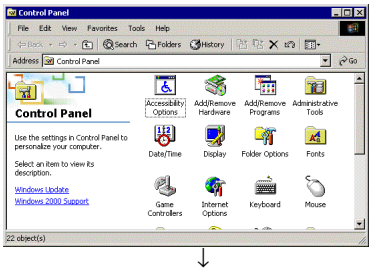
Upon installation of PPC-DRV-01, the following icons are registered in [Start] - [Program] - [PC CPU module].

Icon	Utility name	Description
	Bus Interface Function HELP	Starts bus interface function HELP.
	Device Monitor Utility	Starts device monitor utility.
	MELSEC CC-Link Utility	Starts CC-Link utility.
	MELSEC Data Link Function HELP	Starts MELSEC data link function HELP.
	MELSECNET_H Utility	Starts MELSECNET/H utility.
	PC Module settings	Starts PC CPU module setting utility.

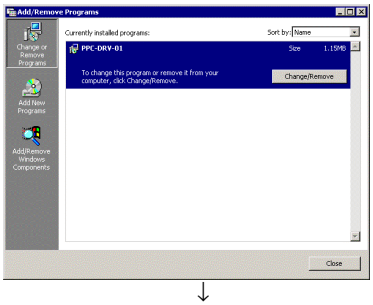
4.3 Uninstalling the Software Package

This section describes uninstallation of PPC-DRV-01.
Microsoft Windows 2000 Professional Operating System is used for description in this section.
Note that the screen is different from that of Microsoft Windows NT Workstation Operating System Version 4.0. Perform the installation with reference to “REMARK.”

POINT	
(1)	Always uninstall from Control Panel. Do not directly start the installed "UnInstaller.exe."
(2)	To reinstall the software package, uninstall it first, restart the PC CPU module, and then reinstall.

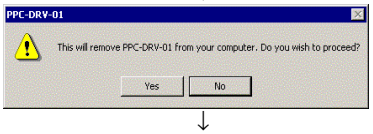


1. Open [Start] - [Settings] - [Control Panel].

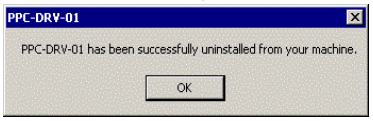


2. Open "Add/Remove Programs" and select "Change or remove programs." Select PPC-DRV-01 and click the [Change/Remove] button.

[REMARK]
When Windows NT Workstation 4.0 is used, select PPC-DRV-01 and click the [Add/Remove...] button.



3. When the screen shown at the left is displayed, click the [Yes] button to begin uninstalling the software package.



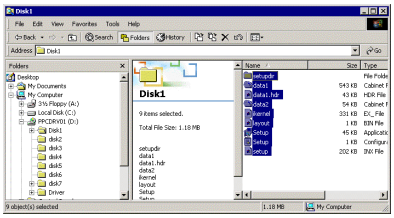
4. After the uninstall procedure of the software package is complete, click the [OK] button.

(Complete)

4.4 Installing the Software Package from FD

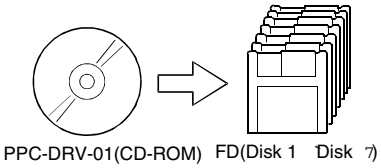
This section explains the installation method when PPC-DRV-01 is installed from FD. Prepare a personal computer that has both the CD-ROM drive and the FD drive before installation.
On the CD-ROM, folders have been created with capacities which enable them to be copied onto a single FD easily.
If the CD-ROM drive is selected using Windows Explorer, Disk 1 to Disk 7 will be displayed, so prepare the same number of formatted floppy disks as the number of folders to be copied.

(1) Copying folders to the FD



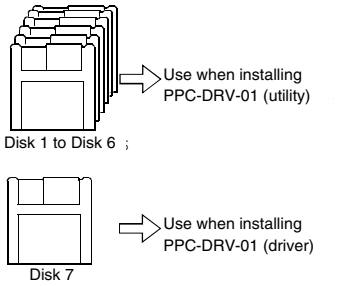
Select the drive where PPC-DRV-01 is set.
Next, select all the files in PPC-DRV-01 Disk 1 and copy them to the FD. When copying of Disk 1 is completed, use the same method to copy the files in the directory to the other floppy disks.
Setup.exe for FD is included in Disk 1, so it is not necessary to copy Setup.exe used by the CD-ROM.

(2) Copy Completion



When copying of the program to the FD is completed, insert the floppy disks one at a time in PC CPU module where the program is to be installed and install PPC-DRV-01.
Carry out the installation according to the messages shown in the installation screen. See section 4.1.2, "Installing the Software Package" for details of the installation operation.

(3) Using FD



When copying of the program to each FD is completed, use them in the installations shown at left.

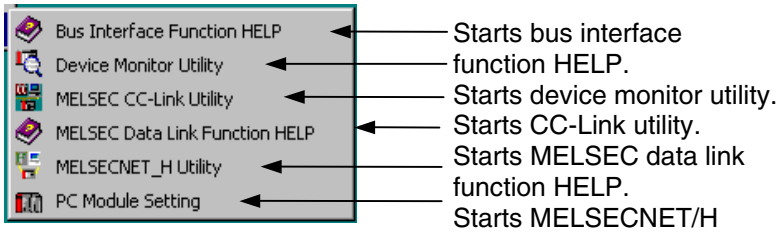
5 Utility Operations

5.1 Utility Common Operations

This section explains the common operations for each utility.

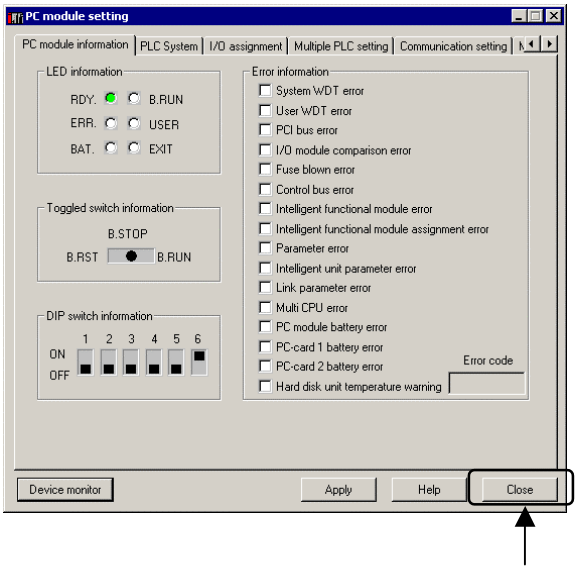
5.1.1 Starting an utility

Start an utility by clicking one of the following menus inside [Start] - [Programs] -[PC CPU module] menu.

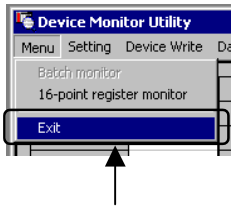


5.1.2 Ending an utility

The following explains how to end a utility.
To end the PC CPU module setting utility, CC-Link utility, and MELSECNET/H utility, click the [Close] button at the bottom of the utility screen.

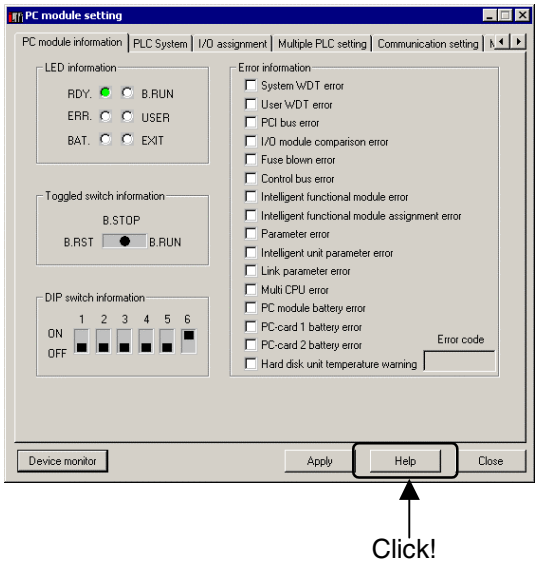


To end the device monitor utility, click [Menu] - [Exit] from the menu bar.
When a dialog box is displayed, click the [Yes] button.

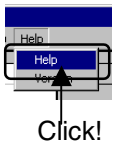


5.1.3 Displaying the help screen

The following explains how to display the utility's help screen.
To display the help screen of the PC CPU module setting utility, CC-Link utility, and MELSECNET/H utility, click the [Help] button at the lower right-hand corner of the utility screen.

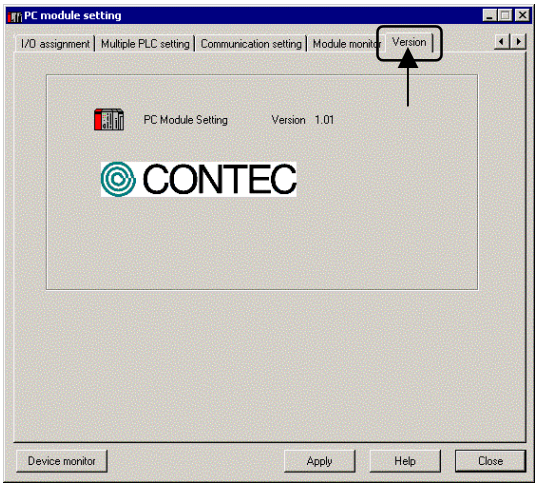


To display the help screen for the device monitor utility, click [Help] - [Help] from the menu bar.

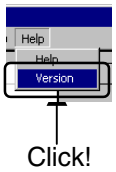


5.1.4 Verifying the version

The following explains how to verify the utility version.
To verify the version information for the PC CPU module setting utility, CC-Link utility, and MELSECNET/H utility, click the "Version" tab.



To verify the version information for the device monitor utility, click [Help] - [Version] from the menu bar.

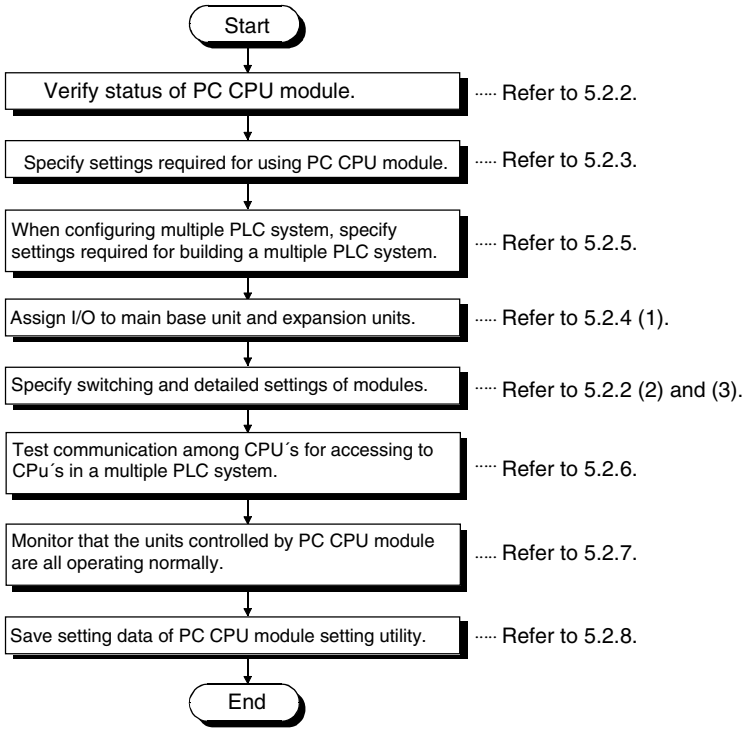


5.2 PC CPU module Setting Utility

This section describes operations on PC CPU module setting utility.

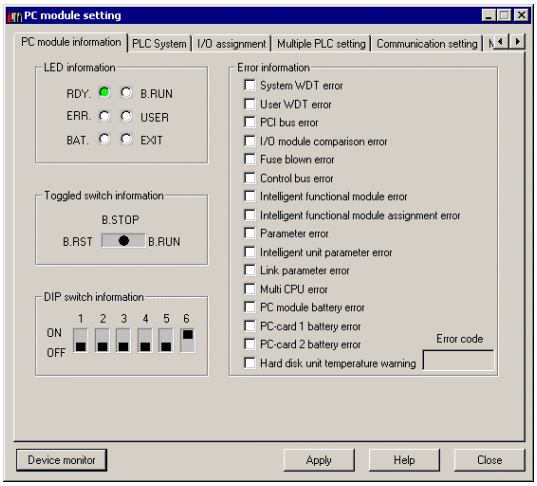
5.2.1 Operating procedures

This section describes operations on PC CPU module setting utility.



5.2.2 Operations on PC module information screen

This screen displays operation status, settings and error information of PC CPU module.



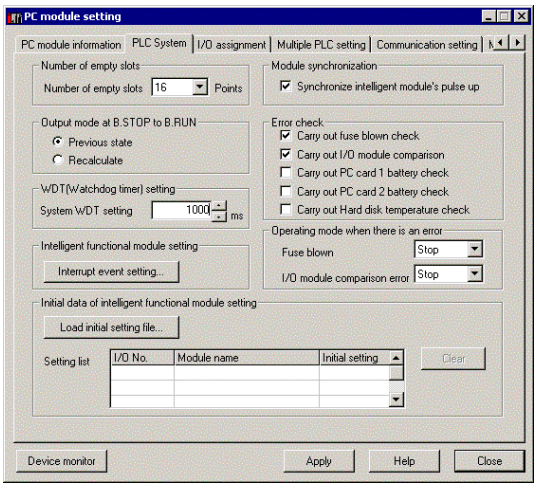
Item	Description
LED information	Indicates LED status of PC CPU module. Refer to PPC-CPU686(MS) user's manual for details of LED.
Toggled switch information	Indicates toggled switch status of PC CPU module. Refer to PPC-CPU686(MS) user's manual for details of toggled switch.
DIP switch information	Indicates DIP switch status of PC CPU module. Refer to PPC-CPU686(MS) user's manual for details of DIP switch.
Error information	Upon an error in PC CPU module, a corresponding error LED is turned on. Refer to 8.2 "Actions upon Error LED" for details and actions upon operation of LEDs.
Error code	Error code is displayed when error LED is turned on.
[Apply] button	Writes setting data specified on PC CPU setting utility onto PC CPU module.

POINT

When settings of PC CPU module setting utility are changed, click [Apply] button to write the setting data onto PC CPU module.

5.2.3 Operations on PLC system screen

This screen specifies various system data of PC CPU module.
PLC System screen



Item	Description
Number of empty slots	Specifies the number of slots for each slot on main base unit and expansion base units.
Module synchronization	Specifies if startup of PPC-DRV-01 should be in synchronization with startup of intelligent functional module.
Output mode at B. STOP to B. RUN	Specifies output (Y) status upon turning toggled switch of PC CPU module from STOP to RUN.
Error check	Specifies whether to detect “Fuse blown error,” “I/O module comparison error,” “PC-card 1 battery error,” “PC-card 2 battery error,” and “Hard disk unit temperature warning.”
WDT (Watchdog timer) setting	Sets time on system WDT.
Operating mode when there is an error	Specifies whether to stop or continue output upon detecting an error specified in “Error check.”
Intelligent functional module setting	Specifies assignment of interrupt event, start I/O number and start SI No. of intelligent functional module. Refer to “(2) Interrupt event setting screen.”

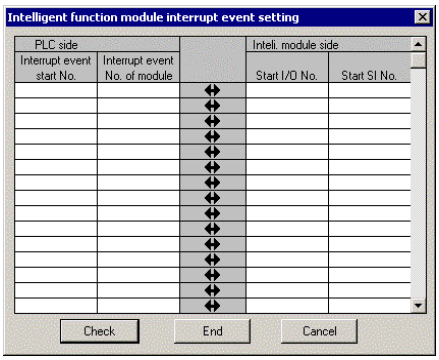
Item		Description
	[Load initial setting file] button	Reads a project that saves initial data of intelligent functional module. Refer to “5.2.9 Loading initial setting data and using multiple PLC parameters” for details.
	Setting list	Displays list of initial data of intelligent functional module read from project.
	[Clear] button	Clears data in setting list.
[Apply] button		Writes setting data specified on PC CPU module setting utility onto PC CPU module.

POINT

When settings of PC CPU module setting utility are changed, click [Apply] button to write the setting data onto PC CPU module.

Interrupt event setting screen

Clicking [Interrupt event setting] button on “System setting” screen displays the following dialog box, allowing data setting for interrupt events. ①



Item	Description
Interrupt event start No.	Specifies start number of interrupt notifying event that occurs upon interrupt from intelligent functional module.
Interrupt event No. of module	Specifies the number of notifying events that occur upon receiving interrupts from intelligent functional module.
Start I/O No.	Specifies start I/O number of intelligent functional module.
Start SI No.	Specifies start SI number (interrupt cause No.) of intelligent functional module.
[Check] button	Checks if specified data is correct.
[End] button	Saves settings on screen and end settings.
[Cancel] button	End settings without saving data on screen.

① Interrupt event is an event for notifying interrupt that occurs upon interrupt from intelligent functional module. The following summarizes event numbers and interrupt causes.

Interrupt event No.	Interrupt cause		Priority
0	Interrupt by QI60	1st point	237
1		2nd point	238
2		3rd point	239
3		4th point	240
4		5th point	241
5		6th point	242
6	Interrupt by QI60	7th point	243
7		8th point	244
8		9th point	245
9		10th point	246
10		11th point	247
11		12th point	248
12		13th point	249
13		14th point	250
14		15th point	251
15		16th point	252
16•31	Not used		
32	Error interrupt	All errors causing interrupt	1
33	Not used		
34	Error interrupt	UNIT VERIFY ERR. FUSE BREAK OFF SP. UNIT ERROR	2
40•49	Not used		
50•255	Intelligent functional module interrupt	Parameter specifies which intelligent functional module to use	18•223

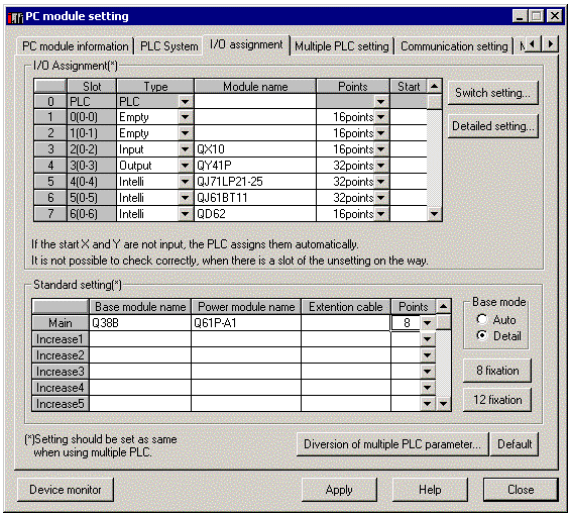
5.2.4 Operations on I/O assignment screen

This screen specifies I/O assignment settings on main base unit and expansion base units with PC CPU module mounted.

POINT

(1) On multiple PLC system, use multiple PLC parameters specified on QCPU (Q mode). Using multiple PLC parameters can avoid data inconsistency between settings of PC CPU module and other PLC CPUs.
(2) On multiple PLC system, specify data on “Multiple PLC settings” before specifying I/O assignment settings.

I/O assignment screen

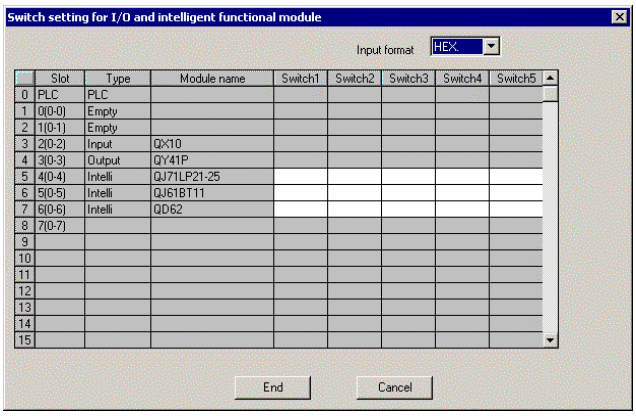


Item			Description
I/O Assignment	Slot		Indicates slot No.
	Type		Specifies type of mounted modules.
	Model name		Enter model names of mounted modules.
	Points		Specifies I/O points of each slot.
	Start XY		Specifies I/O numbers of each slot.
	[Switch setting] button		Displays “Switch setting screen.” Refer to “(2) Switch setting screen” for details.
	[Detailed setting] button		Displays “Detailed setting” screen. Refer to “(3) Detailed setting screen.
Standard settings	Base module name		Enters name of base unit be used.
	Power module name		Enters name of power module to be used.
	Extension cable		Enters name of extension cable to be used.
	Points		Specifies the number of slots on the base unit to be used.
	Base mode	Auto	Assigns base unit by the number of slots allowed on base unit. I/O numbers are assigned for the number of modules allowed on base unit to be used.
		Detail	Specifies the number of modules allowed for each base unit, by “I/O assignment.”
	[8 fixation] button		Fixes the number of slots to be used on base unit uniformly at 8.
	[12 fixation] button		Fixes the number of slots to be used on base unit uniformly at 12.
[Diversion of multiple PLC parameter…] button			Use I/O assignment setting data specified on other PLC CPU configuring multiple PLC system. Refer to “5.2.9 Loading initial setting data and using multiple PLC parameters” for details.
[Default] button			Initializes the data on “I/O assignment setting” screen.
[Apply] button			Write data specified on PC CPU module setting utility onto PC CPU module.

POINT

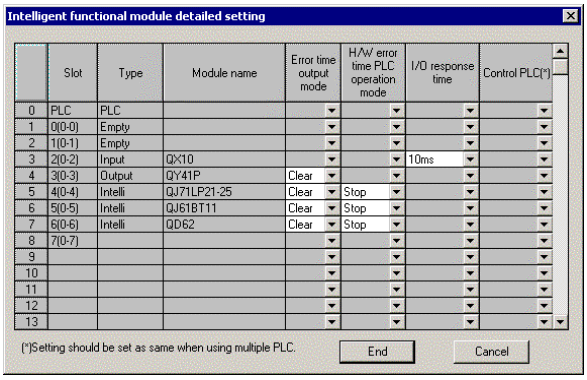
When settings of PC CPU module setting utility are changed, click [Apply] button to write the setting data onto PC CPU module.

Switch setting screen
Clicking [Switch setting] button on “I/O assignment” screen displays the following dialog box, allowing specifying switch settings of intelligent functional module.



Item	Description
Slot	Indicates slot number specified on “I/O assignment” screen.
Type	Indicates type specified on “I/O assignment” screen.
Module name	Indicates Module name specified on “I/O assignment” screen.
Switch 1 through switch 5	Specifies data on switches 1 through 5 on intelligent functional module.
[End] button	Saves settings on screen and end settings.
[Cancel] button	End settings without saving data on screen.

Detailed setting screen
Clicking [Detailed setting] button on “I/O assignment setting” screen displays the following dialog box, allowing specifying detailed settings of modules.



Item	Description
Slot	Indicates slot number specified on “I/O assignment” screen.
Type	Indicates type specified on “I/O assignment” screen.
Module name	Indicates Module name specified on “I/O assignment” screen.
Error time output mode	Specifies output mode upon error.
H/W error time PLC operation mode	Specifies operation mode of PLC upon hardware error.
I/O response time	Specifies I/O response time.
Control PLC ①	Specifies control PLC for each module.
[End] button	Saves settings on screen and end settings.
[Cancel] button	End settings without saving data on screen.

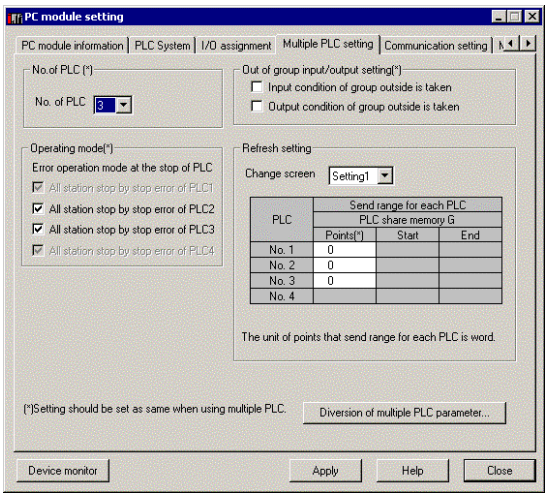
① On a multiple PLC configuration system, specify identical settings on PC CPU module and on PLC CPUs.

5.2.5 Operations on multiple PLC setting screen

This screen specifies settings required for configuring multiple PLC system.

POINT

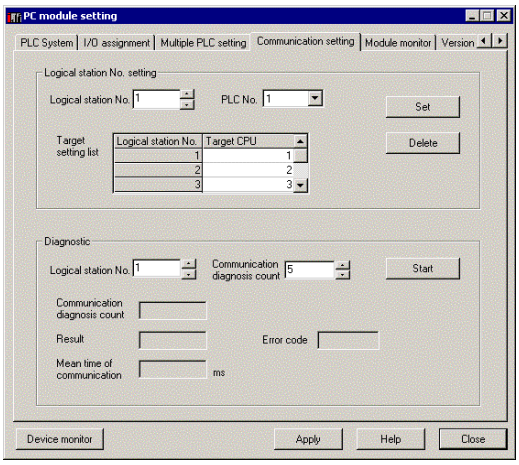
(1) On multiple PLC system, use multiple PLC parameters specified on QCPU (Q mode). Using multiple PLC parameters can avoid data inconsistency between settings of PC CPU module and other PLC CPUs.
(2) When settings of PC CPU module setting utility are changed, click [Apply] button to write the setting data onto PC CPU module.



Item		Description
No. of PLC		Specifies the total number of PLC CPUs and PC CPU modules configuration a multiple PLC system.
Out of group input/output setting		Specify if data input/output of outside group should be allowed or not.
Operating mode		Specifies error operation mode at the stop of PLC operation on PLC CPU.
Refresh setting	Change screen	Select registered refresh settings.
	Send range for each PLC	Specifies the number of points for shared memory used for data transmission by PLC CPUs.
[Diversion of multiple PLC parameter…] button		Uses multiple PLC setting data specified on other PLC CPU configuring the multiple PLC system. Refer to “5.2.9 Loading initial setting data and using multiple PLC parameters” for details.
[Apply] button		Writes setting data specified on PC CPU module setting utility onto PC CPU module.

5.2.6 Operations on Communication setting screen

This screen specifies logical station No. for accessing to multiple PLC system, and perform communication diagnosis with CPUs specified by logical station No.



Item		Description
Logical station No. setting ①	Logical station No.	Specifies logical station number to set or modify. (range: 1 through 64)
	PLC No.	Specifies PLC number of accessing PLC CPU.
	Target setting list	Displays list of logical station No. setting.
	[Set] button	Register settings of logical station number in setting list.
	[Delete] button	Selecting a line to be deleted from setting list and clicking [Delete] button deletes a logical station No. (Double-clicking a line to be modified performs a same operation.
Diagnostic	Logical station No.	Selects logical station No. for diagnosis.
	Communication diagnosis count	Select the number of times of communication diagnosis operations.
	Communication diagnosis count	Indicates the number of times of communication diagnosis operations.
	Result	Displays the result of communication diagnosis.
	Mean time of Communication	Displays time spent for communication.
	Error code	Displays error code of diagnosis result.
	[Start] button ([Stop] button)	Starts communication diagnosis. The button turns into [Stop] button, allowing termination of communication diagnosis.
[Apply] button		Writes setting data specified on PC CPU module setting utility onto PC CPU module.

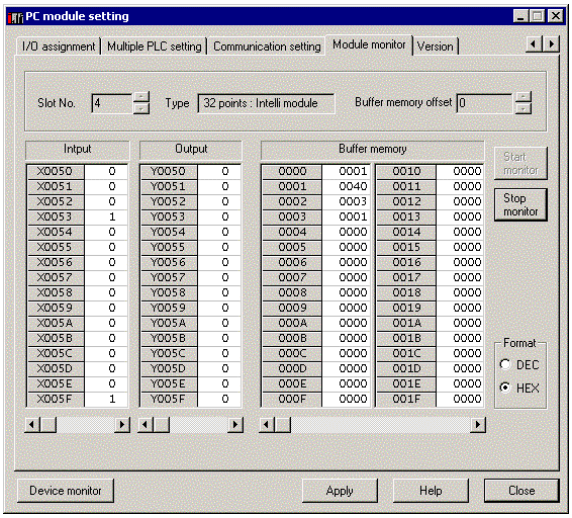
① By default setting, CPU numbers 1, 2, and 3 are assigned to logical station numbers 1, 2, and 3. If change of logical numbers is not required, the system can be used with default settings.

POINT

When settings of PC CPU module setting utility are changed, click [Apply] button to write the setting data onto PC CPU module.

5.2.7 Operations on Module monitor screen

This screen monitors input/output status of module and buffer memory.

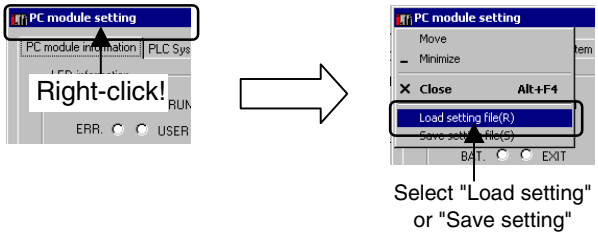


Item		Description
Slot No.		Enters slot No. of module to be monitored.
Type		Displays type of mounted modules.
Buffer memory offset		Enter buffer memory address for monitoring intelligent function module.
Input		Displays input status (X) of module specified by “Slot No.”
Output		Displays output status (Y) of module specified by “Slot No.” Double-clicking allows forcible output.
Buffer memory		Displays buffer memory status of module specified by “Slot No.” Double-clicking allows forcible data writing on buffer memory.
Format	DEC	Changes data format in buffer memory into decimal.
	HEX	Changes data format in buffer memory into hexadecimal.
[Start monitor] button		Starts monitoring.
[Stop monitor] button		Stops monitoring.
[Apply] button		Writes setting data specified on PC CPU module setting utility onto PC CPU module.

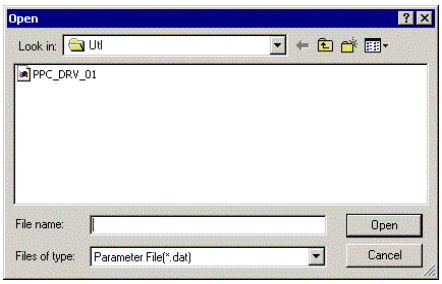
5.2.8 Loading and saving setting data

This section describes the procedures for saving data of PC CPU module setting utility, and for loading the saved setting data.

Starting procedures
Right-click on the title bar of PC CPU module setting utility and select “Load setting” or “Save setting.”



Screen description
Load (or write) data of PC CPU module setting utility.

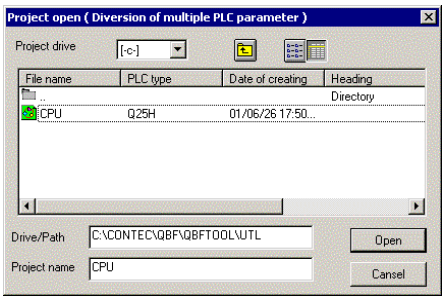


Item	Description
Look in	Specify location of setting file to be loaded (or saved).
File name	Enters name of file to be loaded (or saved).
[Open] button ([Save] button)	Loads (or saves) file of entered name.
[Cancel] button	Ends operation without loading (or saving) file.

5.2.9 Loading initial setting data file and using multiple PLC parameters

This section describes the procedures for loading initial setting data file and using multiple PLC parameters.

Screen description
Clicking [Load initial setting file] button and [Diversion of Multiple PLC parameter] button displays the following screen, allowing selection of a project for setting data.



Item	Description
Project drive	Selects a drive that contains project.
Drive/path	Enters a drive and a path that contains project.
Project name	Enters a name of project to be loaded.
[Open] button	Loads a project.
[Cancel] button	Ends without loading a project.

Notes on using specified data

(a) When moving setting data of GX Developer that has been specified on a PC other than PC CPU module to a PC CPU module, move the data to a PC CPU module with the whole project folder of GX Developer.
If files only are moved, specifying a project is disallowed.

(b) Parameters of positioning module specified on GX Configurator-QP are not available on PC CPU module.
Write the parameters onto the positioning module using bus interface functions.

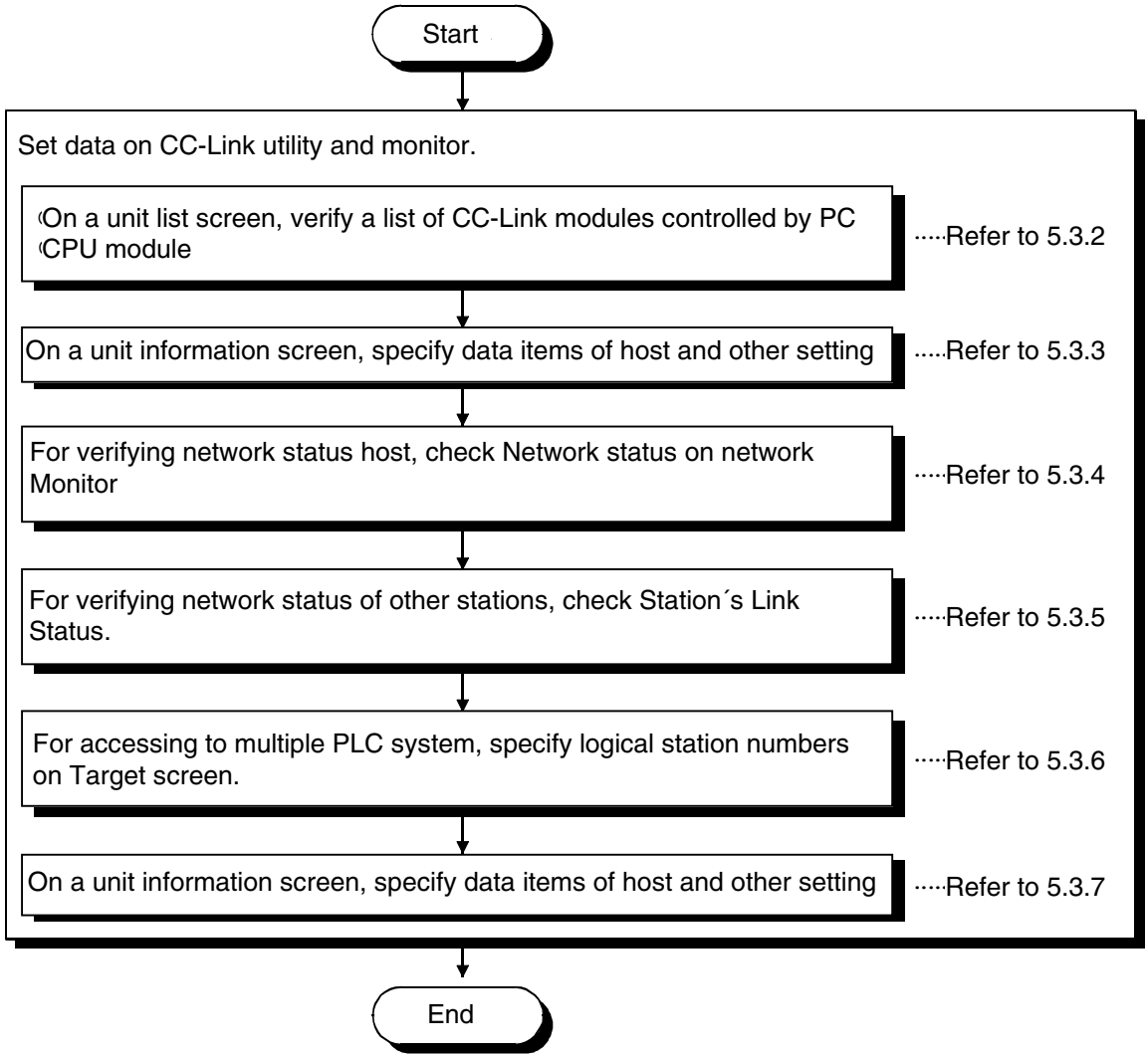
(c) When using multiple PLC parameters, settings of the number of empty slots specified by GX Developer “PC system settings” are not reflected on PC CPU module utility.
Specify the number of empty slots with PC CPU module utility again.

5.3 CC-Link Utility

This section describes operations of CC-Link utility.

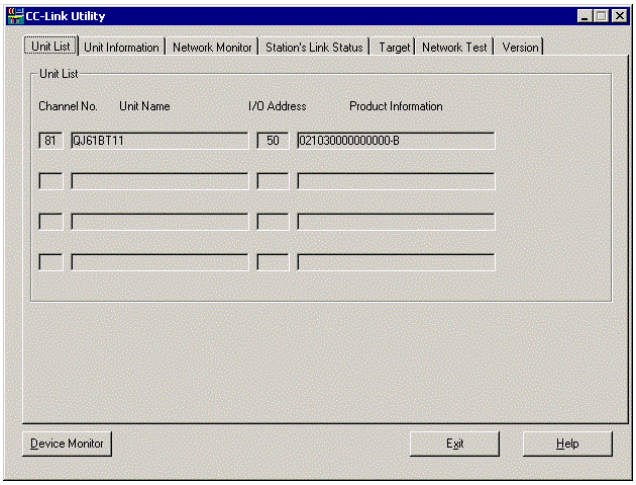
5.3.1 Operation procedures

This section describes operation procedures of CC-Link utility.



5.3.2 Operations on Unit List screen

This screen displays hardware information specified on CC-Link module.

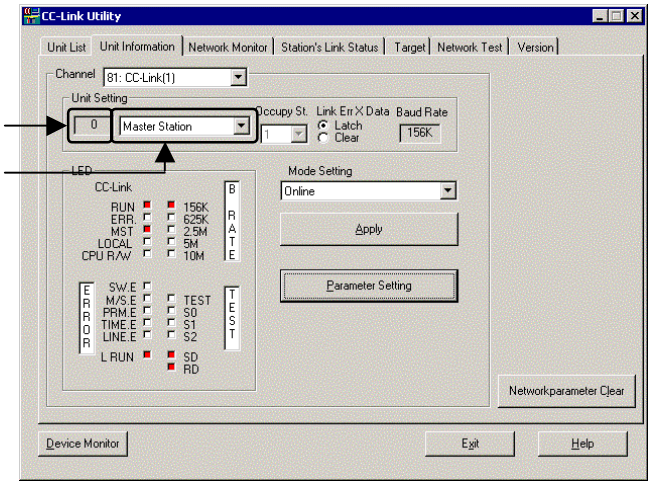


Item	Description
Channel No.	Displays channel numbers of CC-Link module.
Unit Name	Displays model names of CC-Link module.
I/O Address	Displays start I/O number of CC-Link module.
Product Information	Displays product information of CC-Link module.

5.3.3 Operations on Unit Information screen

This section displays and specifies information about mounted CC-Link module.

Unit Information screen



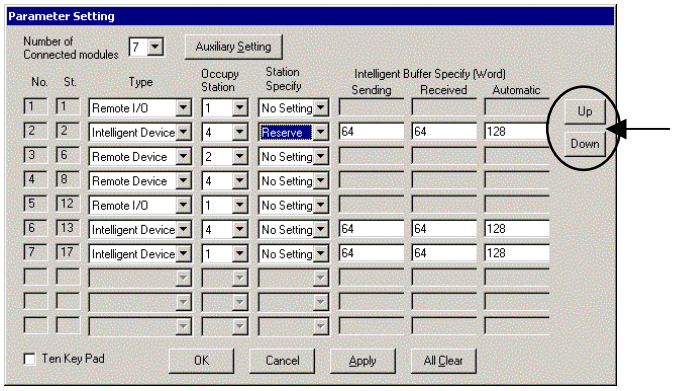
Item		Description
Channel		Selects a channel to be used.
Unit Setting	(1) (Station number)	Displays station number of host.
	(2) (Station type)	Specifies and displays settings of station type.
	Occupy St.	Specifies the number of stations occupied by host.
	Link Err X Data	Specifies entry data status upon failure of data link.
	Baud Rate	Displays transmission rate settings of host.
LED		Displays operation status of CC-Link module.
Mode Setting		Displays current value of CC-Link module mode setting.
[Apply] button		Updates data specified by CC-Link utility.
[Parameter setting] button		Specifies parameter settings. (Selectable only when specifying master station settings. Refer to "(2) Parameter setting screen" for details.
[Network parameter Clear] button		Initializes all parameters specified on "Parameter setting" screen.

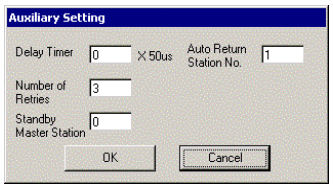
LED name	Description
RUN	Turns on when the CC-Link module functions normally and turns off when a WDT error occurs.
ERR.	Turns on when the network communication status is abnormal.
MST	Master station
LOCAL	Local station
CPU R/W	Communicating
SW	Switch setting error
M/S	Master station overlap error
PRM	Parameter error
TIME	Responses from all stations fail due to cable break or noises in communication paths.
LINE	Cable break error
L RUN	Data link operating.
L ERR.	On: Communication error Blinking: Terminating register missing. CC-Link or CC-Link special cable is suffering from noises.
156k	LED of specified baud rate is turned on.
625k	
2.5M	
5M	
10M	
TEST	Executing offline test.
SD	Flashes when data link data is sent.
RD	Flashes when data link data is received.

POINT

Upon updating settings, click [Apply] button to write setting data onto PC CPU module.

Parameter setting screen



Item	Description
Number of Connected modules	Sets the number of modules to be connected to the CC-Link system.
[Auxiliary Setting] button	By clicking this button, the following dialogue box is displayed: 
No.	Displays the numbers of modules set with the Number of Connected module.
St.	Displays the station number of each module.
Occupy Station	Sets the number of occupied stations (one to four stations).
Type	Sets the type of station (Remote I/O, Remote Device, Intelligent Device).
Station Specify	Sets the status of each unit. Item: Reserve — Description: Sets as a reserve station. Item: Invalid — Description: Sets as an invalid station. Item: No setting — Description: No setting is performed.
Intelligent Buffer Specify — Sending	Designates the send area (word unit).
Intelligent Buffer Specify — Received.	Designates the receive area (word unit)
Intelligent Buffer Specify — Automatic	Designates the automatic update area (word unit).
(1)([Screen switch] button)	If the number of connected module is 11 or more, switches “Parameter setting” screen.
Ten Key Pad	If this option is checked, the ten-key pad can be used.
[OK] button	Updates and then exits the parameter settings.
[Cancel] button	Exits the parameter setting without updating.
[Apply] button	Updates the parameter settings.
[All Clear] button	Clears the parameter settings and returns the settings to the initial values.

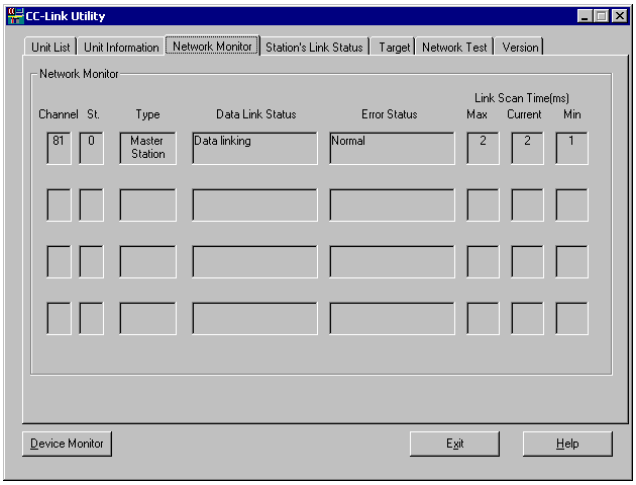
POINT
Upon updating settings, click [Apply] button to write setting data onto PC CPU module.

5.3.4 Operations on Network Monitor screen

This screen monitors status of network on host.

POINT

If monitor has stopped due to an error, display a screen other than “Network Monitor” and then display the “Network Monitor” screen again.



Item	Description
Channel	Displays the channel number.
St.	Displays the own station's station number.
Type	Displays station type of host.
Data Link Status	Monitors and displays the startup status of the data link.

Status	Description
Initial status	Data link is in the initial status.
Waiting to receive parameters	Parameters have not been received yet.
Data linking	Executing data link.
Data link stopped	Data link has stopped
Disconnecting (No Polling)	There is no inquiry from the master station and the link is being disconnected.
Disconnecting (Line Error)	Disconnecting the link due to a line error.
Disconnecting (Other)	Disconnecting the link due to other reasons.
Line test being performed	Performing a network test.
Parameter setting test being performed	Performing a parameter setting test from the master station.
Auto return being performed	Performing an auto return of a disconnected station.
Resetting	Resetting the module.

<table>
<tr><th colspan="2">Item</th><th>Description</th></tr>
<tr><td colspan="2">Error Status</td><td>Monitors and displays the error status.

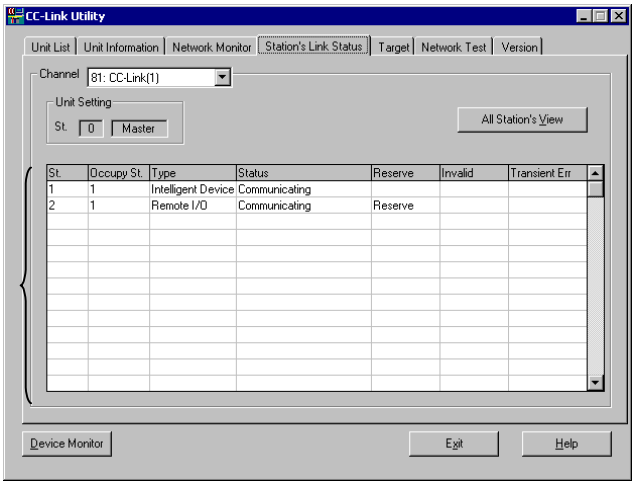
<table>
<tr><th>Status</th><th>Description</th></tr>
<tr><td>Normal</td><td>Normal status</td></tr>
<tr><td>Communicatio n Path Error</td><td>An error was detected in a communication path.</td></tr>
<tr><td>Parameter Error</td><td>An error was detected in a parameter.</td></tr>
<tr><td>CRC Error</td><td>A CRC error was detected.</td></tr>
<tr><td>Time Out Error</td><td>A timeout error was detected.</td></tr>
<tr><td>Abort Error</td><td>An error was detected in the CC-Link module.</td></tr>
<tr><td>Setting Error</td><td>A setting error was detected.</td></tr>
<tr><td>Other Error</td><td>An error arising from some other cause was detected.</td></tr>
</table>
</td></tr>
<tr><td rowspan="3">Link Scan Time[ms]</td><td>Max</td><td>The maximum value of the link scan time is displayed (1 ms unit).</td></tr>
<tr><td>Current</td><td>The current value of the link scan time is displayed (1 ms unit).</td></tr>
<tr><td>Min</td><td>The minimum value of the link scan time is displayed (1 ms unit).</td></tr>
</table>

5.3.5 Operations on Station's Link Status screen

This screen displays line status of other stations.

POINT

(1) Operations on Station's Link Status screen monitors only when status of host is under "data linking" status.
(2) If monitor has stopped due to an error, display a screen other than "Station's Link Status" and then display the "Station's Link Status" screen again.



Item		Description
Channel		Sets the channel to be used.
Unit Setting		Displays the own station's information.
(1) (Status of other Stations)	St.	Displays the station number that has been set.
	Occupy St.	Displays the number of stations occupied.
	Type	Displays the type of the station that is set.

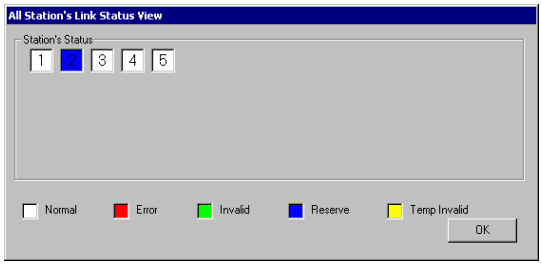
Display	Description
Remote Device	Remote device station
Remote I/O	Remote I/O station
Intelligent Device	Intelligent station, local station

<table>
<tr><th colspan="2">Item</th><th>Description</th></tr>
<tr><td rowspan="4">(1) (Status of Other Stations)</td><td>Status</td><td>Displays the status of other stations.

<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>Communicating Normally</td><td>Normal</td></tr>
<tr><td>Communication Interrupted</td><td>Communication is stopped.</td></tr>
<tr><td>Link Error</td><td>A link error has occurred.</td></tr>
<tr><td>WDT Error</td><td>A watchdog timer error has occurred.</td></tr>
<tr><td>Fusing Error</td><td>There is a station in which a fuse has blown.</td></tr>
<tr><td>Duplicate Station No. Error</td><td>Duplicate station number exists.</td></tr>
<tr><td>Switch Changed</td><td>A switch has been changed.</td></tr>
</table></td></tr>
<tr><td>Reserved</td><td>Displays reserved stations.</td></tr>
<tr><td>Invalid</td><td>An error invalid station is set.

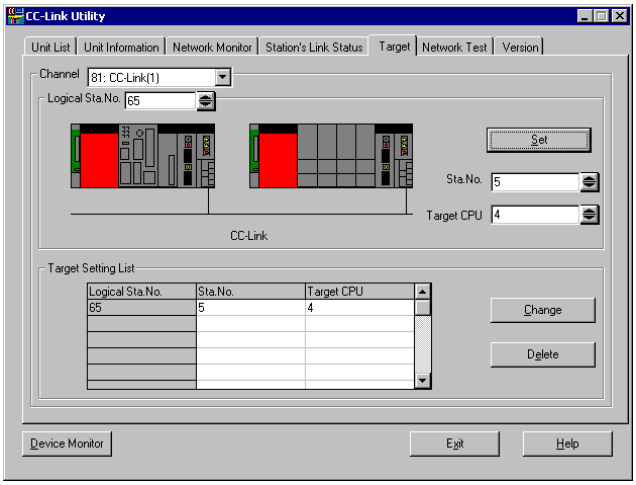
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>Invalid</td><td>An error invalid station is set.</td></tr>
<tr><td>(No display)</td><td>No setting</td></tr>
</table></td></tr>
<tr><td>Transient Err</td><td>Displays the status of any transient errors.

<table>
<tr><th>Display</th><th>Contents</th></tr>
<tr><td>There is a transient error.</td><td>Transient Err</td></tr>
<tr><td>(No display)</td><td>No transient error</td></tr>
</table></td></tr>
<tr><td colspan="2">[All Station's View] button</td><td>A list of the communication status of other stations is displayed.


</td></tr>
</table>

5.3.6 Operations on Target screen

Set the logical station number to access a multiple PLC system.



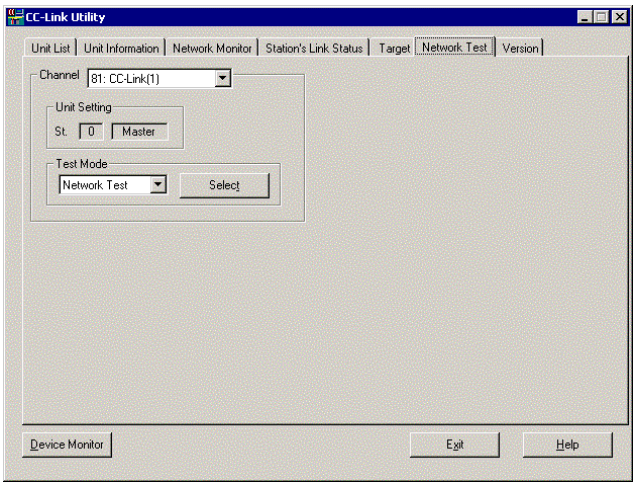
Item	Description
Channel	Select the channel for setting the Target.
Logical Sta. No.	Enter the logical station number to be set or modified (setting range: 65 to 239).
Sta. No.	Enter the station number of a CC-Link module that is controlled by a multiple PLC system.
Target CPU	Enter the target PLC to be accessed.
[Set] button	Register the contents of the setting to the Target Setting list.
[Change] button	Select the line to be changed, then click this button to modify the registered data. (The same operation will result by double-clicking the line to be changed.)
[Delete] button	Select the line to be deleted, then click this button to delete the registered logical station number.

5.3.7 Operations on Network Test screen

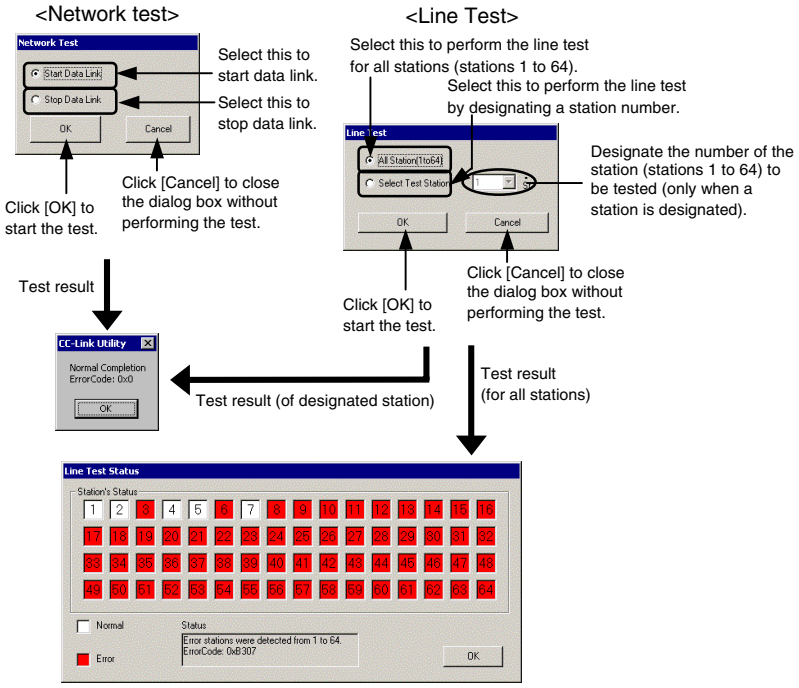
This screen executes network test on installed CC-Link module.

POINT

(1) Execute network test and line test when CC-Link is under online status. Executing network test and line test under off-line status of CC-Link module results in an error.
(2) Line test (station specified) is executed if an error occurred in line test (all stations).
If line test (all stations) results in normal status, line test (station specified) is not necessary.



Item	Description
Channel	Sets the channel to be used.
Unit Setting	Displays the own station's information.
Test Mode	Selects the test to be performed. **Item** / **Setting** Network Test: Test Performs a data link start and stop test. Line Test: Checks whether the connected station is normal or abnormal. (Selectable only on master station)

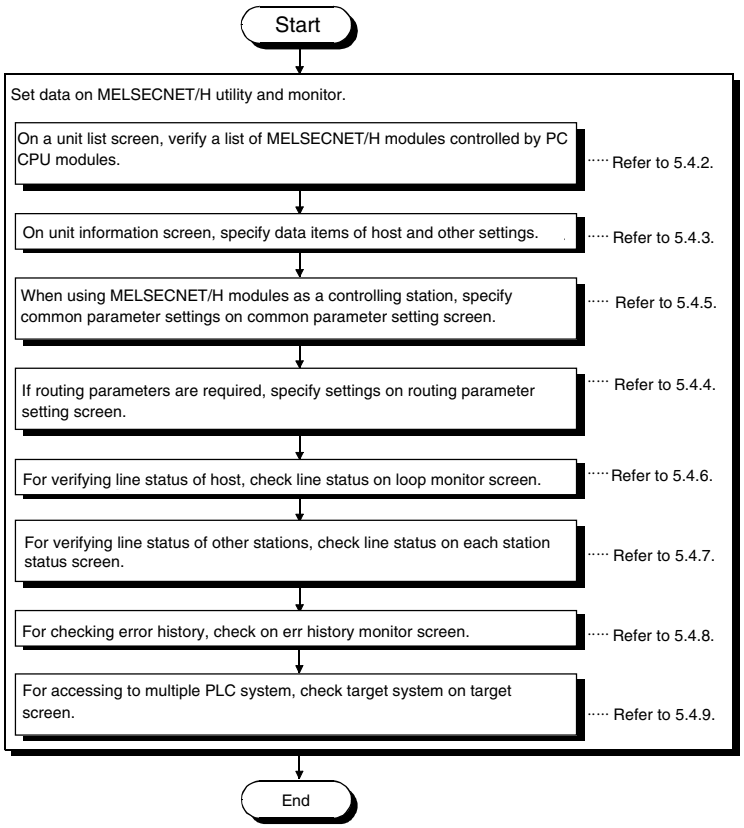
Item	Description
[Select] button	When the [Select] button is clicked, the following dialogue box is displayed: 

5.4 MELSECNET/H Utility

This section describes operations on MELSECNET/H utility.

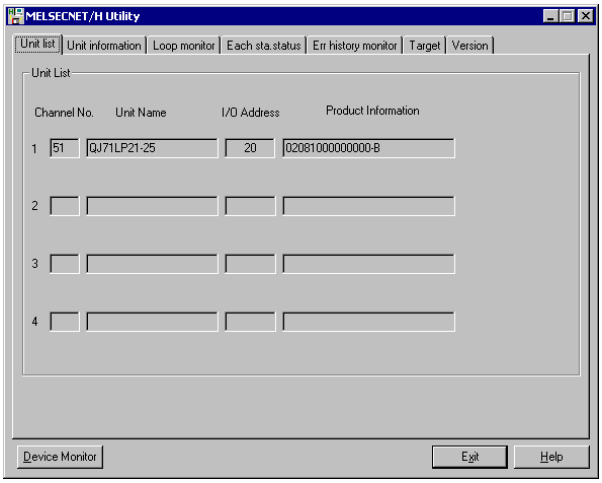
5.4.1 Operations procedures

This section describes operations on MELSECNET/H utility.



5.4.2 Operations on unit list screen

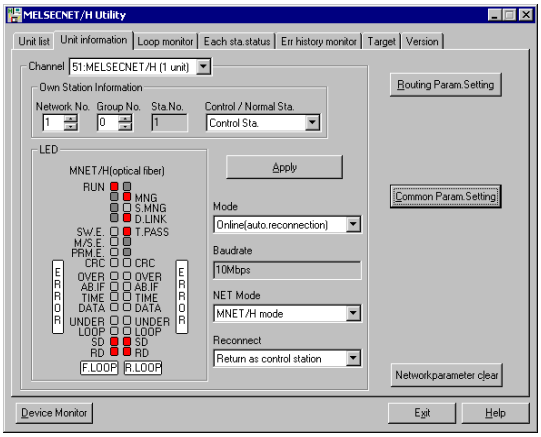
This section displays hardware information specified on MELSECNET/H module.



Item	Description
Channel No.	Displays channel number of each MELSECNET/H module.
Unit name	Displays model name of MELSECNET/H module.
I/O Address	Displays start I/O number of MELSECNET/H module.
Product information	Displays product information of MELSECNET/H module.

5.4.3 Operations on unit information screen

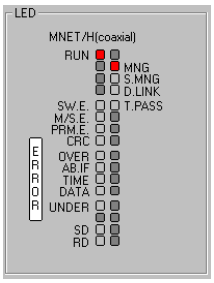
This screen displays and specifies information on installed MELSECNET/H module.



Item		Description
Channel		Selects a channel to be used.
Own Station Information	Network No.	Specifies network number of own station.
	Group No.	Specifies group number of own station.
	Sta. No.	Displays station number specified to own station.
	Control /Normal Sta.	Set own station as control station or normal station.
LED		Displays operating status of MELSECNET/H module.
[Apply] button		Updates information of MELSECNET/H module specified on channel.

LED name	Description
RUN	Turns on when the data link functions normally.
MNG	Switch setting is abnormal.
S.MNG	Sub control station.
D.LINK	Data link active.
T.PASS	Executing baton-pass
SW.E	Switch setting is abnormal.
M/S.E.	Overlap error of station number or control station.
PRM.E	Parameter error.
CRC	Code check error.
OVER	Data loading delay error.
AB.IF	Received data is all “1.”
TIME	Time over.
DATA	Received data error.
UNDER	Transmission data error.
LOOP	Main/sub loop reception error.

When using QJ71BR11



<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Mode</td><td>Specifies mode settings on MELSECNET/H module, and displays current settings.

<table>
<tr><th>Mode</th><th>Description</th></tr>
<tr><td>Online(auto. reconnection)</td><td>Used for normal communication.</td></tr>
<tr><td>Offline</td><td>Disconnects from network.</td></tr>
<tr><td>Forward loop test</td><td>Tests status of forward loop.</td></tr>
<tr><td>Reverse loop test</td><td>Tests status of reverse loop.</td></tr>
<tr><td>Test between master station</td><td>Executes station to station test.</td></tr>
<tr><td>Test between slave station</td><td>Executes station to station test.</td></tr>
</table></td></tr>
<tr><td>Baud rate</td><td>Displays transmission rate setting of MELSECNET/H module.</td></tr>
<tr><td>NET Mode</td><td>Selects network to connect MELSECNET/H module.
If “25Mbps” is displayed on baud rate, the mode is fixed to “MNET/H.”

<table>
<tr><th>NET mode</th><th>Description</th></tr>
<tr><td>MNET/H mode</td><td>Select when connecting to MELSECNET/H.</td></tr>
<tr><td>MNET/10 mode</td><td>Select when connecting to MELSECNET/10.</td></tr>
</table></td></tr>
<tr><td>Reconnect</td><td>Specifies station type when control station returns to system.
Displayed on screen only when MELSECNET/H module is control station, allowing selection.

<table>
<tr><th>Return to system</th><th>Description</th></tr>
<tr><td>Return as control station</td><td>MELSECNET/H module as control station returns to system.</td></tr>
<tr><td>Return as normal station</td><td>MELSECNET/H module as normal station returns to system.</td></tr>
</table></td></tr>
<tr><td>[Routing Param. Setting] button</td><td>Displays the "Routing Parameter Setting" screen.
See section 5.4.4 Operations on routing parameter setting screen for details.</td></tr>
<tr><td>[Common Param. Setting] button</td><td>Displays “Common parameter setting” screen. See section 5.4.5 Operations on common parameter setting screen.</td></tr>
<tr><td>[Network parameter clear] button</td><td>Initializes settings of all channels specified “Network parameter setting” screen and “Common parameter setting” screen.</td></tr>
</table>

POINT

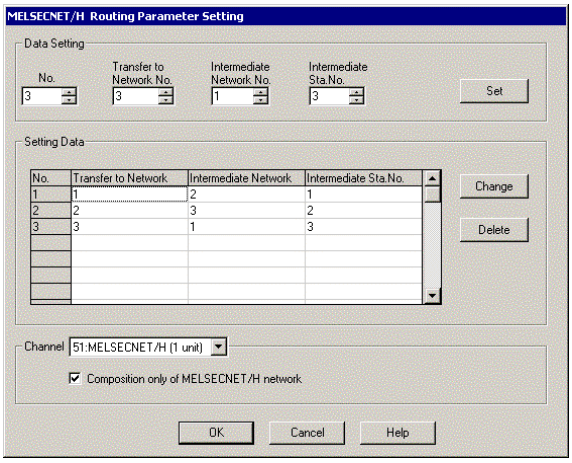
Upon updating settings, click [Apply] button to write setting data onto PC CPU module.

5.4.4 Operations on routing parameter setting screen

The routing parameter setting screen is used to set the transfer destination, relay destination network number, and relay destination station number.

POINT

(1) The routing parameters are common with channels No. 51 to 54.
They cannot be set one channel No. at a time.
(2) Up to 64 routing parameters can be set.



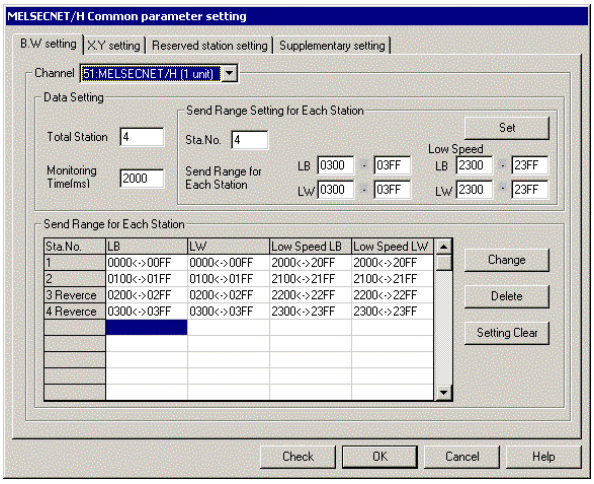
Item	Content
No.	Input the number of the line to set or change. (Setting range : 1 to 64)
Transfer to Network No.	Input the transfer destination network number
Intermediate Network No.	Input the relay destination network number
Intermediate Sta. No.	Input the relay destination station number.
[Set] button	Enters the data that has been set in setting data.
Setting Data	Displays a list of data that has been set so far.
[Change] button	Selecting a line to be changed and clicking the button will change the entered set data. (Double-clicking the line to be changed also does the same operation.)
[Delete] button	Selecting a line to delete and clicking the button will delete the entered set data.
Channel	Selects the channel No. where the settings are to be changed. If the routing function from the MELSECNET/H module is used and the PLC CPU is accessed, when the configuration of the network system is the MELSECNET/H only, click the check box and add a check mark. ①

① If a MELSECNET/10 module exists in the network, do not add a check mark to the check box. The maximum transmitted data size differs in the MELSECNET/H and the MELSECNET/10 (1920 bytes in the MELSECNET/H and 960 bytes in the MELSECNET/10), so there is danger of data being cut when they are transmitted via the MELSECNET/10.

5.4.5 Operations on common parameter setting screen

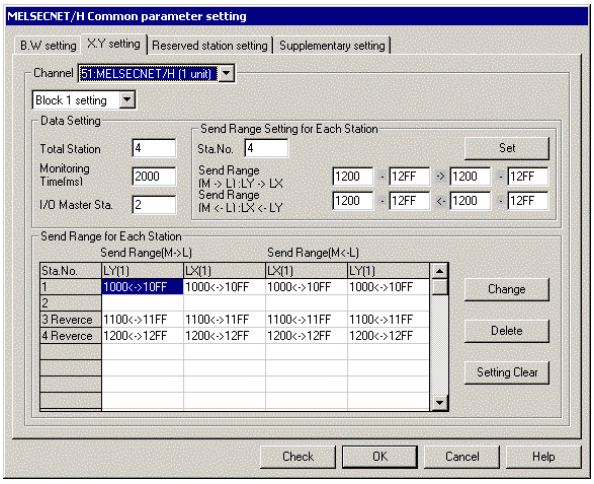
This operation sets the common parameters necessary for establishing data links.
Display is possible only when the MELSECNET/H module is in the control station.

B, W setting screen



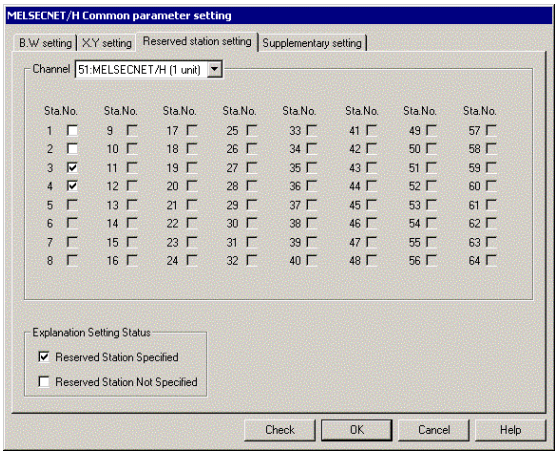
Item		Content
Channel		Selects the channel (MELSECNET/H module) performing the settings.
Total Station		Input the total number of stations (including the control station) in the network that the MELSECNET/H module is the control station for.
Monitoring Time		Sets the link scan time monitoring time.
Send Range setting for each Station	Sta. No.	Input the station No. of the station to be set or changed.
	LB	Input the LB (Link relay) range.
	LW	Input the LW (Link register) range.
	Low Speed LB	Input the range of the LB (link relay) used in the low speed cyclic transmission function.
	Low Speed LW	Input the range of the LW (link register) used in the low speed cyclic transmission function.
[Set] button		Registers the set contents in each station's transmission range.
Send Range for Each Station		Displays the set data contents up to the present time in one list.
[Change] button		Select the line to change, then when the button is clicked, the data which are registered can be changed. (If the line to be changed is double clicked, the same operation can be performed.)
[Delete] button		Select the line to change, then when the button is clicked, the data which are set can be deleted.
[Setting Clear] button		Initializes the contents of all the B and W settings registered in the "Common parameter setting" screen.

X, Y setting screen



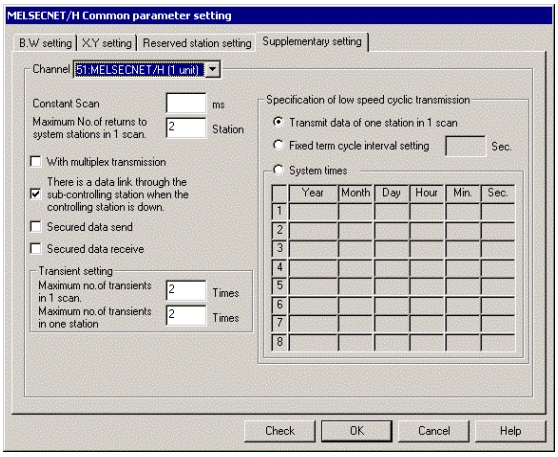
Item		Content
Channel		Selects the channel (MELSECNET/H module) performing the settings.
Block 1 setting (Block 2 setting)		Switches the block that is set.
Total Station		Input the total number of stations (including the control station) in the network that the MELSECNET/H module is the control station for.
Monitoring Time		Sets the link scan time monitoring time.
I/O Master Sta.		Input the station number of the I/O master station.
Send Range Setting for Each Station	Sta. No.	Input the station number of the station to be set or changed.
	Sending Range (M • L)	Assigns link devices (LX, LY) 1 to 1 between the I/O master station (M station) and other Stations.
	Sending Range (M • L)	Assigns link devices (LX, LY) 1 to 1 between the I/O master station (M station) and other stations.
[Set] button		Registers the set contents in each station's transmission range.
Send Range for Each Station		Displays the set data contents up to the present time in one list.
[Change] button		Select the line to change, then when the button is clicked, the data which are registered can be changed. (If the line to be changed is double clicked, the same operation can be performed.)
[Delete] button		Select the line to change, then when the button is clicked, the data which are set can be deleted.
[Setting Clear] button		Initializes the contents of all the X and Y settings registered in the "Common parameter setting" screen.

Reserved station setting screen



Item	Content
Channel	Selects the channel (MELSECNET/H module) performing the settings.
Sta. No.	This sets reserve stations. If a check mark is placed in the check box, that station is set as a reserve station.

Supplementary setting screen



Item		Content
Channel		Selects the channel (MELSECNET/H module) performing the settings.
Constant Scan		Sets a constant link scan. (Setting range: 1 to 500 ms) If it is not run, do not input anything.
Maximum No. of returns to system stations in 1 scan		Sets the number of stations with transmission errors that can undergo return to system in 1 link scan.
With multiplex transmission		Set when running the multiplex transmission function.
There is a data link through the sub-controlling station when the controlling station is down.		Set when executing the control station move function.
Secured data send		Set when preventing data separation of link data in station modules in cyclic Transmissions. ①
Secured data receive		
Transient setting	Maximum no. of transients in 1 scan.	Sets the number of transients that can be executed in one link scan by one network (total for 1 network as a whole). (Valid setting: 1 to 10 times; Default: 2 times)
	Maximum no. of transients in one station.	Sets the number of transients that can be executed in one link scan by one station. (Valid setting: 1 to 10 times; Default: 2 times)
Specification of low speed cyclic transmission	Transmit data of one station in 1 scan	Set in cases such as when data to be transmitted to another station are collected and sent one station at a time in 1 link scan.
	Fixed term cycle interval setting	Carries out low speed cyclic transmission at the preset intervals. (Valid setting interval: 1 to 65535 s.)
	System times	Carries out low speed cyclic transmission in accordance with the preset time. (Settings: Year, Month, Day, Hour, Minute, Second)

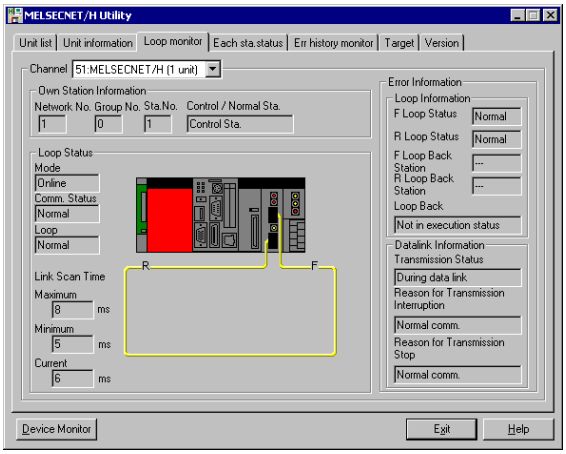
① Data separation prevention is when older data with the meaning of 2-word (32 bit) link data such as the positioning module's current position are prevented from being separated into new data with 1-word (16 bit) units due to cyclic transmission timing.

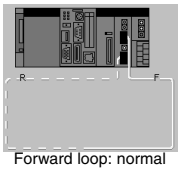
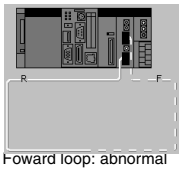
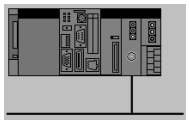
5.4.6 Operations on Loop monitor screen

This screen monitors line status of own station.

POINT

If monitor has stopped due to an error, display a screen other than “Loop monitor” and then display the “Loop monitor” screen again.



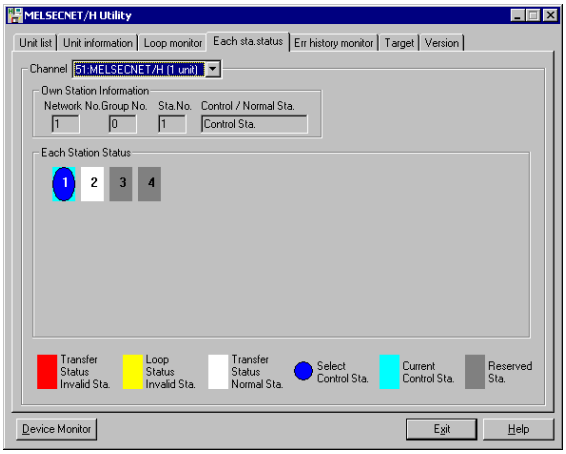
Item	Content
Channel	Selects a channel to be used.
Own Station Information	Displays information of own station
Loop status	Displays loop status of own station using texts and graphics. Graphics change according to loop status, as shown below. <In case of QJ71LP21-25, QJ71LP21G or QJ71LP21GE>  Foward loop: normal Reverse  Forward loop: normal Reverse  Foward loop: abnormal Reverse  Data linking via loopback  Foward loop: abnormal Reverse
Loop Status	<In case of QJ71BR11>  Same display regardless of loop status
Loop Information	Displays current loop status.
Data link Information	Displays the current data link status.

5.4.7 Operations on Each status screen

This screen displays communication status and loop status for each station.

POINT

If monitor has stopped due to an error, display a screen other than “Each sta. status” screen and then display the “Each sta. status” screen again.



Item	Content	
Channel.	Sets the channel (MELSECNET/H board) perform each station status	
Own station Information	Displays the own station information.	
Each Station Status	Displays the communication status and loop status for every link station that is set using parameters.	
	(Red) Transfer Status Invalid Sta.	Indicates a batom-pass status error.
	(Yellow) Lopp status Invalid Sta.	Indicates a forward/reverse loop-status error.
	(White) Transfer Status Normal Sta.	Indicates the station in normal communication.
	(Blue) Select Control Sta	Indicates the station that is set as the control station.
	(Aqua) Current Control Sta.	Indicates the station that is actually operating as the control station.
	(Gray) (Gray)	Indicates the station that is set as a reserved station. However, this is valid only when the own station is executing cyclic communication.

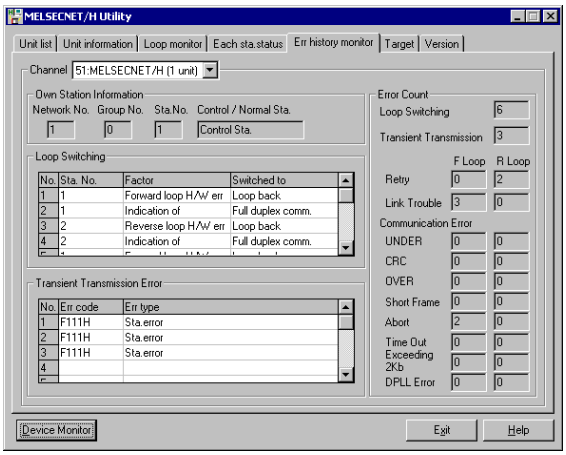
Operations on Err history monitor screen

This screen displays the history of loop errors, communication errors, and transient transmission errors.

POINT

(1) Up to 16 items are stored in the loop switch data history.
When there are more than 16 items, items will be erased from the history, starting with the oldest one. (From old to new: No. 1 to No. 16)

(2) If monitor has stopped due to an error, display a screen other than “Err history monitor” and then display the “Err history monitor” screen again.



Item	Content
Channel	Sets the channel (MELSECNET/H module) perform error history monitor.
Own Station Information	Displays the own station information.
Loop Switching	Displays the loop change factors and status after changing.(For optical loop) **Item** / **Description** Sta. No. — Displays the station number that requested a loop switch and loop back. Factor — Displays the factor by which loop switch and loop back were executed. Switched to — Displays the data link status after a loop switch.
Transient Transmission Error	Displays the error code occurring when transient transmission was executed at the own station. **Item** / **Description** Err code — Displays the code of the error occurring due to transient transmission. Err type — Displays the type of the error occurring due to transient transmission.

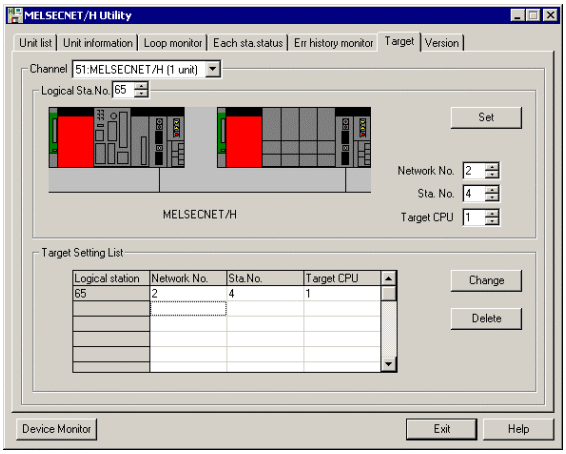
<table>
<tr><th>Item</th><th>Content</th></tr>
<tr><td>Error Count ①</td><td>Displays the number of error occurrences.
<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Loop Switching</td><td>Displays the number of loop switch/loopback.</td></tr>
<tr><td>Transient Transmission.</td><td>Displays the number of error occurrence due to transient transmission</td></tr>
<tr><td>Retry</td><td>Displays the number of retries (retry at communication error).</td></tr>
<tr><td>Link Trouble</td><td>Displays the number of line error occurrence.</td></tr>
<tr><td>Communication Error</td><td>
<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>UNDER</td><td>Displays the number of UNDER errors.</td></tr>
<tr><td>CRC</td><td>Displays the number of CRC errors.</td></tr>
<tr><td>OVER</td><td>Displays the number of OVER errors.</td></tr>
<tr><td>Short Frame</td><td>Displays the number of short frame (data message is too short.) errors.</td></tr>
<tr><td>Abort</td><td>Displays the number of AB.IF errors.</td></tr>
<tr><td>Time Out</td><td>Displays the number of TIME errors.</td></tr>
<tr><td>Exceeding 2 kb</td><td>Displays the number of DATA errors.</td></tr>
<tr><td>DPLL Error</td><td>Displays the number of DPLL (Cannot identify data normally due to synchronization/modulation) errors.</td></tr>
</table>
</td></tr>
</table>
</td></tr>
</table>

① Each error status can be checked by the following link special register (SW).

Item	Link special register	Item	Link special register
Loop Change Count	SW00CEH	OVER	SW00BAH•SW00C2H
One Shot Transmission	SW00EEH	Short Frame	SW00BBH•SW00C3H
Retry Count	SW00C8H• SW00C9H	Abort	SW00BCH•SW00C4H
Loop Invalid	SW00CCH• SW00CDH	Time Out	SW00BDH•SW00C5H
UNDER	SW00B8H• SW00C0H	Over 2 K bytes receive	SW00BEH•SW00C6H
CRC	SW00B9H• SW00C1H	DPLL error	SW00BFH•SW00C7H

5.4.8 Operations on target screen

This operation sets the logical station No. for access to a multiple PLC system.



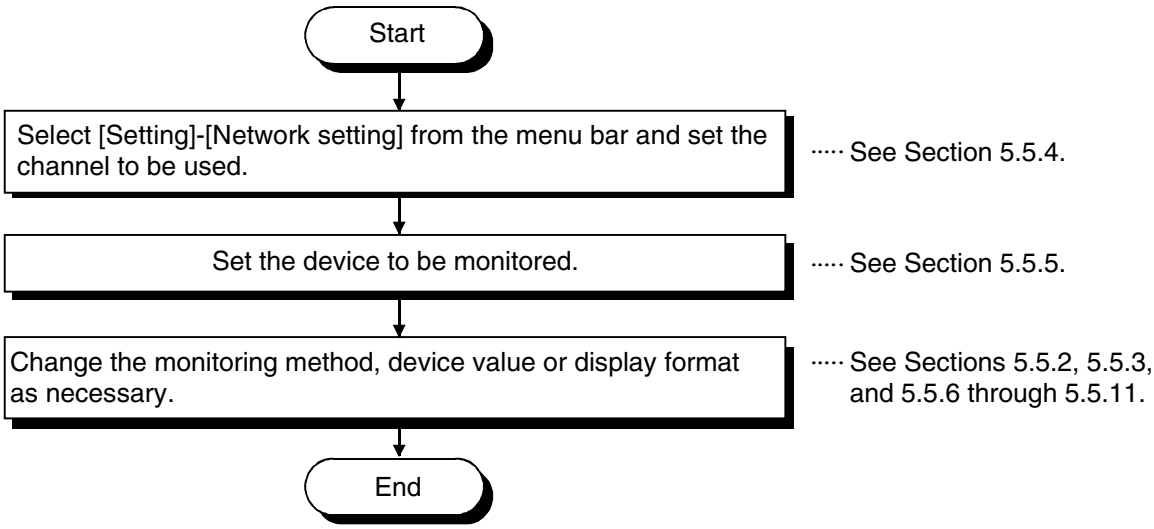
Item	Content
Channel	Sets the channel (MELSECNET/H module) perform the target settings.
Logical Sta. No.	Input the logical sta. No. which is setting or changing the settings (setting range: 65 to 239).
Network No.	Input the network No. of the station doing the accessing.
Sta. No.	Input the station No. of the MELSECNET/H module controlled by the multiple PLC system.
Target CPU	Input the target CPU which is being accessed.
[Set] button	Registers the setting contents in the list of external devices.
[Change] button	Select the line to change. When this button is clicked, the data that are registered can be changed. (The same operation is performed when the line being changed is double clicked.)
[Delete] button	Select the line to be deleted. When this button is clicked, the registered logical station No. can be deleted.

5.5 Device Monitor Utility

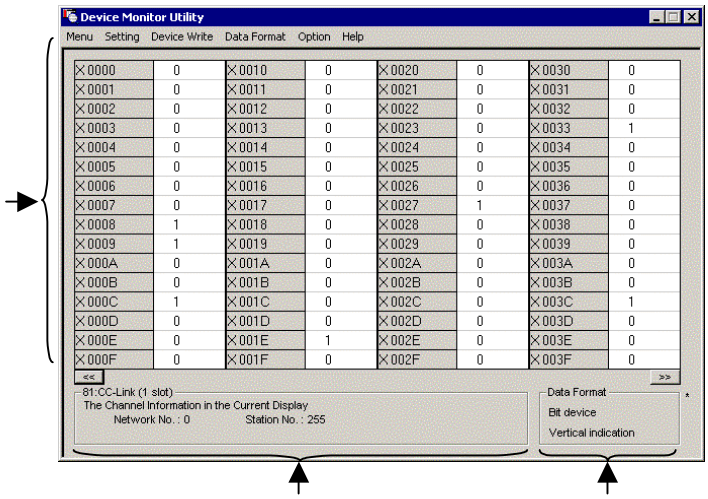
This section describes operations on Device Monitor utility.

5.5.1 Operation procedure

The following explains how to operate the device monitor utility.



Specifying batch monitor
Monitors only one device that has been specified.
Selecting the menu
Select [Menu] - [Batch monitor] from the menu bar.
(Selectable for 16-point register monitor only.)
Display screen

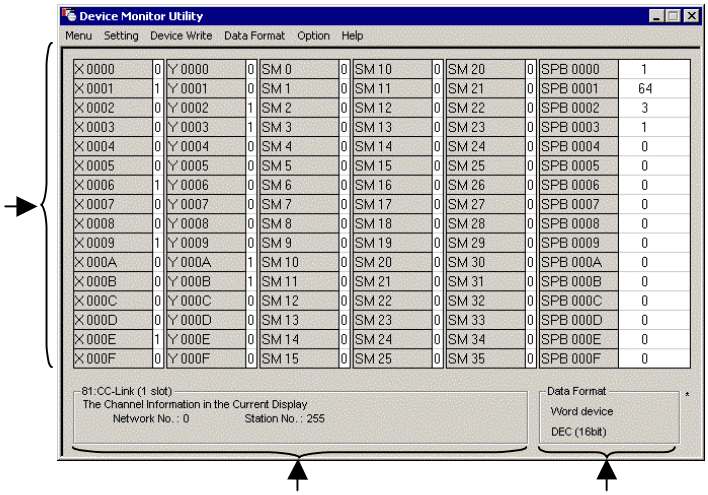


Item	Content
(1) Device information	Displays the current device status. See Section 5.5.9 on how to change the display form.
(2) Network status	Displays the network status currently set. See Section 5.5.4 on how to set the network.
(3) Data format	Shows the display form and device types being displayed (word device and bit device). See Section 5.5.5 on how to change the device type. And, see Section 5.5.9 on how to change the display form.

5.5.2 Specifying 16-point register monitor

Monitors up to five bit devices and one word device simultaneously.

Selecting the menu
Select [Menu] - [16-point register monitor] from the menu bar.
(Selectable at batch monitor only.)
Display screen

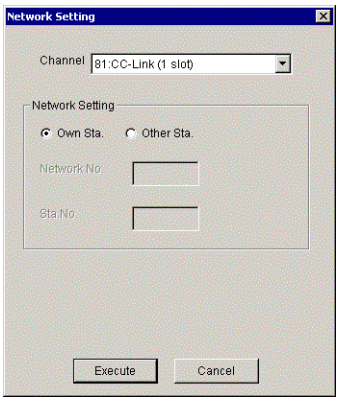


Item	Content
(1) Device information	Displays the current device status. See Section 5.5.9 on how to change the display form.
(2) Network status	Displays the network status currently set. See Section 5.5.4 on how to set the network.
(3) Data Format	Shows the display form and device types being displayed (word device and bit device). See Section 5.5.5 on how to change the device type. And, see Section 5.5.9 on how to change the display form.

5.5.3 Specifying monitor target

Sets the network to be used for device monitoring.
Set the destination when starting the device monitor utility.

Selecting the menu
Select [Setting] - [Network Setting] from the menu bar.
Dialog box



Item	Content
Channel	Set the channel to be used.
Network setting	Set the own station and other stations along with network number and station number.

POINT

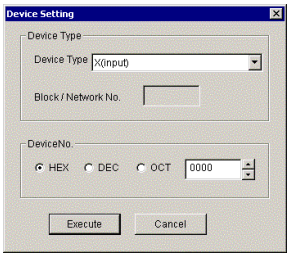
In case of accessing to the multiple PLC system, select other station, and enter "0" to the network No. and value of "logical station number" which set in the MELSECNET/H utility to the station number.

5.5.4 Specifying device to be monitored

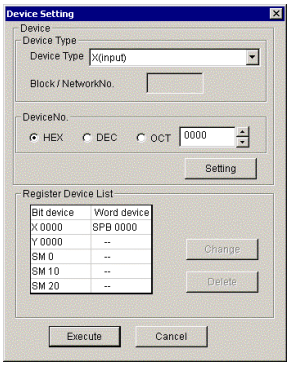
Set the device to be monitored.

Selecting the menu
Select [Setting] - [Device setting] from the menu bar.
Dialog box

Batch monitor



16-point register monitor



Item	Content
Device Type	Set the type, block number, and network number for the device to be monitored.
Device No.	Set the start number of the device to be monitored. (HEX: Hexadecimal, DEC: Decimal, OCT: Octal)
Register Device List	Device List Displays a list of the devices entered.
[Setting] button	Enters the item set in Device type and Device number, then adds it to List of devices entered.
[Change] button	Select the device to be changed and click this button to change the entered data.
[Delete] button	Select the device to be deleted and click this button to delete it from List of devices entered.

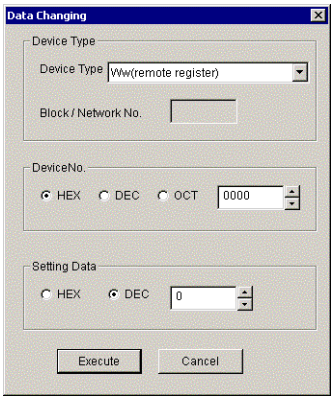
POINT

The only devices that may be monitored using the 16-point register monitor are those that have random access capability. If a device that is not capable of random-access is specified, a device type error (-3) will occur.
See Chapter 7, "Accessible Range and Devices" to determine whether or not a device has random-access capability.

5.5.5 Changing word device values

Changes the specified word device data.

Selecting the menu
Select [Device write] - [Data changing] from the menu bar.
Dialog box



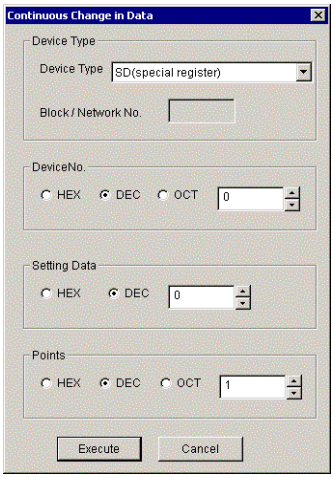
Item	Content
Device Type	Set the type, block number, and network number for the device for which data is to be changed.
Device No.	Set the start number of the device for which data is to be changed. (HEX: Hexadecimal, DEC: Decimal, OCT: Octal)
Setting Data	Set the data to be changed. (HEX: Hexadecimal, DEC: Decimal)

⚠ DANGER	Configure an interlock circuit in the ladder program so that the entire system works safely at all times for data change control to the PLC in operation. Also, determine corrective actions for an event of data communication error between the PC CPU module and PLC CPU in use.

5.5.6 Changing word device value continuously

Change the specified word device data for the number of specified points being set.

Selecting the menu
Select [Device write] - [Continuous Change in Data] from the menu bar.
Dialog box



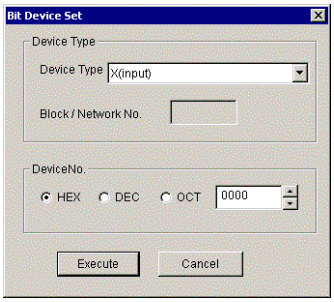
Item	Content
Device Type	Set the type, block number, and network number of the device for which data is to be changed.
Device No.	Set the start number of the device to change data. (HEX: Hexadecimal, DEC: Decimal, OCT: Octal)
Setting Data	Set the data to be continuously changed. (HEX: Hexadecimal, DEC: Decimal)
Points	Set the number of points to perform continuos change of data. (HEX: Hexadecimal, DEC: Decimal, OCT: Octal)

⚠ DANGER	Configure an interlock circuit in the ladder program so that the entire system works safely at all times for data change control to the PLC in operation. Also, determine corrective actions for an event of data communication error between the PC CPU module and PLC CPU in use.

5.5.7 Turning ON/OFF bit device

Turns on/off the specified bit device.

Selecting the menu
Select [Device write] - [Bit device setting (resetting)] from the menu bar.
Dialog box



Item	Content
Device Type	Sets the type, block number, and network number of the bit device to be turned on/off.
Device No.	Sets the number of the bit device to be turned on/off. (HEX: Hexadecimal, DEC: Decimal, OCT: Octal)

DANGER	Configure an interlock circuit in the ladder program so that the entire system works safely at all times for data change control to the PLC in operation. Also, determine corrective actions for an event of data communication error between the PC CPU module and PLC CPU in use.

5.5.8 Switching display form

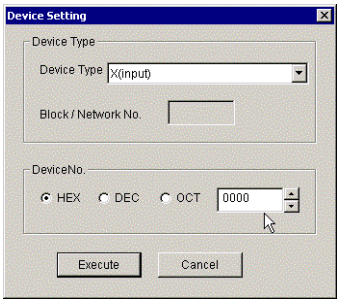
Switches the device monitoring display to the selected form.
The batch monitor and 16-point register monitor have different sets of selectable menus, respectively.

Selecting the menu
Select [Data Format] - [Word(Bit) device] from the menu bar.

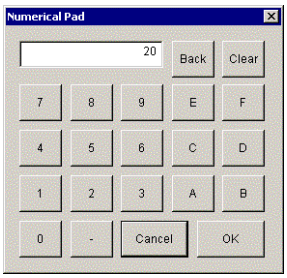
5.5.9 Numerical pad

A numerical pad is available for setting device values and other numeric parameters. To display the numerical pad, select [Options] - [Numerical Pad] from the menu bar.

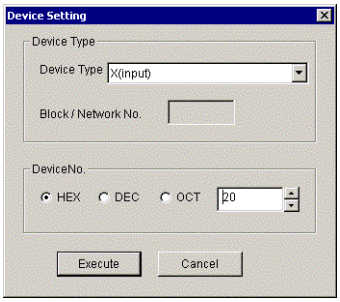
Click inside the numeric value input field.



The numerical pad is displayed. Use the buttons to enter a desired value, and then click the [OK] button.



The value is entered in the system.

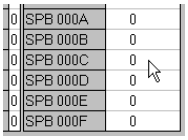


5.5.10 Other operations

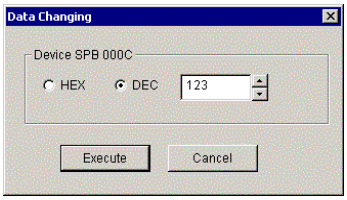
Double-clicking the device number on the screen while monitoring changes data in word device and turns on/off the bit device.

Word device
The following explains how to change the word device.
(Only when the display form is 16 bit.)

Double-click the number of the word device to be changed.



As the following dialog box is displayed, set a desired value.
Click the [Execute] button.

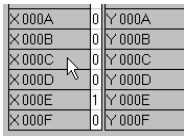


Select [Yes] button in the dialog box shown below if the change is acceptable.
Select [No] button to cancel the operation.

DANGER	Configure an interlock circuit in the ladder program so that the entire system works safely at all times for data change control to the PLC in operation. Also, determine corrective actions for an event of data communication error between the PC CPU module and PLC CPU in use.

Bit device
The following explains how to turn on/off the bit device.
However, this operation is available only when the display orientation is "Vertical Indication."

Double-click the number of the bit device to be changed.



Select [Yes] button in the dialog box shown below if the change is acceptable.
Select [No] button to cancel.

DANGER	Configure an interlock circuit in the ladder program so that the entire system works safely at all times for data change control to the PLC in operation. Also, determine corrective actions for an event of data communication error between the PC CPU module and PLC CPU in use.

6 Functions and Programming

This chapter describes bus interface functions and MELSEC data link functions provided by PPC-DRV-01.

6.1 Outline of Functions

Use of functions provided by PPC-DRV-01 is required to access to and control PLC CPU or the modules from the user program. The following summarizes the uses of the functions.

Function type	Use
Bus interface functions	(1) Input/output control on input and output module controlled by PC CPU module. (2) Access to the buffer memory of intelligent functional module controlled by PC CPU module.
MELSEC data link functions	(1) Access to PLC CPU on the same system as PC CPU module. (2) Access to PLC CPUs of other stations via MELSECNET/H module and CC-Link module controlled by PC CPU module.

6.2 Function List

This section describes bus interface functions and MELSEC data link function provided by PPC-DRV-01.

6.2.1 Bus interface function list

The following lists bus interface functions.

Function name	Function
QBF_Open	Opens the bus.
QBF_Close	Closes the bus.
QBF_X_In_Bit	Performs X 1-point input.
QBF_X_In_Word	Reads X in word unit.
QBF_X_In	Reads specified number of bits from specified bit position of X.
QBF_Y_Out_Bit	Performs 1-point output for Y.
QBF_Y_Out_Word	Writes Y in word unit.
QBF_Y_Out	Writes specified number of bits from specified bit position of Y.
QBF_Y_In_Bit	Inputs a Y point. Perform 1-point input for Y.
QBF_Y_In_Word	Reads Y in word unit.
QBF_Y_In	Reads the specified number of bits from specified bit position of Y.
QBF_ToBuf	Writes to buffer memory of intelligent functional module.
QBF_FromBuf	Reads from buffer memory of intelligent functional module.
QBF_UnitInfo	Return the module configuration information.
QBF_StartWDT	Sets the interval of the WDT and start up the WDT.
QBF_ResetWDT	Reset the WDT.
QBF_StopWDT	Stop the WDT.
QBF_ReadStatus	Reads PC CPU module information.
QBF_ControlLED	Control LED s on PC CPU module.
QBF_Reset	Reset the bus.
QBF_WaitEvent	Wait for event interrupt from ladder program (G.INT instruction).
QBF_WaitUnitEvent	Wait for event interrupt from module.
QBF_ControlProgram	Control execution of ladder program.

POINT
Refer to bus interface function HELP of PCC-DRV-01 for details of bus interface functions.

6.2.2 MELSEC data link function list

The following lists MELSEC data link functions.

Function name	Function
mdOpen	Opens communication loop.
mdClose	Closes communication loop.
mdSend	Performs batch write of devices.
mdReceive	Performs batch read of devices.
mdRandW	Writes device randomly.
mdRandR	Reads device randomly.
mdDevSet	Sets bit device.
mdDevRst	Resets bit device.
mdTypeRead	Reads the type of PLC CPU.
mdControl	Remotes RUN/STOP/PAUSE.
mdInit	Refreshes the PLC device address table.
mdBdModSet	Sets mode of network unit controlled by PC CPU module.
mdBdModRead	Reads mode of network unit controlled by PC CPU module.
mdBdLedRead	Reads LED information of network unit controlled by PC CPU module.
mdBdSwRead	Reads switch status of network unit controlled by PC CPU module.
mdBdVerRead	Reads version information of network unit controlled by PC CPU module.

POINT

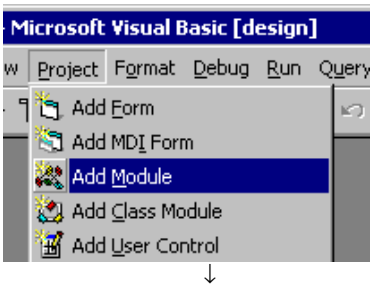
Refer to MELSEC data link function HELP of PCC-DRV-01 for details of MELSEC data link functions.

6.3 Settings for Using Functions

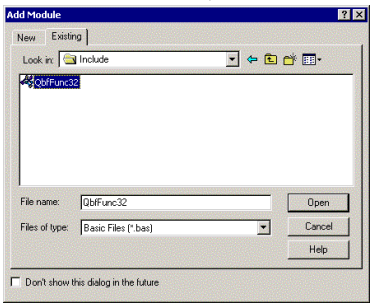
This section describes settings operations for using functions.

6.3.1 Using Microsoft Visual Basic 6.0

This section describes settings operations for using Visual Basic 6.0.



1. Start up Visual Basic 6.0 and select [Project] – [Add Module] menu.



2. Add a module. Select “Existing” tab and select the following files.
(1) When using bus interface function:
Select “QBFFUNC32.BAS”

“QBFFUNC32.BAS” has been stored in the folder below upon installation.

<User-specified folder>-<QBF>-<QBFTOOL>-
<INCLUDE>

(2) When using MELSEC data link function:
Select “MDFUNC.BAS”

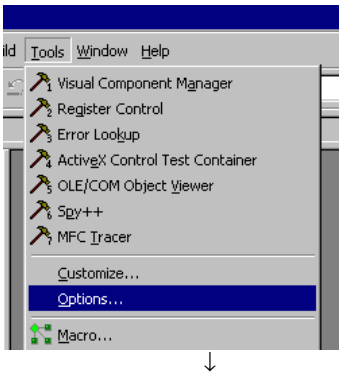
“MDFUNC.BAS” has been stored in the folder below upon installation.

<MELSEC>-<COMMON>-<INCLUDE>

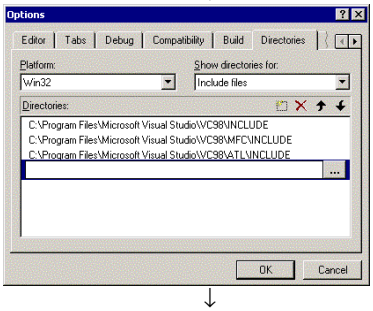
6.3.2 Using Microsoft Visual C++ 6.0

This section describes settings operations for using Visual C++ 6.0.

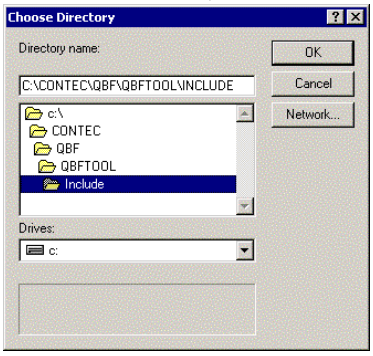
When specifying include file.



1 Start up Visual C++ 6.0 and select [Tools] – [Options] menu.



2. Select the "Directories" tab and set "show directories for" to "Include files."



3. Double-click on item to be set and browse the folder storing include files.
(1) When using bus interface function:
Select a folder storing “QBFFUNC32.H”

“QBFFUNC32.H” has been stored in the folder below upon installation.

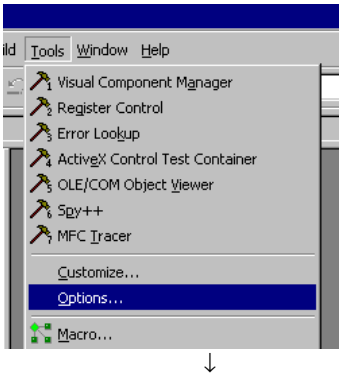
<User-specified folder>-<QBF>-<QBFTOOL>-
<INCLUDE>

(2) When using MELSEC data link function:
Select a folder storing “MDFUNC.H”

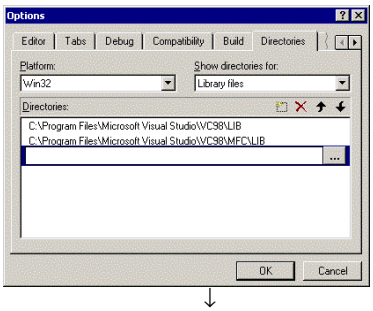
“MDFUNC.H” has been stored in the folder below upon installation.

<MELSEC>-<COMMON>-<INCLUDE>

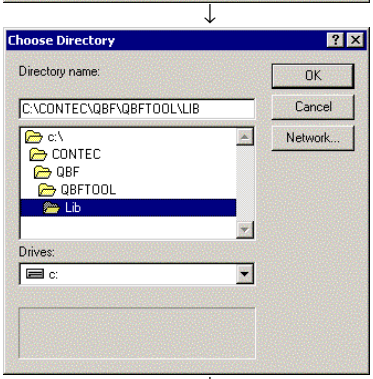
When specifying library files



1. Start up Visual C++ 6.0 and select [Tools] – [Options] menu.



2. Select “Directory” tab and set "show directories for" to “Library files.”



3. Double-click on item to be set and browse the folder storing include files.
(1) When using bus interface function:
Select a folder storing “QBFFUNC32.LIB”

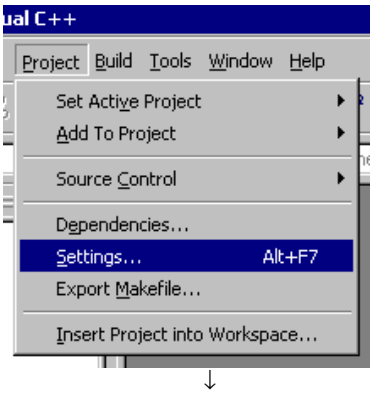
“QBFFUNC32.LIB” has been stored in the folder below upon installation.

<User-specified folder>-<QBF>-<QBFTOOL>-
<LIB>

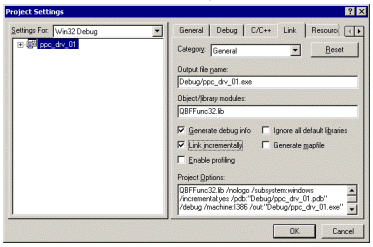
(2) When using MELSEC data link function:
Select a folder storing “MDFUNC32.LIB”

“MDFUNC32.LIB” has been stored in the folder below upon installation.

<MELSEC>-<COMMON>-<LIB>



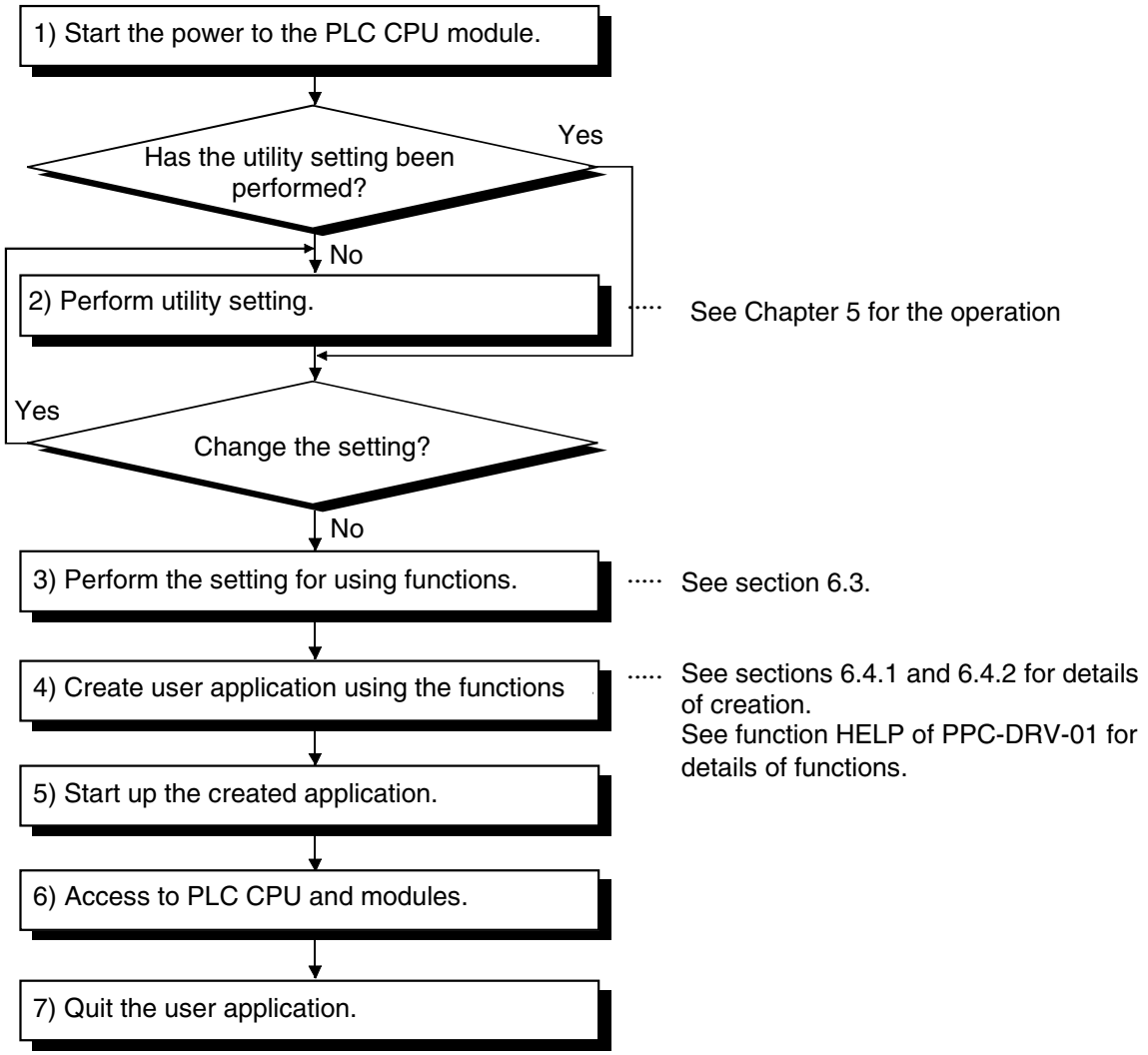
4. Open a work space to create and select [Project] – [Settings] menu.



5. Select “Link” tab, select “General” in category, and enter the following library file name in Object/Library module.
•When bus interface function is used•qbffunc32.lib
•When MELSEC data link function is used•mdfunc32.lib

6.4 Programming Procedures

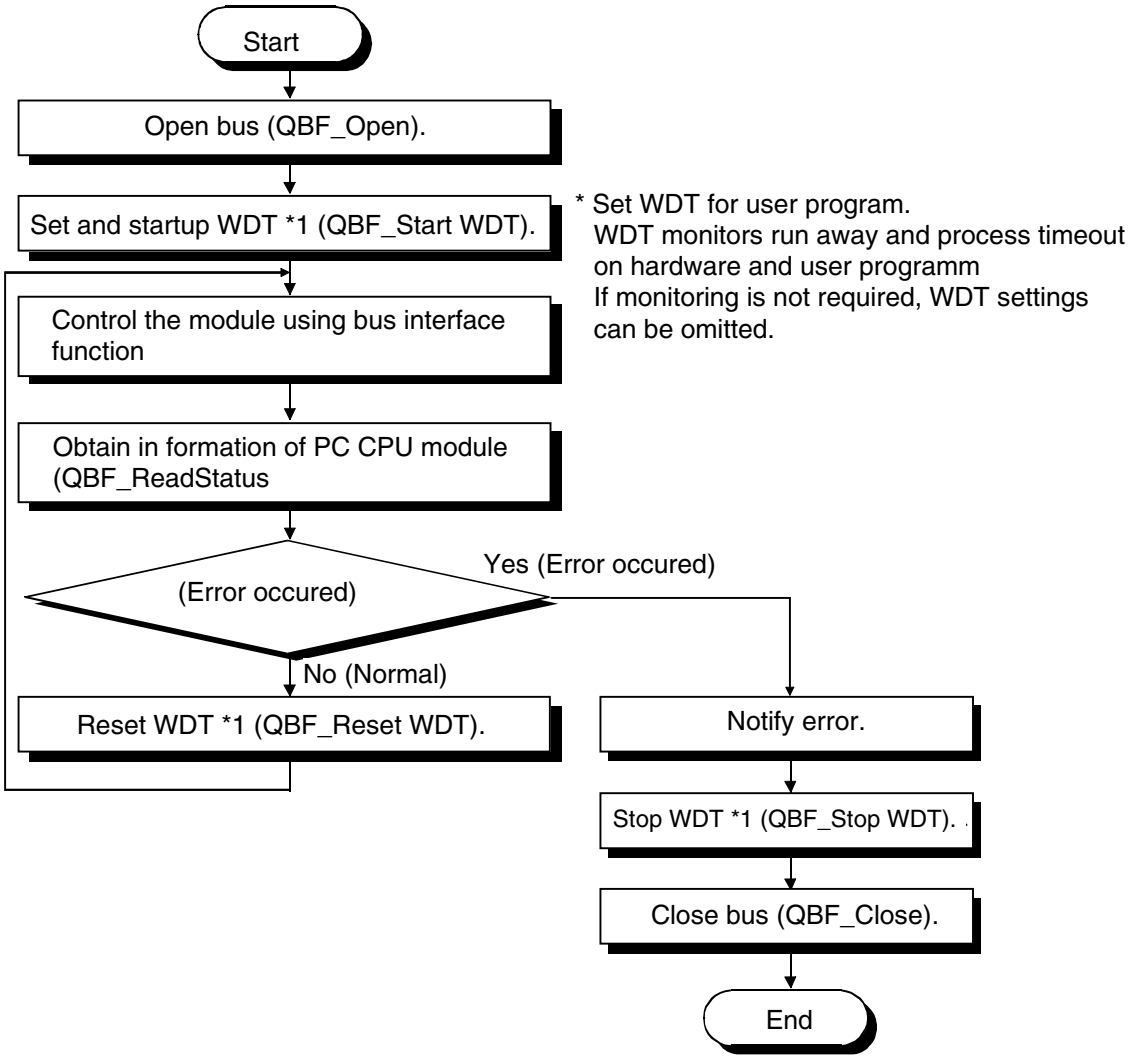
The following shows the procedures of programming with bus interface functions and MELSEC data link functions.
The procedures assume that PPC-DRV-01 has already been installed.



6.4.1 Using bus interface function

The following shows the procedures of programming with bus interface functions.

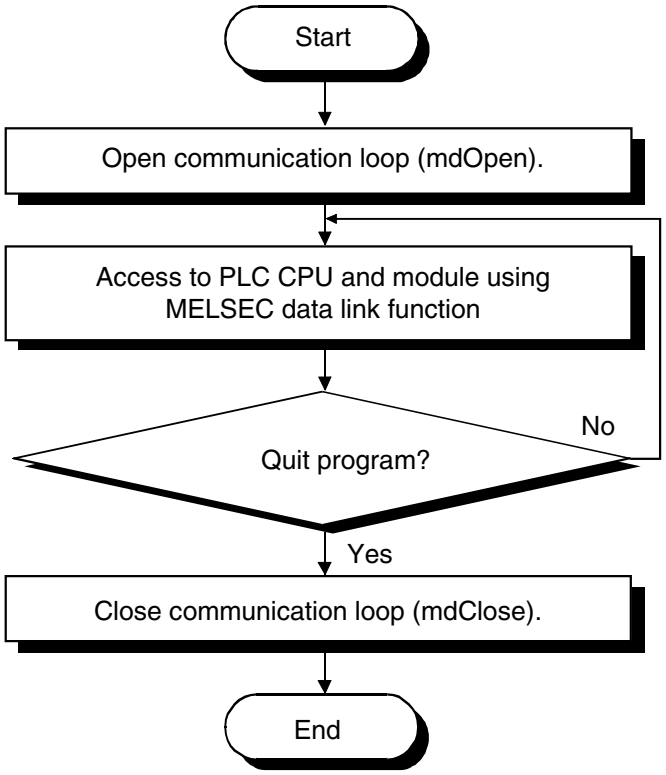
Programming outline
The following figure shows an outline of programming process using bus interface functions.



6.4.2 Using MELSEC data link functions

The following shows the procedures of programming with MELSEC data link functions.

Programming procedures
The following shows an outline of creating user program with MELSEC data link functions.



Cautions when using the MELSEC Data Link function.
Cautions when programming
Perform the processing for opening and closing a data link function (mdOpen, mdClose) only once at the beginning and end of a program. Repeating opening and closing of a communication loop for each transaction will degrade the communication performance.
When a function is first executed by adding a corresponding device, this acquires PLC information in detail. For that reason, the initial function execution time becomes long.
Simultaneous remote access to 9 or more stations from PC CPU module using utilities, user program provided by PPC-DRV-01, and Mitsubishi-product software package may result in degraded communication performances.
Limit the number of stations to 8 or less for simultaneous remote station access from PC CPU module.
Cautions when accessing to own station devices and other station PLC devices
Depending on link status of own station and other stations, interlocking is required.
Data is valid only when the following conditions are satisfied.
<For MELSECNET/H>
Access to a cyclic device (MELSECNET/H module X, Y, B, W)
Writing data to and reading them from the own station cyclic device is valid only if the own station's handshaking status (SB47H) and the own station's cyclic status (SB49 H) bit goes On (normal communications) and the own station's module status (SB20 H) goes Off (Normal). However, even if the above conditions are not established, writing and reading processing to the MELSECNET/H module ends normally.
Other station transient access (remote operation of and device access to other station's PLC CPU).
In addition to a device which checks the cyclic device's access, access is possible if the accessing station's handshake status (the bits pertaining to the opposite station being communicated with when SW70 H to 73 H are read by the own station) and the cyclic status (the bits pertaining to the opposite station being communicated with when SW74 H to 77 H are read by the own station) are Off (normal communications).

6.5 Channels

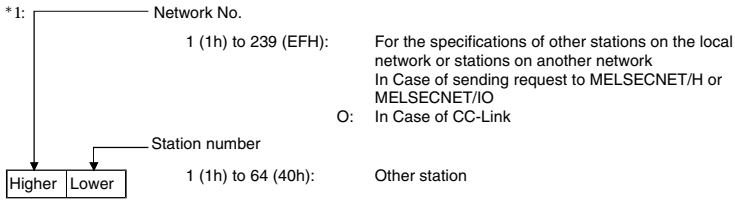
The following summarizes channels used for MELSEC data link functions.

No.	Channel name	Description
12	Q series bus interface	Used for communication via bus.
51•54	MELSECNET/10•/H (1st through 4th)	Used for communication via MELSECNET/H module controlled by PC CPU module. Channel numbers are assigned starting from 51 in the order of input/output numbers.
81•84	CC-Link (1st through 4th)	Used for communication via CC-Link module controlled by PC CPU module. Channel numbers are assigned starting from 81 in the order of input/output numbers.

6.6 Station Number Setting

The following is the channel used by the MELSEC data-link function:

Communication	Station number specification
MELSECNET/H	Own station: 255(FFh) Other station: *1 Control station : 0
CC-Link	Own station: 255(FFh) Other station : *1, *2



<Logical station No. setting method>
Set "O" in the upper byte of the above station No. (network No.) and designate the logical station No. in the lower byte /station No.)
The logical station No. designation range:
1 (1h) to 64 (40h) Q-series bus interface communication
65 (41h) to 239 (EFh): MELSECNET/H communication and CC-Link communication

*2: CC-Link communication does not allow specifying station number “64” except for buffer memory access.

6.7 Device Type

Either code number or device name is allowed for a device type to be used in MELSEC data link function.

Common device type

Device type			Device
Code specification		Device name specification	
Decimal	Hexadecimal		
1	1H	DevX	X
2	2H	DevY	Y
3	3H	DevL	L
4	4H	DevM	M
5	5H	DevSM	Special M (SM), SB (link special B for MELSECNET/10, MELSECNET/H and CC-Link)
6	6H	DevF	F
7	7H	DevTT	T (contact)
8	8H	DevTC	T (coil)
9	9H	DevCT	C (contact)
10	AH	DevCC	C (coil)
11	BH	DevTN	T(current value)
12	CH	DevCN	C(current value)
13	DH	DevD	D
14	EH	DevSD	Special D (SD), SW (link special W for MELSECNET/10, MELSECNET/H and CC-Link)
15	FH	DevTM	T(set value main)
16	10H	DevTS	T(set value sub1)
16002	3E82H	DevTS2	T(set value sub2)
16003	3E83H	DevTS3	T(set value sub3)
17	11H	DevCM	C (set value main)
18	12H	DevCS	C(set value sub1)
18002	4652H	DevC2	C(set value sub2)
18003	4653H	DevC3	C(set value sub3)
19	13H	DevA	A
20	14H	DevZ	Z
21	15H	DevV	V(index register)
22	16H	DevR	R(file register)
22001•22256	55F1H•56F0H	DevER1•DevER256	ER(extended file register)
23	17H	DevB	B
24	18H	DevW	W
25	19H	DevQSB	Q/QnA link special relay(on Q/QnACPU)
26	1AH	DevSTT	Retentive timer(contact)
27	1BH	DevSTC	Retentive timer(coil)
28	1CH	DevQSW	Q/QnA link special register (on Q/QnACPU)
30	1EH	DevQV	Q/QnA edge relay
35	23H	DevSTN	Retentive timer(current value)
1001•1255	3E9H•4E7H	DevLX1•DevLX255	Direct link input
2001•2255	7D1H•8CFH	DevLY1•DevLY255	Direct link output
23001•23255	59D9H•5AD7H	DevLB1•DevLB255	Direct link relay
24001•24255	5DC1H•5EBFH	DevLW1•DevLW255	Direct link register
25001•25255	61A9H•62A7H	DevLSB1•DevLSB255	Direct link special relay(other station side)
28001•28256	6DF1H•6E5FH	DevLSW1•DevLSW256	Direct link special register(other station side)
29000•29256	7148H•7247H	DevSPG0•DevSPG256	Special direct buffer register

CC-Link specific device type

Device type		Device name designation	Device
Code designation			
Decimal	Hexadecimal		
1	1H	DevX	Own station RX
2	2H	DevY	Own station RY
5	5H	DevSM	Own station SB (link special B for CC-Link)
14	EH	DevSD	Own station SW (link special W for CC-Link)
33	21H	DevMRB	Own station random access buffer
36	24H	DevWw	Own station link register (for sending)
37	25H	DevWr	Own station link register (for receiving)
50	32H	DevSPB	Own station buffer memory
32768	8000H	DevRBM	Other station buffer memory *1
32800	8020H	DevRAB	Other station random access buffer *1
32801	8021H	DevRX	Other station RX *1
32802	8022H	DevRY	Other station RY *1
32804	8024H	DevRW	Other station link register * 1
32867	8063H	DevSB	Other station SB (link special B for CC-Link) *1
32868	8064H	DevSW	Other station SW (link special W for CC-Link) *1

*1: Cannot be used with the mdRandR, mdRandW, mdDevSet and mdDevRst functions.

6.8 Data communication via PLC Shared Memory

This section describes data communication using PLC shared memory on a multiple CPU system.

Configuration of PLC shared memory
The following shows shared memory configuration of PC CPU module, PLC CPU and motion CPU and access availability to the memory.

Address		Host machine (PC CPU module)		Other machine (PC CPU and motion CPU)	
		Writing *1	Reading	Writing	Reading *2
0h 1FFh	Own machine operation information area	Not possible	Not possible	Not possible	Possible
200h 7FFh	System area	Not possible	Not possible	Not possible	Not possible
800h	Automatic refresh area	Possible	Not possible	Not possible	Not possible
	User´s free area	Possible	Not possible	Not possible	Possible
FFFh					

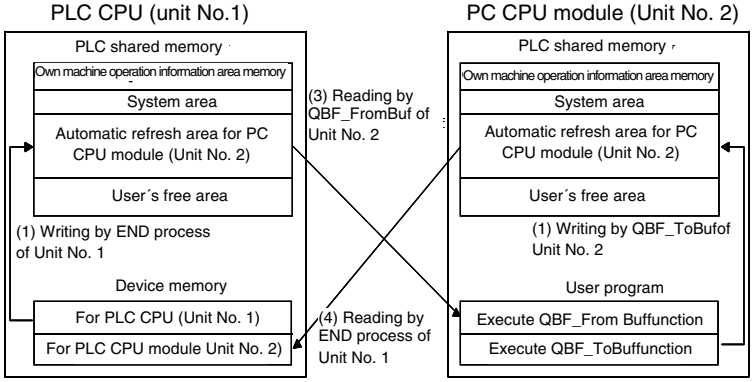
*1: For writing in automatic refresh area and user´s free area of own machine (PC CPU module), use QBF-ToBuf function
*2: For reading from own machine operation information area and user-specified area of other machine (PLC CPU and motion CPU), use QBF-FromBuffunction.

Area name	Description
Own machine operation information area *1	Area storing error information and operating status of own machine.
System area	Area used by system.
Automatic refresh area	Area that is automatically refreshed by PLC CPU and motion CPU device, with automatic refresh settings. The size depends on parameter settings.
User's free area	Area that is freely available. The area size depends on parameter settings of automatic refresh area.

*1: The following summarizes details of own machine operation information area of PC CPU module.

Shared memory address	Name	Details	Description
0H	Availability of information	Information Availability flag	The area to confirm if information is stored in the own machine's operation information area (1H to 1FH,) or not.
1H	Diagnostic error	Diagnostic error number	The numbers of errors triggered during diagnostics is stored with BIN code.
2H	Time the diagnosis error occurred	Time the diagnosis error occurred	The year and month that the error number was stored in the common PLC memory's 1H address is stored with two digits of the BCD code.
3H			The day and time that the error number was stored in the PLC shared memory's 1H address is stored with two digits of the BCD code.
4H			The minutes and seconds that the error number was stored in the PLC shared memory's 1H address is stored with two digits of the BCD code.
5H	Error information identification code	Error information identification code	Stores an identification code to determine what error information has been stored in the common error information and individual error information.
6H•10H	Common error information	Common error information	The common information corresponding with the number of the error triggered during diagnostic is stored.
11H•1BH	Individual error information	Individual error information	The individual information corresponding with the number of the error triggered during diagnostic is stored.
1CH	Vacant	•	Cannot be used
1DH	Switch status	CPU switch status	Stores the PC CPU module's switch status.
1EH	LED status	CPU-LED status	Stores the PC CPU module's LED bit pattern.
1FH	PC CPU module operation status	PC CPU module operation status	Stores the PC CPU module's operation status.

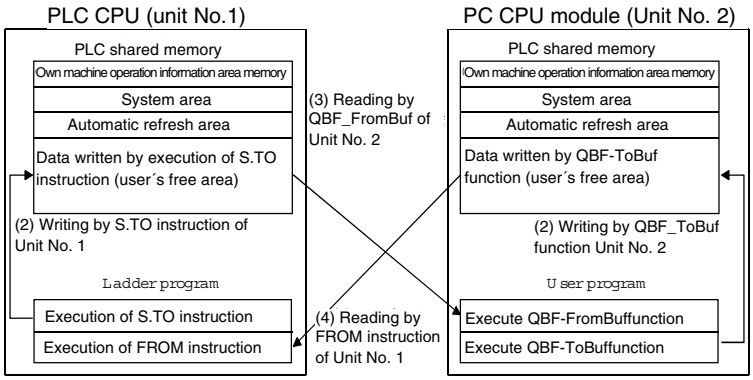
When using automatic refresh settings
The following shows an outline of operation using automatic refresh setting.



Operation of END process on PLC CPU (Unit No.1)
(1)•Transfer device memory data for PLC CPU (Unit No.1) to automatic refresh area of PLC shared memory.
(4)•Transfer data in automatic refresh area of PC CPU module (Unit No.2) to device memory for own machine PC CPU module (Unit No.2).
Operation upon executing bus interface function of PC CPU module (Unit No.2)
(2)•By executing QBF_ToBuf function, transfer the settings of user program to automatic refresh area of own's PLC shared memory area.
(3)•By executing QBF_FromBuf function, data in automatic refresh area of PLC CPU (Unit No.1) to user program.

POINT
Refreshing in (4) above is performed by Unit No.1 END process after execution of (2) in the figure, execution of QBF_ToBuf function.

When using no automatic refresh settings
The following shows an outline of operation not using automatic refresh setting.



Operation upon executing ladder program on PLC CPU (Unit No.1)
(1)•By executing S.TO instruction, write data in user's free area of PLC shared memory on PLC CPU (Unit No.1).
(4)•By executing FROM instruction, read data in user's free area of PC CPU module (Unit No.2) onto a specified device of PLC CPU (Unit No.1).
Operation upon executing bus interface function on PC CPU module (Unit No.2)
(2)•By executing QBF_ToBuf function, write data on user's free area of PLC shared memory on PC CPU module.
(3)•By executing QBF_FromBuf function, read data on user's free area of PLC CPU (Unit No.1) onto user program.

POINT
S.TO instruction and FROM instruction are not provided for motion CPU. Use automatic refresh settings for communication between PC CPU module and motion CPU.

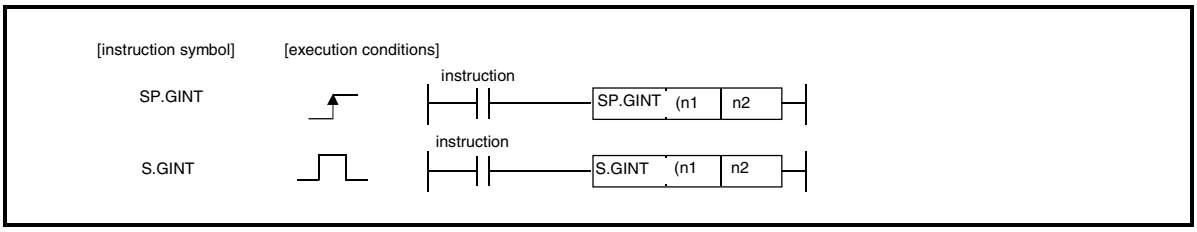
6.9 Event Notify Function

This section describes a function that notify events from PLC CPU to user program on PC CPU module, using PC CPU module special instruction (S(P).GINT).

[Special sequence instruction for PC CPU module]
Interrupt instruction on PC CPU module•S(P).GINT

	Available devices										
	Internal device (System, user)		File register	Bit digits specified	Indirect specified	MELSECNET/10(H) Direct J \		Special unit U \G	Index register Z	Constant K H	Others
	Bit	Word				Bit	Word				
n1	•	•	•	•	•	•	•	•	•	•	•
n2	•	•	•	•	•	•	•	•	•	•	•

•: Specifiable -: Not specifiable
*: index modification is allowed for (n1).



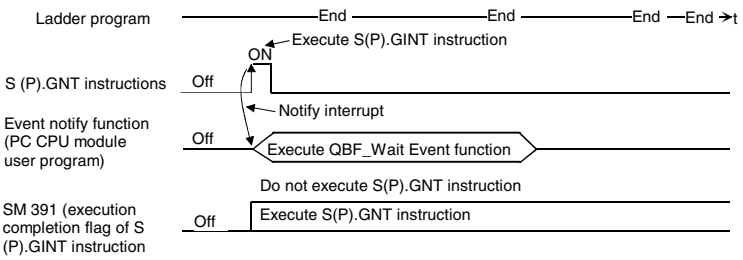
[Setting data]

Setting data	Settings	Data format
(n1)	Start I/O number of applicable CPU ÷ 16 Actual values to be specified are as follows: Unit No.1: 3E0H Unit No.2: 3E1H Unit No.3: 3E2H Unit No.4 •3E3H	BIN16 bit
(n2)	Interrupt pointer number (0•15)	BIN16 bit

[Control operation]
The process generates an interrupt to PC CPU module, upon startup (OFF -> ON) of executing S(P).GINT instruction by ladder program.
The PC CPU module, upon interrupt from PLC CPU, executes a bus interface function (QBF_WaitEvent) that has been programmed in user program.

Upon completion of transferring instruction to PC CPU module, SM391 flag (completion of S(P).GINT instruction) of PLC CPU is turned on.
Upon failure of transferring instruction from PLC CPU to PC CPU module, SM391 flag (completion of S(P).GINT instruction) of PLC CPU is turned off.

[Operation timing]

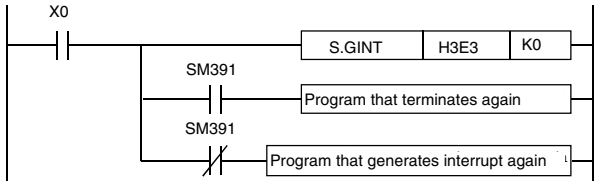


[Errors]
The following cases result in computation error, turning on error flag (SM0) of PLC CPU and storing an error code in SD0.

Error code *1	Error cause	Action
2100	A machine already reserved with "applicable CPU start I/O number ÷ 16(n1)" was specified.	Check program and modify it into a correct ladder program.
2114	Own machine was specified by "applicable CPU start I/O number ÷ 16(n1)."	
2117	A module not supporting S(P).GINT instruction was specified by "applicable CPU start I/O number ÷ 16(n1)."	
4100	"0 to 3DFH•3E4H" was specified by "applicable CPU start I/O number ÷ 16(n1)."	

*1: 0000H(Normal)

[Program example]
<Example>
Ladder program that gevnerates interrupt on Unit No.4 PC CPU module.

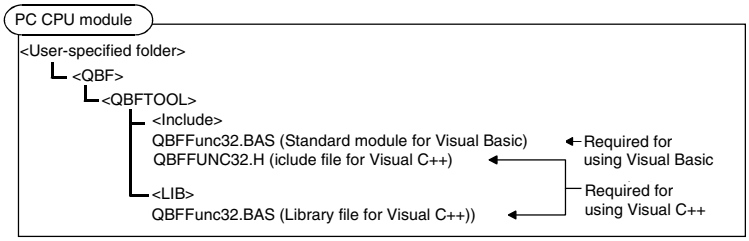


Creating User Program on Developing PC

The following files are required for preparing user programs on a developing PC. Make copies of the files from PC CPU module to a developing PC to prepare user programs.
Follow the procedures in section 6.3 “Settings for Using Functions” for settings to use functions.
(When specifying a folder for using functions on a developing PC, specify a folder storing the files copied from PC CPU module.)

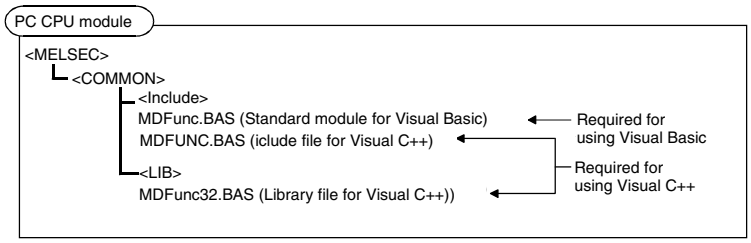
Bus interface functions

Files in the folders listed below are required for using bus interface functions. Copy the following files from PC CPU module to a developing PC.



MELSEC data link functions

Files in the folders listed below are required for using MELSEC data link functions. Copy the following files from PC CPU module to a developing PC.



6.10 About Sample Program

Installation of PPC-DRV-01 onto PC CPU module registers the following sample programs. The sample programs are provided for reference purposes that are used when preparing a user program. Use the sample programs on user's own authority.

Sample programs for bus interface functions
Sample programs for bus interface functions are registered in <User-specified folder> - <Qbf> - <Qbftool> - <Sample>.
The following describes the folders in the Sample folder:

(a) Vb folder(for Visual Basic)
1) QBFtest folder
Sample program for bus interface functions in general

(b) Vc folder(for Visual C++)
1) QBFtest folder
Sample program for bus interface functions in general
2) Shutdown folder
Sample program for shutdown test

Sample programs for MELSECNET/H communication
Sample programs for MELSECNET/H communication are registered in <User-specified folder> - <Qbf> - <Mneth> - <Sample>.

The following describes the folders in the Sample folder:

(a) Vb folder(for Visual Basic)
1) Demo folder
Sample program that read D0.
2) Mtest folder
Sample program for MELSEC data link functions in general

(b) Vc folder(for Visual C++)
1) Mtest folder

File name	Description
Mtest1.c	Sample program for MELSEC data link functions in general.
Netsmp1.c	Sample program that reads device D of station number “1.”

Sample programs for CC-Link communication
Sample programs for CC-Link communication are registered in <User-specified folder> - <Qbf> - <Cclink> - <Sample>. The following describes the folders in the Sample folder:

(a) MasterStation folder
1) PositioningSystem folder

Folder name		Description	Programming language
Vb		Sample program for initialization, positioning, zero-return, and JOG operation on AJ65BT-D75P2-S3.	Visual Basic
Vc	Initialize	Sample program for initialization on AJ65BT-D75P2-S3.	Visual C++
	Jog	Sample program for JOG operation on AJ65BT-D75P2-S3.	
	Positioning	Sample program for positioning on AJ65BT-D75P2-S3.	
	ZeroReturn	Sample program for zero-return on AJ65BT-D75P2-S3.	

2) R2 folder

Folder name		Description	Programming language
Vb		Sample program for initialization, transmission and reception on AJ65BT-R2.	Visual Basic
Vc	Rs2testB	Sample program for initialization of AJ65BT-R2.	Visual C++
	Rs2testR	Sample program for reception on AJ65BT-R2.	
	Rs2testS	Sample program for transmission on AJ65BT-R2.	

3) RemoteDevice folder

Folder name		Description	Programming language
64dav	Vb	Sample program for digital-analog conversion output on AJ65BT-64DAV.	Visual Basic
	Vc		Visual C++

4) RemoteIO folder

Folder name	Description	Programming language
Vb	Sample program for remote I/O reading and writing on remote I/O station.	Visual Basic
Vc		Visual C++

(b) MDFunction folder

1) Vb folder(for Visual Basic)
Sample programs for MELSEC data link functions (mdOpen•mdClose•mdSend mdReceive)

2) Vc folder(for Visual C++)

File name	Description
Mtest1.c	Sample program for MELSEC data link functions in general.
Netsmp1.c	Sample program for reading device D of station number “0.”

7 Accessible Range and Devices

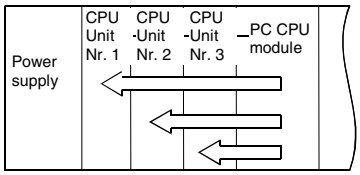
This chapter describes accessible range and accessible devices when MELSEC data link functions are used.

7.1 Multiple PLC System Access

This section describes accessible range and accessible devices by operation of multiple PLC system access.

7.1.1 Accessible range

Only QCPU (Q mode) and motion CPU are accessible under operation of multiple PLC system access.



7.1.2 Accessible Devices

This section describes accessible devices under multiple PLC system access operation.

POINT

"Batch" and "Random" in the table indicates the following operations:
Batch: Batch writing (mdSend)•Batch reading (mdReceive)
Random: Random writing (mdRandW)•Random reading (mdRandR)•Bit set (mdDevSet)•Bit reset (mdDevRst)

When accessing to PC CPU module (own machine) and motion CPU (other machine)
The following shows accessible devices under operations of accessing to PC CPU module (own machine) and motion CPU (other machine).

Device		Access target	
		PC CPU module (Own machine)	Motion CPU (Other machine)
Shared memory	Batch	•	
	Random		

QCPU(Q mode)access (Other machine)
The following lists accessible devices by QCPU(Q mode)access. (Other machine)

Device		Access target
		QCPU(Q mode)
X	Batch	•
	Random	
Y	Batch	•
	Random	
L	Batch	•
	Random	
M	Batch	•
	Random	
Special M(SM)•SB	Batch	•
	Random	
F	Batch	•
	Random	
T(contact)	Batch	•
	Random	×
T(coil)	Batch	•
	Random	×
C(contact)	Batch	•
	Random	×
C(coil)	Batch	•
	Random	×
T(current value)	Batch	•
	Random	
C(current value)	Batch	•
	Random	
D	Batch	•
	Random	
Special D(SD)•SW	Batch	•
	Random	
T(set value main)	Batch	×
	Random	
T(set value sub1)	Batch	×
	Random	
T(set value sub2)	Batch	×
	Random	
T(set value sub3)	Batch	×
	Random	
C(set value main)	Batch	×
	Random	
C(set value sub1)	Batch	×
	Random	
C(set value sub2)	Batch	×
	Random	
C(set value sub3)	Batch	×
	Random	
A	Batch	×
	Random	
Z	Batch	•
	Random	
V(index register)	Batch	×
	Random	
R(file register)	Batch	•
	Random	
ER(extended file register)	Batch	•
	Random	
B	Batch	•
	Random	
W	Batch	•
	Random	
Q/QnA link special relay (On Q/QnACPU)	Batch	•
	Random	
Retentive timer(contact)	Batch	•
	Random	×
Retentive timer(coil)	Batch	•
	Random	×

Device		Access target
		QCPU(Q mode)
Q/QnA link special register (On Q/QnACPU)	Batch	•
	Random	
Q/QnA edge relay(On Q/QnACPU)	Batch	•
	Random	
Own station random access buffer	Batch	×
	Random	
Retentive timer(current value)	Batch	•
	Random	
Own station link register (for transmission)	Batch	×
	Random	
Own station link register (for reception)	Batch	×
	Random	
Own station buffer memory	Batch	×
	Random	
Direct link input	Batch	•*1
	Random	×
Direct link output	Batch	•*1
	Random	×
Direct link relay	Batch	•*1
	Random	×
Direct link register	Batch	•*1
	Random	×
Direct link special relay (network unit side)	Batch	•*1
	Random	×
Direct link special register (network unit side)	Batch	•*1
	Random	×
Special direct buffer register	Batch	•*1
	Random	×
Other station buffer memory	Batch	×
	Random	
Other station random access buffer	Batch	×
	Random	
Other station RX	Batch	×
	Random	
Other station RY	Batch	×
	Random	

*1: Not accessible unless MELSECNET/H module is controlled.

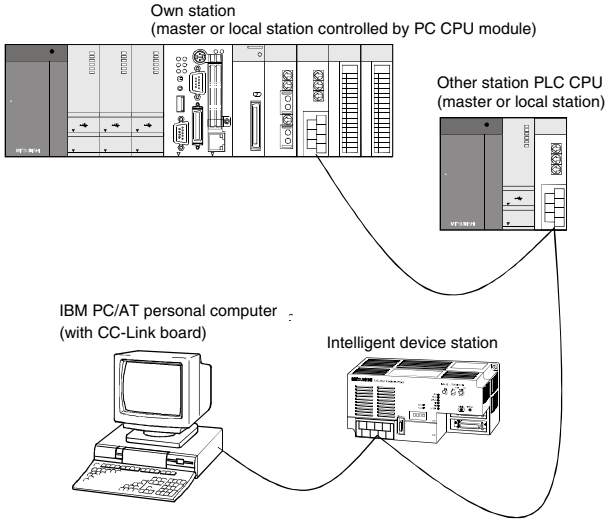
Device		Access target
		QCPU(Q mode)
Other station link register	Batch	×
	Random	
Other station SB	Batch	×
	Random	
Other station SW	Batch	×
	Random	
Shared memory	Batch	•
	Random	

7.2 Access via CC-Link Module

This section describes accessible range and accessible devices via CC-Link module.

7.2.1 Accessible Range

Devices accessible via CC-Link module are only CC-Link master station connected with CC-Link module, PLC CPU of local station, intelligent device station, and PC with CC-Link board installed.



7.2.2 Accessible Devices

This section describes devices accessible via CC-Link module.

POINT
"Batch" and "Random" in the table indicates the following: Batch: Batch writing (mdSend)•Batch reading(mdReceive) Random:Random writing (mdRandW)•Random reading(mdRandR)•bit setting (mdDevSet)• bit resetting(mdDevRst)

Own station accessing
The following lists the devices accessible via the CC-Link module controlled by PC CPU module.

Device		Accessibility
X(RX)	Batch	•
	Random	
Y(RY)	Batch	•
	Random	
SB	Batch	•
	Random	
SW	Batch	•
	Random	
Ww(RWw)	Batch	•
	Random	
Wr(RWr)	Batch	•
	Random	
SPB(Own station buffer memory)	Batch	•
	Random	
MRB(Own station random-access buffer)	Batch	•
	Random	

Other station access
The following Access target CPUs from (1) to (7) are used for description.

No.	Target CPU
(1)	A1NCPU
(2)	A0J2HCPU•A1SCPU(-S1)•A1SHCPU•A1SJHCPU(-S8)•A1SJCPU•A2C(J)CPU•A2NCPU(-S1)•A2SCPU(-S1) • A2SHCPU(-S1)
(3)	A2ACPU(-S1), A2ASCPU(-S1,-S30), A2UCPU(-S1), A2USCPU(-S1), A2USHCPU-S1, Q02(H)CPU-A, Q06HCPU-A
(4)	A3NCPU•A3ACPU•A3UCPU
(5)	A4UCPU
(6)	Q2ACPU(-S1), Q3ACPU, Q4ACPU, Q4ARCPU, Q2ASCPU(-S1), Q2ASHCPU(-S1), Q02(H)CPU, Q06HCPU• Q12HCPU, Q25HCPU
(7)	IBM PC/AT personal computer(CC-Link board)•Intelligent device station

Device		Access target						
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
X	Batch	•	•	•	•	•	•	×
	Random							
Y	Batch	•	•	•	•	•	•	×
	Random							
L	Batch	•	•	•	•	•	•	×
	Random							
M	Batch	•	•	•	•	•	•	×
	Random							
Special M(SM), SB	Batch	•	•	•	•	•	•	×
	Random							
F	Batch	•	•	•	•	•	•	×
	Random							
T(contact)	Batch	•	•	•	•	•	•	×
	Random						×	
T(coil)	Batch	•	•	•	•	•	•	×
	Random						×	
C(contact)	Batch	•	•	•	•	•	•	×
	Random						×	
C(coil)	Batch	•	•	•	•	•	•	×
	Random						×	
T(current value)	Batch	•	•	•	•	•	•	×
	Random							
C(current value)	Batch	•	•	•	•	•	•	×
	Random							
D	Batch	•	•	•	•	•	•	×
	Random							
Special D(SD)•SW	Batch	•	•	•	•	•	•	×
	Random							
T(set value main)	Batch	•	•	•	•	•	×	×
	Random	×	×	×	×	×		
T(set value sub1)	Batch	×	×	•*1	•	•	×	×
	Random			×	×	×		
T(set value sub2)	Batch	×	×	×	×	•	×	×
	Random					×		
T(set value sub3)	Batch	×	×	×	×	•	×	×
	Random					×		
C(set value main)	Batch	•	•	•	•	•	×	×
	Random	×	×	×	×	×		
C(set value sub1)	Batch	×	×	•*1	•	•	×	×
	Random			×	×	×		
C(set value sub2)	Batch	×	×	×	×	•	×	×
	Random					×		
C(set value sub3)	Batch	×	×	×	×	•	×	×
	Random					×		

Device		Access target						
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
A	Batch	•	•	•	•	•	×	×
	Random							
Z	Batch	•	•	•	•	•	•	×
	Random							
V(index register)	Batch	•	•	•	•	•	×	×
	Random							
R(file register)	Batch	×	•	•	•	•	•	×
	Random							
ER(extended file register)	Batch	×	•	•	•	•	•	×
	Random							
B	Batch	•	•	•	•	•	•	×
	Random							

*1: Not accessible for A2ACPU(-S1)

Device		Access target						
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
W	Batch	•	•	•	•	•	•	×
	Random							
Q/QnA link special relay (On Q/QnACPU)	Batch	×	×	×	×	×	•	×
	Random							
Retentive timer(contact)	Batch	×	×	×	×	×	•	×
	Random						×	
Retentive timer(coil)	Batch	×	×	×	×	×	•	×
	Random						×	
Q/QnA link special register (On Q/QnACPU)	Batch	×	×	×	×	×	•	×
	Random							
Own station random access buffer	Batch	×	×	×	×	×	×	×
	Random							
Retentive timer(current value)	Batch	×	×	×	×	×	•	×
	Random							
Own station link register(for transmission)	Batch	×	×	×	×	×	×	×
	Random							
Own station link register(for reception)	Batch	×	×	×	×	×	×	×
	Random							
Own station buffer memory	Batch	×	×	×	×	×	×	×
	Random							
Direct link input	Batch	×	×	×	×	×	•	×
	Random						×	
Direct link output	Batch	×	×	×	×	×	•	×
	Random						×	
Direct link relay	Batch	×	×	×	×	×	•	×
	Random						×	
Direct link register	Batch	×	×	×	×	×	•	×
	Random						×	
Direct link special relay (network unit side)	Batch	×	×	×	×	×	•	×
	Random						×	
Direct link special register (network unit side)	Batch	×	×	×	×	×	•	×
	Random						×	
Special direct buffer register	Batch	×	×	×	×	×	•	×
	Random						×	

Device		Access target						
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
Other station buffer memory *2	Batch	•	•	•	•	•	•	•
	Random	×	×	×	×	×	×	×
Other station random access buffer *2	Batch	•	•	•	•	•	•	•
	Random	×	×	×	×	×	×	×
Other station RX *2	Batch	•	•	•	•	•	•	•
	Random	×	×	×	×	×	×	×
Other station RY *2	Batch	•	•	•	•	•	•	•
	Random	×	×	×	×	×	×	×
Other station link register *2	Batch	•	•	•	•	•	•	•
	Random	×	×	×	×	×	×	×
Other station SB *2	Batch	•	•	•	•	•	•	•
	Random	×	×	×	×	×	×	×
Other station SW *2	Batch	•	•	•	•	•	•	•
	Random	×	×	×	×	×	×	×

*2: Access to buffer memory of CC-Link module (intelligent device station) installed on CPUs.

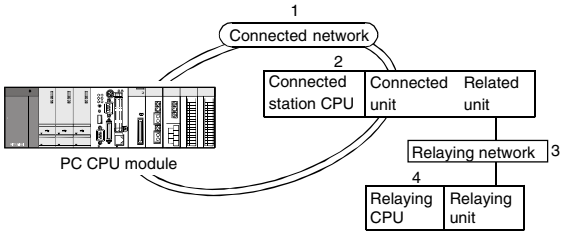
7.3 Access via MELSECNET/H Module

This section describes accessible range and accessible devices via MELSECNET/H module.

7.3.1 Accessible Range

This section describes accessible range via MELSECNET/H module.

(1) Configuration



(2) Accessibility table
The following table shows the accessibility.
All own station board and connected station CPU can be accessed.
Relay destination CPU shows the accessibility by •(accessible) or ×(not accessible).

1. Connected network	2. Connected station CPU	3. Relay network	4. Relay destination CPU			
			QCPU		QnACPU	ACPU
			Q mode	A mode		
MELSECNET/H	QCPU (Q mode)	MELSECNET/H	•	×	×	×
		MELSECNET/10	•	•	•	•
		MELSECNET(•)	×	×	×	×
		Ethernet	×	×	×	×
		Computer link	×	×	×	×
		CC-Link	×	×	×	×
MELSECNET/10	QCPU (Q mode)	MELSECNET/H	×	×	×	×
		MELSECNET/10	•	•	•	•
		MELSECNET(•)	×	×	×	×
		Ethernet	×	×	×	×
		Computer link	×	×	×	×
		CC-Link	×	×	×	×

1. Connected network	2. Connected station CPU	3. Relay network	4. Relay destination CPU			
			QCPU		QnACPU	ACPU
			Q mode	A mode		
MELSECNET/10	QnACPU	MELSECNET/H	×	×	×	×
		MELSECNET/10	•	•	•	•
		MELSECNET(•)	×	×	×	×
		Ethernet	×	×	×	×
		Computer link	×	×	×	×
		CC-Link	×	×	×	×
	QCPU (A mode)•ACPU	MELSECNET/H	×	×	×	×
		MELSECNET/10	•	•	•	•
		MELSECNET(•)	×	×	×	×
		Ethernet	×	×	×	×
		Computer link	×	×	×	×
		CC-Link	×	×	×	×

7.3.2 Accessible devices

This section describes devices accessible via MELSECNET/H module.

POINT

"Batch" and "Random" in the table indicates the following:
Batch: Batch writing (mdSend)•Batch reading(mdReceive)
Random:Random writing (mdRandW)•Random reading(mdRandR)•bit setting (mdDevSet)•
bit resetting(mdDevRst)

(1) Host accessing

The following lists the devices accessible via the MELSECNET/H module controlled by PC CPU module.

Device		Accessibility
X(LX)	Batch	•
	Random	
Y(LY)	Batch	•
	Random	
SB	Batch	•
	Random	
SW	Batch	•
	Random	
B(LB)	Batch	•
	Random	
W(LW)	Batch	•
	Random	

(2) Other station access

The following Access target CPUs from (1) to (7) are used for description.

No.	Target CPU
(1)	A1NCPU
(2)	A0J2HCPU•A1SCPU(-S1)•A1SHCPU•A1SJHCPU(-S8)•A1SJCPU•A2C(J)CPU•A2NCPU(-S1)•A2SCPU(-S1)•A2SHCPU(-S1)
(3)	A2ACPU(-S1)•A2ASCPU(-S1, S30)•A2UCPU(-S1)•A2USCPU(-S1)•A2USHCPU-S1•Q02(H)CPU-A•Q06HCPU-A
(4)	A3NCPU•A3ACPU•A3UCPU
(5)	A4UCPU
(6)	Q2ACPU(-S1)•Q3ACPU•Q4ACPU•Q4ARCPU•Q2ASCPU(-S1)•Q2ASHCPU(-S1)•Q02(H)CPU•Q06HCPU•Q12HCPU•Q25HCPU
(7)	IBM PC/AT personal computer(MELSECNET/H board)

Device		Access target						
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
X	Batch	•	•	•	•	•	•	×
	Random							
Y	Batch	•	•	•	•	•	•	×
	Random							
L	Batch	•	•	•	•	•	•	×
	Random							
M	Batch	•	•	•	•	•	•	×
	Random							
Special M(SM)•SB	Batch	•	•	•	•	•	•	×
	Random							
F	Batch	•	•	•	•	•	•	×
	Random							
T(contact)	Batch	•	•	•	•	•	•	×
	Random						×	
T(coil)	Batch	•	•	•	•	•	•	×
	Random						×	
C(contact)	Batch	•	•	•	•	•	•	×
	Random						×	
C(coil)	Batch	•	•	•	•	•	•	×
	Random						×	
T(current value)	Batch	•	•	•	•	•	•	×
	Random							

Device		Access target						
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
C(current value)	Batch	•	•	•	•	•	•	×
	Random							
D	Batch	•	•	•	•	•	•	×
	Random							
Special D(SD)•SW	Batch	•	•	•	•	•	•	×
	Random							
T(set value main)	Batch	•	•	•	•	•	×	×
	Random	×	×	×	×	×		
T(set value sub1)	Batch	×	×	•*1	•	•	×	×
	Random			×	×	×		
T(set value sub2)	Batch	×	×	×	×	•	×	×
	Random					×		
T(set value sub3)	Batch	×	×	×	×	•	×	×
	Random					×		
C(set value main)	Batch	•	•	•	•	•	×	×
	Random	×	×	×	×	×		
C(set value sub1)	Batch	×	×	•*1	•	•	×	×
	Random			×	×	×		
C(set value sub2)	Batch	×	×	×	×	•	×	×
	Random					×		
C(set value sub3)	Batch	×	×	×	×	•	×	×
	Random					×		
A	Batch	•	•	•	•	•	×	×
	Random							
Z	Batch	•	•	•	•	•	•	×
	Random							
V(index register)	Batch	•	•	•	•	•	×	×
	Random							
R(file register)	Batch	•	•	•	•	•	•	×
	Random							
ER(extended file register)	Batch	•	•	•	•	•	•	×
	Random							
B	Batch	•	•	•	•	•	•	×
	Random							

*1: Not accessible for A2ACPU(-S1)

Device		Access target						
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
W	Batch	•	•	•	•	•	•	×
	Random							
Q/QnA link special relay(On Q/QnACPU)	Batch	×	×	×	×	×	•	×
	Random							
Retentive timer(contact)	Batch	×	×	×	×	×	•	×
	Random						×	
Retentive timer(coil)	Batch	×	×	×	×	×	•	×
	Random						×	
Q/QnA link special register(On Q/QnACPU)	Batch	×	×	×	×	×	•	×
	Random							
Own station random access buffer	Batch	×	×	×	×	×	×	×
	Random							
Retentive timer(current value)	Batch	×	×	×	×	×	•	×
	Random							
Own station link register(for transmission)	Batch	×	×	×	×	×	×	×
	Random							
Own station link register (for reception)	Batch	×	×	×	×	×	×	×
	Random							
Own station buffer memory	Batch	×	×	×	×	×	×	×
	Random							
Direct link input	Batch	×	×	×	×	×	•	×
	Random						×	
Direct link output	Batch	×	×	×	×	×	•	×
	Random						×	
Direct link relay	Batch	×	×	×	×	×	•	×
	Random						×	
Direct link register	Batch	×	×	×	×	×	•	×
	Random						×	
Direct link special relay (network unit side)	Batch	×	×	×	×	×	•	×
	Random						×	
Direct link special register (network unit side)	Batch	×	×	×	×	×	•	×
	Random						×	
Special direct buffer register	Batch	×	×	×	×	×	•	×
	Random						×	
Other station buffer memory	Batch	×	×	×	×	×	×	×
	Random							
Other station random access buffer	Batch	×	×	×	×	×	×	×
	Random							
Other station RX	Batch	×	×	×	×	×	×	×
	Random							
Other station RY	Batch	×	×	×	×	×	×	×
	Random							
Other station link register	Batch	×	×	×	×	×	×	×
	Random							
Other station SB	Batch	×	×	×	×	×	×	×
	Random							
Other station SW	Batch	×	×	×	×	×	×	×
	Random							

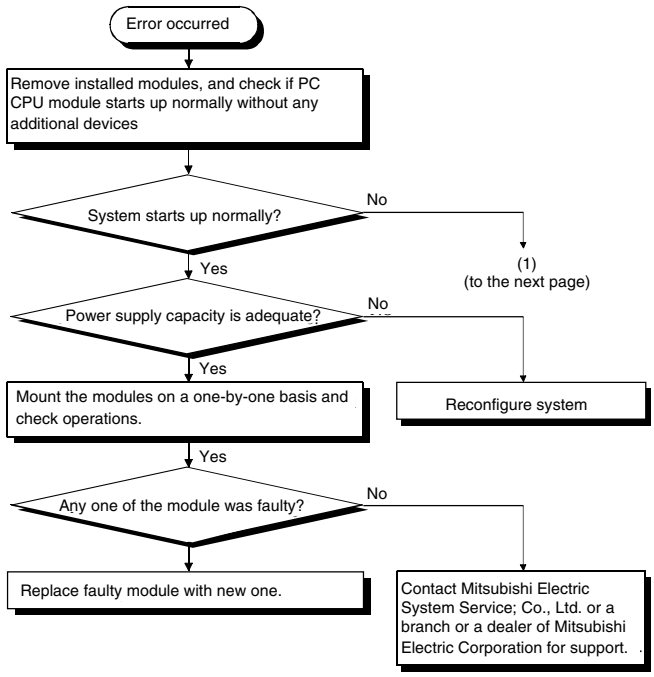
8 Actions against Errors

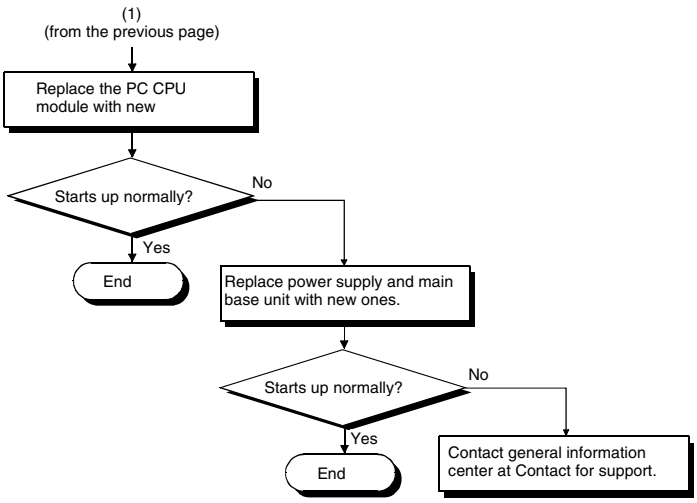
8.1 Case-by-case basis Troubleshooting

Upon occurrence of a trouble, follow the troubleshooting flow on the basis of the table given below:

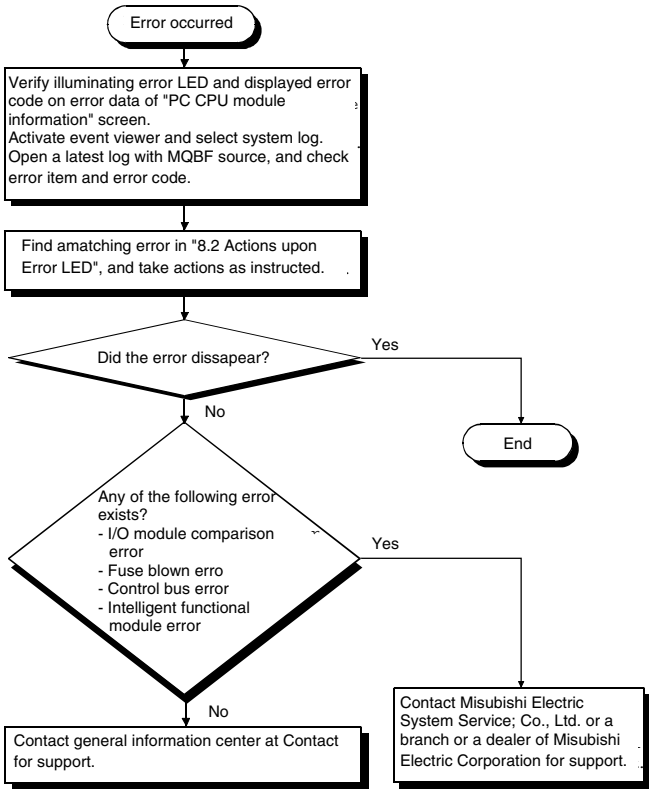
No.	Trouble description	Reference
1	Operation of PC CPU module failed.	Refer to flow (1).
2	PC CPU module operates normally, but an error LED illuminates or blinks.	Refer to flow (2).
3	PC CPU module operates normally and no error LED is turned on. However, an error occurs when user application is executed.	Refer to flow (3).

(1) Flow when PC CPU module fails to operate normally

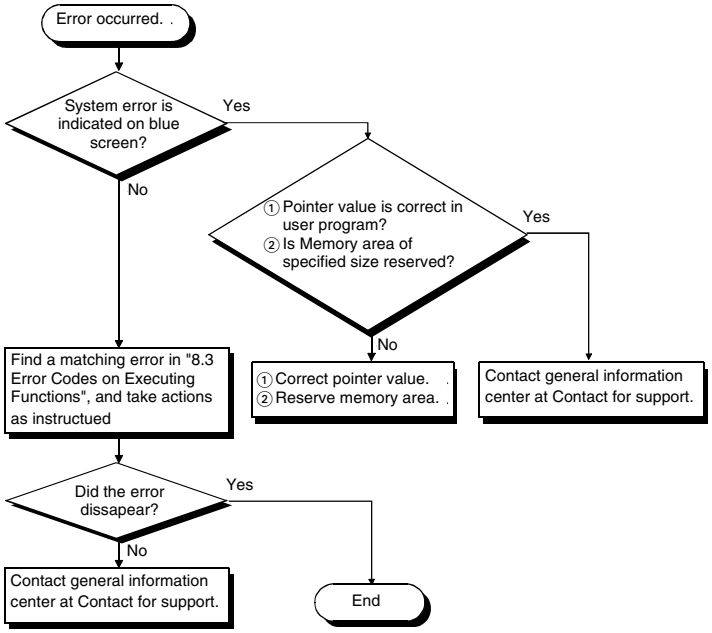




(2) Flow when error LED illuminates or blinks



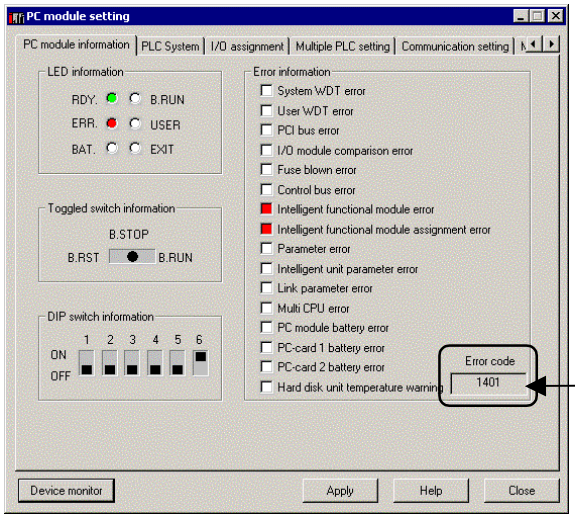
(3) Flow when an error occurs upon execution of function



8.2 Actions upon Error LED

When an error occurs on PC CPU module, an LED of error information illuminates and an error code is displayed on “PC module information” screen of PC CPU module setting utility.
At the same time as the error LED, error information is registered in event viewer.

The following describes errors upon LED illumination and actions against the errors.
(1) Identifying error code
The following describes procedures of identifying error upon illumination of LED.
(a) Identifying on PC CPU module setting utility
An error code is displayed on PC CPU module setting utility “PC module information” screen.
Refer to “(3) Detailed error description and actions” for details and actions of the error.



Error code appears at the same time as error LED illumination.

(b) Event viewer

When an error LED illuminates on PC CPU module setting utility ”PC module information” screen, error information is registered on event viewer.
Refer to “(3) Detailed error description and actions” for details and actions against the error.

1) Starting up event viewer

Start up event viewer by the following procedures:

•On Windows NT Workstation 4.0

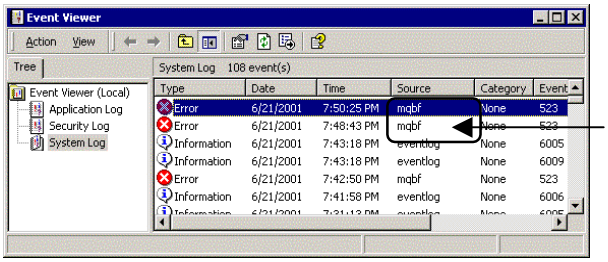
Select [Start] – [Programs] – [Administrative Tools (common)] – [Event Viewer] to display system log.

•On Windows 2000 Professional

Select [Start] – [Settings] – [Control Panel] - [Administrative Tools] – [Event Viewer] to display system log.

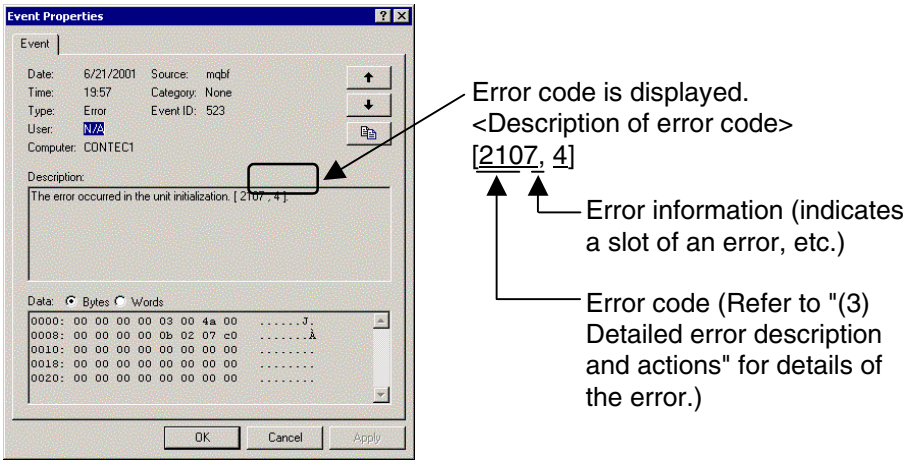
2) Selecting event

An error registered in event viewer is displayed as “mqbf” in “Source” on event viewer.
Select an event with “mqbf” indication to display details of the event.



3) Identifying error code

An error code is displayed at the potion shown below.



Actions by identifying LED and error code
The following shows Error descriptions and actions upon illumination of error LEDs.
Refer to “(1) Identifying error code” for procedures of identifying an error code.
For Error description and actions, identify an error code in the table below and refer to “(3) Detailed error description and actions.”

LED name	Description	Action	Error code
System WDT error	Error occurred on a response from system WDT.	(1) Restart PC CPU module. (2) Ask repair service on PC CPU module	•
User WDT error	Error occurred on a response from user WDT.	(1) Check system loads. (2) Check timeout value of user WDT.	•
PCI bus error	Parity error was detected in PCI bus or PCI bus target board was detected.	(1) Restart PC CPU module. (2) Ask repair service on PC CPU module	•
I/O module check error	An error occurred in diagnosis on installation of I/O module.	(1) Check installation of I/O module. (2) Check for failure on I/O module.	2000
Fuse break error	Fuse break on output module was detected.	Check status of output module.	1300
Control bus error	An error occurred during diagnosis on bus status of base unit.	(1) Restart PC CPU module. (2) Ask repair service on base unit	1412• 1413• 1414• 1415• 1416
Intelligent functional module error	An error occurred in intelligent functional module, or an error occurred in response from intelligent functional module.	(1) Check installation of intelligent functional module. (2) Check a fault in intelligent functional module.	1401• 1403
Intelligent functional module assignment error	An error occurred during diagnosis on I/O assignment of intelligent functional module.	(1) Check installation of intelligent functional module. (2) Check for failure in I/O assignment. (3) Check failure in intelligent functional module.	2100• 2102• 2103• 2106• 2107• 2108• 2120• 2121• 2122• 2124• 2125• 2126
Parameter error	Error occurred in parameter checking between multiple PLC systems.	Check for errors in parameter settings.	2200• 3000• 3001• 3010• 3012• 3100• 3101• 3102• 3103• 3104• 3105• 3107• 3300• 3302• 3303•
PC CPU module battery error	Battery error was detected in PC CPU module.	Replace batteries on PC CPU module.	•
PC card 1 battery error	Battery error was detected in card mounted on PC card slot 1.	Replace batteries on card mounted in PC card slot 1.	1601
PC card 2 battery error	Battery error was detected in card mounted on PC card slot 2.	Replace batteries on card mounted in PC card slot 2.	1602
Hard disk temperature error	Temperature in hard disk exceeded a threshold value.	Turn off the power of PC CPU module and restart the unit after a while.	•

(3) Detailed error description and actions

The following summarizes Error descriptions identified by an error code, actions, and error information.

Error information indicates information indexed by values registered in event viewer.

Error code	Error information	Error description	Action
1300	•	Fuse is broken in an output module.	Verify ERR LED on output modules, and replace module that has illuminating ERR LED.
1301	Unit No.	An instantaneous interruption occurred on power supply, or power supply was turned off.	Check power supply.
1401	Unit No.	(1) No response is returned from intelligent functional module upon updating of initials. (2) Buffer memory size in intelligent functional module is faulty.	Hardware of accessed intelligent functional module is faulty. Contact Mitsubishi Electric System Service; Co., Ltd. or a branch or a dealer of Mitsubishi Electric Corporation for support.
1403	Unit No.	Error was detected in intelligent functional module.	
1412	Unit No.	Execution of FROM/TO instruction is impossible due to control bus failure to intelligent functional module.	Failure of intelligent functional module, PLC CPU, or base unit. Contact Mitsubishi Electric System Service; Co., Ltd. or a branch or a dealer of Mitsubishi Electric Corporation for support.
1413	•	QCPU (Q mode) of function version A was installed.	(1) Remove QCPU (Q mode) of function version A from main base unit. (2) Failure of intelligent functional module, PLC CPU, or base unit. Contact Mitsubishi Electric System Service; Co., Ltd. or a branch or a dealer of Mitsubishi Electric Corporation for support.
		Error was detected on Q bus.	Failure of intelligent functional module, PLC CPU, or base unit. Contact Mitsubishi Electric System Service; Co., Ltd. or a branch or a dealer of Mitsubishi Electric Corporation for support.
1414	Unit No.	Error was detected on installed modules. QCPU (Q mode) of function version A was installed.	(1) Remove QCPU (Q mode) of function version A from main base unit. (2) Failure of intelligent functional module, PLC CPU, or base unit. Contact Mitsubishi Electric System Service; Co., Ltd. or a branch or a dealer of Mitsubishi Electric Corporation for support.
	•	Error was detected on Q bus.	Failure of intelligent functional module, PLC CPU, or base unit. Contact Mitsubishi Electric System Service; Co., Ltd. or a branch or a dealer of Mitsubishi Electric Corporation for support.
1415	Base No.	Error was detected on main base unit or expansion base unit.	Failure of intelligent functional module, PLC CPU, or base unit. Contact Mitsubishi Electric System Service; Co., Ltd. or a branch or a dealer of Mitsubishi Electric Corporation for support.
1416	Unit No.	Bus failure was detected upon turning the power on or upon resetting.	
1500	•	External power supply for output loads was turned off. Or external power supply for output loads is not connected.	Check power of external power supply for output loads.
1601	•	Battery voltage on memory card 1 went down below specified value.	Replace batteries of card mounted on PC card slot 1.
1602	•	Battery voltage on memory card 2 went down below specified value.	Replace batteries of card mounted on PC card slot 2.
2000	Unit No.	On multiple PLC system configuration, QCPU (Q mode) of function version A was installed.	Replace QCPU (Q mode) of function version A with QCPU (Q mode) of function version B.
		I/O module information is different than that upon turning on the power. (Installation status of I/O module was changed during operation, or a module is about to drop off.	Check and replace a module having error.

Error code	Error information	Error description	Actions
2100	Unit No.	A slot with QI60 was specified for a module other than intelligent functional module on parameter I/O assignment.	Specify I/O assignment according to the installation settings.
		(1) On I/O assignment parameters, I/O module was assigned to intelligent functional module, or vice versa. (2) On I/O assignment parameters, CPU module was assigned to other module or specified to idle, or vice versa. (3) General switch setting was performed on a module with no general switch.	(1) Specify I/O assignment according to the installation settings of intelligent functional module or CPU module. (2) Reset general switch settings.
2103	Unit No.	(1) Two ore more QI60s are mounted on single CPU system. (2) Two or more QI61s are mounted on a same control CPU of multiple PLC system.	(1) Mount only one QI60 on single CPU system. (2) Mount only one QI61 on a same control CPU of multiple PLC system.
2106	Unit No.	(1) Five or more MELSECNET/H modules are mounted on multiple PLC system in total. (2) Five or more QJ71E71(-B2) modules are mounted on multiple PLC system in total.	Mount a maximum of 4 units on a total multiple PLC system.
		(1) Five or more MELSECNET/H modules are mounted. (2) Five or more QJ71E71(-B2) modules are mounted. (3) Same network numbers exist on MELSECNET/10 network system.	(1) Limit the number of MELSECNET/H module to 4 or less. (2) Limit the number of QJ71E71(-B2) modules to 4 or less. (3) Check network number and station number.
2107	Unit No.	Start X/Y specified by I/O assignment parameter overlaps with start X/Y of other modules.	Re-specify I/O assignment parameter according to installation status of intelligent functional module.
2108	Unit No.	(1) Network module for A2UCPU (A1SJ71LP21•A1SJ71BR11• A1SJ71AP21•A1SJ71AR21• A1SJ71AT21B) is mounted. (2) Network module for Q2AS (A1SJ71QLP21•A1SJ71QBR11) is mounted.	Change network module into MELSECNET/H module.
2120	•	Alignment of Q•B and QA1S•B is faulty.	Correct alignment of base units.
2121	•	PC CPU module is mounted on other slot than CPU slot or slots 0 though 2.	Check installation slot of PC CPU module, and install the module on a correct slot.
2122	•	QA1S•B is mounted on main base unit.	Change main base unit into Q•B.
2124	•	(1) A module was mounted on a slot later than 65. (2) A module was mounted on a slot later than that specified by base allocation. (3) A module was mounted on later point than I/O point number 4096. (4) A module was mounted across the border of I/O point of 4096.	(1) Remove modules on slot 65 and later. (2) Remove modules mounted on slots later than the number specified by base assignment. (3) Remove modules mounted on point 4096 and later. (4) Replace a last module with one having points that does not exceed 4096.
2125	•	(1) A module that is not recognized by QCPU(Q mode) was mounted. (2) No response is returned from intelligent functional module.	(1) Mount a module that is recognized by QCPU(Q mode). (2) Failure of intelligent functional module, PLC CPU, or base unit. Contact Mitsubishi Electric System Service; Co., Ltd. or a branch or a dealer of Mitsubishi Electric Corporation for support.
2126	Unit No.	CPU modules on multiple PLC system are configured as the following: (1) Empty slot exists between QCPU(Q mode) and QCPU(Q mode)/Motion CPU. (2) Modules other than QCPU(Q mode) module (Motion CPU) is mounted between QCPU(Q mode) modules.	(1) Fill the empty slots between CPU modules. (Make empty slots on the right side of CPU modules.) (2) Remove modules other than QCPU(Q mode) between QCPU(Q mode) modules, and fill the empty slots with QCPU(Q mode) modules. Mount Motion CPUs on the right side of QCPU(Q mode) modules.

Error code	Error information	Error description	Actions
3000	Parameter No.	On multiple PLC system, an intelligent functional module controlled by other machine is specified by interrupt point of parameter.	(1) Specify start I/O number of intelligent functional module controlled by own machine. (2) Delete interrupt pointer settings of parameter.
		Settings such as timer timing value of parameter, RUN-PAUSE contact, common pointer number, general data processing, number of empty slots, and system interrupt setting are not specified within a valid range for CPU.	(1) Read detailed information of the error by peripheral device, check parameter corresponding to the value (Parameter No.), and correct the value. (2) If an error occurs even after correction of parameter, built-in RAM on CPU, or memory on memory card may be faulty. Contact Mitsubishi Electric System Service; Co., Ltd. or a branch or a dealer of Mitsubishi Electric Corporation for support.
3001	Parameter No.	Parameter data has been destroyed.	(1) Read detailed information of the error by peripheral device, check parameter corresponding to the value (Parameter No.), and correct the value. (2) If an error occurs even after correction of parameter, built-in RAM on CPU, or memory on memory card may be faulty. Contact Mitsubishi Electric System Service; Co., Ltd. or a branch or a dealer of Mitsubishi Electric Corporation for support.
3010	Parameter No.	On multiple PLC system, the number of CPU modules specified by parameter is different from actual number of mounted modules.	Make the number of mounted CPUs match (specified number of modules on multiple PLC system) – (CPU (empty) settings of I/O assignment).
3012	Parameter No.	On multiple PLC system, settings of multiple PLC are different from that of reference machine.	Specify multiple PLC settings and control CPU settings in accordance with reference machine (Unit No.1).
3100	Parameter No.	On multiple PLC system, a MELSECNET/H module controlled by other machine is specified as start I/O number of network setting parameter for MELSECNET/H and MELSECNET/10.	(1) Delete network setting parameters of MELSECNET/H and MELSECNET/10 for MELSECNET/H module controlled by other machine. (2) Change the parameter into start I/O number of MELSECNET/H module controlled by own machine.
		Link parameters of MELSECNET/H module operating as normal station were changed into “control station.” Or, link parameters of MELSECNET/H module operating as control station were changed into “normal station.” (Link parameters are reflected on modules upon resetting.)	Reset CPU.

Error code	Error information	Error description	Actions
		(1) The number of modules specified by module number setting parameter for MELSECNET/H and MELSECNET/10 is different from actual number of modules. (2) The start I/O number specified by network setting parameter for MELSECNET/H and MELSECNET/10 is different from actual I/O number of modules. (3) Invalid data exists in parameters. (4) Station type of MELSECNET/H and MELSECNET/10 was changed with the power turned on. (Change of station types require operation of RESET• RUN).	(1) Correct network parameters and then write network parameters. (2) If an error occurs even after correction, hardware failure is suspected. Contact Mitsubishi Electric System Service; Co., Ltd. or a branch or a dealer of Mitsubishi Electric Corporation for support.
3101	Parameter No.	(1) PC-PC network parameters are specified when station number of MELSECNET/H module is “0.” (2) Remote master parameters are specified when station number of MELSECNET/H module is not “0.”	Correct MELSECNET/H module type or station number in parameters according to a system to be used.
		(1) Network number specified by parameter is different from actually installed network. (2) Start I/O number specified by parameter is different from actual number. (3) Network type specified by parameter is different from actual type. (4) Network refresh parameter of MELSECNET/H and MELSECNET/10 is out of range.	Make parameter settings match actual configuration.
3102	Parameter No.	(1) Checking network parameter on MELSECNET/H resulted in an error. (2) Specific parameters for MELSECNET/H and MELSECNET/10 are faulty.	(1) Correct and write network parameters. (2) If an error occurs even after correction, hardware failure is suspected. Contact Mitsubishi Electric System Service; Co., Ltd. or a branch or a dealer of Mitsubishi Electric Corporation for support.
3103	Parameter No.	On multiple PLC system, QJ71E71(-B2) controlled by other machine is specified in start I/O number of Ethernet settings parameter.	(1) Delete the Ethernet settings parameter of QJ71E71(-B2) controlled by other machine. (2) Change the parameter into a start I/O number of QJ71E71(-B2) controlled by own machine.
		(1) Although the number of Ethernet units was specified as one or more, actual number of unit is 0. (2) Start I/O number of Ethernet setting parameter is different from actual I/O number.	(1) Correct and write network parameters. (2) If an error occurs even after correction, hardware failure is suspected. Contact Mitsubishi Electric System Service; Co., Ltd. or a branch or a dealer of Mitsubishi Electric Corporation for support.
		(1) AJ71QE71 does not exist at the I/O number position specified by parameter. (2) Specified I/O No. is overlapping (3) The number of AJ71QE71 modules is different from that specified by parameter. (4) Ethernet setting (parameter + special purpose instruction) is 5 or more.	(1) Correct and write network parameters. (2) If an error occurs even after correction, hardware failure is suspected. Contact Mitsubishi Electric System Service; Co., Ltd. or a branch or a dealer of Mitsubishi Electric Corporation for support.
3104	Parameter No.	(1) An identical network number is used for Ethernet•MELSECNET/H•and MELSECNET/10. (2) Network number, station number, or group number specified by parameter is out of valid range. (3) I/O number is out of valid range of used CPU. (4) Values of Ethernet-specific parameters are invalid.	(1) Correct and write network parameters. (2) If an error occurs even after correction, hardware failure is suspected. Contact Mitsubishi Electric System Service; Co., Ltd. or a branch or a dealer of Mitsubishi Electric Corporation for support.

Error code	Error information	Error description	Actions
3105	Parameter No.	On multiple PLC system, QJ61BT11 module controlled by other machine is specified as start I/O number of CC-Link setting parameter	(1) Delete CC-Link setting parameter of QJ61BT11 controlled by other machine. (2) Change the parameter into start I/O number of QJ61BT11 module controlled by own machine.
		(1) Although the number of CC-Link modules was specified as one or more, the actual number of mounted units is 0. (2) Start I/O number of common parameter setting is different from actual I/O number.	(1) Correct and write network parameters. (2) If an error occurs even after correction, hardware failure is suspected. Contact Mitsubishi Electric System Service; Co., Ltd. or a branch or a dealer of Mitsubishi Electric Corporation for support.
		Ethernet-specific parameters are faulty.	Correct and write the parameters.
3107	Parameter No.	CC-Link parameters are faulty.	Correct and write the parameters.
3300	Parameter No.	Start I/O number of intelligent functional module specified by GX Configurator is different from actual I/O number.	Check parameter settings.
3302	Parameter No.	Parameters of intelligent functional module are faulty.	Correct and write parameters.
3303	Parameter No.	On multiple PLC system, parameters of automatic refresh, etc. have been specified for an intelligent functional module controlled by other machine.	(1) Delete parameters of automatic refresh, etc. specified for an intelligent functional module controlled by other machine (2) Change the data into parameters of automatic refresh, etc. specified for an intelligent functional module controlled by own machine.
7000	Unit No.	(1) CPU failure occurred on a CPU of machine with “system halt” selected by operation mode of multiple PLC system. (2) On multiple PLC system, QCPU (Q mode) of function version A was installed.	(1) Check an error on CPU of the CPU failure, and remove the error. (2) Remove QCPU (Q mode) of function version A from main base unit.
		On a multiple PLC system, a halt error on Unit No.1 prevents start up of other machines (Unit No.2 to 4).	Check a CPU error of CPU failure, and remove the error.
7010	Unit No.	(1) On multiple PLC system, a faulty CPU is mounted. (2) On multiple PLC system, QCPU (Q mode) of function version A was installed. (An error is detected on QCPU(Q mode) of function version B.) (3) On multiple PLC system, Unit No.2 to 4 was reset with the power turned on. (Error occurs only on machine with released resetting.)	(1) Replace faulty machines. (2) Replace machine of function version A with that of function version B.
7020	Unit No.	CPU failure occurred on CPU of a machine with no “System halt” selected on operation mode of multiple PLC system. (Error is detected on a QCPU (Q mode) of other machine than that has CPU failure.)	Check a CPU error of CPU failure, and remove the error.

8.3 Error Codes on Executing Functions

An error code returned when executing md function or bus interface function is directly returned as a return value.
Error information and actions corresponding to the error codes are summarized in the following table.

Return value (HEX)	Error description	Actions
0	Normal termination	•
1	Driver has not been activated. Interrupt number or I/O address overlaps with those of other driver.	Correct an error upon driver activation. Check settings of other drivers.
2	Unit response error. Timeout occurred when waiting for response to action.	Check operating status of accessing station and installation of modules. Retry on application program.
65 (41_H)	Channel error Channel number that has not been registered was specified.	Check channel number.
66 (42_H)	”Already-open” error Specified channel has already been opened.	Open only once.
67 (42_H)	”Already-closed” error Specified channel has already been closed.	Close only once.
68 (44_H)	PATH error A path with line that has not opened was specified.	Specify number of opened path.
69 (45_H)	Process code error. Process code that is not supported was issued.	Issue a process code that is supported.
70 (46_H)	Station number specifying error Specified station number was wrong. A process to be requested on other station was sent to own station. Or, station number is own station (0xFF) and network number is not “0.”	Correct station number specified on application program.
71 (47_H)	“No reception data” error(on requesting RECV) No data was received.	Wait for data reception.
72 (48_H)	Waiting for mode setting Mode has not been specified.	Specify mode.
73 (49_H)	Mode error Other station was requested although a mode other than online was specified.	Specify online mode, or cancel request.
74 ($4A_H$)	Interrupt number error Interrupt number is overlapping with that of other driver.	Check driver settings.
76 ($4C_H$)	Under operation of MGW initial communication.	Retry after a while.
77 ($4D_H$)	Memory reservation error. Memory reservation failed.	Free memory space may be insufficient. Close other applications that are running. Check that the system is operating normally. Restart the system.
78 ($4E_H$)	Timeout error upon mode setting. Mode setting was attempted. However, mode setting failed due to time out.	Check if 2 port memory is overlapping with other option cards, and then restart PC CPU module. PC CPU module is faulty.
79 ($4F_H$)	S/W setting data error Argument parameter of S/W setting is faulty.	Check argument parameter of S/W setting data.
81 (51_H)	Activating channel response error (upon SEND request) Response to SEND request is faulty.	Retry. Check that the system is operating normally. Restart the system.
85 (55_H)	Network channel number error (upon RECV request) Channel number error	Check specified channel number upon RECV request.
90 ($5A_H$)	Default parameter error.	Re-specify default parameter.
100 (64_H)	Accessing to own station or requesting SEND Access request was issued during access attempt to own station.	Retry.
101 (65_H)	Routing parameter error Routing parameter has not been specified.	Correct routing parameter.
102 (66_H)	Data transmission error Data transmission failed.	Restart OS. Reinstall OS. Check hardware.

Return value (HEX)	Error description	Actions
103 (67_H)	Data reception error Data reception failed.	
128 (80_H)	Reading count error The specified number of bytes to read was out of a valid range.	Specify a reading count value within a valid range.
129 (81_H)	Device type error Specified device type is invalid.	Check device type.
130 (82_H)	Device No. error Specified device No. is out of valid range. When bit device is specified, device number is not a multiple of 8 for ACPU or not a multiple of 16 for QnACPU.	Check device number.
131 (83_H)	Device point number error A point number out of device range was specified. When bit device is specified, point number is not a multiple of 8 for ACPU or not a multiple of 16 for QnACPU.	Check size.
132 (84_H)	Writing count error A value out of valid range was specified for the number of bytes to be written.	Specify a number of writing bytes within a valid range.
133 (85_H)	Link parameter error Link parameter was destroyed. Total number of slave stations is “0” in link parameter. Fixed pattern of link parameter was destroyed. Sum check on link parameter was destroyed.	Re-specify link parameters.
136 (88_H)	Random writing set error Value other than 0 thorough 2 was specified for random writing.	Specify value 0 through 2.
137 (89_H)	Cancel processing Next process was requested before completion of a previous process.	Request a process again after completion of a previous process.
210 ($D2_H$)	Disallowed during RUN Request of sequence P shift process was issued during RUN.	Stop CPU and issue a request.
212 ($D4_H$)	Cancel process New process was requested during a process.	Request a process again.
215 ($D7_H$)	Reception data length error Reception data length or byte length exceeds valid range.	Retry. Check cables.
	Requested data buffer length over Length of request data exceeds request data area.	Decrease request data size.
216 ($D8_H$)	Protocol error. Communication procedure is wrong. Request code does not exist.	Check cables. Check hardware.
217 ($D9_H$)	Address error Address is out of accessible range.	Check request data.
219 (DB_H)	Write error Data writing is disallowed.	Check request data.
224 ($E0_H$)	PC No. error Requesting target station does not exist.	Correct station number.
225 ($E1_H$)	Process mode error A process code that cannot be processed by requested ACPU was specified. (Requested ACPU checks.)	Check requested ACPU and process code.
226 ($E2_H$)	Special unit specifying error Specified special unit cannot be processed.	Correct Y No.
227 ($E3_H$)	Other data error Error exists in address, start step, or shift number, etc. in request data.	Correct request data.
228 ($E4_H$)	Link specifying error Process code that cannot be processed by requested station was specified.	Check requested station number and process code.
232 ($E8_H$)	Remote error Keyword did not match in remote RUN/STOP/PAUSE request.	Look for a requesting station that requested remote STOP/PAUSE on target ACPU.
233 ($E9_H$)	Link time over Requested station disconnected link during process.	Restore link.

Return value (HEX)	Error description	Actions
234 (EA_H)	Special unit BUSY Reception buffer capacity was exceeded by transmission of general data. Not ready for data reception.	Retry. Check hardware of special unit.
236 (EC_H)	Requested station BUSY Reception buffer capacity was exceeded by transmission of general data. Not ready for data reception.	Send request when requested station is ready for reception.
240 ($F0_H$)	Link error Requested on station of disconnected link.	Restore link.
241 ($F1_H$)	Special unit bus error. Specified special unit is not ready for processing.	Check installation status of special unit. Check hardware of special unit.
242 ($F2_H$)	Special unit time over No response is returned from specified special unit.	Check installation status of special unit. Check hardware of special unit.
1280 (500_H)	Memory access error in own module.	Replace modules.
1281 (501_H)	Access disallowed on I/O port.	Replace modules.
16386 (4002_H)	Received a request that cannot be processed.	Change requesting target.
16432 (4030_H)	Specified device type does not exist.	Check specified device type.
16433 (4031_H)	Specified device number is out of valid range.	Check specified device number.
16448 (4040_H)	Module does not exist.	Do not request causing error to specified special functional module.
16449 (4041_H)	Device point number is out of valid range.	Check start address and access point number and access existing out-of-range values.
16450 (4042_H)	Specified module is faulty.	Check if specified module is operating normally.
16451 (4043_H)	A module does not exist at specified position.	Check start I/O number of specified module.
19200 ($4B00_H$)	Hardware failure Request was sent to a faulty module.	Check hardware of module.
19203 ($4B03_H$)	Error of unsupported request A request that can be processed was sent to PC CPU module.	Do not send a request causing error to PC CPU module.
-1 ($FFFF_H$)	Path error Specified path is invalid.	Use path pointer returned by mdOpen.
-2 ($FFFE_H$)	Device No. error Specified device number is out of valid range.	Check start device No. of specified device.
-3 ($FFFD_H$)	Device type error Specified device type is invalid.	Check that device type in device type list was used.
-4 ($FFFC_H$)	CPU error Invalid station was specified.	Check status of communicating station. Check specified station number.
-5 ($FFFB_H$)	Size error Device No.• size exceeds device range. Accessed by odd number of bytes. Device No.• size exceeds a range of same block.	Check specified device size. Check device No.• size.
-6 ($FFFA_H$)	Block number error The number of blocks specified by device random read/write of dev[0] is out of valid range.	Check the number of blocks specified by dev[0].
-8 ($FFF8_H$)	Channel No. error Channel number specified by mdOpen is invalid.	Check specified channel number.

Return value (HEX)	Error description	Actions
-11 ($FFF5_H$)	Buffer area insufficient Read area size specified by read data storage array variant is small.	Check reading size and read data storage size.
-12 ($FFF4_H$)	Block error Block number of specified extended file register is invalid.	Check block number (device type) of extended file register.
-13 ($FFF3_H$)	Write protect error Block number of specified extended file register overlaps with write-protected area of memory cassette.	Check block number (device type) of extended file register. Check write-protection switch on memory cassette of access target.
-14 ($FFF2_H$)	Memory cassette error Memory cassette is not mounted on accessed CPU, or wrong memory cassette is mounted.	Check memory cassette on access target.
-15 ($FFF1_H$)	Read area length error Read area size by read data storage array variant is small.	Check reading size and read data storage size.
-16 ($FFF0_H$)	Station number error Specified station number is out of valid range.	Check specified station number.
-17 ($FFEF_H$)	All-station specifying error All stations were specified on a function that does not allow all-station specifying.	Check if function allows specifying all stations.
-18 ($FFEE_H$)	Remote specifying error Code other than specifiable code was specified.	Check specified code.
-19 ($FFED_H$)	SEND/RECV Channel number error Channel number specified by SEND/RECV function is out of valid range.	Specify channel number within valid range (0 to 8).
-21 ($FFEB_H$)	Error occurred in gethostbyname() An error occurred in function “gethostbyname().”	Check that specified host name exists in HOSTS file.
-24 ($FFE8_H$)	Timeout error occurred in select() An error occurred in function “select().”	Check that MGW server service has been activated on server machine. Check normal Ethernet communication with server machine.
-25 ($FFE7_H$)	Error occurred in sendto() An error occurred in function “sendto().”	Check normal Ethernet communication with server machine.
-26 ($FFE6_H$)	Error occurred in recvfrom() An error occurred in function “recvfrom().”	
-28 ($FFE4_H$)	Abnormal response received Abnormal response was received.	
-29 ($FFE3_H$)	Reception data length over Data more than required was received.	
-30 ($FFE2_H$)	Sequence No. error Received sequence number is faulty.	
-31 ($FFE1_H$)	DLL load error Failed in loading DLL required for execution of function.	Reinstall software package.
-32 ($FFE0_H$)	Other task/thread occupies resource, and resource is not released in 30 seconds.	Restart PC CPU module.
-33 ($FFDF_H$)	Access target invalid error Setting of communication target is invalid.	
-34 ($FFDE_H$)	Registry open error Failed in opening registry.	
-35 ($FFDD_H$)	Registry read error Failed in reading registry.	
-36 ($FFDC_H$)	Registry write error Failed in writing registry.	
-37 ($FFDB_H$)	Communication initial setting error Failed in initialization for communication.	Retry. Memory space may be insufficient. Close other applications that are operating. Check that the system is operating normally. Restart the system.

Return value (HEX)	Error description	Actions
-38 ($FFDA_H$)	Ethernet communication setting error Failed in initialization required for Ethernet communication.	Retry. Check that communication target is correctly specified, using utility. Memory space may be insufficient. Close other applications that are operating. Check that the system is operating normally. Restart the system.
-39 ($FFD9_H$)	COM communication setting error Failed in setting required for COM communication.	
-41 ($FFD7_H$)	COM control error Control in COM communication is not performed correctly.	Retry. Check that the system is operating normally. Restart the system.
-42 ($FFD6_H$)	Close error Communication cannot be closed.	
-43 ($FFD5_H$)	ROM operating error Writing TC setting value was attempted onto PLC CPU under ROM operation.	Change TC setting value under RAM operation.
-44 ($FFD4_H$)	GX Simulator communication setting error Failed in setting required for GX Simulator communication.	Retry. Check that communication target is correctly specified, using utility. Memory space may be insufficient. Close other applications that are operating.
-45 ($FFD3_H$)	Ethernet control error Control in Ethernet communication is not performed correctly.	Retry. Check that the system is operating normally.
-50 ($FFCE_H$)	Open path maximum value over The number of opened paths exceeds maximum value (32).	Close some paths.
-51 ($FFCD_H$)	Exclusive control error Error occurred in exclusive control.	Retry. Check that the system is operating normally.
-201 ($FF37_H$)	Unit identifier error Specified unit identifier is invalid.	Check specified unit identifier.
-202 ($FF36_H$)	Path error Specified path is invalid.	Use path returned by QBF_Open.
-203 ($FF35_H$)	Device No. error Specified device No. is out of valid range.	Check specified device No.
-204 ($FF34_H$)	Device size error Device No.• size exceeds valid range of device.	Check device size. Check device No.• size.
-205 ($FF33_H$)	Slot No. error Specified slot number is out of valid range.	Check specified slot No.
-206 ($FF32_H$)	Program execution type error Specified program execution type is out of valid range.	Check specified program execution type.
-207 ($FF31_H$)	System WDT error System WDT error occurred.	Change monitoring time of system WDT. Check if any software is occupying CPU.
-208 ($FF30_H$)	Offset error Specified offset is out of valid range.	Check specified offset.
-209 ($FF2F_H$)	Buffer memory size error Offset + size is out of valid range.	Check specified buffer memory size. Check offset + size.
-210 ($FF2E_H$)	Read area size error Read area is too small.	Check read size. Check read area size.
-211 ($FF2D_H$)	WDT interval time setting error WDT interval time is out of valid range.	Check specified WDT interval time.
-212 ($FF2C_H$)	Control bus error Control bus of intelligent functional module is faulty.	Check mounting status of intelligent functional module. Replace intelligent functional module or base unit.
-213 ($FF2B_H$)	Intelligent functional module down No response from intelligent functional module is returned.	Check mounting status of intelligent functional module Replace intelligent functional module.
-214 ($FF2A_H$)	Intelligent functional module error Access was attempted to a position with no intelligent functional module.	Check specified I/O No. Check mounting status of intelligent functional module.
-215 ($FF29_H$)	Intelligent functional module assignment error I/O assignment of intelligent functional module is faulty.	Check I/O assignment settings. Check mounting status of intelligent functional module.
-216 ($FF28_H$)	I/O module check error Error occurred in I/O module checking.	Check mounting status of I/O module.
-217 ($FF27_H$)	Driver has not been activated.	Check if driver has been activated.

Return value (HEX)	Error description	Actions
-218 ($FF26_H$)	Already-open error Open process was executed twice.	Check if opening process was executed twice.
-219 ($FF25_H$)	Program No. error Specified program number is out of valid range.	Check specified program No.
-220 ($FF24_H$)	WDT type error Specified WDT type is out of valid range.	Check specified WDT type.
-221 ($FF23_H$)	AC power supply instantaneous interruption X input was performed during instantaneous interruption of AC power supply.	Perform X input after completion of instantaneous interruption.
-222 ($FF22_H$)	Reset error Reset was performed during access to buffer memory.	Retry access to buffer memory.
-223 ($FF21_H$)	Memory reservation error. Failed in memory reservation.	Check that sufficient memory is available.
-224 ($FF20_H$)	LED setting value error Specified LED setting value is out of valid range.	Check specified LED setting value.
-225 ($FF1F_H$)	Event No. error Specified event No. is out of valid range.	Check specified event No.
-226 ($FF1E_H$)	Fuse break error Output module with broken fuse exists.	Replace fuse of a module of broken fuse.
-227 ($FF1D_H$)	Control code sending error Failed in sending control code.	Reinstall OS.
-228 ($FF1C_H$)	Bus initialization error Error occurred upon bus initialization.	Replace PC CPU module or base unit.
-231 ($FF19_H$)	Event timeout error Timeout occurred within event waiting time.	Specify longer timeout value.
-232 ($FF18_H$)	CPU unit number specifying error Specified CPU unit number is wrong.	Change specified CPU unit number.
-234 ($FF16_H$)	Event waiting error An error other than timeout occurred during event waiting time.	Check if a program has been terminated forcibly.
-475•-3839 ($F101_H$• $FE25_H$)	Refer to Q-mode ready MELSECNET/H network system reference manual (PC-PC network).	Refer to Q-mode ready MELSECNET/H network system reference manual (PC-PC network).
-2174 ($F782_H$)	Requested station specifying error Own station number was specified as requested station number.	Check requested station number.
-2175 ($F781_H$)	Requested network No. error Network No. of requested target station is wrong.	Check requested network No.
-16386• -20222 ($B102_H$• $BFFE_H$)	Refer to Q-mode ready CC-Link system master local unit user' manual (detailed edition).	Refer to Q-mode ready CC-Link system master local unit user' manual (detailed edition).
-18558 ($B782_H$)	Requested station number specifying error Own station number was specified as requested station number.	Check requested station number.
-25056 ($9E20_H$)	Requested module received a request that cannot be processed.	Do not send request other than mdType Read to other station PC board.
-26334 (9922_H)	Module reset error Other task using the same channel performed module resetting during access to other station.	Retry access to other station.
-26336 (9920_H)	Routing to other loop was performed on MELSECNET/H module.	Change routing request target into AnUCPU•QnACPU•or QCPU.
-28151 (9209_H)	APS NO error (Invalid response data was received.)	Change device of requesting target.
-28156 (9204_H)	Shared memory switching error	Remove other CC-Link module and MELSECNET/H module. Replace the modules.
-28158 (9202_H)	WDT error	Restart PC CPU module.

8.4 Error Event Message List on Driver Activation

The following summarizes description and actions against errors displayed on event viewer.

Return value (HEX)	Error description	Actions
256 (100_H)	Execution of driver failed due to an error upon startup of driver.	Reinstall software package. If an error occurs again, reinstall OS.
257 (101_H)	Module is not mounted or I/O address overlaps with that of other hardware.	Change I/O address setting of module.
258 (102_H)	No response from hardware.	Replace modules.
259 (103_H)	Modules exceeding maximum numbers allowed for mounting were detected.	Remove modules exceeding a maximum number of modules allowed.
262 (106_H)	Linking of device name failed.	Reinstall OS.
268 ($10C_H$)	Error occurred in reception process.	Check PLC and PC programs that request process on PC CPU module.
269 ($10D_H$)	Error occurred in transmission process.	
270 ($10E_H$)	Error occurred in interrupt process.	Reinstall OS.
271 ($10F_H$)	Error occurred in UNLOAD process.	
272 (110_H)	Error occurred in StartIO process.	
273 (111_H)	Error occurred in critical section.	
274 (112_H)	Error occurred in IoTimer process.	
275 (113_H)	Error occurred in IoCompletion.	
276 (114_H)	Error occurred in DPC process.	
277 (115_H)	Error occurred when opening registry database.	
278 (116_H)	Error occurred when reading data from registry database.	
279 (117_H)	Error occurred when writing data in registry database.	Increase capacity of system memory and disk.
280 (118_H)	Request that cannot be processed is received from other station.	Check request from other station.
282 ($11A_H$)	Failed in mapping of I/O port.	I/O port is overlapping with other resource. Remove an overlapping module.
283 ($11B_H$)	Shared memory area of a module is overlapping with that of other hardware.	Remove an overlapping module.
284 ($11C_H$)	IRQ of a module is overlapping with that of other hardware.	
285 ($11D_H$)	Module detected abnormal temperature. Operation may be faulty.	Place PC CPU module in environment under appropriate temperature.
286 ($11E_H$)	Failed in reservation of memory area required for driver startup.	Increase system memory.
288 (120_H)	WDT error occurred.	Remove other modules.
289 (121_H)	Failed in handshaking of shared memory area.	Reset PC CPU module. If an error occurs again, replace PC CPU module.
291 (123_H)	Failed in mapping of shared memory area.	Remove other modules.
293 (125_H)	Failed in registering interrupt.	

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